

## Pre-Lecture

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### I. You are the Provider

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Time: 10 minutes

Small Group Activity/Discussion

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#### **Purpose**

This activity is designed to help introduce your students to the content of this chapter.

#### **Instructor Directions**

1. Direct students to read the “You are the Provider” scenario found throughout Chapter 45.
2. You may wish to assign students to a partner or a group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions.
3. You may also assign this as an activity and ask students to hand in their comments on a separate piece of paper.

## Lecture

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### I. Introduction

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Time: 15 minutes

Slides: 2–11

Lecture

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#### **A. Overview**

1. Breakthrough technologies, newer drugs, and research
  - a. Combined to increase the average life expectancy
  - b. Persons who might have died from injuries or illnesses 50 years ago may now continue to lead satisfying and productive lives.
  - c. Many require physical support and care of chronic illnesses.
  - d. Paramedics are being called upon more frequently to interact with chronic care providers and patients receiving home care.
  - e. See Table 45-1: Home Care Patients in the United States, 1992 and 2000.
2. Quality patient care
  - a. Ultimate goal for providers
  - b. Aims for specific patient populations are often quite different.
  - c. In the hospital, objectives include stabilization, diagnosis, and treatment.

- d. In the prehospital setting, emergency care
3. Rehabilitation care
  - a. The objective is to restore a person with disabilities to his or her maximum potential in several areas (physical, social, spiritual, psychological, and vocational).
  - b. Programs have recently moved from hospitals to specialized rehabilitation centers and expanded home health care programs.
4. Patients unable to return to their homes
  - a. Long-term care objectives include maintenance of a safe, stimulating environment for the patient.
  - b. Some provide custodial care; others provide life enhancement.
5. Hospice care
  - a. Began in England in the 1960s
  - b. Multidisciplinary approach to improve the quality of a person's life at the end through pain and symptom management
  - c. Surrounded by familiar people and objects, and living on their own schedule
  - d. Originally patients resided in the hospice facility to receive end-of-life care that included pain management without cure management.
  - e. Over time, grew to include home and in-hospital care designed to support the dying patient and his or her family during the terminal illness and afterward through the bereavement process
6. Home care
  - a. Used to be the norm for terminally ill patients because few patients could afford expensive hospital care
  - b. Over the years, visiting nursing has evolved into a multidisciplinary specialty.
  - c. Previously patients often relied on expensive emergency department visits for management of acute incidents.
  - d. Home care has become an increasingly attractive alternative both to patients and to the federal government.
  - e. Many agencies found that they could profitably provide care only to less ill or injured patients.
  - f. The federal government regulates home health care agencies to ensure they meet certain quality standards.
  - g. Costs for similar home care services vary substantially (costs less than institutional health care, gives more satisfaction to patients, and results in fewer and shorter hospital stays).

## **B. The Role of the Paramedic in Injury Prevention in the Home Care Setting**

1. Identifying and preventing illness and injury in the home care setting
  - a. Able to identify causes and steps for prevention
  - b. Teachable moments
  - c. Injuries occur from unintentional and intentional causes.
2. Injury

- a. "Unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy, or from the absence of such essentials as heat or oxygen"
  - b. May be preventable by changing the environment or individual behavior
3. Haddon Matrix
- a. Useful framework developed by Dr. William Haddon (first administrator of what is now the National Highway Traffic Safety Administration)
  - b. Useful tool for identifying injury prevention opportunities
  - c. Injuries occur in a certain time sequence (pre-event phase, event phase, and post-event phase).
  - d. Each event has a host and equipment involved in the injury.
  - e. Prevention can be focused in any "cell" of the matrix.

### C. You are the Provider

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Slide: 12

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Lecture/Discussion

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1. Present the case study provided on the slide:
  - a. You are dispatched to a residence for a drastic change in a patient's mental status. Numerous family members are at the scene, and you notice religious items near the patient.
  - b. The patient's son tells you that the patient was recently discharged after 3 months in a nursing home.
  - c. Changes in mental status can be very difficult for the provider to determine due to not having a baseline to compare against the current status. Caregivers may be the best judge of current status. Understanding the reason for the discharge is of importance—is it financial or a hospice situation? A patient and family's religious beliefs should be respected; many times it will be a personal decision by the provider as to the level of involvement.

## II. Assessment of the Chronic Care Patient

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Time: 30 minutes

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Slides: 13–30

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Lecture

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### A. Scene Size-up

1. Scene safety
  - a. Follows the same guidelines as for any call
  - b. Pets may be agitated.
  - c. You are entering someone's home.
  - d. Caregiver stress, exhaustion, and pressure may cause some family members to react negatively to your presence or rely on you to help relieve stress.
2. Supporting equipment
  - a. Perform a quick assessment.
  - b. How can it be moved safely?

- c. Will it fit in the ambulance?
- 3. Environment
  - a. Nutritional support
  - b. Reliable, safe heat source
  - c. Good ventilation
  - d. Electricity
  - e. Available water

## **B. Body Substance Isolation**

- 1. Home care scenario
  - a. Same as in any setting
  - b. Keep contaminated supplies and equipment together and off the floor and furniture.
  - c. Bring two disposable bags for supplies. (Contaminated but disposable supplies can go in one bag, contaminated but reusable supplies go in the other.)
- 2. Hand washing
  - a. Most effective means of preventing transmission of microorganisms
  - b. Waterless gel with at least 60% alcohol content before applying your gloves and after removing them
  - c. Use running water and soap to clean your hands if they are visibly soiled or if your patient has a diagnosed infection or is taking immunosuppression drugs.
  - d. Use a mask, goggles, and gown if you will be exposed to respiratory secretions or if your patient is immunosuppressed.
  - e. Avoid wearing latex gloves.
- 3. Basic principles of infection control
  - a. Should be applied in the home care setting
  - b. Focus on reducing infections related to home infusion therapy, urinary tract care, respiratory care, wound care, and enteral therapy.
  - c. Adhere to standard and droplet precautions for home care patients to protect your health as well.

## **C. Initial Assessment**

- 1. General impression
  - a. On the point of death?
  - b. If so, remove the patient as quickly as possible from the equipment and transfer him or her to your EMS equipment.
- 2. Airway
  - a. Artificial or altered airways
  - b. Assess the work of breathing.
  - c. Look for accessory muscle use, posture, grunting, or pursed lip breathing.
  - d. Listen to breath sounds.
  - e. Pulse oximetry
- 3. Level of consciousness
  - a. One common alteration is dementia.

- b. Document behavior, including accusations, but remain nonjudgmental toward caregivers.
- c. Delirium is also possible.

#### **D. Focused History and Physical Exam**

1. Trauma patient
  - a. Stabilize cervical spine.
  - b. Perform a rapid physical exam.
  - c. Provide comfort.
  - d. Assess for other injuries.
2. Medical patient
  - a. Gather a SAMPLE history.
  - b. Perform an assessment of the chief complaint.
  - c. Take the patient's vital signs.
  - d. Physical exam
3. Medication interactions in home care
  - a. Each patient may react differently.
  - b. Treat any possible medication interactions by maintaining the patient's airway, breathing, and circulation.
  - c. Untoward reactions may be accidental.
  - d. Observe the scene for signs of unsafe medication administration practices, inadequate lighting, or problematic equipment.
  - e. Crushed extended-release medications
  - f. Be suspicious for potential, accidental, or deliberate overdosing by the patient or caregiver.
4. Using the home health history
  - a. Providers may range from licensed personnel to friends, family, or members of fraternal or church groups.
  - b. Informal caregiving networks often keep few records.
  - c. Formalized home care agencies are required to keep detailed records similar to those in hospitals or nursing homes.
  - d. Medical insurance agencies expect detailed records to support a claim for benefits.
5. Compliance issues
  - a. Calls sometimes result from inoperative or damaged equipment such as IVs, tubes, artificial airways, and ventilators.
  - b. Care should be directed toward maintaining the patient on EMS equipment while the patient's own equipment is repaired or the patient can be transferred to new equipment.
  - c. Inability to easily or expeditiously repair or replace the equipment should result in a transfer to the hospital.
6. Assessing dementia
  - a. Two critical questions
    - i. What is the patient's usual baseline functioning?

- ii. How does function today vary from baseline?
- b. Determine whether a reversible condition needs to be treated (hypoglycemia, hypoxia, or hypothermia).
- c. If no reversible conditions exist, transport the patient to the emergency department for further evaluation.
- d. Call medical control for assistance if the patient is unwilling to be transported.
- e. Document all assessments and interventions on your PCR.

### **E. Detailed Physical Exam**

1. Specific region or body system
  - a. In the case of trauma with significant MOI
  - b. Most calls will be medical in nature.
  - c. The chief complaint may clue you in to the mechanism or cause of the illness.
  - d. The need for a comprehensive exam depends on the acuity of the patient and the risk factors for further injury or illness.

### **F. Ongoing Assessment**

1. Transport
  - a. If you are unable to resolve the patient's problem
  - b. Streamline the patient's equipment by removing components that will not be used during transport.
  - c. Document your care on the PCR or run sheet.
2. Patient's own equipment
  - a. Be sure to have battery backup for electrical devices.
  - b. Be sure that all equipment is clearly labeled with the patient's name and contact information.
  - c. Document which pieces of equipment were transported as well as the person assuming responsibility for the patient and equipment at the receiving facility.

### **G. You are the Provider (continued)**

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Slide: 31

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Lecture/Discussion

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1. Continue reading the case study provided on the slide:
  - a. The patient is a 54-year-old male sitting in a chair. He looks pale and ashen. You note left-sided facial droop and unequal grip strength. There is oxygen with a nasal cannula on a table near the patient.
  - b. You learn from a family member that he was diagnosed with esophageal cancer 1 month ago.
  - c. General impression for many would be that this may be a chronic lung disease patient, or history of CVA. The level of consciousness can be directly attributed to low SpO<sub>2</sub>, or may be from another underlying cause. The paramedic should consider mentioning the fire hazard posed by the lit candle and the oxygen.

## **III. Types of Patients Who Receive Home Health Care**

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Time: 1 hour 50 minutes

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Slides 32–60, 62–83, 85–104

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Lecture

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## A. Overview

1. Chronically ill patients
  - a. Cared for at home by a wide range of caregivers
  - b. Family members, unlicensed caregivers, licensed nonprofessional caregivers, or licensed professional caregivers
  - c. Family members are often a great resource for the paramedics.
2. Others
  - a. Recent hospital stay, surgery, a high-risk pregnancy, or a newborn with medical complications
  - b. Chronic illness or permanent injury
  - c. See Table 45-2 Chronic Illnesses and Injuries Encountered in the Home Care Setting.

## B. Patients with Abnormal Airway Conditions

1. Respiratory compromise
  - a. Unable to adequately ventilate themselves
  - b. COPD: loss of alveolar surface area or damage to the bronchial lining reduces the volume of air delivered to the alveoli and increases the work of breathing.
  - c. Cystic fibrosis increases the amount of mucus present in the airway, limiting air flow and reducing diffusion across the pulmonary capillary membrane.
  - d. Bronchopulmonary dysplasia results from early oxygen administration to newborns and causes permanent changes in the cells of the respiratory tract.
  - e. Musculoskeletal changes (scoliosis and chest wall abnormalities) make it difficult to expand the chest adequately.
  - f. Excess weight over the chest or sleep apnea may leave the patient hypoventilated during sleep.
2. Home oxygen-delivery systems
  - a. The home care treatment plan is designed to supplement the patient's respiratory effort.
  - b. Stressors (infection, exposure to an allergen, or psychological upset) can increase the severity of signs and symptoms.
  - c. The simplest home oxygen systems involve a nasal cannula and oxygen in various delivery systems (small portable cylinders to large oxygen enrichment systems).
  - d. May be called when the person's oxygen demand exceeds the current supply
  - e. Oxygen concentrators: large electrical devices that concentrate the oxygen in ambient air and eliminate other gases
  - f. Liquid oxygen system: more gas can be kept in a smaller container but cannot be stored for long periods of time
  - g. Continuous positive airway pressure (CPAP)
    - i. To decrease the work of breathing by keeping the air passages and alveoli open during the expiratory phase

- ii. Airway pressure is slightly higher than atmospheric pressure, which keeps alveoli and airway passages open.
  - iii. Increases the driving force of oxygen and improves overall oxygenation
  - iv. Typically used for sleep apnea
  - h. Bilevel airway pressure (BiPAP) exerts a different level of inspiratory pressure versus expiratory pressure.
    - i. Ventilators
    - i. Also called respirators
    - ii. Mechanically deliver air to the lungs
    - iii. Smaller than most microwave ovens, use regular household electricity, and may include a battery backup
    - iv. May be set to deliver a certain volume of gas to the lungs
    - v. May specify the tidal volume or pressure
    - vi. Most rely on positive-pressure ventilation (air pushed into the lungs).
    - vii. Negative-pressure ventilators mimic the body's normal method of breathing.
3. Invasive airways
- a. Tracheostomy
    - i. Surgical airway for which an opening is placed in the trachea below the cricoid ring
    - ii. May become necessary with prolonged use of an endotracheal tube (predisposed to tracheal necrosis, tracheoesophageal fistula, ventilator-acquired pneumonia, or oral damage)
  - b. Laryngectomy
    - i. Surgical procedure in which the larynx is removed (usually because of cancer)
    - ii. The trachea is curved anteriorly and sewn to tissues of the neck.
    - iii. Stoma: opening in the neck
    - iv. Be careful not to introduce liquids into the stoma.
    - v. Cannot produce normal speech and must learn to swallow and regurgitate air from the stomach or use an assistive device
  - c. Tracheostomy tube
    - i. Designs vary. (Ask the caregiver about the tube prior to beginning care.)
    - ii. General types include a one-piece metal tube that can be plugged for speech.
4. Airway management
- a. Assess for airway patency in all patients.
  - b. Basic airway techniques of opening, repositioning, and clearing the airway are the most critical steps in improving airway clearance and patency.
  - c. Assess the flow of oxygen and ensure that there is sufficient oxygen in the system.
  - d. Avoid adjusting home ventilator settings.
  - e. Occasionally an artificial airway will need to be exchanged or replaced.
    - i. Tracheostomy tubes are easily removed. (When replacing the tube have the patient take a deep breath and gently follow the contour of the tube during inhalation.)
  - f. One-piece plastic tubes with or without cuffs

- i. Suction the patient orally with a whistle-tip catheter.
    - ii. Deflate the cuff and remove it during exhalation.
    - iii. Insert an obturator, gently guide the tube in one inhalation, remove the obturator, and add air to the cuff.
  - g. Two-piece tracheostomies
    - i. Outer cannula that is guided into place by the obturator
    - ii. When the obturator is removed, insert the inner cannula and turn the standard connector until it clicks or locks into place.
    - iii. Add air to the cuff and apply the holder to secure the device around the neck.
  - h. Replacing a tracheostomy with an ET tube
    - i. The easiest method is to remove the tracheostomy tube and gently guide a slightly smaller ET tube into place.
    - ii. Take care to stabilize the ET tube.
    - iii. Confirm chest rise with ventilation.
  - i. If the tracheostomy has inadvertently closed
    - i. Intubate the patient orally or nasally.
    - ii. Place an occlusive dressing over the tracheostomy site to prevent air loss.
- 5. Skill Drill 45-1: Cleaning a Tracheostomy
  - a. Wash your hands and apply a mask, goggles, and clean nonlatex gloves.
  - b. Open supplies may be used.
  - c. Remove the inner cannula and place the device to soak in the appropriate recommended solution (Step 1).
  - d. Attach the catheter to negative pressure. Check the suction and clear the catheter by drawing up a small amount of saline (Step 2).
  - e. Have the patient take a deep breath or preoxygenate him or her (Step 3).
  - f. Insert the catheter into the trachea without suction. Apply intermittent suction while removing the catheter. Repeat as necessary. Keep the patient well oxygenated during the procedure (Step 4).
  - g. Clean the inner cannula with the tracheostomy brush, rinse, and replace and lock into place (Step 5).
  - h. Remove your gloves and wash your hands.
  - i. Document the procedure and assessment on your PCR.
- 6. Skill Drill 45-2: Obtaining a Peak Flow Reading
  - a. Help the patient into a position of comfort, either sitting upright or standing upright, if safe to do so.
  - b. Place the indicator at the base of the numbered scale (Step 1).
  - c. Have the patient take a deep breath through the mouth.
  - d. Have the patient put the meter in the mouth and close his or her lips around the end.
  - e. Have the patient blow out as hard as possible through the device for approximately 1 second (Step 2).
  - f. If time permits, repeat two times to obtain an average result.
  - g. Document the results on the patient care record/run record.
  - h. Assist in cleaning the device and storing it correctly.

### C. Patients with Acute Cardiovascular Disease and Vascular Access

1. Chronic cardiovascular disease
  - a. Often cared for in the home setting
  - b. Cardiac insufficiency or heart failure
  - c. Treatment is aimed at improving the pumping function of the heart.
  - d. Some patients may have an implantable pacemaker.
2. Cardiomyopathy
  - a. Heart muscle does not work at the optimal level.
  - b. Hypertension, coronary artery disease, and viral infections might combine to decrease the ability of the muscle to eject blood.
  - c. Many treatments require long-term venous access devices.
3. Ejection fraction
  - a. The heart never ejects 100% of the blood in the left ventricle during a heartbeat.
  - b. Greater than 55% is considered adequate.
  - c. Less than 20% can significantly alter a patient's lifestyle.
4. Vascular access
  - a. Central venous catheter: venous access device with the tip of the catheter in the vena cava; used for many types of home care patients (chemotherapy, long-term antibiotic or pain management, high-concentration glucose solutions, and hemodialysis)
  - b. The midline catheter is located in a large vessel (not the vena cava).
  - c. See Table 45-3 Venous Access Devices.
  - d. Devices are used intermittently and must be flushed to keep them open.
  - e. Catheter dysfunction occurs frequently in patients receiving home infusions.
  - f. Catheter-associated thrombosis can be life threatening and limit future vascular sites.
  - g. Inspect and secure all external devices prior to moving the patient.
  - h. Check the devices carefully before any treatment.
  - i. Keep the device area clean.
  - j. Check that the correct medication and dose or nutrition are being infused in the device.
  - k. Use the device site only for what it was designed for.
  - l. Avoid placing a pressure cuff on an arm that has a device port.
  - m. Check pulses carefully in the device area.
5. Skill Drill 45-3: Drawing Blood From a Central Venous Catheter
  - a. Wash your hands and apply a mask, goggles, and nonlatex gloves.
  - b. Draw the flush solution into a syringe (Step 1).
  - c. Set up the supplies, including the port access kit.
  - d. Swab the port with an appropriate cleansing solution or clamp the catheter and remove the cap (Step 2).
  - e. Attach an empty syringe or Vacutainer adapter to the hub or port (Step 3).
  - f. Release the clamp (if clamped), and aspirate 5 mL of blood (Step 4).
  - g. Reclamp the catheter if necessary and discard the aspirated blood (Step 5).

- h. Attach a new syringe or adapter (Step 6).
  - i. Obtain the blood samples (Step 7).
  - j. Reclamp the catheter if necessary and attach the syringe with the flush solution (Step 8).
  - k. Release the clamp and flush the line (Step 9).
  - l. Reclamp and recap the line (Step 10).
  - m. Identify the tubes of blood by writing the date and time drawn and the paramedic's name on the side of the tube, and ready them for transport.
  - n. Document the procedure and assessment on the PCR.
  - o. Dispose of contaminated equipment.
6. Skill Drill 45-4: Accessing an Implantable Venous Access Device
- a. Wash your hands and apply a mask, goggles, and nonlatex gloves.
  - b. Open supplies including the port access kit.
  - c. Palpate the skin over the device (Step 1).
  - d. Cleanse the skin over the device using a cleansing solution (Step 2).
  - e. Prime the needle tubing and needle with saline. Use a special access needle called unbeveled or noncutting to avoid slicing the silicone reservoir wall (Step 3).
  - f. While stabilizing the device, insert the needle at a 90° angle to the skin until the needle tip reaches the back of the device (Step 4).
  - g. Aspirate 5 mL of blood (Step 5).
  - h. Discard the aspirate and obtain blood samples if necessary (Step 6).
  - i. Flush the line with normal saline (Step 7).
  - j. Administer medications or fluids as directed (Step 8).
  - k. Flush the device (Step 9).
  - l. Secure the needle with a sterile dressing or remove by pulling straight out of the device (Step 10).
  - m. Apply a dressing to the skin over the device if the needle was removed.
  - n. Identify the tubes of blood by writing the date and time drawn and the paramedic's name on the side of the tube, and ready them for transport.
  - o. Document the procedure and assessment on the PCR.
  - p. Dispose of contaminated equipment.
7. Management of vascular access devices
- a. Relieve the anxiety and pain of frequent insertion attempts for patients
  - b. Create potential complications
  - c. See Table 45-4: Serious Complications Associated with Vascular Access Devices.
  - d. If a device complication is suspected, the paramedic should not attempt to access the device (requires additional medical intervention).

#### **D. You are the Provider (continued)**

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Slide: 61

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Lecture/Discussion

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1. Continue reading the case study provided on the slide:

- a. Baseline vital signs: Pulse 64, weak and irregular; BP 108/60; respiratory rate 32, pale and ashen. History of CVA and 3 months of rehabilitation.
- b. The son tells you that his father was getting some strength back to start chemotherapy, but his daughter insists that "he was sent home to die because the insurance money ran out."
- c. *Do you have enough information to begin care, if any? Who do you direct your questions to and why? What type of documentation would be beneficial at this time?*
  - Expect to see multiple conditions for chronic patients. Some of the patient's symptoms may be masked by other medical concerns. Determining correct information from family and caregivers is important in your assessment. Are you able to determine which family member is providing the correct information? It is possible that not all of the family is actually informed of the prognosis of the patient. Tensions may be very high among family members; scene and provider safety need to be observed.

## **E. Patients with Gastrointestinal/Genitourinary Access**

1. Gastric tube
  - a. Placed when the patient cannot ingest fluids, food, or medications by mouth
  - b. Through the nose or mouth
  - c. Endoscopy procedures may be undertaken to guide the surgical entrance of the tube into the stomach.
  - d. May still be at risk for aspiration
  - e. To minimize the risk, the patient should be upright, at least to 30°, when medications or nutrition is being infused (ideally kept upright for 30 to 60 minutes after feeding).
  - f. Should be flushed, usually with water, after infusing medications or nutritional fluids
2. Adhesions
  - a. Scar tissue that may connect one loop of bowel to another or encircle a segment of bowel, constricting it and resulting in a bowel obstruction
  - b. Large-bowel obstruction usually results from a growth within the bowel rather than adhesions.
  - c. Small-bowel obstruction occurs when the small intestine becomes blocked.
3. Urinary catheter
  - a. Vulnerable to difficulties with normal elimination
  - b. Long-term indwelling or intermittent catheterization
  - c. The bladder is sterile. (Introduction of any device can introduce bacteria.)
  - d. Indwelling catheters have a greater likelihood of contributing to urinary tract infections.
  - e. Urge to urinate when the bladder fills to about 150 mL of fluid
  - f. Extreme urge when 400 mL of fluid fills the bladder
4. Ileostomy
  - a. Large portions of the small intestine are removed.
  - b. A stoma is constructed that connects the small intestine to the outside of the abdomen where the patient attaches a collection bag.
  - c. The bag must be emptied frequently.

5. Colostomy
  - a. Surgical opening in the large intestine that is brought to the surface of the abdomen to drain solid waste
  - b. Temporarily allows the bowel to rest and heal, and is intended to be reversed at a later date
  - c. Permanent: stool is always diverted to the stoma.
6. Ureterostomy
  - a. Ureters are brought to the surface to a stoma.
  - b. Urine drains directly into an appliance.
7. Signs and symptoms
  - a. Large-bowel obstruction: changes in stool, abdominal distention, and localized pain
  - b. Small-bowel obstruction: diffuse pain, nausea, and vomiting
  - c. Overfilled bladder: may appear as abdominal distention
  - d. A strong ammonia smell indicates a urinary tract infection.
8. Inserting a nasogastric tube
  - a. Steps from Chapter 11
  - b. Explain what you are doing to the patient and be gentle.
9. Skill Drill 45-5: Catheterize Adult Male Patient
  - a. Help position the patient supine with legs slightly spread apart.
  - b. Wash your hands and apply a mask, goggles, and clean nonlatex gloves.
  - c. Open supplies including the urinary catheter and placement kit.
  - d. Wash the penis with soap and water, making sure that the foreskin has been retracted.
  - e. Coat the end of the catheter with a water-soluble gel.
  - f. Hold the penis at a 90° angle to the body and insert the catheter (Step 1).
  - g. When urine is evident in the tubing, insert the catheter until the Y between the drainage port and the balloon port is at the tip of the penis. For a straight catheter, insert approximately 1" more (Step 2).
  - h. Inflate the balloon and gently pull back on the catheter until you feel resistance.
  - i. Allow urine to drain. Note the amount and color (Step 3).
  - j. To remove a catheter, remove the saline in the balloon port and pull back gently until the catheter is free of the tip of the penis.
  - k. Remove your gloves and wash your hands, following BSI precautions.
  - l. If the catheter is to remain in place, secure it to the patient's leg according to home care instructions.
  - m. Document the procedure and assessment on the PCR.
10. Skill Drill 45-6: Catheterizing an Adult Female Patient
  - a. Help position the patient supine with legs slightly spread apart.
  - b. Wash your hands and apply clean nonlatex gloves.
  - c. Open supplies including the urinary catheter and placement kit.
  - d. Wash the perineal area with soap and water.
  - e. Coat the end of the catheter with a water-soluble gel.
  - f. Locate the urinary meatus anterior to the vagina and insert the catheter (Step 1).

- g. When urine is evident in the tubing, insert the catheter another 1" to 3" (Step 2).
  - h. Inflate the balloon and gently pull back on the catheter until you feel resistance.
  - i. Allow urine to drain. Note the amount and color (Step 3).
  - j. To remove a catheter, remove the saline in the balloon port and pull back gently until the catheter is free of the tip of the meatus.
  - k. Remove your gloves and wash your hands, following BSI precautions.
  - l. If the catheter is to remain in place, secure it to the patient's leg or abdomen according to the patient's needs.
  - m. Document the procedure and assessment on the PCR.
11. Skill Drill 45-7: Replacing an Ostomy Device
- a. Help position the patient in a comfortable area in which to change the appliance and easily dispose of the contaminated articles.
  - b. Wash your hands and apply a mask, goggles, and clean nonlatex gloves.
  - c. Open supplies.
  - d. Empty/remove the current appliance and dispose of it appropriately (Step 1).
  - e. Wash the area around the stoma with soap and water. Cleanse the stoma with water only, being careful not to rub or irritate the area (Step 2).
  - f. Place a clean gauze pad over the stoma to prevent contamination of the clean skin with stool or urine (Step 3).
  - g. Cut the wafer to the correct size using the patient's measurement or tracing (Step 4).
  - h. Attach the appliance to the wafer. Be sure the distal end is closed (Step 5).
  - i. Remove the gauze (Step 6).
  - j. Remove the paper backing from the wafer (Step 7).
  - k. Apply the appliance with the stoma centered in the wafer cutout (Step 8).
  - l. Remove your gloves and wash your hands.
  - m. Document the procedure and assessment on the PCR.

## **F. Patients with Wounds and Acute Infections**

- 1. Wounds
  - a. Associated with trauma or surgery
  - b. Result in a break in the skin
  - c. May be either intentional or unintentional
- 2. Factors that affect wound healing
  - a. Nutritional status
  - b. Activity level
  - c. Medications
  - d. Chronic illness or immobility
  - e. Diabetes
  - f. Presence or absence of infection
- 3. Immunosuppressed patients
  - a. Greater risk of acquiring infections

- b. Immunocompromised patients increase both the risk of infection and the ability to combat infection.
4. Exudate
    - a. Drainage from a wound
    - b. Fluid and cells
    - c. Serous exudate is a clear, watery drainage.
    - d. Purulent exudate is pus (white blood cells, liquefied dead tissue, and bacteria).
    - e. Color often provides a clue about the types of bacteria present.
  5. Vascular access devices
    - a. Increased risk for infections
    - b. Hot to the touch, reddened area
    - c. Practice good hand hygiene and site care when working with these devices.
  6. Immobile patients with chronic illnesses
    - a. High risk for skin breakdown
    - b. Appearance: healing appears as a pink to reddened area.
    - c. Size: note any changes in size as described by the patient or caregiver.
    - d. Drainage: observe the color, consistency, odor, and number of gauze pads soaked in a timeframe.
    - e. Swelling: generalized or localized
    - f. Pain: have the patient rate his or her pain.
    - g. Drains or tubes: check the amount of drainage.
    - h. Temperature: warm to hot skin indicates a possible infection.
  7. Dehiscence
    - a. Important complication of wound healing
    - b. Separation of the edges of the wound
    - c. If the amount of drainage increases, especially 4 to 5 days after injury
  8. Sutures
    - a. Some wounds are left open to heal from within.
    - b. Others use sutures or staples to hold the edges of a wound together.
    - c. Most are removed 7 to 10 days after repair.
  9. Drains
    - a. May be sutured into place to allow liquids to escape and decrease tension on the sutures or staples
    - b. Flat pieces of tubing that remain open on both ends
    - c. Closed wound drainage systems
  10. Wound care
    - a. After exposing a wound for assessment, redress it to prevent further contamination.
    - b. Apply a sterile dressing and secure it to the area prior to transport.
    - c. Bulky dressing to help protect it during transfer and transport

### **G. You are the Provider (continued)**

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Slide: 84

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Lecture/Discussion

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1. Continue reading the case study provided on the slide:
  - a. The patient is unresponsive to verbal and painful stimuli. You observe agonal respirations and note a weak carotid pulse.
  - b. *His son is asking if you are going to do anything for his father. Are you?*
  - c. *Is medical direction involved, and if so, to what extent?*
    - Dependent upon local/regional protocols, medical direction needs to be consulted. Early involvement of medical direction, if applicable, will provide guidance and assurance that your actions are appropriate in this situation. Is there a valid do not resuscitate (DNR) document available? Consider what your treatment would be in the absence of this form. Compassionate treatment of the family members will be appreciated long after you have left the scene.

**H. Maternal/Child Health Risks**

1. Home care for women and infants
  - a. More than half a million infants were born preterm in 2004.
  - b. Cesarean deliveries are at an all-time high.
  - c. Women may deliver at home, or may spend anywhere from a few hours to several days in a health care setting.
2. Postpartum bleeding
  - a. Leading cause of maternal death
  - b. Occurs in as many as 10 of 100 births
3. Pulmonary embolus
  - a. 1 in 200 deliveries to 1 in 1400 deliveries
  - b. Caused by venous stasis, decreasing fibrinolytic activity, and increased procoagulant factors
4. Depression
  - a. Perinatal depression: occurs during pregnancy or within a year after delivery
  - b. The amount of estrogen and progesterone increases greatly during pregnancy.
  - c. In the first 24 hours after childbirth, the amount of hormones rapidly drops back down to their normal nonpregnancy levels.
  - d. Often goes unrecognized or untreated
5. Sepsis
  - a. Immature physiology
  - b. Inability to regulate temperature, adapt to respiratory problems, or respond to infection (poorly functioning immune system)
  - c. Infant death from sepsis was 7 per 1,000 live births.
  - d. Pregnancy complications can increase the risk of sepsis (maternal bleeding, maternal fever, infection of the uterus, and premature rupture of membranes).
  - e. Few symptoms
  - f. Transport immediately.
6. Home births

- a. Less than 1% of births occur unexpectedly at home.
  - b. Once the baby has been delivered, conduct a newborn examination.
  - c. Transport based on local protocol and family request.
  - d. Dry and warm the baby.
  - e. Clear the airway.
  - f. Assess breathing.
  - g. Assess pulse rate.
  - h. Assess color.
7. Pediatric apnea
- a. Premature newborns or those with congenital heart, lung, or neurologic problems often require home care.
  - b. Healthy infants may experience periods of apnea (especially during sleep).
  - c. If prolonged, frequent, or occurs with a drop in pulse rate or a change in skin color or muscle tone, it is not normal.
  - d. Home monitoring is indicated when an infant:
    - i. Has unresolved apnea of prematurity at the time of hospital discharge
    - ii. Has severe gastroesophageal reflux
    - iii. Has a history of an apparent life-threatening event
    - iv. Is the sibling of a baby who had sudden infant death syndrome

## **I. Hospice/Comfort Care**

1. Pain and discomfort
  - a. From tumor growth, treatment modalities, immobility, inflammation, or infection
  - b. Treatment is based on the type and severity of pain.
  - c. Initially around-the-clock anti-inflammatory medications (often coupled with antianxiety or antiemetic agents)
  - d. May receive a mild opioid
  - e. A strong opioid may be added later.
2. Mechanical or electrical pain management
  - a. Transcutaneous electrical nerve stimulators relieve pain by competing for nerve transmission pathways with the painful stimulus.
  - b. Turning, positioning, and supporting body parts with blanket rolls or pillows can increase comfort.
  - c. Hands-on or energy-based therapies (massage)
3. Overdose
  - a. Not as frequent as patients being undermedicated
  - b. Opioids affect the respiratory drive center. (Pay close attention to breathing adequacy.)
  - c. The goal is to enable the patient to breathe sufficiently on his or her own, not to reverse the effects of the opioid.

## **J. Progressive Dementia**

1. Insidious onset

- a. Cognitive activities are lost first, followed by physical abilities.
- b. Causes may include Alzheimer's disease, Pick disease, Parkinson's disease, and stroke.
- c. Nutritional disorders
- d. Injuries resulting from loss of judgment and insight, confusion when using medication, and becoming lost when leaving the home or a familiar environment
- e. Advanced dementia requires nursing home care.

## **K. Chronic Pain Management**

1. Pain
  - a. Subjective term
  - b. Nociception: term that more accurately describes the transmission of stimuli over specific nerve pathways
2. Nociceptors
  - a. Begin as free nerve endings and end in the dorsal roots of the spinal cord
  - b. Respond to mechanical damage, thermal damage, and chemical damage
  - c. Skin, joints, and musculature are well supplied with pain receptors.
  - d. Visceral organs have a limited number of pain receptors. (The brain has none.)
  - e. Alpha fibers: fast, transmit a sharp, localized type of pain
  - f. C fibers: slow, transmit a slow pain (often described as burning, throbbing, or achy), typically associated with long-term conditions
3. Acute pain
  - a. Immediately after an injury or surgery
  - b. Chronic pain: long after relief of initiating cause is achieved (6 months or longer)
4. Pain as a stressor
  - a. Activates the sympathetic nervous system
  - b. Leads to elevated blood pressure, tachycardia, and tachypnea
  - c. Energy stores are needed to maintain this response.
  - d. Effective management of pain reduces energy consumption and allows for rest and healing.

## **L. Home Chemotherapy**

1. Chemotherapy
  - a. Introduction of either a single cytotoxic drug or combinations of cytotoxic drugs into the body for the purpose of interrupting or eradicating malignant cellular growth
  - b. Side effects
    - i. Alopecia (hair loss)
    - ii. Anorexia
    - iii. Fatigue
    - iv. Leucopenia (decreased number of leukocytes)
    - v. Thrombocytopenia (decreased number of platelets)
    - vi. Anemia
    - vii. Increased risk of infections

## 2. Multiple medications

- a. Some to battle the disease process
- b. Others to manage the symptoms of the side effects
- c. Analgesic medication patches and antiemetics are commonly prescribed.
- d. Peripheral access devices may be surgically placed to aid in the delivery of these medications.

## M. Transplant Recipients

### 1. Organ transplants

- a. Treatment of a failing organ or organs
- b. At risk of infection
- c. Encourage patient to bring all medications and any other information to the hospital if transport is indicated.

## N. Psychosocial Support

### 1. Adaptation and adjustment

- a. Does not occur all at once
- b. Stages are varied and individual.
- c. Likely to proceed through a sense of loss or mourning
- d. See Table 45-5 Stages of Adjustment to Chronic Illness.
- e. The goal is acceptance of the condition and construction of a realistic life plan incorporating the new strengths and limitations.

### 2. End-of-life decisions

- a. Patients receiving home care are encouraged to make these early.
- b. Durable power of attorney (health care proxy): allows a patient to appoint someone to make health care decisions in the event that he or she becomes incapacitated
- c. A living will addresses the patient's wishes that life-sustaining measures will be discontinued when there is no hope of recovery (not recognized in all states).
- d. Do not resuscitate/do not attempt resuscitation (DNR/DNAR) and do not intubate forms are physicians' orders to withhold life-sustaining treatment in the event of cardiac or respiratory arrest.

## O. You are the Provider Summary

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Slide: 105

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Lecture/Discussion

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### 1. Continue reading the case study provided on the slide:

- a. Some patients will die no matter what interventions you take. Knowledge of your area's current death and dying laws is paramount.
- b. There may be multiple chronic conditions that are the root cause of the patient's current status.
- c. Provide psychological support for family and other responders. If medical direction is needed, utilize that resource early.
- d. Many providers have a difficult time responding to an incident where they are unable to use their skills. Seeing someone die may be a common occurrence to some providers, but for the patient's family and friends it may be their only time. Providers

should be well versed in the laws and regulations as they pertain to DNR and living wills for their state or region. Respect for the dignity of the patient and family will reflect upon your professionalism during this time, which will be a lifetime impression for the family.

## **P. Summary**

1. Hospice care
2. Home care
3. Assessment
4. Equipment management

## **Skill Drills**

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Time: 20 minutes

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Group: Demonstration/Group Activity

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Remember to maintain an adequate instructor-to-student ratio. A ratio of one instructor to six students is recommended by the US DOT Paramedic National Standard Curriculum. Also remember that each student is to be evaluated on each skill before completing the course.

### **Purpose**

To allow students the opportunity to observe, practice, and perform patient care skills associated with acute interventions for the chronic care patient.

### **Instructor Directions**

1. Demonstrate each skill, emphasizing any critical points or procedures.
2. Based on the specific skill, assign each student to a partner or team. Provide each partner/team with necessary equipment or materials.
3. Direct students to practice each skill, using team members as patients and observers. Closely monitor the practice sessions and provide constructive comments and redirection.
4. As individual students achieve success, conduct skill proficiency exams. Students who fail the exam should be given redirection and opportunity to practice before being retested.

### **Skills**

Skill Drill 45-1 Cleaning a Tracheostomy

Skill Drill 45-2 Obtaining a Peak Flow Reading

Skill Drill 45-3 Drawing Blood From a Central Venous Catheter

Skill Drill 45-4 Accessing an Implantable Venous Access Device

Skill Drill 45-5 Catheterize Adult Male Patient

## Skill Drill 45-6 Catheterizing an Adult Female Patient

## Skill Drill 45-7 Replacing an Ostomy Device

### Materials Needed

- Peak flow meters
- Central venous catheters
- Syringes
- Needle tubing and needles
- Ostomy skin wafers
- Catheters

## Post-Lecture

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### I. Prep Kit Activities

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Time: 55 minutes

*Note: This section contains various student-centered end-of-chapter activities designed as enhancement to instructor's preparation. As time permits, these activities may be presented in class. They are also designed to be used as outside homework/activities.*

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#### A. Assessment in Action

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Time: 20 minutes

Individual/Small Group Activity/Discussion

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#### Purpose

This activity is designed to assist students in gaining a further understanding of the chapter content. This activity allows students an opportunity to analyze an emergency care scenario, develop responses, and integrate what they have learned.

#### Instructor Directions

1. Direct students to read the "Assessment in Action" scenario located in the Prep Kit at the end of Chapter 45.
2. Direct students to read and individually answer the quiz questions at the end of the scenario. Facilitate a class review and dialogue of the answers, allowing students to correct responses as may be needed. Use the quiz question answers noted below to assist in building this review.
3. You may also wish to assign these as individual activities and ask students to turn in their comments on a separate piece of paper.

#### Answers to Multiple-Choice Questions

*You are dispatched to the home of a 68-year-old man for an altered mental status. When you arrive on scene, you are greeted by his daughter, who tells you that the patient is an insulin-dependent diabetic whose blood sugar is 34. He is also a paraplegic from a traumatic accident 5 years before. His daughter tells you that the night before her father was experiencing upper body pain, which is typical, but it seemed to be worse yesterday. You administer IV therapy and provide dextrose. The patient becomes alert and oriented and refuses transport to the hospital. His only remaining complaint is his increased pain.*

1. Pain can be classified as \_\_\_\_\_ and \_\_\_\_\_.
  - A. Acute, surgical
  - B. Chronic, traumatic
  - C. Acute, chronic
  - D. Subjective, stimuli

**Answer: C.** Acute pain occurs immediately after injury. Chronic pain is pain that lasts for 6 months or longer.

2. Chronic pain is defined as:
  - A. pain lasting up to 3 months.
  - B. pain lasting longer than 6 months.
  - C. pain lasting only 2 months.
  - D. pain lasting less than 3 months.

**Answer: B.** Some research suggests that chronic pain is acute pain that was not treated appropriately.

3. The \_\_\_\_\_ nervous system is activated in the face of pain.
  - A. sympathetic
  - B. parasympathetic
  - C. cholinergic
  - D. anticholinergic

**Answer: A.** The body views pain as a stressor and uses energy. Treating pain appropriately allows the body to use this energy in healing instead.

4. \_\_\_\_\_ is the more accurate term describing transmission of stimuli over specific nerve pathways.
  - A. Nociception
  - B. Parasympathetic
  - C. Sympathetic
  - D. Receptor

**Answer: A.** Pain is a subjective term. Nociceptors respond to thermal, chemical, or mechanical damage.

5. Management of pain \_\_\_\_\_, which allows for rest and healing.

- A. increases energy consumption
- B. reduces energy consumption
- C. does nothing
- D. maintains the sympathetic response

**Answer: B.** Effective pain management allows the body to heal more efficiently by reducing the sympathetic response in the body.

6. EMS providers must assume:
- A. the patient is well cared for.
  - B. the patient is being abused.
  - C. the role of the legal guardian.
  - D. the role of health educators.

**Answer: D.** All health care providers have the responsibility to educate patients regarding health and safety issues in an attempt to prevent illness and injury.

7. True or false? Conduct the initial assessment of the patient with chronic illness in the same way as for any other patient.
- A. False
  - B. True

**Answer: A.** False. Chronic patients may have altered mental status that is acute and reversible, such as with hypoglycemia. Pulse oximetry should also be assessed due to the use of artificial airways. If the equipment appears to be malfunctioning, quickly begin manual means of maintaining ventilations.

### Challenging Question

*You are dispatched to the private residence of an 84-year-old man. When you arrive, the family greets you and tells you that the patient called 9-1-1 complaining of chest pain, but the patient has Alzheimer's disease. The family does not believe the patient has any complaints, and they do not want him transported to the hospital.*

8. What course of action should you take?

**Rationale:** Only the patient can know if he had chest pain. Although the family may have their concerns with the patient's mental condition, they cannot accurately determine that the patient did or did not experience an episode of chest pain. It is important to show respect for the family and their concerns, but the paramedic must be an advocate for the patient. Explain to the family that the patient must be transported for the patient's safety. If the family still does not agree, consult medical control and, if needed, law enforcement. By denying transport, the family is neglecting the health of an elder.

### B. Points to Ponder

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Time: 20 minutes

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Individual/Small Group Activity/Discussion

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This activity addresses the affective objectives of the chapter, allowing you to help students probe the more difficult situations that they face. Use this as an opportunity to allow them to express differences of opinion and approach, while directing them to be thorough and decisive in their answers. Encourage challenges.

### **Purpose**

To allow students an opportunity to apply critical thinking analysis to a given case study.

### **Instructor Directions**

1. Direct students to read the "Points to Ponder" scenario found in the Prep Kit at the end of Chapter 45.
2. You may wish to assign students to a partner or a group and direct them to review the discussion question at the end of the scenario and prepare a response. Facilitate a class dialogue centered on the discussion point.
3. You may also ask students to complete this activity on their own and hand in their comments on a separate piece of paper.
4. Personally review the scenario and discussion question based on your experience and knowledge as an emergency care professional. Develop your own key points for guiding this discussion.

### **Scenario**

*You and your partner are dispatched to the home of a 72-year-old woman with a complaint of respiratory distress. When you arrive on scene, you are greeted by the patient's home health care provider. She tells you that the patient has terminal cancer. For the last 2 days, the patient has experienced an increase in shortness of breath. Her respiratory rate is 32 breaths/min; blood pressure, 100/60 mm Hg; pulse oximetry on room air, 91%; and pulse rate, 110 beats/min, sinus tachycardia on the monitor. The patient has breast cancer with metastasis to the lungs. Her family is in the process of placing the patient into hospice care, but the paperwork has not been completed yet.*

Given the history of lung cancer and immunosuppression, what condition do you suspect?

Should you transport the patient?

### **Issues**

The Role of the Home Health Care Professional, Dealing with Family and Friends as Home Health Care Providers.

### **Discussion**

This patient may have pneumonia secondary to immunosuppression. She needs more care than her family is able to provide for her at home. Although hospice is the ideal location for her, it is not yet available. Therefore, she should be transported to the hospital.

Oxygen will make the patient more comfortable and relieve her shortness of breath in a noninvasive manner. Transport to the hospital does not mean that she will have to accept

aggressive care. The hospital can provide palliative care and make the patient more comfortable until the hospice unit is available. As always, the patient, if able, should make all decisions concerning what care she does or does not desire. If there are any concerns regarding this option, medical control may be contacted for further advice.

## II. Lesson Review

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Time: 10 minutes

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### Discussion

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*Note: Facilitate the review of this lesson's major topics using the review questions as direct questions or overhead transparencies. Answers are found throughout this lesson plan. Each question includes a reference to the slide where the information is covered.*

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1. Hospice care began where and when? (Lecture I-A)
2. What tool can identify injury prevention opportunities? (Lecture I-B)
3. Why is proper hand washing so important? (Lecture II-B)
4. What is the most common cause of altered level of consciousness in the chronically ill? (Lecture II-C)
5. What is the device that keeps the alveoli open during exhalation? (Lecture III-B)
6. What is the procedure where the larynx is removed and a stoma placed? (Lecture III-B)
7. What measurement correlates to the amount of blood pumped from the heart with each beat? (Lecture III-C)
8. What common problem occurs with Foley catheter placement? (Lecture III-C)
9. What is the procedure in which a large amount of small intestine is removed? (Lecture III-E)
10. Name the two hormones that increase and cause perinatal depression. (Lecture III-H)

## III. Assignments

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Time: 5 minutes

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### Lecture

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1. Review all materials from this lesson and be prepared for a lesson quiz to be administered (date to be determined by instructor).
2. Read Chapter 46: *Ambulance Operations* for the next class session.