ED NURSING™

A MONTHLY CLINICAL UPDATE ON EMERGENCY NURSING

June 2010: Vol. 13, No. 8
Pages 85-96

IN THIS ISSUE

■ Early anticoagulants can be life-saving for your patient . . . cover

■ Get an EKG for suspected myocardial infarction in just three minutes 65

■ How to tell if it's a stroke or just appears to be one 66

■ Why you'll be seeing more weight training injuries in the emergency department 67

■ Be sure that other members of the staff are aware of an infectious patient 68

■ Act early to dramatically reduce deaths from sepsis. 70

■ **Enclosed in this issue:**
End of semester survey for CNE subscribers

Statement of Financial Disclosure: **Stacey Kusterbeck** (Author), **Coles McKagen** (Executive Editor), **Joy Daughtery Dickinson** (Senior Managing Editor), and **Darlene Bradley** (Nurse Planner) report no consultant, stockholder, speaker's bureau, research, or other financial relationships with companies related to this field of study.

AHC Media LLC

Give anticoagulants early in ED: You'll reduce PE mortality rates

Would your acute pulmonary embolism (PE) patient always receive anticoagulants in the ED? Or does this occur only after the patient is upstairs on the floor? Your answer might impact that patient's outcome.

Giving the drug in the ED decreases mortality rates, according to research from the Rochester, MN-based Mayo Clinic, which studied 400 ED patients diagnosed with acute PE by CT angiography.[1] Patients who received heparin in the ED had lower in-hospital and 30-day mortality rates, compared to those given heparin after admission.

"PE should be included in the differential diagnosis of most cases of acute dyspnea presenting to the ED," says **Timothy I. Morgenthaler,** MD, one of the study's authors and associate chair of the Department of Medicine at Mayo Clinic. "To the extent that PE is thought possible, the evaluation should not be delayed. If PE is thought likely, treatment ought to be started when it is thought of, rather than waiting for all evaluations and admission to be completed."

Samuel Z. Goldhaber, MD, director of the VTE Research Group in the Cardiovascular Division of Boston-based Brigham and Women's Hospital, says, "ED nurses have unique opportunities to reduce the death rate from acute pulmonary embolism." First, you might suspect PE when others don't. "Other ED providers may have been led astray and are working to rule out myocardial infarction or treat congestive heart failure," says Goldhaber. "Remind other members of the care team if PE has been inadvertently overlooked."

NEXT MONTH: CARING FOR ELDERLY IN THE ED

The July 2010 issue of *ED Nursing* will be a special issue on caring for elder emergency patients. We'll report on the latest statistics and research on elders in EDs and tell you how to meet the unique needs of elder stroke, seizure, and psychiatric patients. We'll give strategies to reduce risks involved with medication interactions, traumatic brain injuries, assessment of vital signs, and handoffs in elders. Our tips will help you avoid liability and provide the best possible patient care. Don't miss this special coverage in *ED Nursing*!

Goldhaber says that a D-dimer blood test usually should be obtained if the diagnosis of PE is "a reasonable possibility."

Secondly, as soon as the diagnosis of PE is established on an imaging test, you should insist that full dose anticoagulation be ordered right away, Goldhaber says. He gives these three options for this:

— intravenous (IV) unfractionated heparin bolus followed by continuous infusion;

— full dose low molecular weight heparin, such as enoxaparin 1 mg/kg every 12 hours or dalteparin 100 U/kg every 12 hours in patients with normal renal function,

— full dose fondaparinux (5 mg for weight < 50 kg, 7.5 mg for weight 50 to 100 kg, or 10 mg for weight > 100 kg in patients with normal renal function.

"Don't wait for the 'floor team,' to whom the patient will eventually be admitted, to administer the anticoagulant," says Goldhaber. "With hospitals being so overcrowded these days, the ED nurse may have to continue ensuring adequate anticoagulation for 12, 24, or even 36 hours until a bed becomes available upstairs." *(See clinical tip for assessment of PE, p. 63.)*

EXECUTIVE SUMMARY

You have an opportunity to reduce death rates from acute pulmonary embolism (PE) by administering anticoagulants in the ED as soon as the diagnosis is made. Other practices to improve care:

- Always consider PE in elderly patients with cardiopulmonary co-morbidities.
- Remind others if a potential PE is overlooked.
- Use nursing protocol orders to speed care.

Order sets speed care

Because PE patients present with a multitude of chief complaints, ED nurses use nursing protocol orders for some of these symptom presentations, such as chest pain and dyspnea, to speed care. [The protocols used by ED nurses are included with the online version of this month's *ED Nursing*. For assistance, contact customer service at (800) 688-2421 or customerservice@ahcmedia.com.]

Caroline Lynn, BSN, RN, FNE, SANE, shift coordinator for the ED at Clarian West Medical Center, Avon, IN, says, "With our protocol orders in place, patients care is expedited based upon the chief complaint."

In the case of a 57-year-old white female with sudden stabbing right-sided chest pain with radiation to the right back region, the ED nurse quickly implemented standing orders for chest pain. "The pain was associated with shortness of breath while at rest," says Lynn.

The patient's medical history included Parkinson's disease and limited mobility. Her heart rate was 120, with all other vital signs stable. ED nurses performed these interventions:

— An EKG was completed within 10 minutes.

— The patient was placed on 2 liters of oxygen per nasal canula and placed on a cardiac monitor.

Subscriber Information
Customer Service: (800) 688-2421 or Fax (800) 284-3291. World Wide Web: http://www.ahcmedia.com. E-mail: customerservice@ahcmedia.com.

Subscription rates: U.S.A., one year (12 issues), $299. Add $17.95 for shipping & handling. Outside U.S., add $30 per year, total prepaid in U.S. funds. Discounts are available for group subscriptions, multiple copies, site-licenses or electronic distribution. For pricing information, call Tria Kreutzer at 404-262-5482. Missing issues will be fulfilled by customer service free of charge when contacted within 1 month of the missing issue date. Back issues, when available, are $37 each. (GST registration number R128870672.)

ED Nursing® (ISSN# 1096-4304) is published monthly by AHC Media LLC, 3525 Piedmont Road, N.E., Six Piedmont Center, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

POSTMASTER: Send address changes to ED Nursing®, P.O. Box 740059, Atlanta, GA 30374-9815.

AHC Media LLC is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This activity has been approved for 10 nursing contact hours using a 60-minute contact hour.

Provider approved by the California Board of Registered Nursing, Provider # 14749, for 10 Contact Hours.

This activity is authorized for nursing contact hours for 24 months following the date of publication.

ED Nursing® is intended for emergency department nurse managers, supervisors, unit managers, and quality assurance personnel.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

Editor: Stacey Kusterbeck.
Executive Editor: Coles McKagen (coles.mckagen@ahcmedia.com).
Director of Marketing: Schandale Kornegay.
Senior Managing Editor: Joy Daughtery Dickinson (joy.dickinson@ahcmedia.com).
Production Editor: Ami Sutaria.

AHC Media LLC

Editorial Questions
For questions or comments, call Joy Daughtery Dickinson at (229) 551-9195.

— A 20 g peripheral IV catheter was started in the antecubital region.

— Blood work was obtained, including a cardiac troponin level and prothrombin time/international normalized ratio (PT/INR).

"Nitroglycerin and morphine were immediately given for chest pain, with relief noted. Heart rate decreased to 90," says Lynn. "The EKG showed no abnormalities. Lab studies were normal."

Based on this information, enoxaparin 1mg/kg was given subcutaneously. A chest CT with contrast was ordered, and a PE was diagnosed. The patient was admitted for continued anticoagulopathy treatment with enoxaparin and warfarin.

Be proactive

If a PE is suspected, but not yet diagnosed, ED nurses take these actions immediately:

— A large bore IV is placed in the antecubital region.

— At the time of the IV start, blood tubes are drawn for routine cardiac/pulmonary labs, including a PT/ INR.

— Enoxaparin generally is administered at 1mg/kg subcutaneously in the ED.

— A chest CT with contrast is ordered.

"The ED nurse streamlines the patient care process by completing a thorough and ongoing nursing assessment," says Lynn.

ED nurses quickly identified the possibility of PE based on a 27-year-old man's clinical presentation and history. He presented with a chief complaint of severe right lower leg pain, and reported a four-hour car trip a few days earlier. "A deep vein thrombosis was diagnosed to right femoral vein per ultrasound," says Lynn.

Based on these findings, a routine chest CT with contrast was performed, despite the patient's denial of any chest pain or dyspnea. PE was diagnosed.

Enoxaparin was administered at 1mg/kg subcutaneously and continued as inpatient therapy with warfarin. "The patient was placed on a cardiac monitor and closely watched for any clinical changes or deterioration," says Lynn.

SOURCES

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

- **Samuel Z. Goldhaber**, MD, Director, VTE Research Group, Cardiovascular Division, Brigham and Women's Hospital, Boston. Phone: (857) 307-1932. E-mail: sgoldhaber@partners.org.
- **Caroline Lynn**, BSN, RN, FNE, SANE, Shift Coordinator, Emergency Department, Clarian West Medical Center, Avon, IN. Phone: (317) 217-2789. E-mail: clynn@clarian.org.
- **Timothy I. Morgenthaler**, MD, Department of Medicine, Mayo Clinic, Rochester, MN. Phone: (507) 284-3764. Fax: (507) 266-4372. E-mail: tmorgenthaler@mayo.edu.

REFERENCE

1. Smith SB, Geske JB, Maguire JM, et al. Early Anticoagulation is associated with reduced mortality for acute pulmonary embolism. Published online before print Jan. 15, 2010. Doi: 10.1378/chest.09-0959. ■

CLINICAL TIP

Don't overlook PE in these patients

Pulmonary embolism (PE) is less likely to be considered in elderly patients with multiple other cardiopulmonary co-morbidities, says **Timothy I. Morgenthaler**, MD, associate chair of the Department of Medicine at Mayo Clinic.

"Unfortunately, these are patients who are also at risk for PE, so the diagnosis should probably be more liberally considered," Morgenthaler says. ■

STEMI guidelines put you front and center

ED nursing actions are key

You're probably the first person to see the 12-lead EKG of a patient with a possible ST-elevation myocardial infarction (STEMI). In addition, you're probably the one who initiates

your ED's STEMI protocol, says **Jean McSweeney**, PhD, RN, FAHA, FAAN, a member of the Mission: Lifeline Advisory Working Group, the American Heart Association (AHA)'s STEMI initiative.

Newly updated guidelines from the American College of Cardiology/AHA put a spotlight on ED nurses, as they focus on quick timing of assessment, quick diagnosis of STEMI, and activation of protocols.[1]

"Use of specific order sets, checklists, tool kits, and clinical pathways ensure adequate documentation that is easily retrievable for review and audit purposes," adds McSweeney. *(For some examples, go to www.americanheart.org/missionlifeline. Click on "Mission: Lifeline Summary Table." Scroll down and click on "POE protocols" and also click on "Reperfusion Checklist.")*

Because STEMI protocols are time-driven, to ensure the patient receives transfer to the cardiac catheterization lab and restoration of blood flow in less than 90 minutes, "nurses must be familiar with the protocol and how to activate it rapidly according to their hospital policy," says McSweeney.

At Kaweah Delta Medical Center in Visalia, CA, all ED nurses are trained to perform 12-lead EKGs. "We do not depend on other ancillary departments to perform this function," says **Dave Sanbongi**, RN, prehospital EMS coordinator in the ED. "Our standard is a maximum of 10 minutes from patient arrival time to the 12-lead EKG being handed to a physician for review." Here is how ED nurses meet this goal:

- **Staff are trained on the importance of rapidly obtaining a 12-lead EKG with immediate physician review.**

"Our clinical education department offers 12-lead EKG interpretation classes," says Sanbongi. "ED nurses can attend this course free of charge."

- **Any patient who presents with suspected cardiac chest pain is brought immediately to a room.**

The registration and triage process is performed at the bedside. "If a room is not immediately available, we can perform a quick 12-lead EKG in a dedicated room in the triage area. The ED team leader will work on making a bed available," says Sanbongi.

- **Nurses can repeat a 12-lead EKG if the patient continues to have chest pain 30 minutes after completion of the first EKG.**

"An EKG with ischemic changes but no STEMI is a time bomb waiting to explode," says Sanbongi. "These patients need to be aggressively treated and monitored." *(See stories on decreasing door-to-EKG time, p. 65, and cardiac risk factors, below.)*

EXECUTIVE SUMMARY

As the first person to see a suspected ST-elevation myocardial infarction patient's EKG, you must be prepared to rapidly activate your ED's protocol. To improve care:

- Offer ED nurses free classes on EKG interpretation.
- Repeat the EKG if chest pain continues.
- Always consider cardiac risk factors.

SOURCES

For more information on improving care of ST-elevation myocardial infarction patients, contact:

- **Rosemary Arviso-Green**, RN, BSN, Emergency Department, Mission Hospital, Asheville, NC. E-mail: Rosemary.ArvisoGreen@msj.org.
- **Dave Sanbongi**, RN, Emergency Department, Kaweah Delta Medical Center, Visalia, CA. Phone (559) 624-6048. E-mail: DSanbong@kdhcd.org.

REFERENCE

1. Kushner FG, Hand M, Smith SC, et al. 2009 Focused Updates: ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction. *Circulation* 2009; 120:2,271-2,306. ■

CLINICAL TIP

Can't decide? Then look at risk factors

If you can't decide whether to initiate a cardiac chest pain standardized procedure, find out if the patient has any cardiac risk factors.

"The patient may be presenting with symptoms that make a weak case for suspected cardiac ischemia," says **Dave Sanbongi**, RN, prehospital EMS

coordinator in the ED at Kaweah Delta Medical Center in Visalia, CA. "But if they have any risk factors, then err on the side of caution and proceed down the cardiac pathway."

Cardiac risk factors include family history of cardiac disease, history of coronary artery disease, previous cardiac events, cardiac interventions, hypertension, diabetes, smoking, obesity, hyperlipidemia, and sympathomimetic drug abuse. "Also, if a patient has a surgical scar on their chest, then it would not be unreasonable to assume they've had some type of cardiac surgery," says Sanbongi.

If a patient is not a good historian, obtain any prior medical records that might shed light on the patient's current complaint, or obtain information from caregivers, Sanbongi says.

"The worst thing you can do is to rule out an acute myocardial infarction or cardiac pain by seeing if you can reproduce the pain and seeing if the pain gets worse upon inspiration or better with the infamous 'GI cocktail,'" says Sanbongi. "If the patient has risk factors, then they need a proper cardiac workup." ■

ED nurses do EKG within 3 minutes

If a patient complains of chest pain, he or she ideally is brought right back to a treatment room for an immediate EKG. But if that isn't possible, don't let that stop you from giving the EKG within minutes.

"If a bed is not immediately available, an EKG is done in triage within five minutes," says **Rosemary Arviso-Green**, RN, BSN, an ED nurse clinician at Mission Hospital in Asheville, NC.

The EKG is immediately reviewed by the ED physician. If he or she calls a "code STEMI," the team is immediately paged. "In March 2010, our door-to-EKG time was three minutes, the ED phase was 26.5 minutes, and our ED-to-cath lab was 55 minutes," reports Arviso-Green. Here are three ways the ED cut delays:

1. If the patient arrives via ambulance, paramedics perform 12-lead EKGs, and the STEMI might be called from the field.

"This is vitally important, because care can be initiated and all systems are in place when the patient arrives," says Arviso-Green. "In many cases, the patient can go straight to the cath lab upon arrival at the ED door."

2. "Code STEMI" packets are prepared in advance so they can be pulled immediately by ED nurses.

These contain an Acute Myocardial Infarction Response Sheet, an Acute MI /ED Emergency Cath Lab Order Set, ED/Cath Lab Code STEMI Flow Sheet, and consent forms. (ED nurses who wish to see documentation in use at Mission Hospital may contact marketing@msj.org.)

3. When the STEMI is called, two or three ED nurses assist the primary nurse.

"This allows one to scribe and the others to provide direct patient care," says Arviso-Green. ■

Don't let 'stroke mimics' delay your patient's care

Perform a quick rule-out

A patient's altered mental status could turn out to be a stroke, but on the other hand, someone with unilateral weakness might end up being a post seizure patient.

"Stroke mimics can be tough, to say the least," says **Anne D. Leonard**, RN, BSN, senior clinical research nurse at The University of Texas Health Science Center at San Antonio. "When working with a potential stroke patient, do all that you should do. Then be glad for the patient if it ends up being a stroke mimic."

Stroke mimics specifically are addressed in a new scientific statement for nursing care of stroke patients from the American Heart Association.[1] "The guidelines underscore the urgency of stroke care," says Leonard, one of the authors.

Here are ways to improve assessment of possible

EXECUTIVE SUMMARY

To determine an actual stroke from a "stroke mimic," obtain a thorough history, identify risk factors, and perform a neurological examination. To rule out mimics, remember that:

- Hypoglycemia can include confusion and weakness.
- Migraines can cause vision changes and focal headaches.
- The postictal phase of seizures can cause unilateral weakness and speech abnormalities.

stroke mimics:

• Obtain a thorough history, including onset of symptoms and medical history.

Ask about history of diabetes, cancer, hypertension, seizures, and whether the patient has ever taken an antileptic. "A CT scan will show some of this, but it is important to act fast in order that you don't miss something," says Leonard. "And get your ED physician to act fast as well."

• Obtain certification in the National Institutes of Health Stroke Scale (NIHSS).

"A key part of the diagnosis of stroke is to have a good neuro exam. The NIHSS, if done well, is a very nice tool," says Leonard. "It gives the operator key information about the presence of lateralizing symptoms, right brain or left brain, that may be stroke."

• Look for factors that increase the likelihood of stroke.

These include cognitive impairment, an exact time of onset, definite focal neurological symptoms, abnormal vascular findings such as hypertension, atrial fibrillation, and valvular heart disease. "If these are not necessarily present, then it could be a stroke mimic," says Leonard. "It then becomes a process of elimination."

Rule out mimics

Dawn Williams, RN, BSN, CEN, an ED nurse at Porter Adventist Hospital in Denver, says that the most common conditions she sees that can mimic a stroke are hypoglycemia, migraines, seizures, and Bell's Palsy.

Hypoglycemia can present as sudden onset of confusion, weakness, and sometimes changes with speech, says Williams, while migraines can cause change in vision and size of pupils along with focal headaches. "We always check blood glucose to rule out hypoglycemia right away. This can be done quickly, often before CT is even notified," says Williams.

SOURCES

For more information, contact:

• **Anne D. Leonard**, RN, BSN, Senior Clinical Research Nurse, The University of Texas Health Science Center at San Antonio. Phone: (210) 567-5260. Fax: (210) 567-6066. E-mail: leonarda@uthscsa.edu.

• **Dawn Williams**, RN, BSN, CEN, Emergency Department, Porter Adventist Hospital, Denver. Phone: (303) 437-0546. E-mail: DawnWilliams@Centura.org.

Seizures also can mimic stroke. "They seem straightforward because many times they are witnessed," says Williams. "But the postictal phase, especially in the elderly, can mimic unilateral weakness, confusion, and/or speech abnormalities."

Initially, a 70-year-old man's wife told triage nurses he was having an allergic reaction because his skin was red all over. "As the triage nurse asked questions, the patient was repeating the same three words over and over," says Williams. "Luckily our CT scan was open. We had him in within the first 10 minutes. The patient received t-PA within 21 minutes."

Within 10 minutes of administration, the patient was speaking in full sentences. "It was awesome!" says Williams. "If it wasn't for the triage nurse's assessment, this patient could have had a totally different outcome. By the time the patient was discharged, he had absolutely no deficits." *(See clinical tip on ruling out a stroke, below, and a way to decrease stroke delays, p. 67.)*

REFERENCE

1. Summers D, Leonard A, Wentworth D, et al. Comprehensive overview of nursing and interdisciplinary care of the acute ischemic stroke patient: A scientific statement from the American Heart Association. *Stroke* 2009; 40:2,911–2,944. ■

CLINICAL TIP

Do fast, easy check to rule out a stroke

Dawn Williams, RN, BSN, CEN, an ED nurse at Porter Adventist Hospital in Denver, gives this "fast and easy assessment" to distinguish a stroke from Bell's Palsy: Ask a patient to raise their eyebrows.

"If they are having a stroke, the eyebrow will rise. With Bell's Palsy the eyebrow doesn't rise, because the seventh cranial nerve is affected," says Williams. "We just had a patient last week that had Bell's Palsy. Although we still did a CT, we did not call a stroke alert." ■

To meet stroke times, think of relay race

ED nurses "are undergoing a paradigm shift— getting the patient through the diagnosis and assessment phase as if the patient was being worked up for a STEMI [ST-elevation myocardial infarction], says **Anne D. Leonard**, RN, BSN, senior clinical research nurse at the University of Texas Health Science Center at San Antonio. "This requires a real change in thinking."

Protocols with time parameters help you to reach the door-to-needle time within 60 minutes, says Leonard. She says to think of the continuum of care for the acute stroke patient as a relay race:

- **The first leg.** The ED staff quickly runs to get the needle to the patient within 60 minutes, if the patient is eligible for tissue plasminogen activator or another acute interventional procedure.
- **Second leg.** The ED nurse hands the baton to the intensive care unit (ICU) staff for at least 24 hours.
- **Third leg.** The ICU staff hands the baton to the step-down unit for continued care. "Lastly, the step-down unit hands the baton to the rehab folks for the last of the race, to get our stroke patients back to baseline as much as possible," says Leonard. ■

Be ready for injuries from weight training

ED nurses are seeing increasing numbers of patients injured from weight training, says a new report.[1] The study found that more than 970,000 weight training-related injuries were treated in EDs between 1990 and 2007. These increased almost 50% during that time period, according to data from the National Electronic Injury Surveillance System of the Consumer Product Safety Commission.

"Given our findings that there were significant increases in number of weightlifting injuries among females and individuals over 45 years of age during the study period, ED nurses can expect to treat a more diverse population with weight-lifting injuries," says **Dawn Comstock**, PhD, one of the study's authors and a principal investigator in the Center for Injury Research and Policy at Nationwide Children's Hospital in Columbus, OH.

EXECUTIVE SUMMARY

EDs are seeing more weight training injuries, including women and those over 45. Common injuries include:

- Hand and foot injuries in patients 12 and younger.
- Overexertion in older patients.
- Dehydration and heat exhaustion in high school athletes.

However, individuals presenting with weight lifting injuries still are most likely to be males aged 13 to 35. The most commonly injured body regions were the upper trunk, lower trunk, and hand. The most common diagnoses were sprains, strains, and soft tissue injuries.

"However, patterns of injury differed by age," says Comstock. Overexertion injuries were more common in older patients. *(See related story, p. 68, on dehydration and heat exhaustion.)*

Individuals 12 and younger were more likely to present with hand and foot injuries, with lacerations and fractures or dislocations from having weights fall on them. "Due to a lack of data, recommendations regarding the appropriate age to begin weightlifting have previously been based on anecdotal evidence and gut feelings," says Comstock. "Currently, most agree that like any other form of exercise, weightlifting is a safe activity for children and youth." However, it must be done in moderation, with proper supervision, and proper training regarding lifting techniques and use of weights and weight machines, adds Comstock.

Whatever type of injury the patient presents with, you have an opportunity to prevent future weight-lifting injuries. "Use the ED visit as a 'teachable moment,'" says Comstock. "Speak with the injured individual and/or their family about

SOURCES

For more information on weight training injuries in the ED, contact:

- **Barbara Abdalla**, RN, BSN, CPN, Administrative Clinical Leader, Emergency Department, Nationwide Children's Hospital, Columbus, OH. E-mail: Barb.Abdalla@nationwidechildrens.org.
- **R. Dawn Comstock**, PhD, Associate Professor, The Research Institute at Nationwide Children's Hospital, Columbus, OH. Phone: (614) 355-2847. Fax: (614) 722-2448. E-mail: comstocd@pediatrics.ohio-state.edu.

weight lifting safety."

REFERENCE

1. Kerr ZY, Collins, CL, Comstock RD. Epidemiology of weight training-related injuries presenting to United States emergency departments, 1990 to 2007. *Am J Sports Med* 2010; 38:765-771. ■

CLINICAL TIP

Athletic injuries? Look for dehydration

In addition to strains and sprains in weight-training injuries, dehydration and heat exhaustion also might occur, says **Barbara Abdalla**, RN, BSN, CPN, administrative clinical leader in the Emergency Department at Nationwide Children's Hospital in Columbus, OH. Subtle signs of dehydration include increased heart rate, dizziness, muscle cramps, fatigue, weakness, and headaches, adds Abdalla.

"This occurs most often at the beginning of August when many high schools start conditioning," says Abdalla. "Some athletes train to the point that they can pass out. In very rare circumstances, a symptom can be blood in urine. This is caused by muscle breakdown from strenuous exercise." ■

Identify an infection at triage? Notify others!

Nurses can stop cross-contamination

[Editor's Note: This is the second of a two-part series on identifying infections at triage. This month, we cover how to notify others so appropriate precautions can be taken. Last month, we gave assessment tips to identify infections at triage.]

Multidrug-resistant organisms, including methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococci (VRE), and diseases such as bacterial meningitis, influenza, and shingles often are first diagnosed in the ED, says **Elizabeth Henderson**, RN, BSN, MS, an ED nurse at Massachusetts General Hospital in Boston. Although inpatient units generally are able to isolate their patients according to their primary diagnosis, this is not typically the case for EDs.

"Many EDs have a limited number of closed door rooms where patients with such afflicting organisms can be isolated from the general population," says Henderson. "Further complicating matters within the ED patient population is the sheer number and variation of disease states and diagnosis that are treated within the same shared spatial location by numerous health care personnel."

These factors "greatly increase the risk of cross contamination," she says.

Your patient might not appear to be infectious, but test results might reveal the need for precautions. "Essentially, the ED serves as a screening agent for inpatient units, which then make accommodations based on patient lab results and diagnosis," says Henderson. To protect yourself and your patients, follow these three tips:

- **Screen all immunocompromised patients and those in long-term care or assisted living environments.**

These patients are at higher risk for MRSA, VRE, Clostridium difficile, H-pylori, and several resistant gram-negative bacteria, says **Rhonda Morgan**, RN, MSN, CEN, CNRN, CCNS, ANP, vice president of nursing and former emergency department director at Wellmont Health System in Kingsport, TN.

"Identify the multidrug-resistant organism infections early in the hospital visit so appropriate precautions can be enacted," says Morgan. "This

EXECUTIVE SUMMARY

If you identify an infectious patient at triage, communicate this fact to others so that appropriate precautions can be taken.

- Share the information during verbal reports.
- Document it on handoff sheets, both in-hospital and transfers.
- Use code letters on triage forms and nursing notes.

SOURCE

For more information on assessment of infection at triage, contact:

• **Elizabeth Henderson**, RN, BSN, MS, Emergency Department, Massachusetts General Hospital, Boston. Phone: (781) 706-7517. E-mail: ehenderson@verizon.net.

protects staff from infection and from transmitting infections to other patients."

Share this information during verbal reports, and document it on handoff sheets. "Include this information in any handoff, whether it is inside the facility to an inpatient area, a diagnostic area, or a procedural area or a transport out of the facility," says Morgan.

• **Educate patients and families about infection control measures.**

You should tell patients and families the reason for the lab screening, teach proper hand hygiene and use of personal protective equipment, and explain what "isolation' actually means in that particular case, Morgan says.

• **Identify readmitted or transferred patients who are positive for a multidrug-resistant organism.**

Code letters such as "MRSA" or "VRE" could be added to your triage forms or nursing notes, Morgan says.

"These codes could be included in an area where the appropriate choice could be circled to avoid time-consuming narratives," she says. *(See clinical tip, below, on protecting immunocompromised patients.)* ■

CLINICAL TIP

Protect patients at highest risk

Do not place immunocompromised ED patients in close proximity to those with multi-drug resistant organism presence, warns **Rhonda Morgan**, RN, MSN, CEN, CNRN, CCNS, ANP, vice president of nursing and former emergency department director at Wellmont Health System in Kingsport, TN.

"Both the room and the equipment should undergo the same cleaning measures as an inpatient room after being vacated by a patient with a multidrug-resistant organism," Morgan says. ■

Sepsis mortalities cut 50% with ED changes

When researchers surveyed 2,461 physicians in various countries about their initial care of severe sepsis, they were surprised to find that only two complied with all of the recommendations of the Surviving Sepsis Campaign.[1] In the United States, only 30% of ED physicians said they reported initial lactate measurement, and only 44% would insert a central venous catheter in a patient with septic shock.

"Forty percent of ED physicians said that they could not implement published guidelines because of time pressure," says **Michael Reade**, MPH, the study's lead author and an intensive care physician at Austin & Northern Hospitals at the University of Melbourne, Australia. "Additionally, around 20% of U.S. ED physicians reported they had no knowledge of the Early Goal Directed Therapy study on which the current Surviving Sepsis Guidelines for the first six hours of management are largely based."

The ED at McKay-Dee Hospital Center in Ogden, UT, has "had wonderful results" with sepsis treatment, says **Kayleen L. Paul**, RN, CEN, director of critical care, emergency, and trauma services. Paul credits this success to diligently fol-

EXECUTIVE SUMMARY

A significant percentage of ED physicians do not comply with current recommendations for initial care of severe sepsis. One ED reduced the severe sepsis and septic shock mortality from 32.3% in 2008 to 16.7% in 2009 by closely following the Institute for Healthcare Improvement (IHI)'s Sepsis Resuscitation Bundle. To reduce mortality rates:

- Use a checklist of interventions.
- Look for mental status changes and hyperventilation.
- Remember that fever might not be present.

lowing the Institute for Healthcare Improvement (IHI)'s Sepsis Resuscitation Bundle. *(For more information, go to www.ihi.org. Click on "Topics," then "Critical Care," and "Sepsis.")* "We've reduced the severe sepsis and septic shock mortality at our hospital from 32.3% in 2008 to 16.7% in 2009," Paul says.

Here are changes the ED made:

- **The IHI Sepsis Bundle was divided into ED and intensive care unit (ICU) components.**

ED nurses are responsible for obtaining the serum lactate, obtaining blood cultures, administering the appropriate antibiotic within three hours of registration, appropriate fluid resuscitation, and vasopressors as needed. "The ICU takes over with the other five components of the bundle," says Paul.

- **Compliance and outcomes are tracked carefully.**

JoAnn Spencer, RN, MSN, the hospital's program manager for intensive medicine clinical programs, says, "We ensure that physicians and staff get early feedback on these patients, identify ways to improve, and celebrate successes." Spencer reviews admissions daily on all sepsis patients admitted to ICU or Intermediate Care.

"The ED care is completed by that time, but immediate feedback is given to staff on specific patients," says Spencer. "If we missed a bundle component, we review the chart right away to figure out what happened. Then we take immediate steps to improve a process, if necessary, or educate staff."

- **A checklist tool was developed to facilitate quick identification and intervention with early sepsis in the ED.** *[The Sepsis Criteria Worksheet 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.]*

"Of course, the trick is in identifying the patient early. The checklist really helps with that," says Paul. "In fact, we have committed to the hospital Board of Trustees that our critical care service line will meet all 11 components of the sepsis bundle at 90%. It's a stretch goal, but I really think we can do it. We are fully committed, because it's clear that this protocol saves lives." *(See related stories on early identification of sepsis, above right, important areas of education for ED nurses, p. 71, and expediting transfer out of the ED, p. 71.)*

REFERENCE

1. Reade MC, Huang DT, Bell D, et al. Variability in management of early severe sepsis. *Emerg Med J* 2010; 27:110-115. ■

Your goal: ID sepsis in the early stages

ED nurses at Northwest Community Hospital in Arlington Heights, IL, have been given education on identifying patients "who may be in the early stages of sepsis when it is still potentially reversible," says **Sharon Esterquest**, RN, clinical educator of the ED.

"It is important that ED nurses are keenly aware of the signs and symptoms of sepsis that may *not* be blatantly evident in the early stages," says Esterquest. "Equally important is the need to recognize the populations most *at risk* for developing sepsis."

Mental status changes or hyperventilation are two early signs. "Fever may or may *not* be a present, especially in the elderly or immunocompromised patient," adds Esterquest.

Other early symptoms include low-grade fever, chills, skin rash, joint pain, low urine output, dizziness, and diarrhea, says Esterquest. Once symptoms are identified, determine those patients most at risk by evaluating for the following comorbid factors: elderly, neonates, a history of diabetes mellitus, a history of immunodeficiency, recent trauma, recent significant burns, history of alcohol and substance abuse, history of chronic disease, recent surgery, invasive procedures or invasive lines, and indwelling catheters, she says.

The preprinted order set used by Northwest Community's ED nurses includes a triage portion. This asks the nurse to indicate presenting

COMING IN FUTURE MONTHS

- Identify life-threatening medication interactions
- Why normal vital signs can be misleading
- Surprising causes of altered mental status
- Stop dangerous handoff practices with elders

symptoms suspicious for sepsis, as well as any risk factors. "If there is a possibility of immunosuppression, the form prompts staff to immediately move the patient to the appropriate area," says Esterquest. *[The order set and advanced triage guidelines used by ED nurses are included with the online version of this month's* ED Nursing. *For assistance, contact customer service at (800) 688-2421 or customerservice@ahcmedia.com.]*

The remainder of the pre-printed order set "reads like a recipe, to ensure proper laboratory tests, fluid boluses, use of vasopressors, antibiotic selection and consultation with the critical care physician," says Esterquest.

Nurses initiate the order sets if there is any possibility of sepsis. Using advanced triage protocols for sepsis, ED nurses can start an intravenous line and order a complete blood count with differential, a complete metabolic panel, prothrombin time/partial thromboplastin time, type and screen, lactate, two sets of blood cultures, and a urine culture.

ED nurses are taught to draw *two* sets of blood cultures. "Whomever collects the first set is responsible to collect the second, so not to cause any confusion or delay in the administration of antibiotics," says Esterquest. "When drawing blood cultures, we suggest that staff automatically draw an additional tube for lactic acid, should it be ordered. This will prevent delays and additional sticks for the patient." ■

Zero in on these 3 sepsis interventions

ED nurses at University of Maryland Medical Systems in Cambridge, MD, have been educated about specific patient scenarios "that should raise their antennae of suspicion regarding sepsis," says **Gail Shorter**, RN, MS, CEN, an ED nurse at Shore Health System in Easton MD. "The ED is now much more proactive when a patient arrives who may fit into the sepsis framework."

Here are three areas of focus:

• **Central line placement.**

"Using a Foley catheter leg strap to attach the pressure transducer to the patient's arm at the phlebostatic axis keeps the tubing protected in a busy ED setting," says Shorter.

• **Intraosseous vascular access.**

"We are starting to see these used more, both from the field and in the ED, for immediate access for fluid resuscitation," says Shorter.

• **Rapid infusers.**

"We are currently expanding our access to rapid infusers in the ED to support sepsis care, as well as patients experiencing hypovolemia for other reasons," says Shorter. ■

CLINICAL TIP

Rush patient out of ED in this case

ED nurses at Northwest Community Hospital in Arlington Heights, IL use "critical care alerts" to expedite the transfer of patients from the ED to critical care in life-threatening or organ-threatening emergencies. These emergencies includes cases of severe sepsis with persistent hypotension and/or a serum lactate over 4 mmol/L.

"The activation of this alert requires a response in not more than 30 minutes," says Sharon Esterquest, RN, clinical educator of the ED. "In treating sepsis, this facilitates a more timely initiation of hemodynamic monitoring via the placement of a central venous catheter with continuous monitoring of central venous oxygen saturation." ■

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 this 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. ■

To reproduce any part of this newsletter for promotional purposes, please contact:
Stephen Vance
Phone: (800) 688-2421, ext. 5511
Fax: (800) 284-3291
Email: stephen.vance@ahcmedia.com

To obtain information and pricing on group discounts, multiple copies, site-licenses, or electronic distribution please contact:
Tria Kreutzer
Phone: (800) 688-2421, ext. 5482
Fax: (800-284-3291
Email: tria.kreutzer@ahcmedia.com
Address: AHC Media LLC
3525 Piedmont Road, Bldg. 6, Ste. 400
Atlanta, GA 30305 USA

To reproduce any part of AHC newsletters for educational purposes, please contact:
The Copyright Clearance Center for permission
Email: info@copyright.com
Website: www.copyright.com
Phone: (978) 750-8400
Fax: (978) 646-8600
Address: Copyright Clearance Center
222 Rosewood Drive
Danvers, MA 01923 USA

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.

21. Which is true regarding care of patients with acute pulmonary embolism (PE) in the ED?
A. Elderly patients with other cardiopulmonary co-morbidities are at lower risk than other patients.
B. Patients generally should receive anticoagulants only after admission.
C. ED nurses might need to ensure adequate anticoagulation for many hours until a bed becomes available.
D. A full dose of anticoagulants should not be ordered until the patient is admitted.

22. Which is true regarding care of sepsis patients in the ED?
A. ED nurses should avoid separating the Institute for Healthcare Improvement's Sepsis Bundle into ED and intensive care unit components.
B. Fever is always present in elderly and immunocompromised patients.
C. Mental status changes and hyperventilation are two late signs of sepsis.
D. ED nurses should look for early symptoms of chills, skin rash, and low urine output.

23. Which is true regarding ED nursing assessment of conditions that can mimic stroke?
A. Migraines can cause changes in vision.
B. The presentation of hypoglycemia will not include changes in speech.
C. Patients in the postictal phase of seizures will not present with unilateral weakness.
D. If a patient is asked to raise their eyebrows and cannot, Bell's Palsy can be ruled out.

24. Which is recommended regarding use of an intraosseous drill to obtain venous access in a child?
A. Nurses should be instructed to use a significant amount of pressure.
B. Training with raw eggs is not effective.
C. This option can be considered when intravenous attempts have failed or immediate venous access is needed.
D. The drill should not be used unless a child is coding.

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

SJMH Emergency Services Guideline

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.

SOURCE: Northwest Community Hospital, Arlington Heights, IL. Online Supplement to EDN, June 2010

Responsibility

Registered Nurse

References:

Emergency Nurses Association (1998). Sheehy's Emergency Nursing Priciples and Practice
Emergency Nurses Association (2007). Emergency Nursing Core Curriculum
Emergency Nurses Association (2005). Sheehy's Manual of Emergency Care

Approval	***Consultation Committee/Person***	***Date***
X	Madonna Walters, Trauma	12/16/2008

_____ _____

Medical Director-Emergency Services Date

_____ _____

Service Delivery Leader Date

Addendum A

SAINT JOSEPH MERCY HEALTH SYSTEM
A Member of Trinity Health

☐ ST. JOSEPH MERCY ANN ARBOR
☐ ST. JOSEPH MERCY SALINE

Neurological Observation Flow Sheet

32011-003 R 9/08 (PC) D

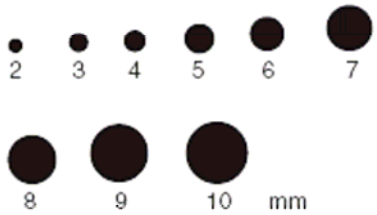
Signatures & Initials																									
Initials																									
Dates																									
Hours																									
Pupils size R																									
Pupils size L																									
Pupils reaction R																									
Pupils reaction L																									
Grasp weak/strong R equal to L R greater than L R Lesser than L																									
Leg Lift weak/strong R equal to L R greater than L R Lesser than L																									
Communication/Cognitive Time																									
Glasgow Coma Scale — Eyes Open: Spontaneously 4																									
Eyes Open: To Verbal command (persistently) 3																									
Eyes Open: To pain 2																									
Eyes Open: No response 1																									
Motor Response: Obeys verbal commands 6																									
Motor Response: Localizes pain 5																									
Motor Response: Flexion-withdrawal from noxious stimuli 4																									
Motor Response: OR																									
Motor Response: Patient moves spontaneously but not to command or with any control																									
Motor Response: Flexion-abnormal/decorticate rigidity 3																									
Motor Response: Extension/decerebrate rigidity 2																									
Motor Response: No response 1																									
Verbal Response: Not Intubated/Trached																									
Verbal Response: Oriented and converses 5																									
Verbal Response: Disoriented and converses 4																									
Verbal Response: Inappropriate words 2																									
Verbal Response: Incomprehensible sounds 2																									
Verbal Response: No response 1																									
Verbal Response: Intubated/Trached																									
Verbal Response: Appears to converse 5																									
Verbal Response: Responsive but ability to converse is questionable 3																									
Verbal Response: Generally unresponsive 1																									
Level of Consciousness (total score)																									

SOURCE: Northwest Community Hospital, Arlington Heights, IL.

The Glascow 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: Record 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 reponse to pain, not a purposeful response to pain.	equal to 4

Motor Reponse
(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 regidly 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.

SOURCE: Northwest Community Hospital, Arlington Heights, IL.

McKay Dee Hospital – Intermountain Healthcare

SEPSIS CRITERIA WORKSHEET

(2010)

MET CRITERIA? **Yes**☐ **No** ☐ *If YES:* Severe ☐ **or** Shock ☐

Audit Date:_____Discharge Date:_____ Audit Complete☐/Entered☐

Acct #:_____MR#:_____Name_____DOB:_____

ER Registr. Date/Time:_____Admit Date/Time: _____**To:** ☐**ICU** ☐**IMC** ☐**OR** ☐*Other*(does not meet criteria)

Severe Sepsis Criteria

Evidence or suspicion of infection*				Y☐	N☐	N/A☐
Meet two (2) of the following criteria (SIRS criteria):				Y☐	N☐	N/A☐
Fever >38.2 or hypothermia <36.0	Y☐	N☐	N/A☐			
Tachypnea > 20 or PCO <32 or Vent	Y☐	N☐	N/A☐			
Tachycardia >90	Y☐	N☐	N/A☐			
WBCs >12,000, <4,000 or immature forms >10%	Y☐	N☐	N/A☐			
Plus: Evidence of one (1) or more of the following (Acute Organ Dysfunction):				Y☐	N☐	N/A☐
SBP <90 or MAP <65 or ↓MBP>40 from baseline	Y☐	N☐	N/A☐			
Lactate > 2.0 or pH<7.3 c Base Deficit >5	Y☐	N☐	N/A☐			
P/F Ratio <300	Y☐	N☐	N/A☐			
UO<0.5ml/kg or Creatinine >2.0	Y☐	N☐	N/A☐			
Plts <100,000 or ↓50% in 3 days	Y☐	N☐	N/A☐			
Total Bili >2.0	Y☐	N☐	N/A☐			
Alteration in mental status	Y☐	N☐	N/A☐			
INR>1.5 or PTT>60	Y☐	N☐	N/A☐			
BS >120 in absence of diabetes	Y☐	N☐	N/A☐	**SEVERE?** *(Check YES if all three above criteria met)*		
				Y☐	N☐	N/A☐

Septic Shock Criteria

Severe Sepsis **Plus**:

SBP <90 or MBP<65 despite fluid resuscitation or continuing need of vasopressors	Y☐	N☐	N/A☐			
AND/OR						
Serum Lactate >4.0 or pH<7.3 c base deficit > 5	Y☐	N☐	N/A☐	**SHOCK?**	Y☐	N☐ N/A☐

Resuscitaiton Bundle

Lactate Measured?	Y☐	N☐	N/A☐	
Blood Cultures prior to ABX?	Y☐	N☐	N/A☐	
Broad Spectrum ABX within 3 hrs?	Y☐	N☐	N/A☐	**ABX(s):**_____
Fluid Resuscitation for hypotension or lactate >4.0?	Y☐	N☐	N/A☐	_____
Vasopressors?	Y☐	N☐	N/A☐	_____
CVP and ScvO2 measured?	Y☐	N☐	N/A☐	_____
Inotropes or PRBCs for ScvO2 <70% when CVP ≥8?	Y☐	N☐	N/A☐	

Maintenance Bundle

Glucose <180?	Y☐	N☐	
Steroids?	Y☐	N☐	N/A☐
Xigris?	Y☐	N☐	N/A☐
Low Tidal Volumes?	Y☐	N☐	N/A☐

CCMS? Y☐ N☐ _____ **ED MD**:_____

Survival? Y☐ N☐

* Evidence or suspicion of infection: Does the patient have positive culture results from blood, sputum, urine, etc.?

Source: McKay-Dee Hospital Center, Ogden, UT

Online Supplement to EDN, June 2010

Is the patient receiving antibiotic, antifungal, or other anti-infective therapy immediately prior to admission?
Is there documented pneumonia? Have WBCs been found in normally sterile fluid (urine, CSF, etc.)? Does the patient have perforated bowel?

EMERGENT ORDER SET

CATEGORY	PATIENT CHARACTERISTICS	PROTOCOL
SEPSIS	Suspicious symptoms include: ➢ Temp > 100.9 or < 96.8 ➢ BP < 90 systolic ➢ HR > 90 ➢ RR > 20 ➢ Fatigue ➢ Diarrhea ➢ Productive cough Any of the above with contributing risk factors, such as recent infection, nursing home resident, recent viral illness, immunosuppression, recently hospitalized or recent surgery	**Severe Sepsis/Septic Shock Orders** ➢ **Labs**: CBC w. manual differential, CMP, PT/PTT, Type and Screen, Lactate, Blood cultures x 2, U/A, Urine C & S ➢ Initiate an IV

SOURCE: NORTHWEST COMMUNITY HOSPITAL, ARLINGTON HEIGHTS, IL

Clarian West Medical Center

Clarian West Medical Center

Adult ED Nursing Protocol: Chest Pain

The person initiating entry should write legibly, date the form (using Mo / Day / Yr), enter time, sign, and indicate their title.

Until signed, these are for general information and reference only. They should not be relied on as advice for a particular patient or situation or as a substitute for the independent professional judgment of the physician.

Date	Time	Physician Orders
		☑ Initiate ED Adult Chest Pain Nursing Protocol
		☑ Cardiac Monitor
		☑ Vital Signs Stat & PRN
		☑ BP Bilateral Upper Extremities Stat
		☑ Continuous Oxygen Saturation
		Maintain Oxygen Saturation 94% or greater.
		☐ Oxygen NC for Oxygen Saturation less than 94%
		☐ Mask Non Rebreathing for Saturation less than 94%
		☐ If history of COPD, 2 L/min per nasal cannula for Oxygen Saturation less than 94%
		☑ EKG 12 Lead Stat, MD to read and initial. Place in MD hands
		Unit Secretary to pull EKGs from Muse or CareWeb
		☑ PA & Lateral Chest X-ray Stat
		☐ Portable Chest X-ray Stat for Active Chest Pain or Unstable Vital Signs
		☑ Saline Lock IV
		Aspirin: Supplement amount taken prior to arrival to equal total of 324mg
		Aspirin 81mg, 1 Tabs Chewable, Stat, chew and swallow: UNLESS ALLERGIC TO ASPIRIN.
		Aspirin 81mg, 2 Tabs Chewable, Stat, chew and swallow: UNLESS ALLERGIC TO ASPIRIN.
		Aspirin 81mg, 3 Tabs Chewable, Stat, chew and swallow: UNLESS ALLERGIC TO ASPIRIN.
		Aspirin 81mg, 4 Tabs Chewable, Stat, chew and swallow: UNLESS ALLERGIC TO ASPIRIN.
		Hold NitroGLYCerin if patient took a phosphodiesterase-5 enzyme inhibitor. sildenafil (Viagra®, Revatio®, tadalafil (Cialis®), vardenafil (Levitra®)
		NitroGLYCerin 0.4 mg, Tablet, Sublingually, Q5min, PRN, for 3 Doses for BP Systolic Greater Than 100. Hold if patient took a **phosphodiesterase-5 enzyme inhibitor. sildenafil (Viagra®, Revatio®, tadalafil (Cialis®), vardenafil (Levitra®)** Include pre-hospital doses in the total.
		Draw blood for labs: 1 Lavender, 2 Light Green, and 1 Blue top tube and Hold.

Practitioner Signature _____ Printed Name _____ Pager_____

Entered by: _____ Order Entry Verified _____

Sent to Pharmacy by: _____ (Scan, Tube / Fax / Copy) Date _____ Time _____

Clarian West Medical Center

Clarian West Medical Center

Adult ED Nursing Protocol: Chest Pain

The person initiating entry should write legibly, date the form (using Mo / Day / Yr), enter time, sign, and indicate their title.

Until signed, these are for general information and reference only. They should not be relied on as advice for a particular patient or situation or as a substitute for the independent professional judgment of the physician.

Date	Time	Physician Orders
		☑ CBC with Diff/ Platelets
		☑ Troponin
		☑ CPKMB
		☑ BMP
		☑ Pain Assessment Level (Scale 1-10)
		Instruct patient to notify nurse of any changes or any other symptoms.
		☑ NPO
		☑ Bed rest

Practitioner Signature _____ Printed Name _____ Pager_____

Entered by: _____ Order Entry Verified _____

Sent to Pharmacy by: _____ (Scan, Tube / Fax / Copy) Date _____ Time _____

Clarian West Medical Center

Clarian West Medical Center

Adult ED Nursing Protocol: Respiratory Distress

The person initiating entry should write legibly, date the form (using Mo / Day / Yr), enter time, sign, and indicate their title.

Until signed, these are for general information and reference only. They should not be relied on as advice for a particular patient or situation or as a substitute for the independent professional judgment of the physician.

Date	Time	Physician Orders
		☑ Initiate Respiratory Distress nursing protocol
		☑ Continuous Oxygen Saturation.
		Maintain Oxygen Saturation at 94% or Greater.
		☐ Oxygen NC for Oxygen Saturation less than 94%
		☐ Mask Non Rebreathing for Saturation less than 94%
		☐ If history of COPD, 2 L/min per nasal cannula for Oxygen Saturation less than 94%
		☐ **If on home O2, put on home rate Nasal Cannula and add 1 Liter.**
		☑ Vocera Respiratory Therapy
		☐ Albuterol 5 mg, Neb Inhal, Inhalation SOLN, Once for wheezing unless allergic.
		☐ Atrovent 0.5 mg, Neb Inhal, Inhalation SOLN, Once for wheezing unless allergic.
		☑ Vital Signs Stat
		☑ PA & Lateral Chest X-ray Stat
		☐ Portable Chest X-ray Stat for Active Chest Pain or Unstable Vital Signs

Practitioner Signature _____ Printed Name _____ Pager_____

Entered by: _____ Order Entry Verified _____

Sent to Pharmacy by: _____ (Scan, Tube / Fax / Copy) Date _____ Time _____

Clarian West Medical Center

Clarian West Medical Center

Adult ED Nursing Protocol: Respiratory Distress

The person initiating entry should write legibly, date the form (using Mo / Day / Yr), enter time, sign, and indicate their title.

Until signed, these are for general information and reference only. They should not be relied on as advice for a particular patient or situation or as a substitute for the independent professional judgment of the physician.

Date	Time	Physician Orders

Practitioner Signature _____ Printed Name _____ Pager_____

Entered by: _____ Order Entry Verified _____

Sent to Pharmacy by: _____ (Scan, Tube / Fax / Copy) Date _____ Time _____