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Asthma treatment pathway, procedural cart inventory list, central venous catheter insertion checklist, and acute heart failure evaluation and treatment algorithm

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Will your next emergency patient obtain a hospital-acquired infection?

(Editor's note: This is a two-part series on prevention of hospital-acquired infections in the ED. This month's issue provides information on avoiding infections when invasive procedures are performed, reducing the risk of infection with peripheral IV insertion, using alternatives to invasive procedures, giving central line education to ED nurses, and decreasing the use of central lines and urinary catheters. Next month, we'll cover how to determine if your patient has arrived at the ED with an infection, tips for cleaning the equipment you use, and strategies to improve compliance with hand hygiene.)

You are the first person to place an intravenous (IV) line or insert a Foley catheter in a critically ill patient. Could your carelessness cause a dangerous complication for your patient later in the hospital stay?

"The *last* thing we want to have happen is for a patient to develop a hospital-acquired infection as a result of our hasty process," says **Mary M. Pelton, RN, CEN**, an ED nurse at Carteret General Hospital in Morehead City, NC. "It is of the *utmost* importance to have in mind how we, as emergency nurses, can prevent infection in patients that we provide interventions on."

The first step for ED nurses is to "acknowledge that you have the ability to make or break the chain of infection for the patient," says **Hillary Mitchell, RN**, clinical coordinator for the ED at Methodist Hospital of Sacramento (CA). "You are the first poke, the first tube placement, or the first contamination that

EXECUTIVE SUMMARY

Clinical practices by emergency nurses can prevent patients from obtaining hospital-acquired infections. To reduce risks when invasive procedures are performed in the ED:

- Always wear gloves when accessing any peripheral or central venous access port.
- Obtain urine samples on incontinent patients using straight catheterization instead of indwelling catheters.
- Attempt to insert a peripheral intravenous line instead of a central line.
- Limit Foley catheter insertion to certain key populations.

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can lead to a hospital-acquired infection.”

The ED is the “starting gate,” says **Amy Tyler, RN, BSN, CEN**, staff development specialist for the ED and clinical decision unit at Christiana Care Health System in Wilmington, DE. “Infection acquired in the ED will affect the course of the patient’s illness. It may permanently affect their general health.”

Every emergency nurse must “take responsibility for the care and outcomes” of all patients, “regardless of whether they are a septic patient or a simple laceration,” Mitchell says. “Don’t discount the impact the ED practice standards can have on outcomes for the patient who is admitted to the hospital.” Here are clinical practices to reduce risks of hospital-acquired infections in your ED:

• **Insist on sterile technique.**

At Tufts Medical Center in Boston, ED nurses use a checklist for preventing Central Line-Associated Bacteremia (CLAB) during central line insertion. This documents that appropriate precautions are taken during the line insertion to maintain sterile technique.

[The checklist used by ED nurses is included with the online version of this month’s ED Nursing. For assistance, contact customer service at (800) 688-2421 or customerservice@ahcmedia.com.]

“At any point in time during the insertion of a central line, if a nurse witnesses that sterile technique is broken, they notify the practitioner inserting the line,” says **Alexandra Penzias, RN, MEd, MSN, CEN**, clinical nurse educator for the Department of Emergency Medicine. “The procedure is halted until sterile technique can be ensured.”

When inserting a urinary catheter, cleanse the perineum with 10% aqueous solution of povidone-iodine using the device supplied, says Mitchell. “Do a single attempt insertion of the catheter,” she says. “If it is accidentally inserted into the vagina on female patients, a new catheter should be obtained and utilized.”

• **Use chlorhexidine gluconate-impregnated dressings.**

These dressings are known to reduce the risk of CLAB. Penzias says. “They are placed over the insertion site,” she says. “They allow visibility of the site and only need to be changed every seven days.”

• **Prepare skin appropriately before venipuncture or starting an IV line.**

Cleanse skin in an outward circular motion, says Mitchell. “Allow the skin to dry with the desired prep solution on it, as indicated by the manufacturer of the solution,” she says. “Insertion technique should be such that the gloved finger of the nurse does not touch the site, to avoid contamination.”

• **Clean and dress decubitus ulcers appropriately.**

“Clean from the inner wound to the outer boundaries to avoid contamination of the central wound by outside skin flora,” says Mitchell. “Utilize a hospital-approved skin cleaner to remove dry or dead tissue. Then, cover the wound with a dressing that will promote healing and reduce additional contamination.”

• **Always wear gloves when accessing any peripheral or central venous ports.**

Swab the ports that are to be accessed with alcohol/chlorhexidine solution pads to disinfect, says Mitchell. “Use only new, sterile syringes and tubing to avoid contamination,” she says. (See related stories on peripheral IV insertion, alternatives to invasive procedures, p. 39, central line education for ED nurses, p. 39, and reducing the use of central lines and urinary catheters, p. 40.) ■

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Use these tips for peripheral IV insertion

Mary M. Pelton, RN, CEN, an ED nurse at Carteret General Hospital in Morehead City, NC, gives these recommendations for ensuring aseptic technique with peripheral intravenous (IV) insertion:

- **Cleanse the skin liberally with ChloroPrep.**

“This is a proven way to prevent infection,” says Pelton. “Prepackaged IV start packs with ChloroPrep in the kit can ensure its use. Be aware of debris, and ensure its removal prior to IV insertion.”

- **Consider your insertion site.**

“If the patient is flexing his elbow frequently, do your best to avoid that site,” says Pelton. “Avoid extremities that already have sores, swelling, or injuries present.”

- **Before initiating an IV, consider the purpose and extent of that IV to avoid multiple attempts.**

“For example, a young patient receiving IV fluids will do well with a large bore antecubital site if you anticipate fluid resuscitation and discharge,” says Pelton. “However, an elderly patient who you anticipate will be admitted will do well with a forearm site. There is less chance of infiltration or removal, due to no joint involvement.” ■

NPSG requires *you* to obtain education on central lines

Emergency department is not off the hook

Has your ED implemented The Joint Commission’s requirements to prevent health-care associated infections? As of Jan. 1, 2010, you need to be in full compliance with this National Patient Safety Goal (NPSG), but ED nurses might be disregarding the important role they play in meeting this goal.

“The ED is a stopping point for most patients on their way to the floors, units, or home,” says **Hillary Mitchell**, RN, clinical coordinator for the ED at Methodist Hospital of Sacramento (CA). “Practices consistent with NPSG compliance are sometimes let go, for the sake of moving onto the next critical patient presenting to the triage desk.”

The NPSG requires you to prevent central line-associated bloodstream infections, and it requires that *everyone* involved in these procedures be educated about this topic.

Rhonda Morgan, RN, MSN, CEN, CNRN, CCNS, APN, vice president of clinical services and former emergency department director at Wellmont Health System in Kingsport, TN, says, “Many central lines

CLINICAL TIP

You might *not* need invasive procedure

Consider these alternatives to invasive procedures when appropriate, says **Amy Tyler**, RN, BSN, CEN, staff development specialist for the ED and Clinical Decision Unit at Christiana Care Health System in Wilmington, DE:

- Instead of inserting a nasogastric (NG) tube to deliver activated charcoal, provide emotional support and encouragement or add flavoring.
- Obtain a urine sample on an incontinent patient using straight catheterization, rather than inserting an indwelling catheter.
- Ask your most skilled nurse try to insert a peripheral intravenous line before resorting to a central line. ■

are placed, accessed, and cared for in the ED. Many organizations already have this in place for inpatient areas, but it is no longer an option. It must reach *all* areas in which these procedures take place.”

Morgan advises EDs to implement the Institute for Healthcare Improvement’s central line “bundle” to meet the NPSG requirement. This bundle gives practices for hand hygiene, optimal site selection, maximal sterile barrier technique, chlorhexidine skin prep, and evaluation for line necessity. **(For more information about this tool, go to www.ihl.org. Select “Topics” and “Critical Care.” On the right side of the page, select “Central Line Bundle.”)**

“Don’t deviate from evidence-paced practice, guidelines, and bundles,” Morgan says. “Make these hardwired actions and standard practice.”

Additionally, The Joint Commission guidelines call for a standardized cart that includes all necessary equipment and all sterile barrier supplies. “This creates consistency and accessibility in a ‘one-stop shopping manner,’” says Morgan.

At Tufts Medical Center in Boston, ED nurses use a dedicated central line cart. “This contains all of the supplies necessary for the insertion of a central line, including all precautionary gear — mask, gown, gloves, hair and shoe coverings,” says **Alexandra Penzias**, RN, MEd, MSN, CEN, clinical nurse educator for the Department of Emergency Medicine. **[The list of the cart’s contents is included with the online version of this month’s *ED Nursing*. For assistance, contact customer service at (800) 688-2421 or customerservice@ahcmedia.com.] ■**

Insert ‘many fewer’ central lines, catheters

They’re often not necessary

U rinary catheters often are inserted in the ED to obtain a urine specimen or for bladder drainage and measurement; however, in some cases, they are inserted *too* often.

Not all patients who are incontinent need an indwelling catheter, according to **Mary M. Pelton**, RN, CEN, an ED nurse at Carteret General Hospital in Morehead City, NC. “Straight catheterization for a urine sample will prevent the occupation of the catheter, which can be a medium for bacteria growth,” says Pelton. “It is not above an ED nurse to frequently assess the patient for incontinence and provide pericare. Indwelling catheters should be considered when

monitoring of intake and output is *essential* to good nursing care. “

However, says **Hillary Mitchell**, RN, clinical coordinator for the ED at Methodist Hospital of Sacramento (CA), “in the ED, many times a patient who is incontinent of urine and/or stool will have a catheter placed for the convenience of the nurse. It allows the nurse to not have to go in and help the patient utilize the bedpan or assist them with getting to the bedside commode. Not only is this invasive procedure not necessary, sterile technique is compromised in the name of time.”

ED nurses need to *stop* inserting urinary catheters in a nonindicated situation, says **Rhonda Morgan**, RN, MSN, CEN, CNRN, CCNS, APN, vice president of clinical services and former emergency department director at Wellmont Health System in Kingsport, TN. “Urinary tract infections account for 32% of hospital-acquired infections,” she says. “Many of these are related to indwelling urinary catheters.”

Morgan says indications for a urinary catheter are obstruction or gross hematuria, urological diagnostic studies or surgery, neurogenic bladder, Stage 3 or 4 sacral decubiti in the incontinent patient, palliative care at the patient’s request, and close monitoring for urinary output.

Indwelling urinary catheters are *not* indicated for incontinence, immobility, obtaining urinary specimens, or usual monitoring of urinary output, says Morgan. “The practice of inserting many fewer urinary catheters in the ED will be a practice change, but one that will positively impact this very common health-care-acquired infection,” she says.

Limit to sickest patients

At Tufts Medical Center’s ED in Boston, Foley catheter insertion is limited to certain key populations. These are trauma patients, critical care patients, and patients requiring bladder irrigation.

“We have limited the insertion of Foley catheters to only our sickest patients requiring hourly monitoring of urine output. And, we have removed the insertion and removal of Foley catheters from the scope of the technician and returned it to the hands of nursing,” says **Alexandra Penzias**, RN, MEd, MSN, CEN, clinical nurse educator for the Department of Emergency Medicine.

In addition, a physician order is required for Foley catheter insertion, and only nurses who have demonstrated competency are permitted to insert catheters.

Fewer patients are receiving urinary catheters due to increased risk of urinary tract infections, says **Stephen R. Francz**, RN, BSN, clinical manager of the ED at AtlantiCare Regional Medical Center City Campus in

Atlantic City, NJ. However, fewer urinary catheters means the more frequent use of a bedpan, he says. For example, elderly patients who present in heart failure with limited mobility and poor skin turgor who are receiving diuretics to initiate diuresis require the use of a bedpan frequently, Francz says. "This requires additional nursing resources and assistance," he says. "In a situation like this, the emergency care team adjusts by reallocating staff to an area to assist a patient with frequent needs."

At AtlantiCare's ED, Foley catheters and central lines are used primarily for patients who present in shock and those who need end organ perfusion measurement, large volumes of fluids, or blood products. "We also use the catheters to measure the effectiveness of fluid resuscitation," says Francz.

Morgan says that a central line is indicated for administration of medications not recommended for a peripheral line, total parental nutrition, hemodynamic monitoring, repeated administration of blood products, poor peripheral access, and administration of sclerosing agents. "Central lines are *not* indicated for convenience of the health care provider or intermittent medication administration," she says.

At Signature Healthcare Brockton (MA) Hospital, the frequency of central lines placed in the ED has decreased significantly. "There is a significant decrease in the use of femoral lines altogether," **Kate Mac Kinnon**, RN, CEN, nurse manager for emergency services. "Infection rates are closely monitored and shared with staff." ■

With narcotics, avoid potentially fatal mistake

ED nurses gave 2 mg of intravenous (IV) hydromorphone to a 40-year-old man with severe throat pain. After two additional doses were given in an inpatient unit, the man suffered respiratory arrest. He was resuscitated, but sustained permanent central nervous system impairment and died.¹

High initial doses of opiates *might* be appropriate for cancer patients; patients who use high-dose narcotics at home; chronic pain patients; and patients with acute fractures, dislocation, or trauma, says **Leigh Ann Schmidt**, RN, BSN, nurse manager of the ED at Hospital of the University of Pennsylvania in Philadelphia. However, some patients are at higher risk for problems. These patient at risk include those with allergies to analgesics such as morphine, hydromorphone, and meperidine, says **Ramazan Bahar**, RN, an ED nurse at St.

EXECUTIVE SUMMARY

If high initial doses of opiates are administered, patients could be at risk for respiratory arrest. To reduce risks:

- Ask if patients have taken intravenous pain medication previously.
- Look for transdermal pain patches.
- Medicate morbidly obese patients based on ideal body weight.
- Assess older patients for impaired renal and hepatic function.

Joseph's Regional Medical Center in Paterson, NJ.

"The elderly are at high risk, due to other chronic medical problems which alters the body's ability to metabolize the medication. Also, polypharmacy may cause reactions with IV analgesics," says Bahar. "Narcotics should be used with caution in patients with severe asthma, chronic obstructive pulmonary disorder, and hepatic dysfunction." To reduce risks of IV pain medications:

- **Ask the right questions.**

Before giving narcotics, Schmidt says to ask these two questions: Does the patient have any allergies? And if the patient had this situation before, what helped with the pain previously?

Also ask if your patient has a history of drug addiction. **Colleen Claffey**, RN-BC, MSN, CEN, CPEN, an ED nurse educator at Jackson North Medical Center in North Miami Beach, FL, says, "That would indicate an individual may have a high tolerance to opiates. Patients with chronic medical issues such as sickle cell disease or significant injuries may also warrant large doses of pain medications."

- **Before giving an IV pain medication, ask if the patient has ever taken that particular drug in the past.**

Bahar says, "If so, ask the patient to identify how they reacted and if there were any complications. This gives you a good baseline to work from."

- **Be ready for an emergency.**

Knowing where the crash cart is located and its application are essential. Claffey says. "Providing supplemental oxygen or bag valve mask maneuvers may be indicated," she says. "Certainly, knowledge of the opiate reversal [naloxone] and its implications is critical."

- **Perform frequent reassessments.**

Schmidt says, "Guard against breakthrough pain by keeping a schedule of reassessment of pain and medication administration."

Achieving a pain score of zero might not be a realistic goal. You might have to settle for achieving a level of pain that is acceptable to the patient, particularly for patients with longstanding pain issues, Claffey says.

- **Don't hesitate to question orders.**

At Jackson North's ED, a resident wrote an order for 10 mg of morphine for a 7-year-old child, instead of 1.0 mg. "Fortunately, the nurse questioned the order, and the patient was not harmed. Clearly, this was a near miss," says Claffey. "Depending upon the condition of the child, a sentinel event may have resulted if proper monitoring had not occurred. If something doesn't sound right, don't do it."

- **Monitor your patient closely.**

Watch for respiratory depression, nausea/vomiting, change in mental status, and hypotension, as well as local reactions such as phlebitis at the injection site or generalized urticaria, after administering IV pain medications, Bahar says.

"During administration, place the patient on a cardiac monitor along with pulse ox and noninvasive blood pressure monitoring," he says. "Monitor the patient's reaction for up to five minutes. Do a full set of vitals post-administration." (See related stories on **transdermal pain patches, below right; pain assessments, right; initial interventions for pain, p. 43, and IV pain medications, p. 43.**)

SOURCES

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Reference

1. Institute for Safe Medication Practices. Too much hydromorphone. *ISMP Medication Safety Alert! Nurse Advise-ERR* 2009; 7:1. ■

Don't ignore these factors in your pain assessment

Until the underlying cause of your patient's pain is clear, it can be dangerous to give escalating doses of narcotics, warns **Lisa Wolf**, RN, CEN, clinical assistant professor at University of Massachusetts — Amherst's School of Nursing and former nurse educator for the ED at South Nassau Communities Hospital in Oceanside, NY.

Wolf says to ask these questions: Is the pain acute or chronic? What is the location? Is it radiating? Is the

CLINICAL TIP

Look for transdermal patches on patients

Due to a change in mental status, a patient was sent to St. Joseph's Regional Medical Center's ED in Paterson, NJ, from a local skilled rehabilitation center with a blood pressure of 70/40, a heart rate of 48, and a respiratory rate of 9. The triage nurse noted that the patient had multiple comorbidities and was obese. Also, the man was on several pain medications, including a transdermal pain patch.

"The case was immediately brought to the attention of the ED attending physician, as the patient's baseline vitals were starting to fall," reports **Ramazan Bahar**, RN, an ED nurse at the hospital. "The ED nurse immediately removed the transdermal patch and suggested to the attending that the patient may have overdosed on analgesia." After the appropriate dose of naloxone was administered by the ED nurse, the patient's vitals improved.

"The patient's condition was monitored for a few more hours, with another dose of naloxone administered," says Bahar. "The patient's condition improved greatly. He was discharged back to the transferring health care facility." ■

pain increasing, or was it maximal at the onset?

“It makes no sense to treat the pain as separate from the underlying cause,” says Wolf. “Focusing solely on relieving the pain rather than discovering its cause can lead to a delay in diagnosis and definitive treatment.”

Here are three other factors to consider:

- **Vital signs.**

This gives you an indication of potential problems and a baseline to monitor physiologic signs of pain and its resolution. “If hypertension and tachycardia are the physiologic reaction to pain, then as pain is managed, these vital signs should come back closer to expected parameters,” says Wolf.

- **Body size.**

Patients who are morbidly obese must be medicated based on ideal body weight and watched carefully for signs of respiratory distress. “The morbidly obese patient may also lose their airway faster and be a more difficult intubation because of the soft tissue in the neck area,” says Wolf. “It is critical to monitor the patient who is morbidly obese with appropriately sized equipment. Blood pressure measures are very important, and so a large cuff is needed.”

- **Your patient’s age.**

“The very old and the very young are particularly susceptible to overdose,” warns Wolf. Because pediatric patients are medicated by weight, you must double check any medication given to a pediatric patient, she says. “Pull out your calculator and do the math, then have another nurse repeat the calculation,” Wolf says. “The consequences of a missed decimal point in this population are catastrophic.”

Impaired renal and hepatic function in older patients can cause medication to be metabolized more slowly, says Wolf, so look for clinical signs of renal impairment such as edema, oliguria, and a history of taking erythropoietin. “The patient may give a history of end stage renal disease, renal insufficiency, diabetes, or tell you he or she is on dialysis,” she adds.

Consequences of inefficient drug metabolism can include a toxic buildup of the drug, says Wolf. “Adjustments usually include using smaller, less frequent doses of medications,” she says. ■

Consider these drugs for initial intervention

When deciding on an initial intervention for pain management, consider the following about these options, says **Lisa Wolf**, RN, CEN, former nurse educator for the ED at South Nassau Communities Hospital

CLINICAL TIP

Start with low dose of IV pain meds

When in doubt, begin with a lower dose of intravenous pain medications, says **Colleen Claffey**, RN-BC, MSN, CEN, CPEN, ED nurse educator at Jackson North Medical Center in North Miami Beach, FL.

“For instance, an emaciated, elderly patient may have an order for 2 mg of morphine. But starting with 1 mg is a good approach,” Claffey says. “Remember that you can always give more, but you cannot take away.” ■

in Oceanside, NY:

- **A nonsteroidal anti-inflammatory drug (NSAID).**

An NSAID might make pain manageable until more definitive treatment is available or before moving to opiates, especially if the pain is migraine-like or suspected renal colic. However, Wolf notes that NSAIDs can increase bleeding, “so understand the etiology of your patient’s pain.”

- **Morphine.**

“If narcotic pain medication is ordered, morphine administered intravenously in doses of 2 to 4 mg is inexpensive and effective,” says Wolf. Morphine is now dispensed in “carpu-jets” of 2 mg, 4 mg, and 10 mg per 1 mL, so double-check the dosage as you remove the medication from its dispenser, she notes.

“Morphine can cause significant respiratory depression,” warns Wolf. “Patients given frequent or larger doses should be carefully monitored for both respiratory rate and effort, as well as expired carbon dioxide.”

Morphine also can cause a “histamine flush,” which can be frightening for the patient, and can drop blood pressure, she says. “This common side effect is why it is very important to have baseline vital signs prior to administration,” says Wolf. “For example, if the nurse is medicating a patient for pain associated with a myocardial infarction, depending on the location of the cardiac injury the patient can be hypotensive.”

- **Fentanyl.**

“This has distinct advantages for use in the emergency department,” says Wolf. The drug’s short half-life allows for frequent re-evaluations between doses,

and it causes almost no increase in histamine release and minimal drop in blood pressure, she explains.

“Meperidine has been the traditional opioid of choice in biliary tract disease because it causes less sphincter of Oddi spasm,” notes Wolf. “However, the incidence of adverse central nervous system effects, including seizures, have led many to caution against its use under any circumstance. It is not often used anymore.” ■

Perform these interventions for congestive heart failure

Nurses should use standing orders

Congestive heart failure (CHF) patients often wait too long to seek medical treatment and arrive in the ED in an acutely exacerbated state, says **Eileen Swailes**, RN, nurse manager of the ED overflow unit at Good Samaritan Hospital Medical Center in West Islip, NY.

“Delayed recognition of acute events results in a more complicated length of stay and increases the chances of mortality,” says Swailes. Here are three ways to speed care of CHF patients:

- **Recognize signs and symptoms.**

“To avoid a delay in treatment for this population, it is imperative the ED nurse recognizes the signs and symptoms of CHF,” says Swailes. In addition to shortness of breath, CHF patients may present with lower extremity edema, chest pain, cough, exhaustion, irregular heartbeats, or palpitations, she says.

Have the same index of suspicion for CHF whether the patient arrives via triage or ambulance, says **Jennifer Zanotti**, MS, RN, CEN, CCRN, ED clinical nurse specialist at Ronald Reagan University of California Los Angeles (UCLA) Medical Center. Zanotti

EXECUTIVE SUMMARY

Congestive heart failure (CHF) patients often arrive in the ED in an acutely exacerbated state, which complicates their care. To reduce treatment delays:

- Watch for lower extremity edema, chest pain, cough, exhaustion, and irregular heartbeats or palpitations.
- Bring patients to a treatment room before taking a lengthy medical history and documenting medications.
- Have patients compare current shortness of breath or dyspnea with their baseline.

SOURCES

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says to look for dyspnea, orthopnea, fatigue, abdominal discomfort secondary to ascites or hepatomegaly, edema that is dependent, jugular venous distention, bilateral crackles, and S3 heart sound. “Recognize the patient populations at risk, then work to discover the primary precipitating event for heart failure,” she says.

While your patient’s CHF might be chronic and a symptom of underlying heart damage, it also might be a result of problems from a valve, acute coronary syndromes, hypertension, fever, acute respiratory distress syndrome, or certain medications, says Zanotti.

- **Use standing orders.**

Madonna Scatena, RN, MSN, advanced practice nurse for the ED at Advocate Christ Medical Center in Oak Lawn, IL, says, “Standing orders are very useful in the ED setting, so the patient can be rapidly assessed and treated.” If ED nurses at Advocate Christ suspect CHF, the patient is placed on a cardiac monitor, oxygen, and an intravenous (IV) site is started.

“Care should not be delayed in triage by taking a long medical history and documenting an extensive list of medications. This can be done at a later time,” she says. “The CHF patient should be brought directly to the treatment room where care can be instituted without delay.”

Ronald Reagan — UCLA's ED is working on a process for early identification of CHF, says **Johanna Bruner**, MS, RN, FNP, director of cardiology services. "Early recognition translates to earlier intervention and better patient outcomes," she says. "The ultimate long-term goal is to shorten length of stay and prevent readmission."

The triage nurse gives the patient an EKG within 10 minutes, followed by a chest X-ray. "Then, they grab the attention of the ED physician or a nurse practitioner, to get the proper medications started quickly," says Bruner. "The quicker you begin treatment, the sooner the load on the heart is reduced."

- **Consider the patient's baseline.**

Zanotti says, "Patients with heart failure may also have other medical issues which can cloud recognition initially. "History is important. Is this an acute or chronic problem?"

If the problem is chronic, she says to "get a feeling of where the patient is vs. their baseline. Have the patient rate their shortness of breath or dyspnea to gauge where they are, based on their personal best. This also helps to know if interventions are working for the patient's symptom control." (See related stories on immediate interventions for CHF, below, subtle signs of CHF, p. 46, and use of nitroglycerine, p. 46.) ■

Must-do interventions for your next CHF patient

Cyanotic and unable to speak, unaware of her surroundings, barely responsive, with severe difficulty breathing. That was the condition of a 76-year-old female brought to the ED at Good Samaritan Hospital Medical Center in West Islip, NY.

"On arrival, physical inspection revealed bilateral pitting and peripheral edema to her lower extremities that had progressed to her groin," says **Eileen Swailes**, RN, nurse manager of the ED overflow unit. "Her pulse oximetry on room air was 82%." These steps were taken:

- Oxygen was administered via 100% nonrebreather.
- After the arterial blood gas results, the patient was placed on continuous positive airway pressure (C-PAP). "Her color began to improve immediately," says Swailes. "Intubation was considered, but it was decided to give the interventions a few minutes to take effect."
- Two large-bore intravenous (IV) lines were placed, and baseline blood work was drawn, including a brain natriuretic peptide level.
- Furosemide 100 mg was administered intravenously, and nitroprusside was hung at 10mcg/kg/min and titrated

to blood pressure.

- A EKG and stat portable chest X-ray were done, which showed bilateral infiltrates.
- Auscultation of lung fields revealed bilateral lower lung field diminished breath sounds.
- The patient was monitored closely as the nitroprusside was titrated every few minutes. "As the blood pressure came down slowly, the [furosemide] began to take effect," says Swailes. "Over the course of an hour, her mental status improved. She was able to identify that she was in a hospital, but could not recall what had happened to her."

- The woman's respiratory status continued to improve. After a second arterial blood gas, she was removed from the C-PAP and placed on a venti-mask.

"The patient was admitted and continued to improve, although over the course of the next few days she became anemic and required a blood transfusion," says Swailes. "The family and patient agreed that the patient was non-compliant in managing her chronic CHF and that the lack of family support would increase the likelihood of this event occurring again. She was discharged to a nursing home and continues to do well there."

Immediate interventions

Obtaining a room air pulse oximetry, administering supplemental oxygen as needed, obtaining IV access to offload the fluid overload, obtaining baseline lab work, and administering diuretics. These things should *all* be done immediately for a CHF patient, says Swailes.

"The dose of the diuretic should be a higher dose than the patient is currently taking at home. It should be administered IV," adds Swailes. Here are other steps to take:

- **Call for a stat chest X-ray, arterial blood gas, and EKG.** "Morphine can be given for anxiety, especially for those with accompanied high blood pressure," says Swailes.
- **Consider use of vasodilators.** "Vasodilators such as [nitroprusside] lower blood pressure quickly and reduce preload and afterload. But these *cannot* be given to patients with acute CHF accompanied by reduced peripheral vascular resistance," says Swailes.

Patients who also present with high blood pressure should receive vasodilators *as well as* diuretics. "The irregular heartbeats may be a result of low cardiac output. In this case, inotropic agents would be beneficial," says Swailes.

- **Obtain an actual weight.**
- **Place the patient on dietary sodium restrictions.**
- **Perform good discharge planning.**

"This includes follow-up in the community, as well as a nutrition consult in the ED," says Swailes. "This

CLINICAL TIP

Titrate nitroglycerine more aggressively

Nitroglycerine should be titrated aggressively in your congestive heart failure patient, says **Madonna Scatena**, RN, MSN, advanced practice nurse for the ED at Advocate Christ Medical Center in Oak Lawn, IL.

“Many ED nurses seem to be reluctant to do this,” she says. “The goal is a drop in the mean arterial pressure of 20% from the initial value. This requires frequent monitoring of the blood pressure and heart rate.” ■

should be done as soon as the patient is well enough to understand the information.” ■

Suspect CHF even with this vague complaint

A gradual progression of exertional dyspnea might not make you suspect congestive heart failure (CHF) immediately, but don't rule this condition out if your patient presents this way.

A 78-year-old man reported this condition to ED nurses at Clarian West Medical Center in Avon, IN. He added that he had been diagnosed with pneumonia two weeks ago, but was doing well on current treatment. He had no history of chronic obstructive pulmonary disorder (COPD) or CHF.

However, “a prompt nursing assessment was a key component to a quick diagnosis of CHF” for this patient, reports **Caroline Lynn**, BSN, RN, FNE, SANE, shift coordinator for the ED. ED nurses noted a mild increase in respiratory rate and effort, a pulse oximeter oxygen saturation of 84, scattered crackles to all lung fields per auscultation, and a complaint of generalized weakness. The patient immediately was placed on a cardiac monitor, a bedside EKG was completed, and a chest X-ray was ordered. A complete blood count, basic metabolic panel, troponin, and brain natriuretic peptide were obtained.

“The patient's complaints were vague, and he did not demonstrate any marked peripheral edema,” Lynn

recalls. “A quick diagnosis was made, due in part to our streamlined algorithm. The patient was admitted and discharged four days later.” [The algorithm used by ED nurses is included with the online version of this month's *ED Nursing*. For assistance, contact customer service at (800) 688-2421 or customer service@ahcmedia.com.] ■

Half of ED asthma patients receive delayed meds

You might be waiting for a physician to order the appropriate steroid for your asthma patient, or you might have difficulty prioritizing due to a heavy patient load. Either way, a delay in treatment is the result, says **Kathleen Patrizzi**, MSN, RN, CEN, an ED nurse at Penn Presbyterian Medical Center in Philadelphia.

“There may also be a lack of recognition that giving the steroids as soon as possible is just as important as the bronchodilator,” Patrizzi adds.

More than half (51%) of 2,559 acute asthma patients in 62 urban EDs seen in 2003 through 2006 waited more than an hour to be given systemic corticosteroids, says a new study.¹ Patients older than 40 and females were more likely to have delayed care.

The first-line therapy for an asthma exacerbation should be a bronchodilator; specifically, it should be an inhaled beta₂-agonist such as albuterol, says **Carlos A. Camargo**, MD, DrPH, one of the study's authors and an associate professor of medicine at Harvard Medical School in Boston. In addition, most patients

EXECUTIVE SUMMARY

More than half of acute asthma patients waited more than an hour to be given systemic corticosteroids, with females and patients over age 40 more likely to have delayed care, says a study of 2,559 patients. To improve care:

- consider systemic corticosteroids for all patients who present with an asthma exacerbation;
- develop a treatment guideline that includes the decision about systemic corticosteroids right after the initial evaluation;
- use a treatment pathway to guide care of asthma patients based on peak flow results, lung sounds, vital signs, and observed response to medications.

who present to the ED with an asthma exacerbation *should* be given systemic corticosteroids. “The sooner patients receive this treatment, the better. Be sure they are at least considered for all patients who present to the ED with an asthma exacerbation,” says Camargo.

Develop a treatment guideline that includes the decision about systemic corticosteroids right after the initial evaluation, he recommends. “For most patients, it’s possible to decide right then, and as a result, for patients to get systemic corticosteroids within minutes of that initial evaluation,” Camargo says.

At Penn Presbyterian, ED nurses use a treatment pathway to guide care of asthma patients based on results of peak flow, lung sounds, vital signs, and observed response to medications. **[The treatment pathway used by ED nurses is included with the online version of this month’s *ED Nursing*.]**

“Unless the patient is having an asthma exacerbation so severe that they require intubation, nursing care of asthma patients is guided by our asthma pathway,” says Patrizzi. “Using the protocol, the nurse can make faster decisions regarding how care should proceed.”

Each step of the protocol involves notification of the attending ED physician or nurse practitioner caring for the patient to avoid nurses performing outside their scope of practice, she notes. “Objective methods of assessment guide nurses to what steps they should take,” Patrizzi says. “This ensures that patients are provided with the appropriate standard of care.”

Reference

1. Tsai C, Rowe BH, Sullivan AF, et al. Factors associated with

SOURCES

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

- **Carlos A. Camargo, MD, DrPH**, Associate Professor of Medicine, Harvard Medical School. E-mail: ccamargo@partners.org.
- **Kathleen Patrizzi, MSN, RN, CEN**, Emergency Department, Penn Presbyterian Medical Center, Philadelphia. Phone: (215) 662-8225. E-mail: Kathleen.Patrizzi@uphs.upenn.edu.

delayed use or nonuse of systemic corticosteroids in emergency department patients with acute asthma. *Ann Allergy Asthma Immunol* 2009; 103:318-324. ■

Sepsis screening is success for the ED

ED nurses at the University of Kansas Hospital in Kansas City answer this question about every patient using an electronic medical record (EMR): “Does the patient have two or more systemic inflammatory response syndrome criteria?” If the nurse answers “yes,” the next question is, “Does the patient have any organ dysfunction?” A “yes” response prompts the question, “Is the patient showing signs of infection?”

“If all of these are answered affirmatively, the nurse is prompted to start the sepsis protocol order set and notify the physician so that appropriate treatment can be started,” says **Brian W. Selig, RN, BSN, MHA, CEN, NE-BC**, ED nurse manager. “This has helped us to better identify the patient population presenting with sepsis and start treatment much earlier. As a result, we have dramatically lowered our mortality rates from sepsis for patients in the ED.”

The proactive screening has proven to be a significant success, Selig says. “The screening questions in

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.

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

COMING IN FUTURE MONTHS

■ Which stroke patients are *not* included in expanded tPA window

■ Take action to prevent ventilator-associated pneumonia

■ How to obtain 100% hand hygiene compliance

■ Tips for identifying an adolescent intent on self-harm

our EMR help prompt the nursing staff so they don't forget to look at those criteria on every patient that they see," he says. "Because of this, we have been able to identify possible sepsis patients who might have otherwise slipped through the system." ■

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 of the following is *not* an indication for central line placement?
 - A. Administration of medications not recommended for a peripheral line.
 - B. Hemodynamic monitoring.
 - C. Repeated administration of blood products.
 - D. Intermittent medication administration.
 6. Which is recommended regarding the use of intravenous pain medications in the ED?
 - A. Never administer high initial doses of opiates to cancer patients.
 - B. Always have a goal of a pain score of zero.
 - C. Remember that impaired renal and hepatic function in older patients can cause medication to be metabolized more slowly.
 - D. Medicate morbidly obese patients based on actual body weight.
 7. Which is recommended to improve care of congestive heart failure (CHF) patients in the ED?
 - A. Have a higher index of suspicion for CHF if the patient arrives by ambulance.
 - B. Always document medications *before* patients are brought to the treatment room.
 - C. Give vasodilators to patients with acute CHF accompanied by reduced peripheral vascular resistance.
 - D. Give *both* vasodilators and diuretics to CHF patients presenting with high blood pressure.
 8. Which is true regarding care of asthma patients in the ED?
 - A. The first-line therapy for an asthma exacerbation should be a bronchodilator — specifically, an inhaled beta₂-agonist such as albuterol.
 - B. The vast majority of asthma patients should *not* be given systemic corticosteroids.
 - C. Treatment guidelines should *not* include a decision about systemic corticosteroids right after the initial evaluation.
 - D. For most patients, it is *not* possible to make a decision about whether systemic corticosteroids will be administered right after the initial evaluation.

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

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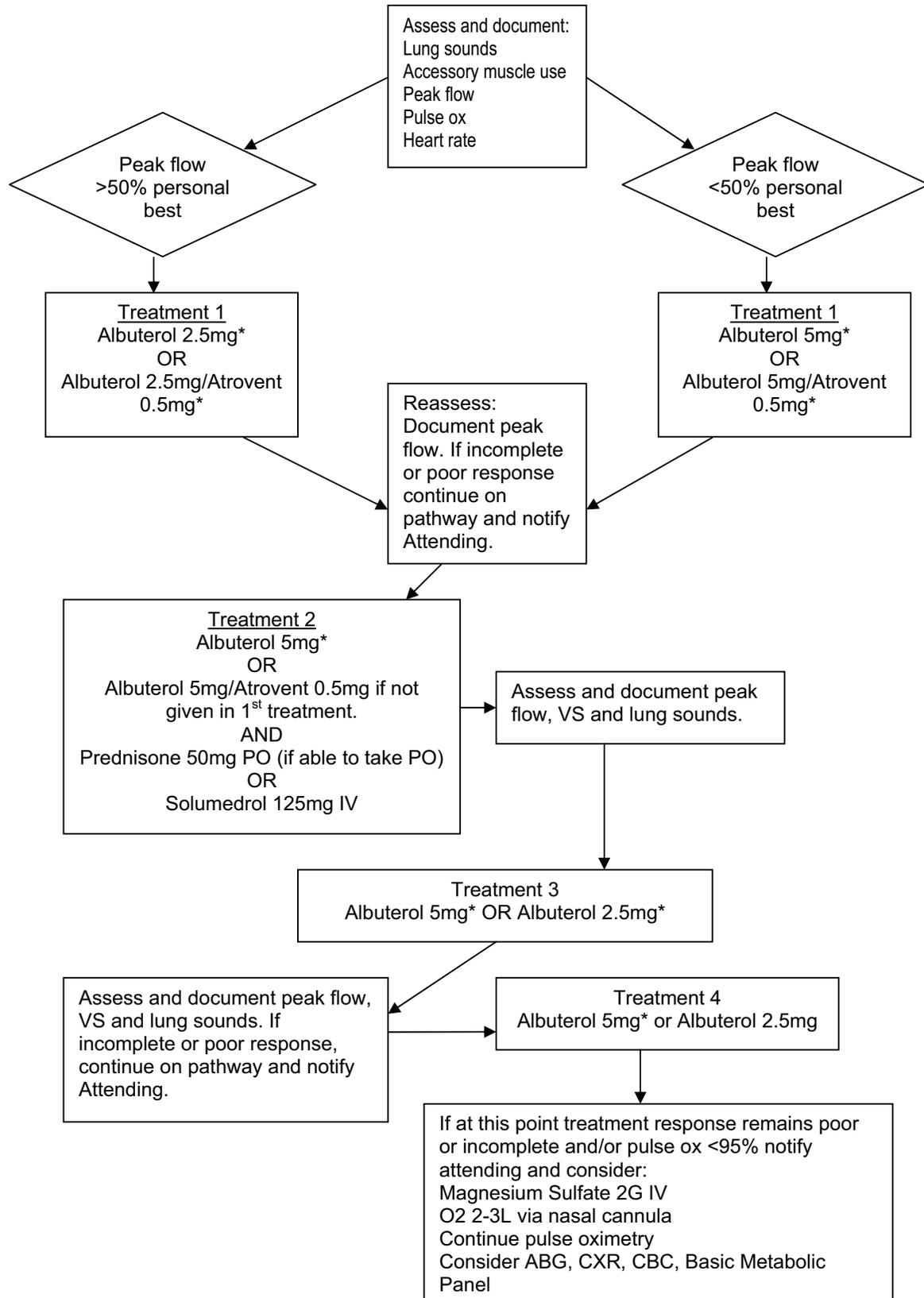
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PPMC Department of Emergency Nursing Asthma Treatment Pathway



Source: Penn Presbyterian Medical Center, Philadelphia.

Tufts Medical Center
Non-ICU Procedure Cart Inventory List

| | | | | | |
|---|--|--|--|--|--|
| Date | | | | | |
| Initials | | | | | |
| Drawer #1 | | | | | |
| Central Line Dressing Kit (3) #152910 | | | | | |
| Surgicel (2) #175114 | | | | | |
| Micro-clave Connector (10) #900122 | | | | | |
| Red Cap (5) #701935 | | | | | |
| 18 gauge needle (5) #159811 | | | | | |
| 25 gauge needle (5) #36366 | | | | | |
| 10ml Syringes (5) #176822 | | | | | |
| Sterile Cup (2) #40075 | | | | | |
| 1" Silk Tape (3) #179304 | | | | | |
| 3" Silk Tape (3) #17305 | | | | | |
| 3-0 Curved Needle (6) #176102 | | | | | |
| Single 4x4 Gauze (6) #170913 | | | | | |
| Large Kerlix (2) #101903 | | | | | |
| Lubricating Jelly (5) #831251 | | | | | |
| Checklists (8) | | | | | |
| Drawer #2 | | | | | |
| Arm Board (1) #100462 | | | | | |
| Chloraprep (6) #93064 | | | | | |
| Sterile NS Flush (9) #176622 | | | | | |
| Ultrasound Sleeve (3) * | | | | | |
| Sterile Scissors (2) #175422 | | | | | |
| Suture Remover Kit (2) #923074 | | | | | |
| Pack 4x4 Gauze Sponges (4) #170920 | | | | | |
| Drawer #3 | | | | | |
| Sterile O.R. Towel (5) #103115 | | | | | |
| Sterile Half Drape (3) * | | | | | |
| Sterile Field (4) #181245 | | | | | |
| Disposable Chux (3) #186802 | | | | | |
| Drawer #4 | | | | | |
| Sterile Gown (5) #920287 | | | | | |
| S, M, L Sterile Gloves (5 pair of each) | | | | | |
| Face Mask with Shield (5) #154467 | | | | | |
| Bouffant Caps (5) #157647 | | | | | |
| Drawer #5 | | | | | |
| Radial Artery Catherization Kit (3) #112845 | | | | | |
| A-line Safe Set (2) #100668 | | | | | |
| 500cc Normal Saline Bag (1) #701395 | | | | | |
| Pressure Bag (1) (obtain from ICU) | | | | | |
| Drawer #6 | | | | | |
| Spring-Wire Guide (3) #100053 | | | | | |
| Multi-lumen CVC (3) #906763 | | | | | |
| Multi-lumen Venous CVC Kit (3) #100059 | | | | | |
| All supplies are on each units supply cart unless indicated by a (*) in which it is an outside order or otherwise stated | | | | | |

Source: Tufts Medical Center, Boston.

**CENTRAL VENOUS CATHETER
INSERTION CHECKLIST**

Date: ____/____/____

Start Time (military):_____

Name(s) of physician operator and assistants:

Before the procedure, monitor for operator & assistants:

| | yes | corrective action taken (specify) |
|--|--------------------------|-----------------------------------|
| Central Line Cart brought to designated area | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| Time Out performed | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| Hands sanitized | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| Site prepared with Chloraprep (use povidone-iodine for those allergic to chlorhexidine) | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| Patient draped | <input type="checkbox"/> | <input type="checkbox"/> _____ |

Throughout the procedure, monitor for operator & assistants:

| | | |
|---|--------------------------|--------------------------------|
| Sterile gloves worn & sterility of hands and equipment maintained | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| Hat, mask and sterile gown worn | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| Sterile field maintained | <input type="checkbox"/> | <input type="checkbox"/> _____ |

Insertion site: (check one)

- SC
 IJ
 Femoral
 Other _____

Device type: (check one)

- Triple lumen
 Hemodialysis
 Introducer
 PICC
 Other _____

Stop Time (military):_____ (defined as exit site covered with dressing)

After the procedure:

| | ordered | not required (femoral lines) |
|---------------|--------------------------|------------------------------|
| X-ray ordered | <input type="checkbox"/> | <input type="checkbox"/> |

Signature and credentials

Date

Above guidelines are recommended practice but do not supersede physician professional judgment.

149776 (7/1/09) (Rev. 4) 5921

Source: Tufts Medical Center, Boston.

Acute Heart Failure Evaluation and Treatment

