



PEARSON NEW INTERNATIONAL EDITION



Prehospital Emergency Care
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Tenth Edition

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Case Study Follow-up *continued*

breathe.” Her remarks assure you that her mental status is alert and her airway is open. You observe that she is breathing in fast, short puffs, but with adequate rise and fall of the chest. Your partner applies the pulse oximeter and obtains a reading of 89%. You apply a nasal cannula at 2 lpm, explaining that this will help relieve her distress. Because she has a home supply of oxygen that she has occasionally used, she understands and welcomes the oxygen therapy. You are able to palpate a somewhat rapid radial pulse, and you note that her skin is warm, pink, and dry.

Secondary Assessment

You sit down on a chair next to Mrs. Ortega and begin to take the history, starting with an elaboration of the chief complaint. She is not experiencing pain, so most of the OPQRST questions do not apply, but she does tell you that the onset of her symptoms was gradual over this morning and afternoon and that she has been suffering from the breathing difficulty for several hours. You determine that she chronically has a difficult time breathing, but this episode was slightly worse than usual—a 5 on a scale of 1 to 10. You continue with the assessment using the mnemonic as the foundation for asking questions. She has no allergies that she knows of. The medications she takes, including oxygen, are related to her history of emphysema, a serious lung disease. Her last oral intake was lunch at around noon. There were no unusual events leading to the onset of the symptom.

Meanwhile, your partner has been taking and recording Mrs. Ortega’s baseline vital signs. Her respirations are puffy, somewhat labored, and at a rate of 28 per minute with adequate chest rise. Her pulse is rapid at 100 per minute and irregular. Her skin color, temperature, and condition remain normal. Pupils are normal, equal, and reactive. Her blood pressure is 120/90 mmHg. The pulse oximeter reading has improved only slightly to 90% while on the nasal cannula at 2 lpm so you increase the flow to 3 lpm and continue to monitor the SpO₂ reading.

The physical exam you conduct is focused on Mrs. Ortega’s complaint and related body systems. You assess her pupils and find that they are midsize and sluggish to respond. Her oral mucosa and conjunctiva are slightly cyanotic. Her neck veins are flat. You quickly inspect the chest by lifting her shirt to look for any potential evidence of trauma. You auscultate her chest with your stethoscope and detect wheezing noises that, in fact, you can hear even without the stethoscope. The breathing sounds are present and equal on both sides. Her abdomen is nontender and no distention is noted. You inspect the lower extremities for redness and swelling, especially to one calf. You quickly palpate trying to elicit a tenderness response. You ask Mrs. Ortega to “Point your toes back toward your head” checking for tenderness in either calf region. You then ask her to “Point your toes” again checking for any tenderness. You inspect the ankles and feet for edema.

You place Mrs. Ortega on the wheeled stretcher and transfer her to the ambulance. You raise the head of the stretcher so that she can ride to the hospital in a sitting position, which she finds is more comfortable and helps her to breathe.

Reassessment

You perform a reassessment by reassessing her mental status, airway, breathing, oxygenation, and circulation, and reassessing and recording her vital signs. You repeat an assessment focused on her breathing problem by using your stethoscope to auscultate her chest and reconfirm that breath sounds are present and equal with wheezing sounds on both sides. You assess the SpO₂ reading to ensure the nasal cannula at 3 lpm is keeping the SpO₂ at or above 94%. Because Mrs. Ortega is a stable patient, you repeat the reassessment every 15 minutes en route. You radio the hospital emergency department with patient information and your estimated time of arrival.

You arrive at the hospital with no further incident, give your oral report to the receiving staff, complete the transfer of care, finish the prehospital care report, and prepare the ambulance for the next call.

IN REVIEW

1. Briefly state the purposes of patient assessment by the EMT.
2. List the main components of patient assessment.
3. List the three steps of the scene size-up.
4. List the components of the primary assessment.
5. Contrast the order of the three steps of the secondary assessment for a responsive medical patient with the order of the steps for an unresponsive medical patient or trauma patient. Explain why the order of the steps differs.
6. Describe the kinds of patients for whom the physical exam should be a rapid head-to-toe assessment (rapid secondary assessment). Describe the kinds of patients for whom the physical exam should be focused on a specific site or area of complaint (modified secondary assessment).
7. Name the five categories of measurements that are included in the vital signs.
8. Name the categories of information sought during history taking that the letters in OPQRST and SAMPLE represent.
9. State how often, at a minimum, during the reassessment, the components of the primary assessment and the vital signs should be reassessed for the following: (a) a critical or unstable patient and (b) a stable patient.

CRITICAL THINKING

SCENARIO 1

You are called to the scene for a 23-year-old male who fell approximately 20 feet from a balcony at a concert. The patient is not alert as you approach him. He has blood coming from his mouth and ears. His left arm is angulated and obviously fractured. A bystander states he was talking and moaning right after he fell, but now he won't respond.

1. What would be your first immediate action when you arrive at the patient?
2. What assessment should you conduct first?
3. What are the components of that assessment and in what order would you perform them?
4. What life threats are you assessing for and how would you manage them?
5. What injuries should you suspect in this patient?
6. What baseline vital signs would you assess?
7. Would you perform a rapid secondary assessment or a modified secondary assessment?
8. What does the change in his mental status indicate?
9. When would you transport?
10. How would you prepare the patient for transport?
11. What would you do while en route to the medical facility?

SCENARIO 2

You are called to the scene for a 78-year-old female complaining of shortness of breath. As you arrive on the scene,

her daughter lets you into the house and directs you to her mother. The patient is lying supine on the couch and appears to be extremely pale and cyanotic. You hear snoring sounds when she breathes. The daughter states that her mother has a heart condition and hasn't been feeling well for 2 days. She thought her mother was napping on the couch, but when she went to wake her, her mother did not respond.

1. Do you suspect she is a trauma or medical patient?
2. What would be your first immediate action when you arrive at the patient?
3. What assessment should you conduct first?
4. What are the components of that assessment and in what order would you perform them?
5. What life threats are you assessing for and how would you manage them?
6. Would you collect a history first or do a medical assessment?
7. Would you perform a rapid secondary assessment or a modified secondary assessment?
8. How would you collect a history?
9. What does the mental status possibly indicate?
10. What would you expect the SpO₂ reading to be?
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ANSWER KEY

IN REVIEW

1. The main purpose of the primary assessment is to identify and manage immediately life-threatening conditions to the airway, breathing, or circulation. However, a number of overall purposes of patient assessment are served during the primary assessment such as determining whether the patient is injured or ill, identifying and managing critical conditions, and determining priorities for further assessment and care. By comparison, the secondary assessment allows you to conduct a more thorough physical exam, take baseline vital signs, and obtain a more detailed history.
2. The main components of patient assessment are the scene size-up, primary assessment, secondary assessment, and the reassessment.
3. The steps of scene size-up are to (1) take Standard Precautions, (2) evaluate the scene for hazards and ensure scene safety, (3) determine the mechanism/nature of injury, (4) determine the number of patients, and (5) ascertain the need for additional resources.
4. The steps of the primary assessment are to form a general impression of the patient, assess the level of consciousness (mental status), assess the airway, assess breathing, assess circulation, and establish patient priorities. This should be conducted in approximately 60 seconds unless confronted with life-threatening problems that must be corrected along the way.
5. For a responsive medical patient, the secondary assessment is conducted in the order of (1) history, (2) focused medical assessment, and (3) baseline vital signs. This is because the most significant information about a medical condition will usually be obtained from what the patient tells you. For an unresponsive medical or trauma patient, the secondary assessment is conducted differently because the priorities are different; information from the physical exam is most important. The order is (1) rapid trauma or rapid medical assessment, (2) baseline vital signs, and (3) history.
6. A rapid head-to-toe assessment should be performed on unresponsive medical patients and on trauma patients who have a significant mechanism of injury, multiple injuries, altered mental status, or critical findings. A modified secondary assessment or focused exam should be performed on responsive medical patients or trauma patients who have no significant mechanism of injury, no multiple injuries, alert and oriented mental status, and no critical findings.
7. The following vital signs should be assessed during the secondary assessment and throughout the entire call: breathing (rate and tidal volume), pulse (rate, location, strength, and regularity), skin (temperature, color, and condition), capillary refill, blood pressure (systolic and diastolic), pupils (equality, size, and rate of reactivity), and SpO₂.
8. OPQRST is a mnemonic (memory aid) to help you remember how to proceed through a series of questions to assess the patient's chief complaint, major symptoms, or pain. They include: O = onset (when and how did the symptoms begin?), P = provocation/palliation/position (what makes it worse/better?), Q = quality (how would you describe the pain?),

R = radiation (where do you feel the pain?), S = severity (how bad is it?), and T = time (how long has it been going on?).

SAMPLE is a mnemonic to help you remember the following patient history questions: S = signs and symptoms, A = allergies, M = medications, P = pertinent past history, L = last oral intake, and E = events leading to the injury or illness.

9. At a minimum, the primary assessment and vital signs should be reassessed every 5 minutes for an unstable patient with critical injuries, and every 15 minutes for a stable patient.

GLOSSARY

apnea absence of breathing; respiratory arrest.

aspiration breathing a foreign substance into the lungs.

AVPU a mnemonic for alert, responds to verbal stimulus, responds to painful stimulus, unresponsive, to characterize levels of responsiveness.

blunt trauma a force that impacts or is applied to the body but is not sharp enough to penetrate it, such as a blow or a crushing injury.

brain herniation compression and pushing of the brain through the foramen magnum.

cerebrospinal fluid (CSF) a clear fluid that surrounds and cushions the brain and the spinal cord.

dyspnea shortness of breath or perceived difficulty in breathing.

extension posturing a posture in which the patient arches the back and extends the arms straight out parallel to the body. A sign of serious head injury. Also called *decerebrate posturing*.

flexion posturing a posture in which the patient arches the back and flexes the arms inward toward the chest. A sign of serious head injury. Also called *decorticate posturing*.

in-line stabilization bringing the patient's head into a neutral position in which the nose is in line with the navel and the neck is not flexed or extended and holding it there manually.

modified secondary assessment a physical exam that is focused on a specific injury site, performed on a responsive patient with no significant mechanism of injury or critical injuries; or on a medical patient who is alert, oriented, and stable.

occluded closed or blocked; not patent, as an occluded airway.

orthopnea shortness of breath while lying flat.

paradoxical movement a section of the chest that moves in the opposite direction to the rest of the chest during the phases of respiration. Typically seen with a flail segment.

patent open; not blocked, as a patent airway.

penetrating trauma a force that pierces the skin and body tissues, for example, a knife or gunshot wound.

primary assessment patient assessment conducted immediately after scene size-up to discover and treat immediately life-threatening conditions, determine whether the patient is injured or ill, and establish priorities for further assessment, care, and transport.

rapid secondary assessment a head-to-toe physical exam that is swiftly conducted on a trauma patient who is unresponsive or who has a significant mechanism of injury, has altered mental status, responds to verbal or painful stimuli, or is unresponsive; or on a medical patient who is not alert, is disoriented, does not respond to verbal or painful stimuli, or is unresponsive.

reassessment the continuous assessment that is conducted following the secondary assessment to detect any changes in the patient's condition, to identify any missed injuries or conditions, and to adjust emergency care as needed.

secondary assessment the portion of patient assessment conducted after the primary assessment, for the purpose of identifying additional serious or potentially life-threatening injuries or conditions and as a basis for further emergency care.

Critical Thinking

SCENARIO 1

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SCENARIO 2

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Pharmacology Medication and Administration

Pharmacology Medication and Administration

The following items provide an overview to the purpose and content of this chapter. The Standard and Competency are from the National EMS Education Standards.

STANDARD • **Pharmacology** (Content Areas: Principles of Pharmacology; Medication Administration; Emergency Medications)

COMPETENCY • Applies fundamental knowledge of the medications that the EMT may assist/administer to a patient during an emergency.

OBJECTIVES • After reading this chapter, you should be able to:

1. Define key terms introduced in this chapter.
2. Describe the roles and responsibilities associated with administering and assisting patients with administration of medications.
3. Differentiate between administration of medication and assisting a patient in taking his own medications.
4. List the medications in the EMT's scope of practice.
5. Differentiate between a drug's chemical, official, generic, and trade names.
6. Demonstrate the proper administration of drugs by each of the following routes:
 - a. Sublingual
 - b. Oral
 - c. Inhalation
 - d. Intramuscular (epinephrine auto-injector only)
7. Differentiate between the following medication forms:
 - a. Tablet
 - b. Liquid for injection
 - c. Gel
 - d. Suspension
 - e. Fine powder for inhalation
 - f. Gas
 - g. Liquid for spray or aerosolization
8. Explain the roles of off-line and on-line medical direction with regard to medication administration.
9. Adhere to the following key steps of medication administration:
 - a. Obtain an order.
 - b. Verify on-line orders.
 - c. Select the proper medication.
 - d. Verify the patient's prescription.
 - e. Check the expiration date.
 - f. Check for impurities and discoloration.
 - g. Verify the form, route, and dose.
 - h. Ensure that the "five rights" of medication administration are followed.
10. Document required information regarding medication administration.
11. Describe the reassessment of a patient after you have administered or assisted the patient in taking a medication.

KEY TERMS • Page references indicate first major use in this chapter. For complete definitions, see the Glossary.

action
administration
contraindications
dose
drug

form
indications
medication
metered-dose inhaler (MDI)
pharmacology

route
side effects
small-volume nebulizer (SVN)

Case Study

The Dispatch

EMS Unit 202—respond to 1934 Lincoln Avenue—you have a 76-year-old male patient complaining of severe chest pain. Time out is 2136 hours.

Upon Arrival

The house is unlit and the surrounding area dark. You and your partner approach the house from the side, walk up onto the front porch, and stand on either side of the door. You ring the doorbell and hear a voice say, “Please help me The door is open,” and then, between gasps, “I’m having bad chest pain.” With flashlights in hand, you and your partner decide to enter the scene very

cautiously. Upon entry, you find an elderly man sitting on the hallway floor against the wall. You immediately turn on the hall light. A scan of the scene does not reveal any potential hazards. The patient is clutching his chest, complaining of severe, crushing pain.

How would you proceed to assess and care for this patient—including the administration of medication?

During this chapter, you will learn about assessment and emergency care for a patient whose condition may require administration of a medication. Later, we will return to the case and apply the procedures learned.

INTRODUCTION

As an EMT you will be responsible for administering or assisting the patient with the administration of certain medications. Unlike a mathematician, you cannot erase your mistakes and start over. Once a medication has been administered, you cannot extract it or prevent its effects. Improper use of a medication may have dangerous consequences for the patient. Therefore, it is vital that you be completely familiar with the medications and the proper procedures for administration.

Only certain patients who have specific chief complaints or signs and symptoms will require medication. Either the medication will be carried on the EMS unit or it will be prescribed to the patient. Regardless of the source of the medication, you must attain medical direction’s permission, whether as an off-line standing order found in your written protocols or as an on-line order you receive by direct communication with medical direction, before you administer or assist the patient with administering a medication.

ADMINISTERING MEDICATIONS

A **medication** is generally defined as a drug or other substance that is used as a remedy for illness. A **drug** is a chemical substance that is used to treat or prevent a disease or condition. The terms *drug* and *medication* are often used interchangeably by EMTs. The study of drugs is referred to as **pharmacology**.

The EMT must take seriously the responsibility of administering medications. Medications have specific physiological effects on the cells, organs, or body systems. When the correct dose is administered appropriately, the patient’s condition may improve significantly

and uncomfortable symptoms may be relieved. If administered inappropriately, some drugs can cause serious side effects and deterioration in the patient’s condition.

As an EMT, you will be administering medications under the direct order of a licensed physician. Without this order, you cannot administer any type of medication. Also, the EMT is only able to administer the medications identified in the local protocol, which may include all or some of the medications covered in this chapter.

Remember that you may not administer or assist with administration of any medication other than the medications that are identified in local protocols. For example, if you arrive on the scene and find a patient experiencing excruciating pain associated with a dislocated shoulder, and you find the patient’s prescription of Percodan at his side, it would be inappropriate for you to suggest, administer, or assist with the administration of the medication. Even though Percodan is a pain reliever, and it might seem to “make sense” to use it to make the patient more comfortable, it is not an acceptable medication to be administered by an EMT. An EMT can only administer medications within his scope of practice.

Some systems clearly distinguish between the EMT administering and assisting the patient with the administration of a medication. *Administration* of a medication implies that the EMT will actually take all of the steps necessary to give the patient the medication via an oral, injection, or inhalation route. The patient simply takes the direction from the EMT while receiving the medication. If the orders clearly state that the EMT will *assist* with the administration of the medication, the EMT will prepare the medication and then hand it over to the patient who will then proceed with taking the medication. As an example, if the orders state that the EMT can *administer* aspirin to the patient, the EMT will obtain