



## Chapter 13

# Respiratory Emergencies

# Introduction

- Patients often complain about dyspnea.
  - Shortness of breath
- Symptom of many different conditions
- Cause can be difficult to determine.
  - Even for physician in hospital
  - Different problems can contribute to dyspnea.

# Anatomy of the Respiratory System (1 of 5)

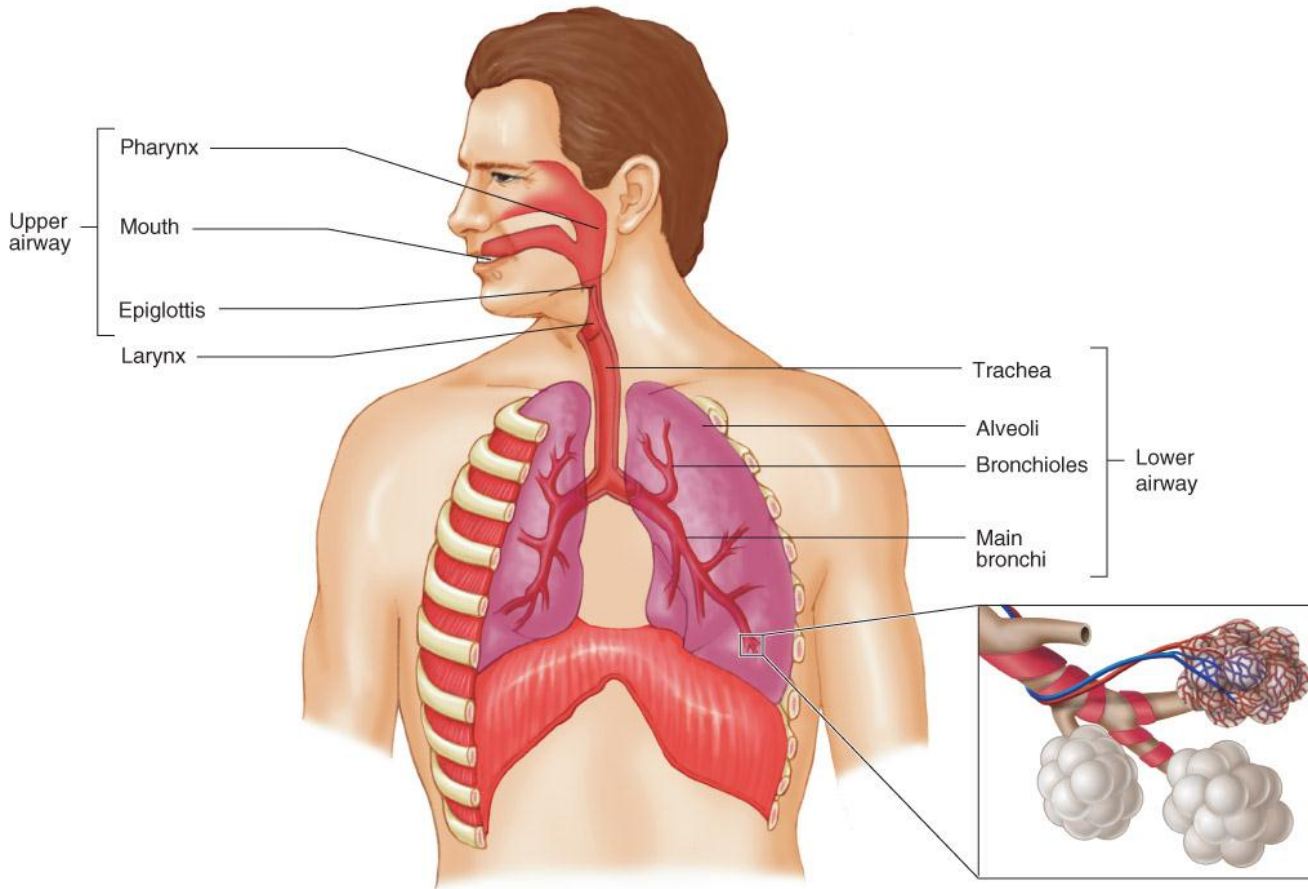
- Respiratory system: all the structures that contribute to breathing
- Included:
  - Diaphragm
  - Chest wall muscles
  - Accessory muscles of breathing
  - Nerves to the muscles



# Anatomy of the Respiratory System (2 of 5)

- Upper airway consists of structures above vocal cords.
  - Nose, mouth
  - Jaw
  - Oral cavity
  - Pharynx
  - Larynx

# Anatomy of the Respiratory System (3 of 5)



# Anatomy of the Respiratory System (4 of 5)

- Function of lungs is respiration.
  - Exchange of oxygen and carbon dioxide
- Air travels through trachea into lungs, then on to:
  - Bronchi (larger airways)
  - Bronchioles (smaller airways)
  - Alveoli

# Anatomy of the Respiratory System (5 of 5)

- Alveoli are microscopic air sacs.
  - Thin-walled
  - Actual exchange of oxygen and carbon dioxide occurs here.



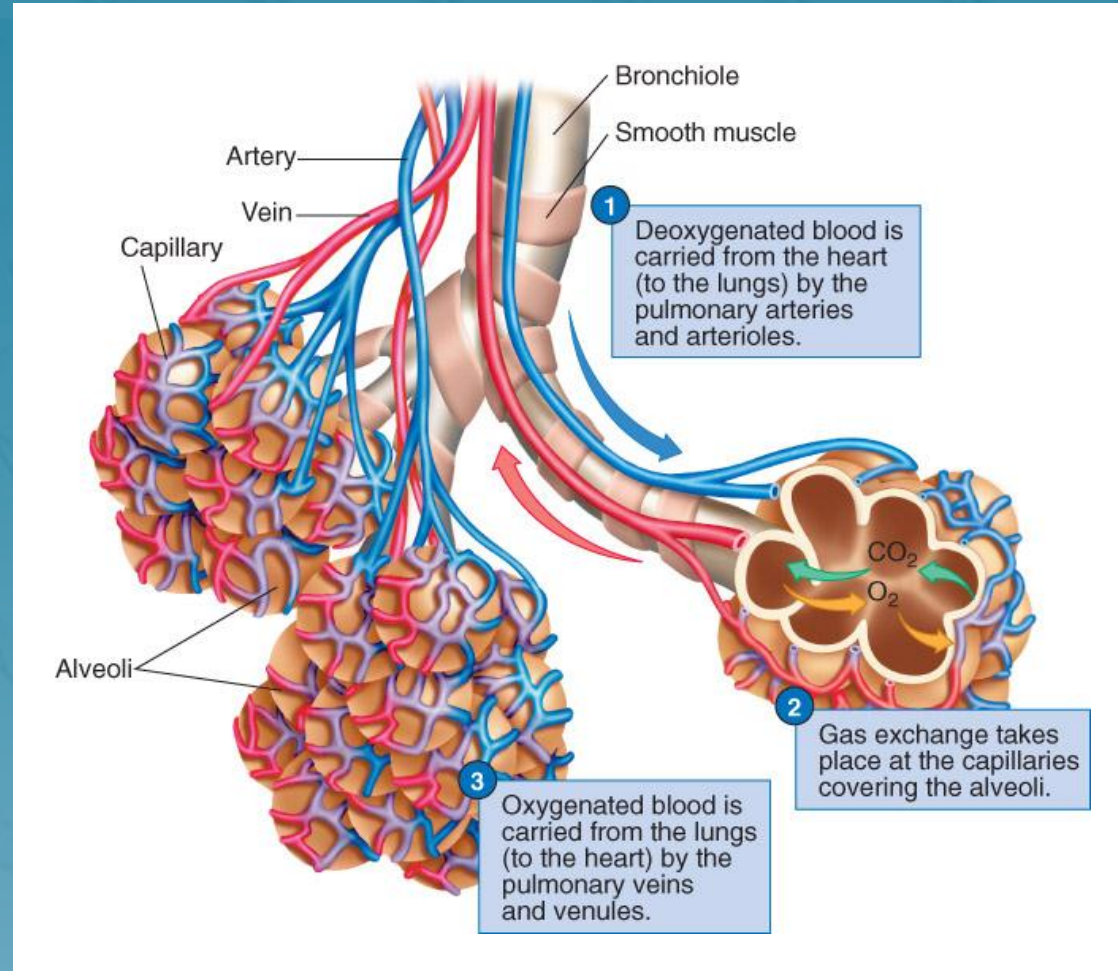
# Physiology of Respiration (1 of 4)

- Respiration process
  - Inspiration
  - Expiration
- Oxygen is provided to the blood.
- Carbon dioxide is removed.
- Takes place rapidly at level of alveoli



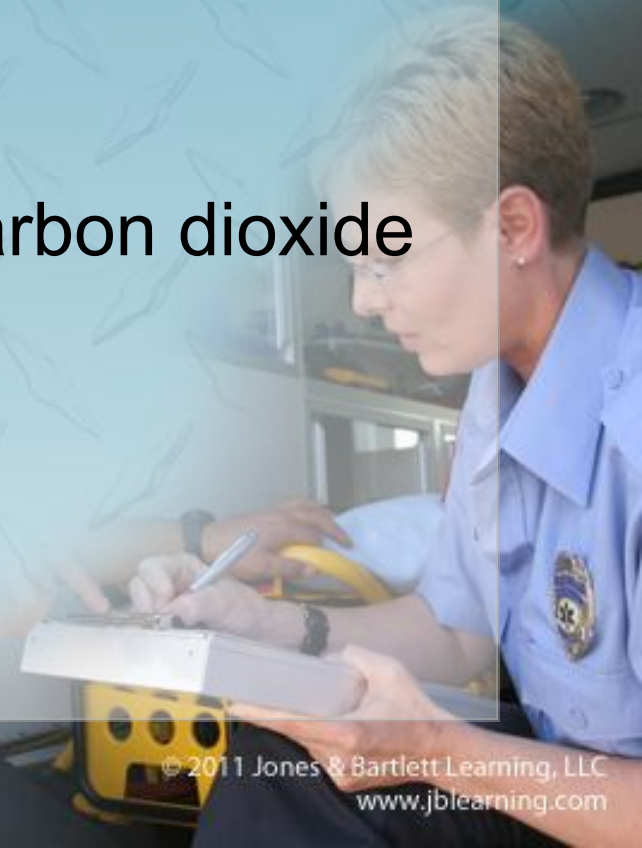


# Physiology of Respiration (2 of 4)

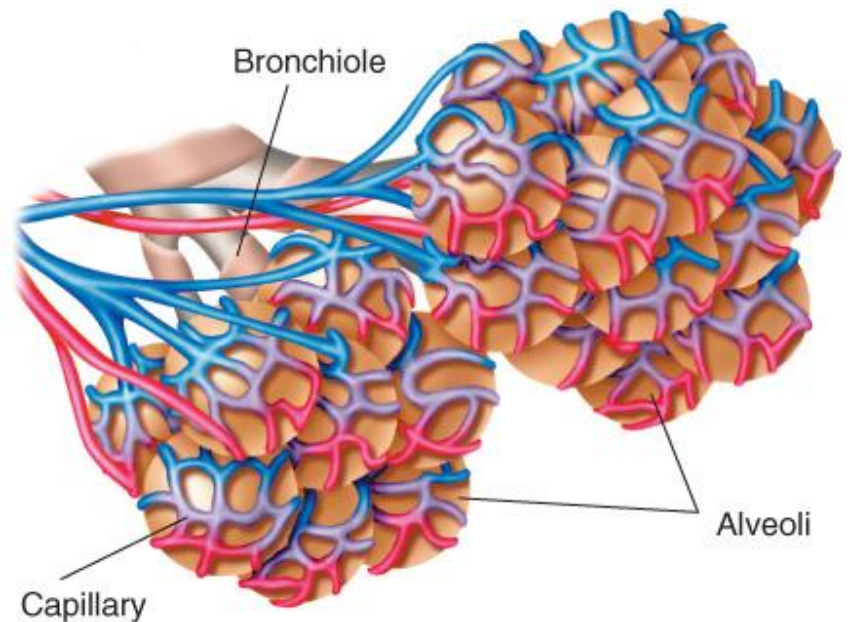
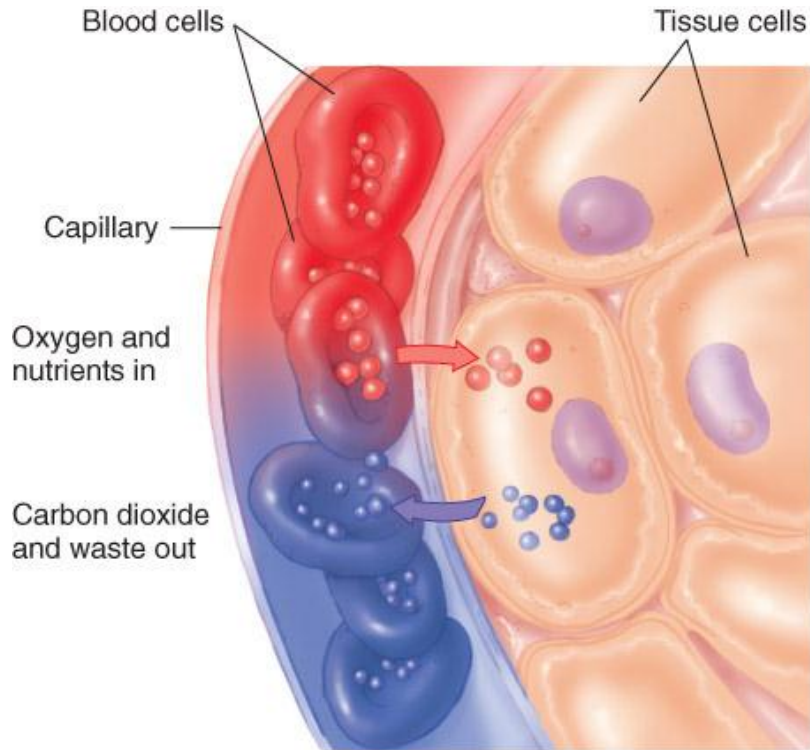


# Physiology of Respiration (3 of 4)

- In the alveoli:
  - Oxygen passes into capillaries.
  - Carbon dioxide returns to lungs.
  - See next slide.
- Brain stem monitors blood's carbon dioxide levels.



# Physiology of Respiration (4 of 4)





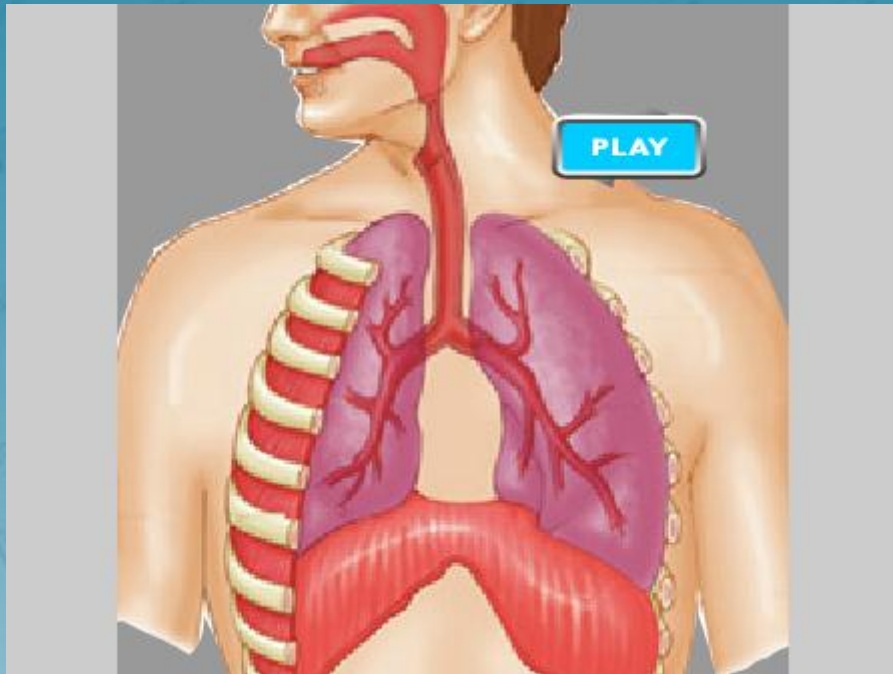
# Pathophysiology (1 of 3)

- Oxygen exchange can be hindered by:
  - Condition in the airway
  - Disease processes
  - Traumatic conditions
  - Abnormalities in pulmonary vessels





# Pathophysiology (2 of 3)



- Recognize the signs and symptoms of inadequate breathing.



# Pathophysiology (3 of 3)

- Know what to do about inadequate breathing.
- Some patients have chronic carbon dioxide retention.
  - Giving too much oxygen may actually stop respiration.



# Dyspnea (1 of 6)

- Causes:
  - Upper or lower airway infection
  - Acute pulmonary edema
  - Chronic obstructive pulmonary disease (COPD)
  - Asthma
  - Hay fever



# Dyspnea (2 of 6)

- Causes (cont'd)
  - Anaphylaxis
  - Spontaneous pneumothorax
  - Pleural effusion
  - Prolonged seizures
  - Obstruction of the airway
  - Pulmonary embolism





# Dyspnea (3 of 6)

- Causes (cont'd)
  - Hyperventilation syndrome
  - Environmental/industrial exposure
  - Carbon monoxide poisoning
  - Infectious diseases



# Dyspnea (4 of 6)

- Be cautious when treating dyspnea:
  - Gas exchange obstructed
  - Damaged alveoli
  - Obstructed air passages
  - Obstructed blood flow to the lungs
  - Excess fluid in pleural space
- Check for inadequate breathing.



# Dyspnea (5 of 6)

**Table 13-2** Signs and Symptoms of Inadequate Breathing

- The patient complains of difficult breathing or shortness of breath.
- The patient has an altered mental status associated with shallow or slow breathing.
- The patient appears anxious or restless. This can happen if the brain is not getting enough oxygen for its needs.
- The respiratory rate is too fast (respirations of more than 20 breaths/min).
- The respiratory rate is too slow (respirations of less than 12 breaths/min); you may need to assist ventilations with a bag-mask device.
- The breathing rhythm is irregular. Because the brain controls breathing, an irregular breathing rhythm may indicate a head injury. In this situation, the patient will most likely be unresponsive.
- The skin is pale, cool, or clammy.
- The skin is blue (cyanotic). The tongue, nail beds, and inside the lips are good places to look for cyanosis. These areas all have a large collection of blood vessels and thin skin; thus, cyanosis is more apparent.
- The conjunctivae are pale. The patient may be short of breath because there are not enough red blood cells to carry oxygen to the tissues.
- Respiratory sounds, including wheezing, gurgling, snoring, stridor, or crowing, may be heard. Adventitious sounds can be associated with many types of respiratory problems.
- Decreased or noisy breath sounds are heard on one or both sides of the chest.
- The patient cannot speak more than few words between breaths. Ask the patient "How are you doing?" If the patient cannot speak at all, he or she most likely has a respiratory emergency that will need immediate attention.
- You observe muscle retractions or labored breathing. The patient is using the accessory muscles to assist breathing. If the patient is using only the diaphragm to breathe, suspect damage to the nerves that carry breathing commands to the chest muscles; the diaphragm may be getting the command to breathe, but because of spinal cord injury, the chest muscles may not be receiving the signals.
- The patient has unequal or inadequate chest expansion.
- The patient is coughing excessively, which can indicate that the patient has a condition ranging from a mild upper respiratory infection or hay fever to pneumonia, asthma, or heart failure.
- The patient is sitting up, leaning forward with his or her palms flat on the bed or the arms of the chair. This is called the tripod position because the patient's back and both arms are working together to support the upper body. This position gives the diaphragm more room to function and helps the patient to use accessory muscles to assist breathing. It is usually a good idea to let the patient stay in the most comfortable position.
- The chest has a barrel shape. In certain chronic lung diseases, air has been gradually and continuously trapped within the lung in increasing amounts; therefore, the distance from the front of the lung to the back of it gets longer, nearly equaling the side-to-side distance. A barrel chest may indicate a long history of breathing problems.
- The patient has pursed lips or nasal flaring.



# Dyspnea (6 of 6)

- Patients may also complain of chest tightness or air hunger.
- Common with cardiopulmonary diseases
- Pain can cause rapid, shallow breathing.
  - Breathing deeply causes pain because the chest wall expands.





# Upper or Lower Airway Infection (1 of 3)

**Table 13-4** Infectious Diseases Associated With Dyspnea

Disease	Characteristics
<b>Bronchitis</b>	<ul style="list-style-type: none"> <li>An acute or chronic inflammation of the air passages (bronchi and bronchioles) often due to infection, usually associated with productive cough, and usually presents without fever.</li> <li>Accumulation of fluid within the air passages, as well as swelling of the walls, restricts air flow and may lead to signs of asthma such as wheezing. It is often associated with rhonchi. Crackles are not usually present unless pneumonia has developed.</li> <li>The breathing pattern in bronchitis does not indicate major airway obstruction, but the patient may experience tachypnea, an increase in the breathing rate, which is an attempt to compensate for the reduced amount of normal lung tissue and for the buildup of fluid.</li> </ul>
<b>Common cold</b>	<ul style="list-style-type: none"> <li>A viral infection usually associated with swollen nasal mucous membranes and the production of fluid from the sinuses and nose</li> <li>Dyspnea is not severe; patients complain of "stuffiness" or difficulty breathing through the nose.</li> </ul>
<b>Tuberculosis (TB)</b>	<ul style="list-style-type: none"> <li>A disease that can lay dormant in a person's lungs for decades, then reactivate.</li> <li>Dangerous because many TB strains are resistant to many antibiotics.</li> <li>Spread by cough. Droplet nuclei can remain intact for decades.</li> <li>Use a high-efficiency air particulate, or HEPA, respirator.</li> </ul>
<b>Diphtheria</b>	<ul style="list-style-type: none"> <li>Although the disease has been well controlled in the past decade, it is still highly contagious and serious when it occurs.</li> <li>The disease causes the formation of a diphtheritic membrane lining the pharynx that is composed of debris, inflammatory cells, and mucus. This membrane can rapidly and severely obstruct the passage of air into the larynx.</li> </ul>
<b>Pneumonia</b>	<ul style="list-style-type: none"> <li>An acute bacterial or viral infection of the lung that damages lung tissue, usually associated with fever, cough, and production of sputum</li> <li>Fluid also accumulates in the surrounding normal lung tissue, separating the alveoli from their capillaries. (Sometimes, fluid can also accumulate in the pleural space.)</li> </ul>

Continues

- Infectious diseases may affect all parts of the airway.



**Table 13-4** Infectious Diseases Associated With Dyspnea, continued

Disease	Characteristics
	<ul style="list-style-type: none"> <li>The lung's ability to exchange oxygen and carbon dioxide is impaired.</li> <li>The breathing pattern in pneumonia does not indicate major airway obstruction, but the patient may experience tachypnea, an increase in the breathing rate, which is an attempt to compensate for the reduced amount of normal lung tissue and for the buildup of fluid.</li> </ul>
Epiglottitis <b>Figure 13-4</b>	<ul style="list-style-type: none"> <li>An inflammation of the epiglottis due to bacterial infection that can produce severe swelling of the flap over the larynx</li> <li>In preschool and school-aged children especially, the epiglottis can swell to two to three times its normal size.</li> <li>The airway may become almost completely obstructed, sometimes quite suddenly.</li> <li>Stridor (harsh, high-pitched, continued rough, barking inspiratory sounds) may be heard late in the development of airway obstruction.</li> <li>Acute epiglottitis in adults is characterized by a severe sore throat.</li> <li>The disease is now much less common than it was 20 years ago because of a vaccine that can help to prevent most cases. Occasionally, the constellation of symptoms of epiglottitis can appear in an adult or geriatric patient, especially with other issues that affect the patient's ability to fight off disease.</li> </ul>
Croup <b>Figure 13-5</b>	<ul style="list-style-type: none"> <li>An inflammation and swelling of the whole airway (pharynx, larynx, and trachea) typically seen in children between the ages of 6 months and 3 years</li> <li>The common signs of croup are stridor and a seal-bark cough, which signal a significant narrowing of the air passage of the trachea that may progress to significant obstruction.</li> <li>Croup often responds well to the administration of humidified oxygen.</li> <li>Croup is rarely seen in adults because the airways are larger.</li> </ul>
Respiratory syncytial virus	<ul style="list-style-type: none"> <li>A major cause of illness in young children</li> <li>Causes an infection of the lungs and breathing passages</li> <li>Can lead to other serious illnesses that affect the lungs or heart, such as bronchiolitis and pneumonia</li> <li>Highly contagious and spread through droplets</li> <li>Survives on surfaces, including hands and clothing</li> <li>Look for signs of dehydration.</li> <li>Humidified oxygen is helpful if available.</li> </ul>
Pertussis (whooping cough)	<ul style="list-style-type: none"> <li>Pertussis is an airborne bacterial infection that affects mostly children younger than 6 years.</li> <li>Patient will be feverish and exhibit a "whoop" sound on inspiration after a coughing attack.</li> <li>Highly contagious through droplet infection</li> <li>Coughing spells, which can last for more than a minute, in which the child may turn red or purple</li> <li>Pertussis/whooping cough does not cause the typical whooping illness in adults. It causes a severe upper respiratory infection that could be an entry pathway to pneumonia in older people.</li> </ul>
<u>Severe acute respiratory syndrome (SARS)</u>	<ul style="list-style-type: none"> <li>A virus that has caused significant concern</li> <li>SARS is a serious, potentially life-threatening viral infection caused by a recently discovered family of viruses best known as the second most common cause of the common cold.</li> <li>SARS usually starts with flulike symptoms, and may progress to pneumonia, respiratory failure, and, in some cases, death.</li> <li>SARS is thought to be transmitted primarily by close person-to-person contact.</li> </ul>
Influenza type A	<ul style="list-style-type: none"> <li>Virus that has crossed the animal/human barrier and has infected humans</li> <li>Flu that has the potential to spread at a pandemic level</li> </ul>
<u>Meningococcal meningitis</u>	<ul style="list-style-type: none"> <li>An inflammation of the meningeal coverings of the brain and spinal cord that can be highly contagious</li> <li>The bacteria can be spread through the exchange of respiratory and throat secretions through coughing and sneezing.</li> <li>The effects are lethal in some cases. Victims who survive can be left with brain damage, hearing loss, or learning disabilities.</li> <li>Patients may present with flulike symptoms, but unique to meningitis are high fever, severe headache, photophobia (light sensitivity), and a stiff neck in adults. Patients sometimes have an altered level of consciousness and can have red blotches on the skin.</li> <li>Use respiratory protection, and report any potential cases.</li> </ul>

# Upper or Lower Airway Infection (1 of 3)





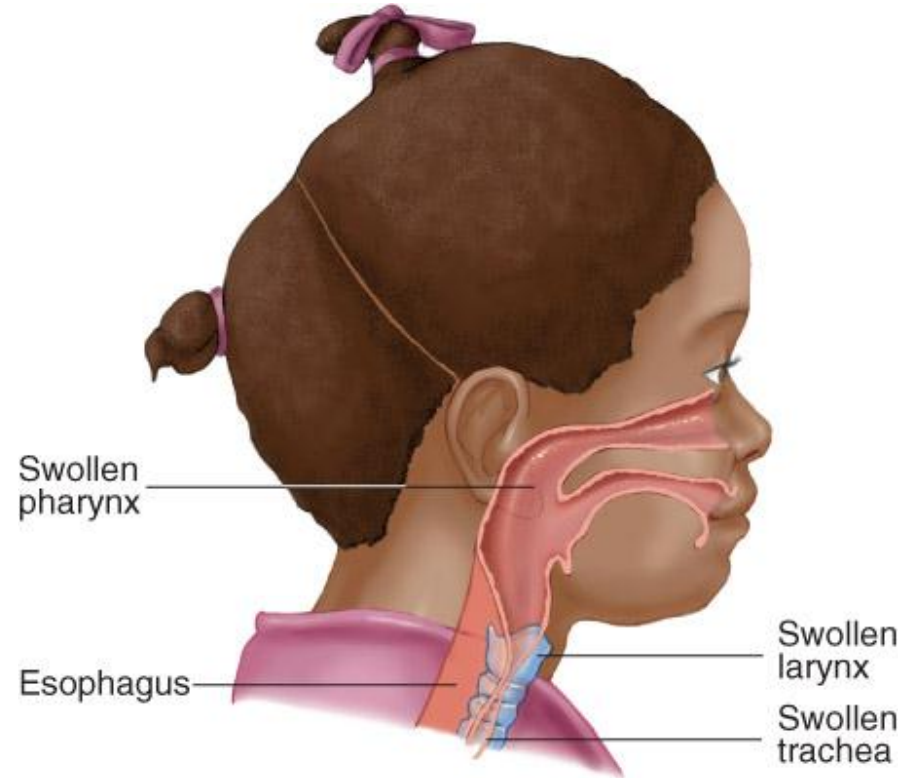
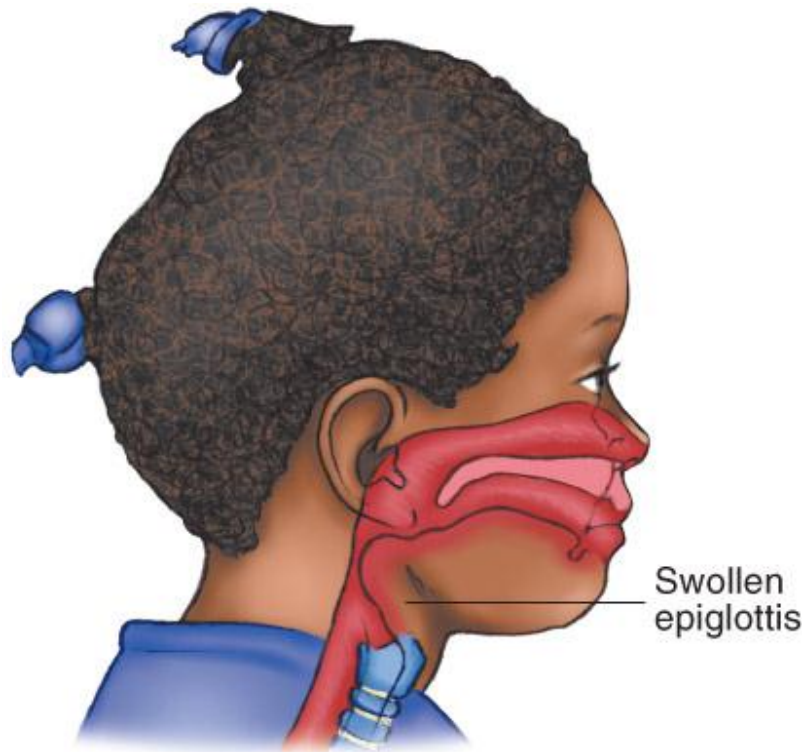
# Upper or Lower Airway Infection (2 of 3)

- Some form of obstruction causes dyspnea.
  - Obstruction to flow of air in major passages
    - Colds, diphtheria, epiglottitis, croup
  - Obstruction to exchange of gases
    - Pneumonia



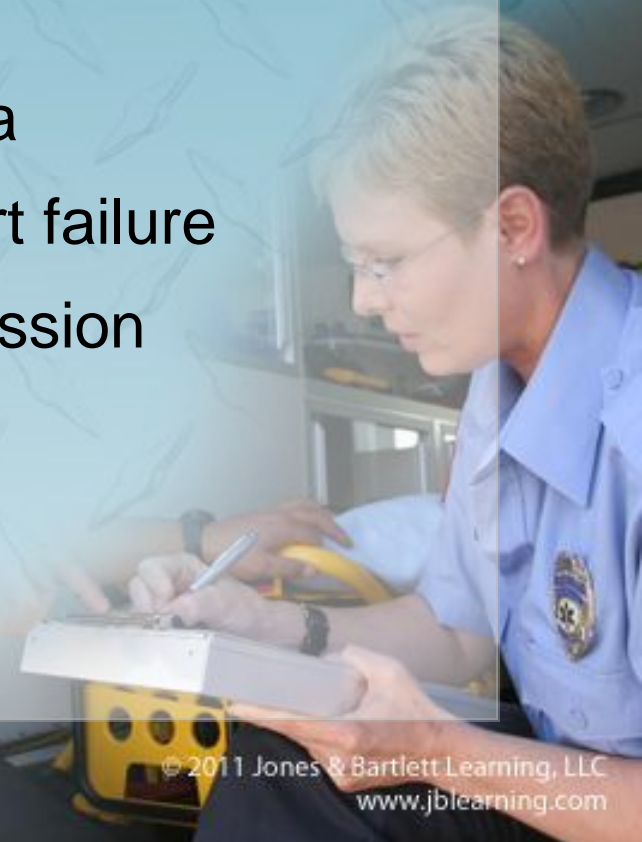


# Upper or Lower Airway Infection (3 of 3)

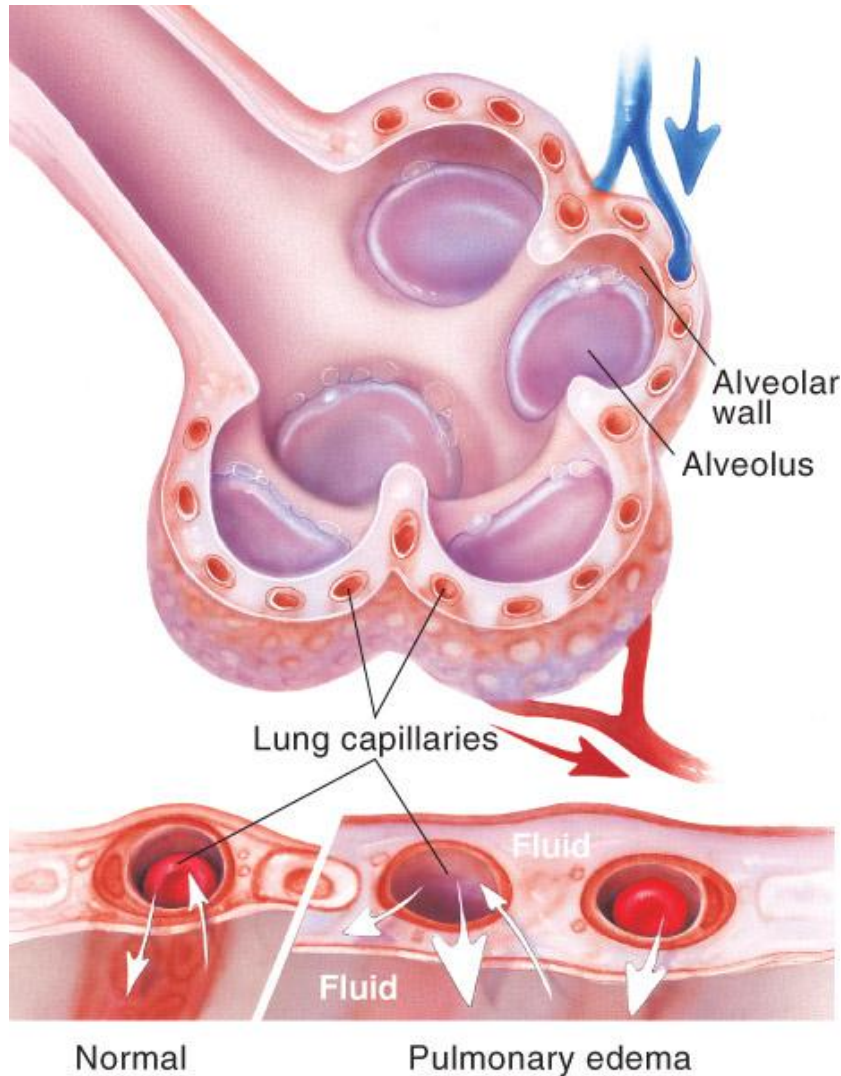


# Acute Pulmonary Edema (1 of 2)

- Heart muscle can't circulate blood properly.
- Fluid builds up within alveoli and in lung tissue.
  - Referred to as pulmonary edema
  - Usually result of congestive heart failure
  - Common cause of hospital admission



# Acute Pulmonary Edema (2 of 2)





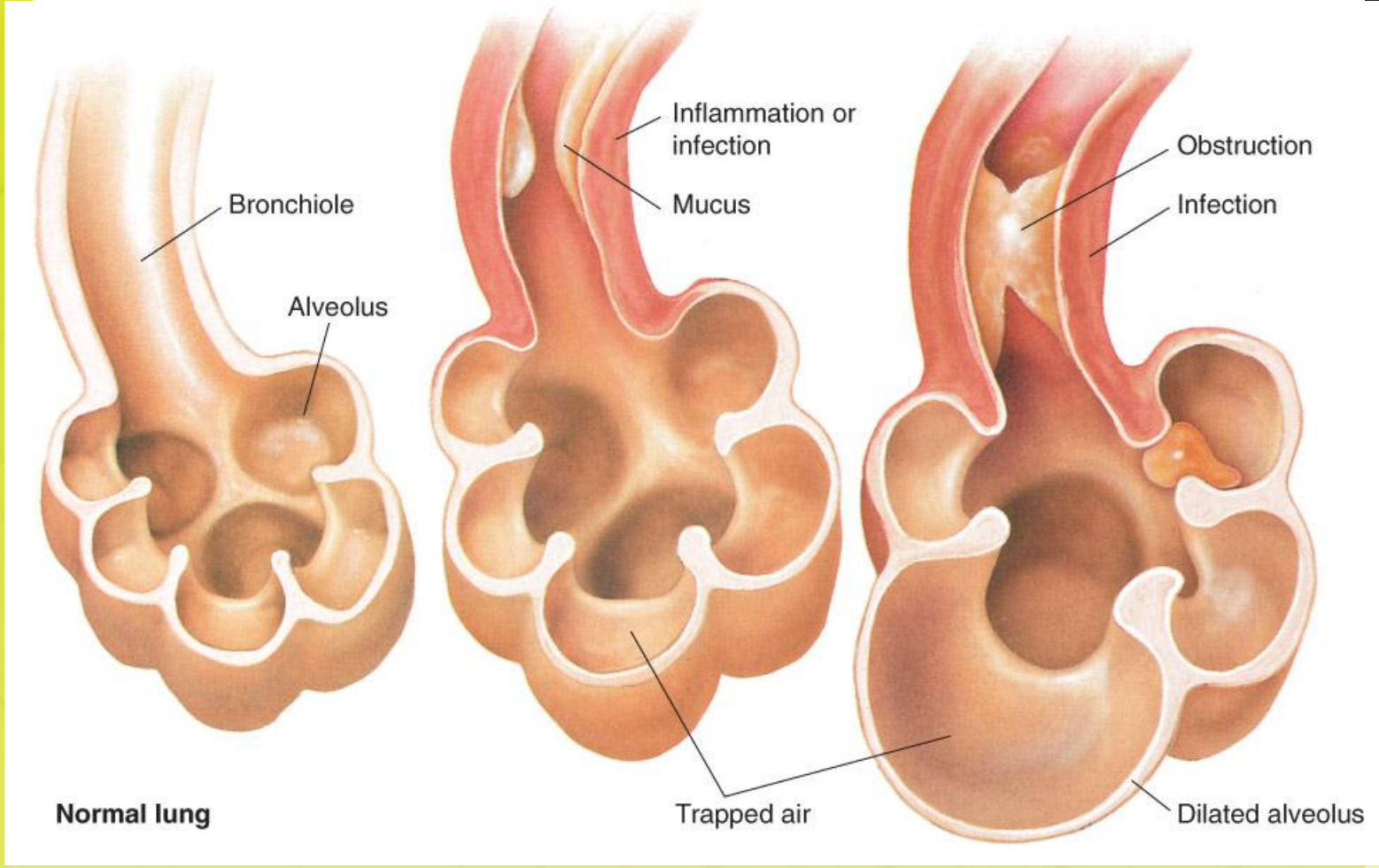
# Chronic Obstructive Pulmonary Disease (COPD) (1 of 5)

- Slow process of dilation and disruption of airways and alveoli
- Caused by chronic bronchial obstruction
- Fourth leading cause of death
- Tobacco smoke can create chronic bronchitis.

# Chronic Obstructive Pulmonary Disease (COPD) (2 of 5)

- Emphysema is another type of COPD.
  - Loss of elastic material around air spaces
  - Causes include inflamed airways, smoking.
- Most patients with COPD have elements of both chronic bronchitis and emphysema.

# Chronic Obstructive Pulmonary Disease (COPD) (3 of 5)





# Chronic Obstructive Pulmonary Disease (COPD) (4 of 5)

- “Wet lungs” vs. “dry lungs”
  - “Wet lungs” sounds—pulmonary edema
  - “Dry lungs” sounds—COPD
- Can be easily confused with congestive heart failure

# Chronic Obstructive Pulmonary Disease (COPD) (5 of 5)



**Table 13-7** Comparison of Chronic Obstructive Pulmonary Disease (Emphysema and Chronic Bronchitis) and Congestive Heart Failure

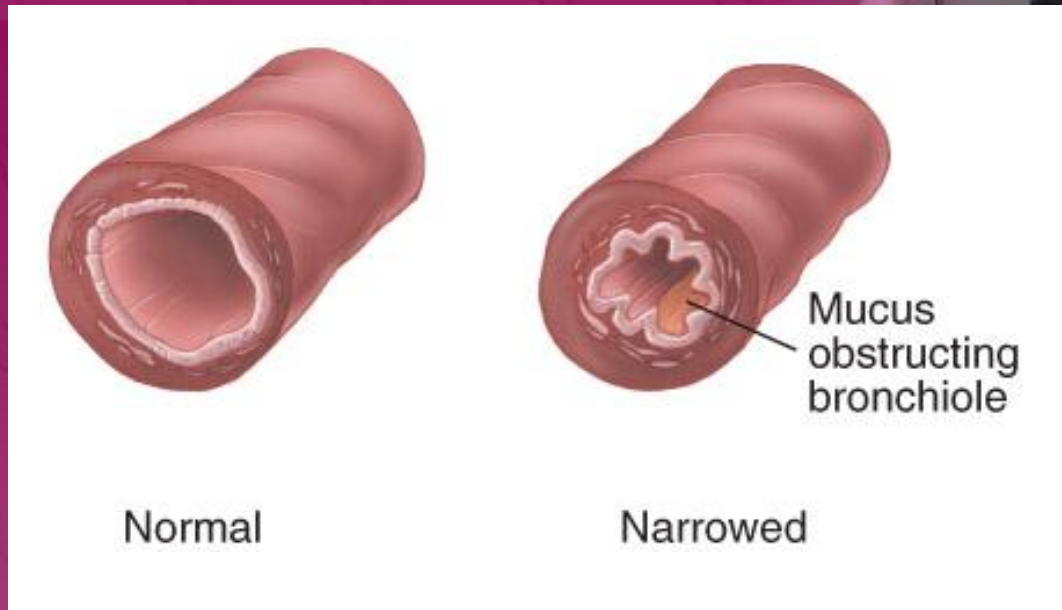
	Emphysema	Chronic Bronchitis	Congestive Heart Failure
Pathophysiology	<ul style="list-style-type: none"> <li>■ Destruction of the airways distal to the bronchiole</li> <li>■ Destruction of the pulmonary capillary bed</li> <li>■ Decreased ability to oxygenate the blood</li> <li>■ Lower cardiac output and hyperventilation</li> <li>■ Development of muscle wasting and weight loss</li> </ul>	<ul style="list-style-type: none"> <li>■ Excessive mucus production with airway obstruction</li> <li>■ Pulmonary capillary bed undamaged</li> <li>■ Compensation by decreasing ventilation and increasing cardiac output</li> <li>■ Poorly ventilated lungs, leading to hypoxemia</li> <li>■ Increased carbon dioxide retention</li> </ul>	<ul style="list-style-type: none"> <li>■ Damaged ventricles and failure of heart as a pump</li> <li>■ Attempt by heart to compensate with increased rate</li> <li>■ Enlarged left ventricle</li> <li>■ Backup of fluid into the body as the heart fails to pump adequately</li> </ul>
Appearance	<ul style="list-style-type: none"> <li>■ Thin appearance with barrel chest</li> <li>■ Use of accessory muscles and tripod position</li> <li>■ "Puffing" (pursed-lip) style of breathing</li> <li>■ Usually pink skin</li> </ul>	<ul style="list-style-type: none"> <li>■ May be obese</li> <li>■ Use of accessory muscles</li> <li>■ Difficulty with expiration</li> <li>■ Often cyanotic</li> </ul>	<ul style="list-style-type: none"> <li>■ Abdominal distention</li> <li>■ Dependent edema (sacral or pedal)</li> <li>■ Tachycardia</li> <li>■ Increased respiratory rate</li> <li>■ Anxiety</li> <li>■ Inability to lie flat</li> <li>■ Ashen or cyanotic</li> </ul>
Level of consciousness	Normal or altered	Normal or altered	Confusion
Neck veins	Flat	Distended when heart failure also present	Distended
Skin color	Pink	Blue, often cyanotic	Blue
Lung condition	Dry	Wet when heart failure also present	Wet
Lung sounds	Wheezing	Rhonchi, wheezing, or rales	Rhonchi, wheezing, or rales
Blood pressure	Normal for age	Normal to high	Normal to high
Cough	Little or none	Frequent cough	With possible fluid expectoration
Sputum	No mucus	Excessive mucus	Pink, frothy sputum

# Asthma, Hay Fever, and Anaphylaxis (1 of 4)

- Result of allergic reaction to inhaled, ingested, or injected substance
  - In some cases, allergen cannot be identified.
- Asthma is acute spasm of smaller air passages (bronchioles).



# Asthma, Hay Fever, and Anaphylaxis (2 of 4)

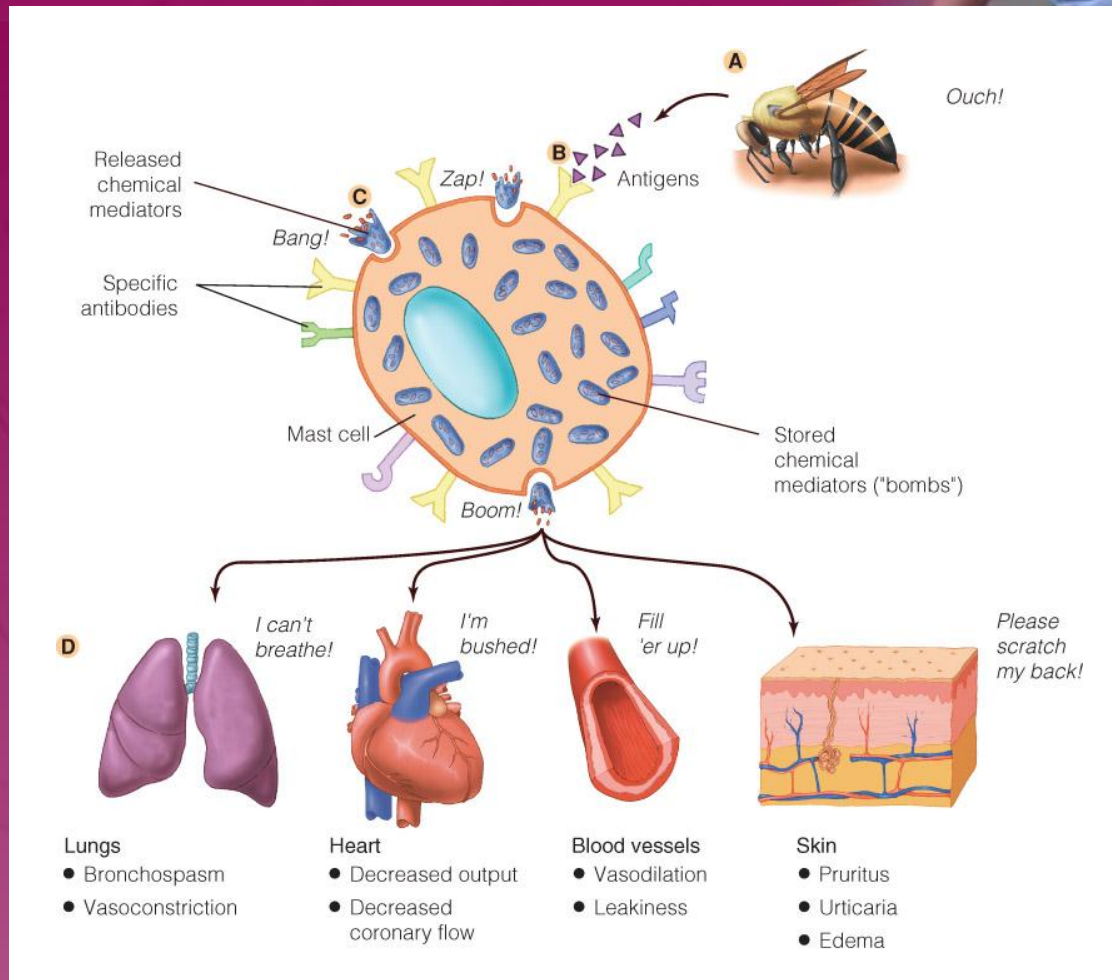


# Asthma, Hay Fever, and Anaphylaxis (3 of 4)

- Asthma affects all ages.
  - Most prevalent in children 5–17 years
- Hay fever causes cold-like symptoms.
  - Allergens include pollen, dust mites, pet dander.
- Anaphylactic reaction can produce severe airway swelling.
  - Total obstruction is possible.



# Asthma, Hay Fever, and Anaphylaxis (4 of 4)





# Spontaneous Pneumothorax

(1 of 3)

- Pneumothorax is accumulation of air in pleural space.
- Most often caused by trauma
- Vacuum-like pressure in pleural space is lost.
- When caused by medical conditions, is called “spontaneous.”

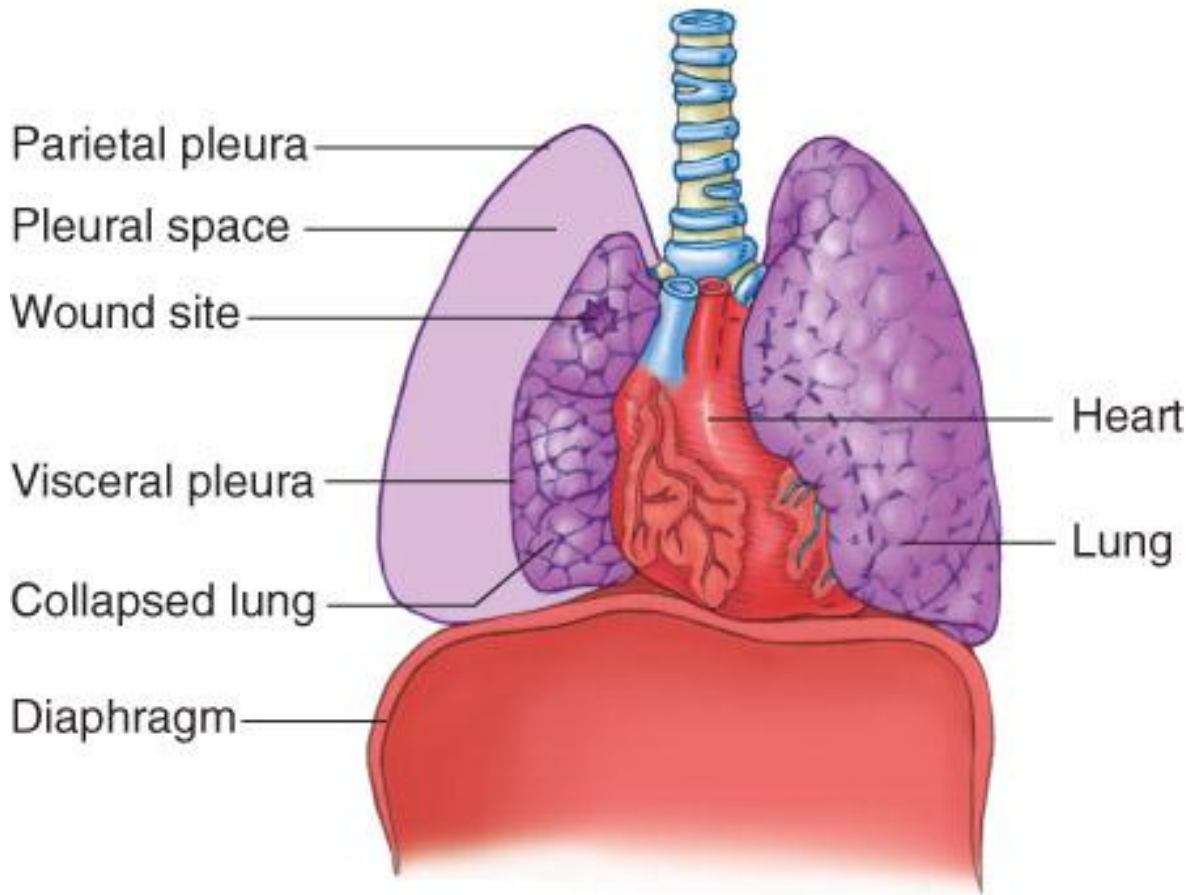
# Spontaneous Pneumothorax

## (2 of 3)

- Occurs with lung infections or in weak lungs
- Patient becomes dyspneic.
- Breath sounds may be absent on affected side.

# Spontaneous Pneumothorax

(3 of 3)

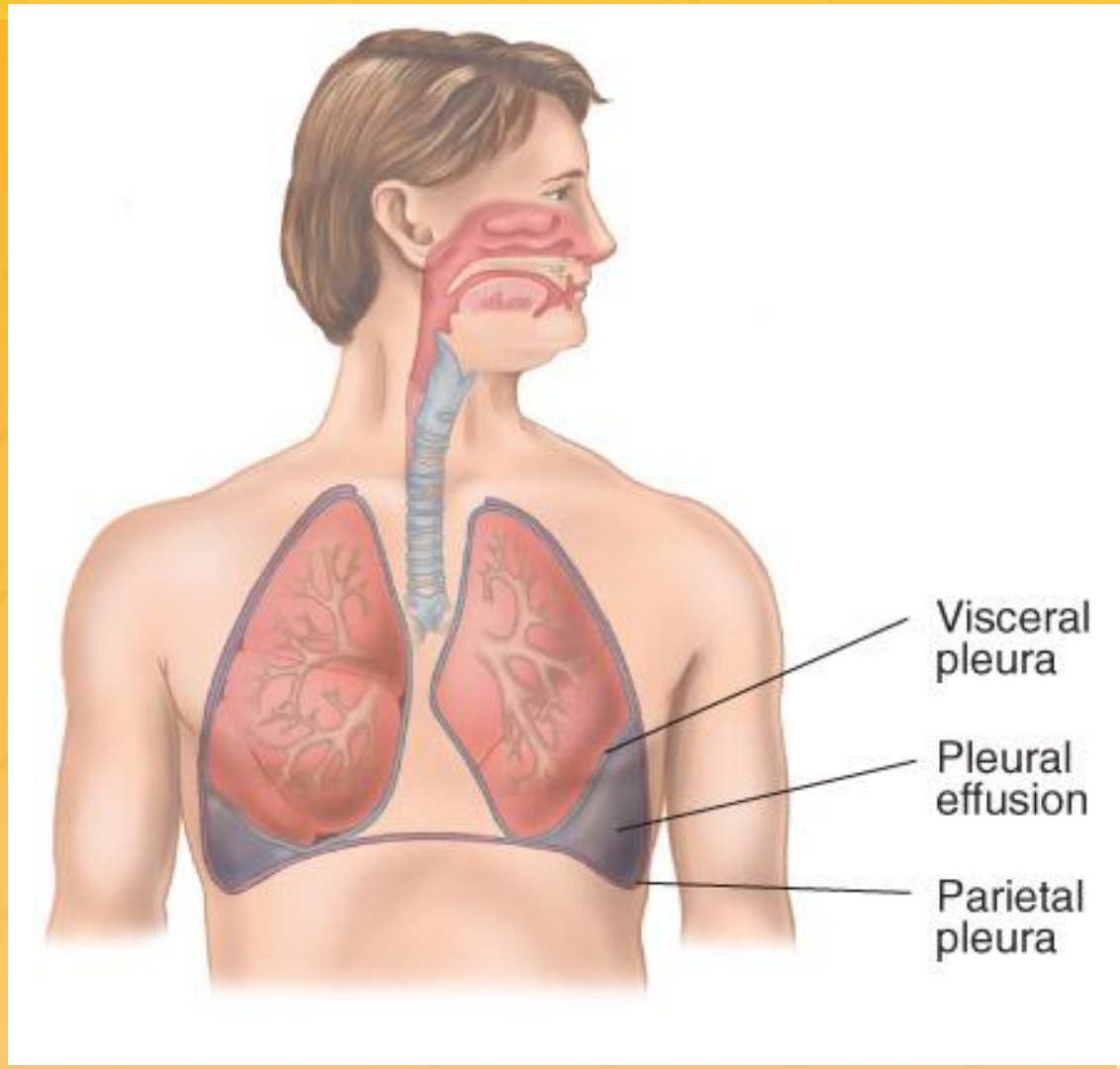




# Pleural Effusion (1 of 2)

- Collection of fluid outside the lung
- Compresses lung and causes dyspnea
- Can stem from infection, congestive heart failure, cancer
- Upright position eases pain

# Pleural Effusion (2 of 2)



# Prolonged Seizures

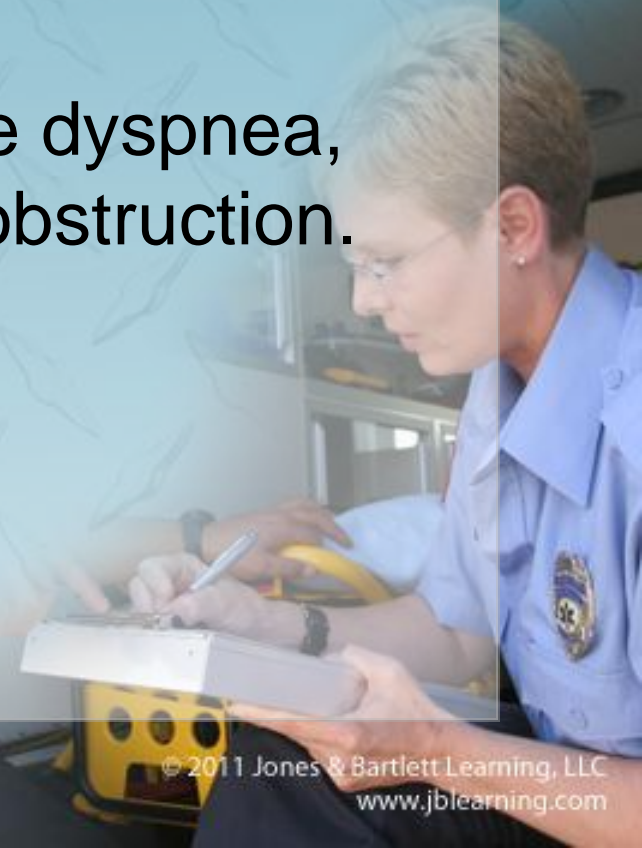
- During brief seizure, patient may have impaired breathing.
- When seizures repeat every few minutes or last longer than 30 minutes, situation can be life threatening.



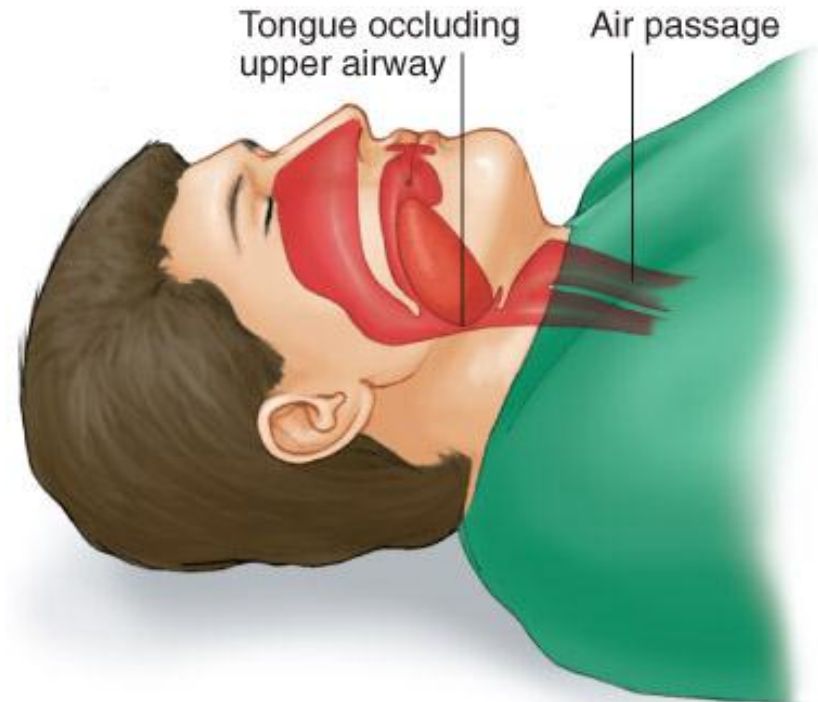
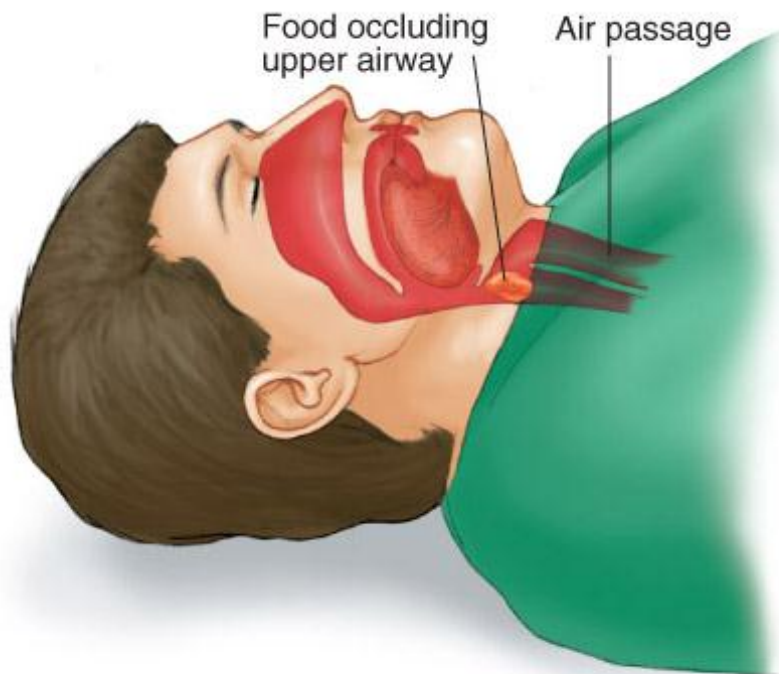


# Obstruction of the Airway (1 of 2)

- Patient with dyspnea may have mechanical obstruction
- Treat quickly.
- If patient was eating just before dyspnea, always consider foreign body obstruction.



# Obstruction of the Airway (2 of 2)



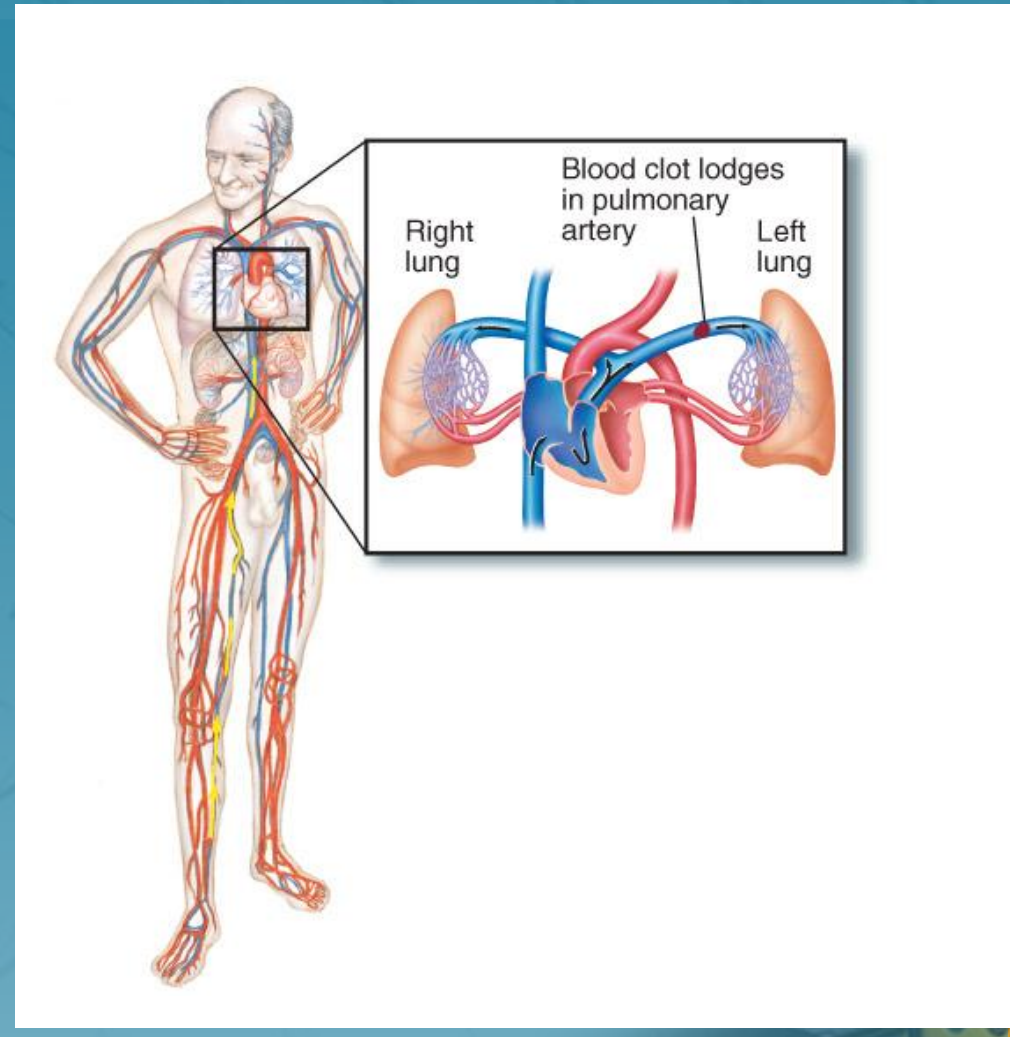
# Pulmonary Embolism (1 of 4)

- Passage of blood clot formed in vein into pulmonary artery
  - Circulation cut off partially or completely
  - Becomes lodged
  - Significantly decreases blood flow
  - If large enough, can cause sudden death

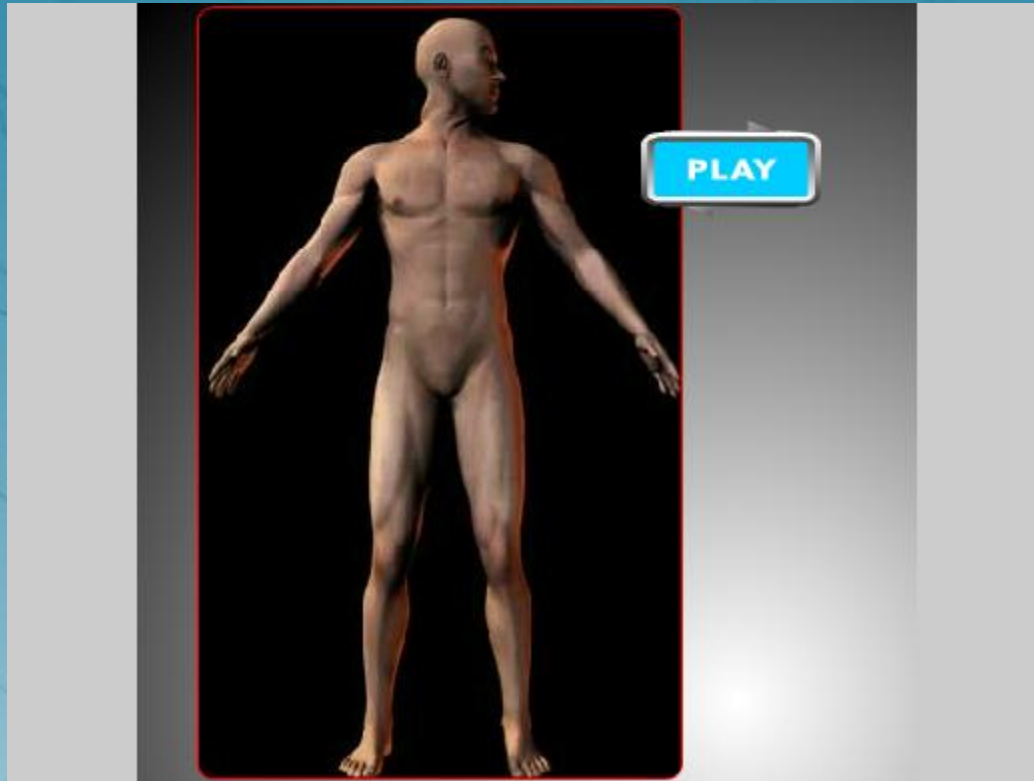




# Pulmonary Embolism (2 of 4)



# Pulmonary Embolism (3 of 4)



# Pulmonary Embolism (4 of 4)

- Signs and symptoms include:
  - Dyspnea
  - Acute chest pain
  - Hemoptysis (coughing up blood)
  - Cyanosis
  - Tachypnea
  - Hypoxia





# Hyperventilation (1 of 2)

- Overbreathing to point that arterial carbon dioxide falls below normal
- May be indicator of major illness
- Acidosis: buildup of excess acid in blood or body tissues



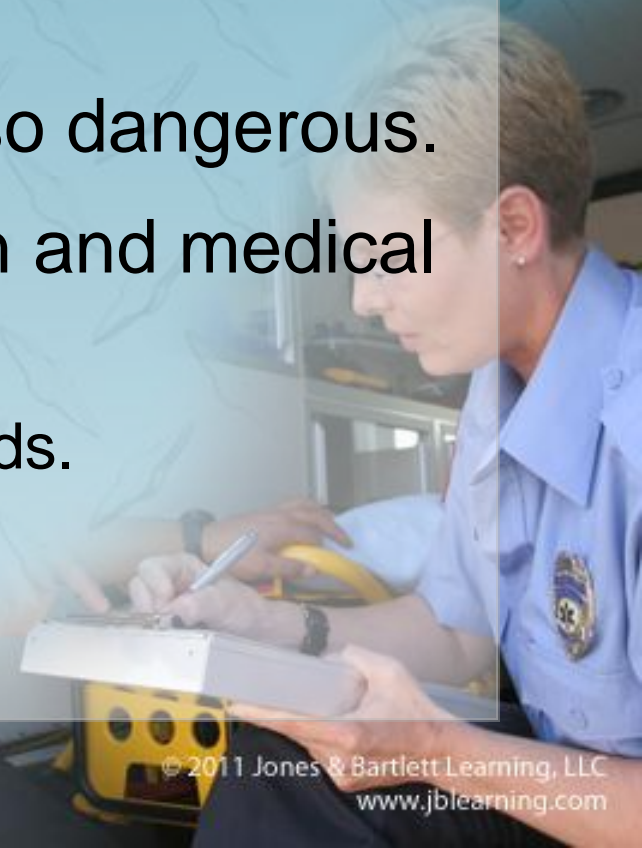
# Hyperventilation (2 of 2)

- Alkalosis: buildup of excess base in body fluids
- Alkalosis can cause symptoms of panic attack, including:
  - Anxiety
  - Dizziness
  - Numbness



# Environmental/Industrial Exposure

- Carbon monoxide
  - Odorless
  - Highly poisonous
- Many other substances are also dangerous.
- Patient needs decontamination and medical care.
  - Pay close attention to lung sounds.





# Bacterial and Viral Respiratory Infections

- Methicillin-resistant *Staphylococcus aureus* (MRSA)
  - Bacterium that affects many parts of body
  - Difficult to treat
- Tuberculosis (TB)
  - Most often affects the lungs
  - Can remain inactive for years



# Patient Assessment



- Patient assessment steps
  - Scene size-up
  - Primary assessment
  - History taking
  - Secondary assessment
  - Reassessment

# Scene Size-up (1 of 2)



- Scene safety
  - Use standard precautions.
  - Use PPE.
  - Consider possibility of toxic substance.
  - Consider potential for violence.



# Scene Size-up (2 of 2)

- Mechanism of injury/nature of illness
  - If in question, ask why 9-1-1 was activated.
  - Nature of illness is often based on history of chronic medical problems.

# Primary Assessment (1 of 6)

- Identify immediate life threats.
- Form a general impression.
- Airway and breathing
- Circulation
- Transport Decision

# Primary Assessment (2 of 6)

- Form a general impression.
  - Use AVPU (*Alert* to person, place, and day; responsive to *Verbal* stimuli; responsive to *Pain*; *Unresponsive*) scale.

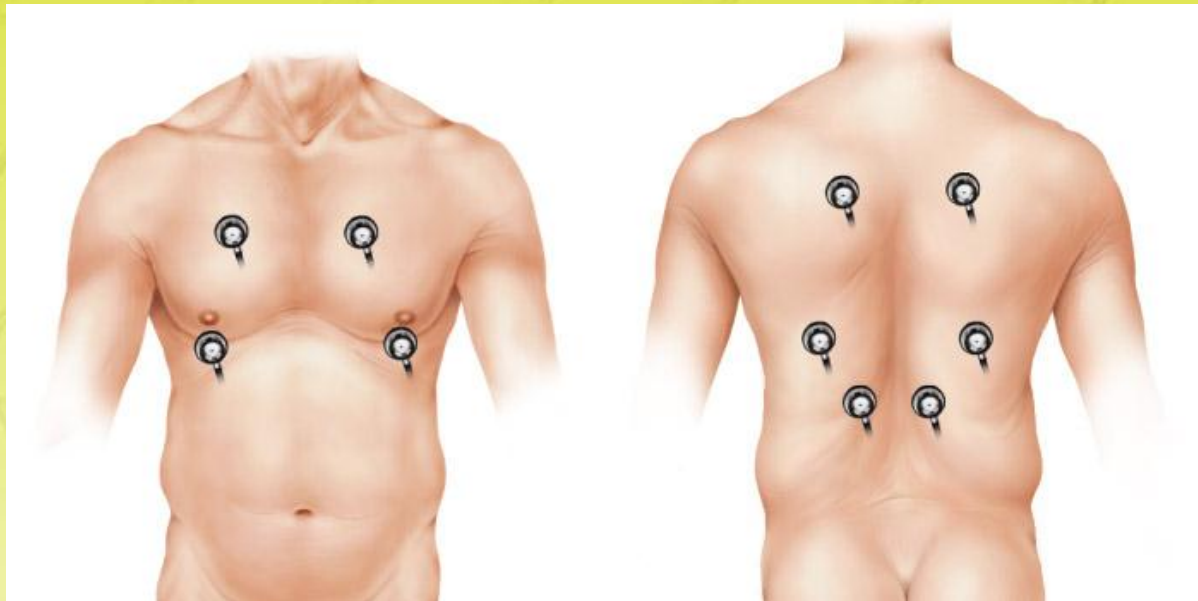


# Primary Assessment (3 of 6)

- Airway and breathing
  - Make sure airway is patent and adequate.
  - Determine if breath sounds are normal.
    - Check locations seen in Figure 13-14.

# Primary Assessment (4 of 6)

- Airway and breathing (cont'd)
  - Abnormal sounds include wheezing, rales, rhonchi, and stridor.



# Primary Assessment (5 of 6)

- Circulation
  - Assess pulse rate, quality, rhythm.
    - Tachycardia—increased pulse rate
    - Bradycardia—decreased pulse rate
  - Evaluate for shock and bleeding.
  - Assess perfusion by evaluating skin color, temperature, and condition.
  - Reassess life threats.



# Primary Assessment (6 of 6)

- Transport decision
  - If condition is unstable and there is possible life threat:
    - Address the life threat.
    - Proceed with rapid transport.

# History Taking



- Investigate chief complaint.
  - Objective and subjective observations
- SAMPLE history
- OPQRST assessment
- PASTE assessment
  - Specific for patients with dyspnea

# Secondary Assessment

- Physical examinations
  - Look for signs of COPD.
    - Often use accessory muscles to breathe
- Vital signs
  - Distal pulses, skin condition, breathing
  - Mental status
  - Use appropriate monitoring devices such as pulse oximetry.





# Reassessment (1 of 2)

- Repeat the primary assessment.
  - Interventions may include:
    - Oxygen via nonrebreathing mask at 15 L/min
    - Positive-pressure ventilations
    - Airway management techniques
    - Positioning in high Fowler's position or position of choice
    - Assisting with respiratory medications



# Reassessment (2 of 2)

- Communication and documentation
  - Communicate all relevant information to staff at receiving hospital.



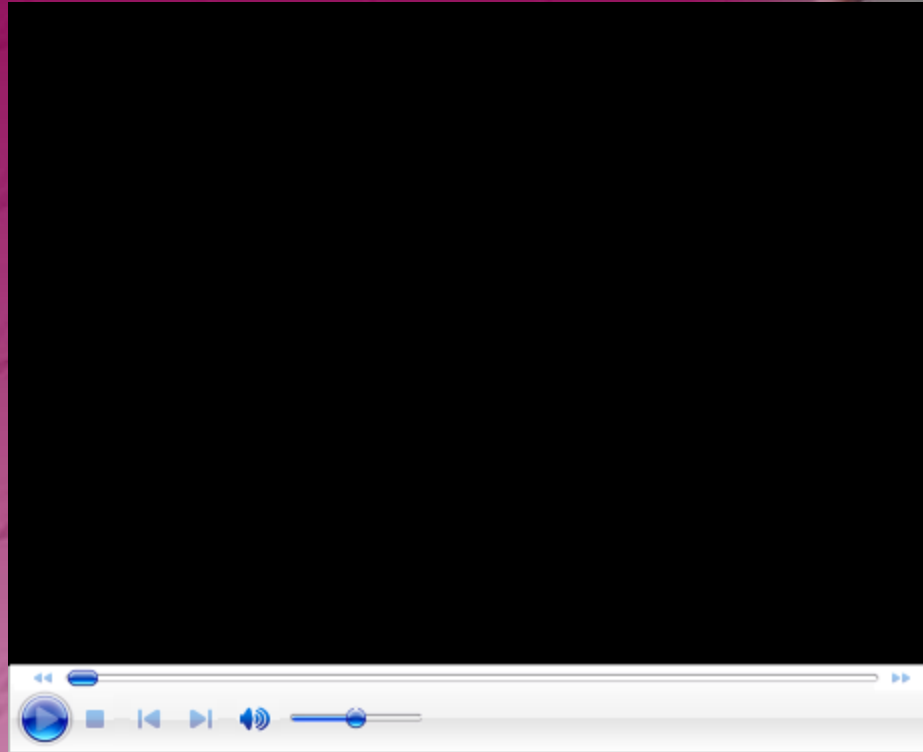
# Emergency Medical Care (1 of 4)

- Management of ABCs, positioning, oxygen, and suction are primary treatments.
- Patient may have metered-dose inhaler (MDI) or small-volume nebulizer (see **Skill Drills 13-1** and **13-2**).
- Consult medical control and make sure medication is indicated.

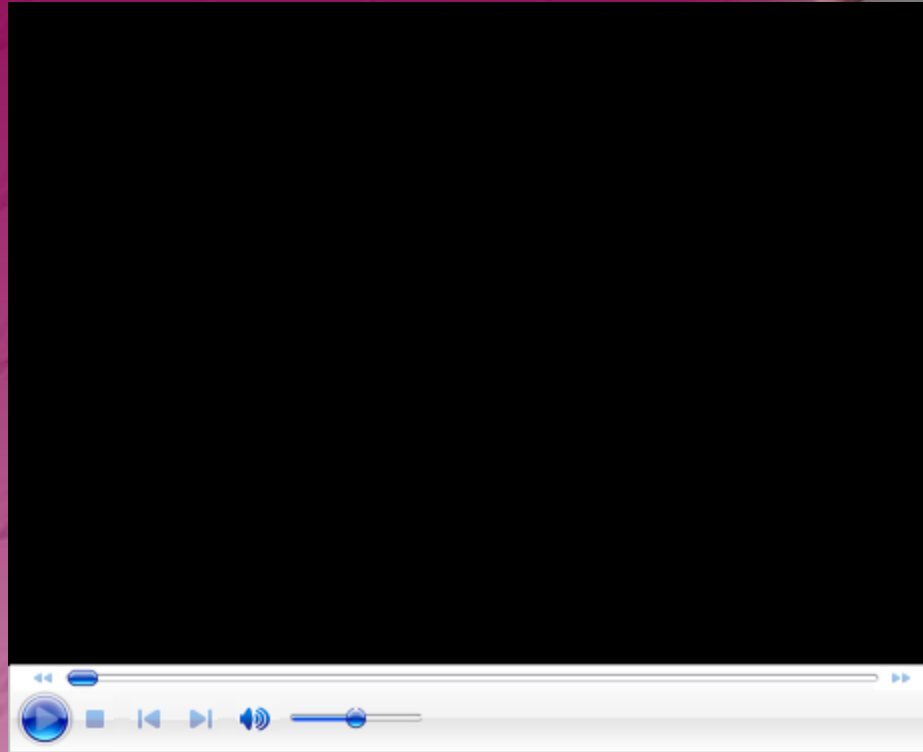




# Emergency Medical Care (2 of 4)



# Emergency Medical Care (3 of 4)



# Emergency Medical Care (4 of 4)



- **Contraindications**
  - Patient unable to coordinate inhalation
  - Inhaler not prescribed to patient
  - Permission not obtained from medical control
  - Not permissible by local protocol
  - Maximum prescribed dose already reached
  - Medication is expired
  - Other contraindications specific to medicine



# Treatment of Specific Conditions (1 of 12)

- Upper or lower airway infection
  - Provide humidified oxygen (if available).
  - Position comfortably (such as in the sniffing position for a child with epiglottitis).
  - Transport promptly.

# Treatment of Specific Conditions (2 of 12)



Child with epiglottitis in the sniffing position.

# Treatment of Specific Conditions (3 of 12)

- Acute pulmonary edema
  - Provide 100% oxygen.
  - Suction if necessary.
  - Position comfortably.
  - Transport promptly.





# Treatment of Specific Conditions (4 of 12)

- Chronic obstructive pulmonary disease
  - Assist with prescribed inhaler.
    - Watch for side effects from overuse.
  - Position comfortably.
  - Transport promptly.

# Treatment of Specific Conditions (5 of 12)

- Asthma, hay fever, and anaphylaxis
  - Assist asthma patient with prescribed inhaler.
  - Provide aggressive airway management, oxygen, prompt transport.
  - Hay fever is unlikely to need emergency treatment.

# Treatment of Specific Conditions (6 of 12)

- Spontaneous pneumothorax
  - Provide supplemental oxygen.
  - Transport promptly.
  - Monitor carefully.





# Treatment of Specific Conditions (7 of 12)

- Pleural effusion
  - Fluid removal must be done in hospital.
  - Provide oxygen.
  - Transport promptly.



# Treatment of Specific Conditions (8 of 12)

- Prolonged seizures
  - Patient needs to reach hospital quickly or ALS unit needs to reach you quickly.
  - When seizure stops, provide aggressive airway management.
  - Transport promptly.

# Treatment of Specific Conditions (9 of 12)

- Obstruction of airway
  - Partial obstruction: Provide supplemental oxygen and transport.
  - Complete obstruction: Clear obstruction and administer oxygen.
  - Transport rapidly to emergency department.



# Treatment of Specific Conditions (10 of 12)

- Pulmonary embolism
  - Supplemental oxygen is mandatory.
  - Position comfortably.
  - If hemoptysis is present, clear airway immediately.
  - Transport promptly.



# Treatment of Specific Conditions (11 of 12)

- Hyperventilation
  - Complete primary assessment and gather history.
  - Do not have patient breathe into paper bag.
  - Provide supplemental oxygen.
  - Transport promptly.

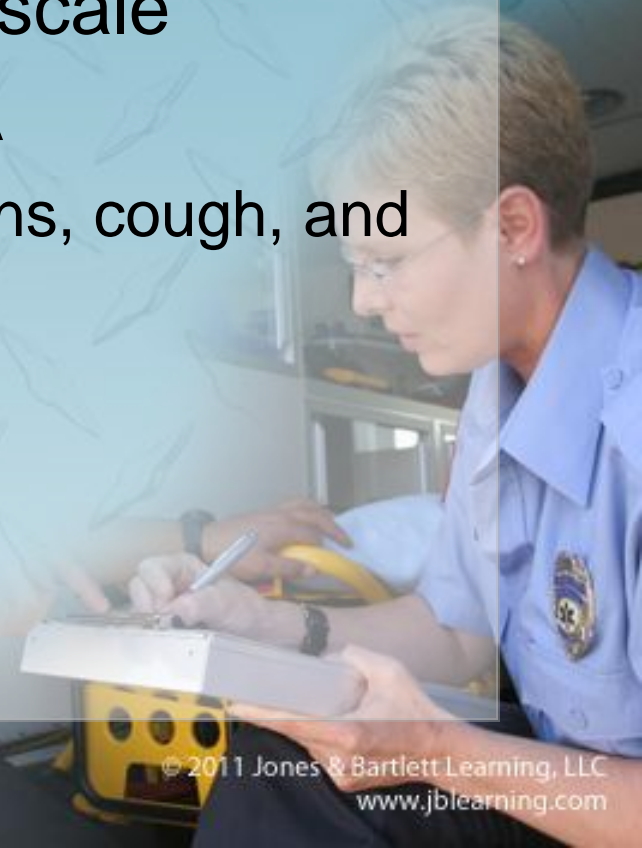
# Treatment of Specific Conditions (12 of 12)

- Environmental/industrial exposure
  - Ensure patients are decontaminated.
  - Treat with oxygen, adjuncts, and suction based on presentation.
  - Transport promptly.



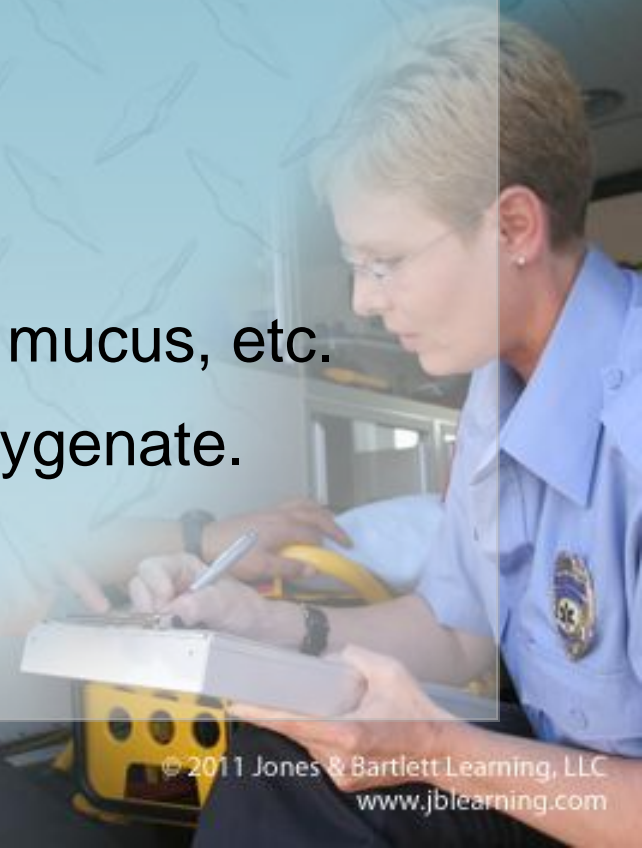
# Epidemic and Pandemic Considerations

- Epidemic: substantial new cases of a disease occur
- Pandemic: outbreak on global scale
  - Example: H1N1 influenza type A
    - Transmitted by nasal secretions, cough, and sneeze
    - Wear PPE.
    - Wash hands frequently.
    - Maintain vaccinations.



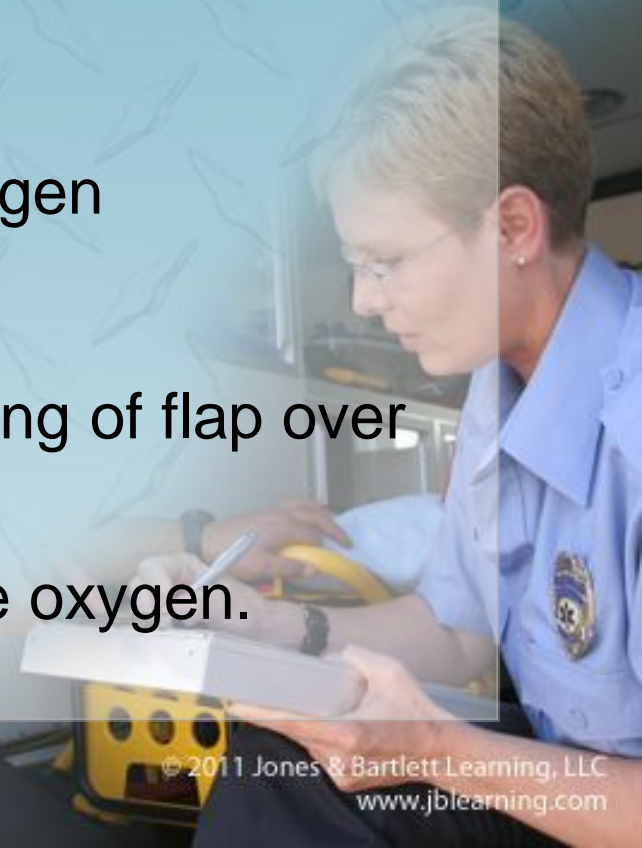
# Age-Related Assessment and Management (1 of 6)

- Foreign body aspiration
  - Object aspirated or inhaled into lung
  - Very common in young children
  - Provide oxygen and transport
- Tracheostomy dysfunction
  - Tubes obstructed by secretions, mucus, etc.
  - Position comfortably, suction, oxygenate.



# Age-Related Assessment and Management (2 of 6)

- Croup
  - Inflammation and swelling of pharynx, larynx, and trachea
  - Easily passed between children
  - Responds well to humidified oxygen
- Epiglottitis
  - Bacterial infection causing swelling of flap over larynx
  - Position comfortably and provide oxygen.





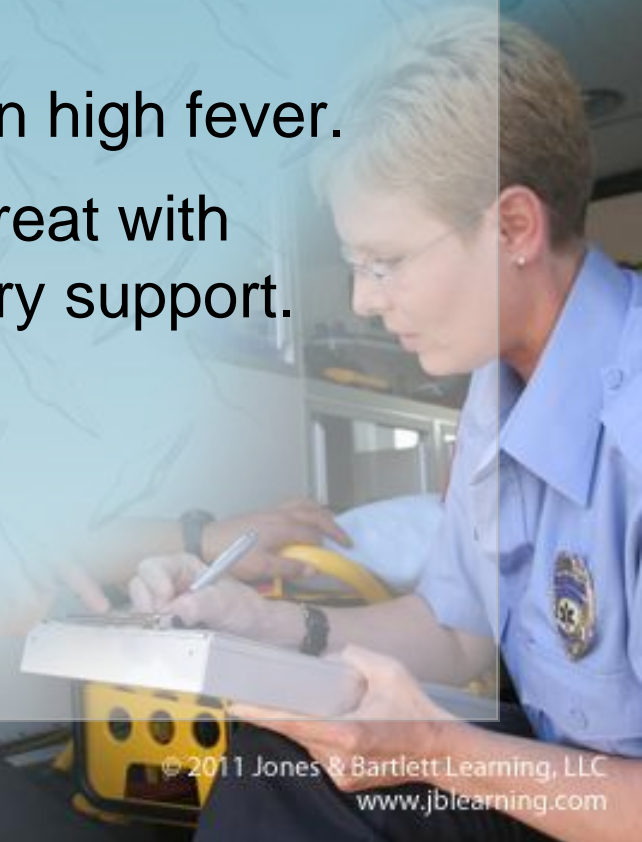
# Age-Related Assessment and Management (3 of 6)

- Asthma
  - Common illness.
  - Provide blow-by oxygen and metered-dose inhaler as appropriate.
- Bronchiolitis
  - Viral illness often caused by RSV.
  - Bronchioles become inflamed, swell, fill with mucus.



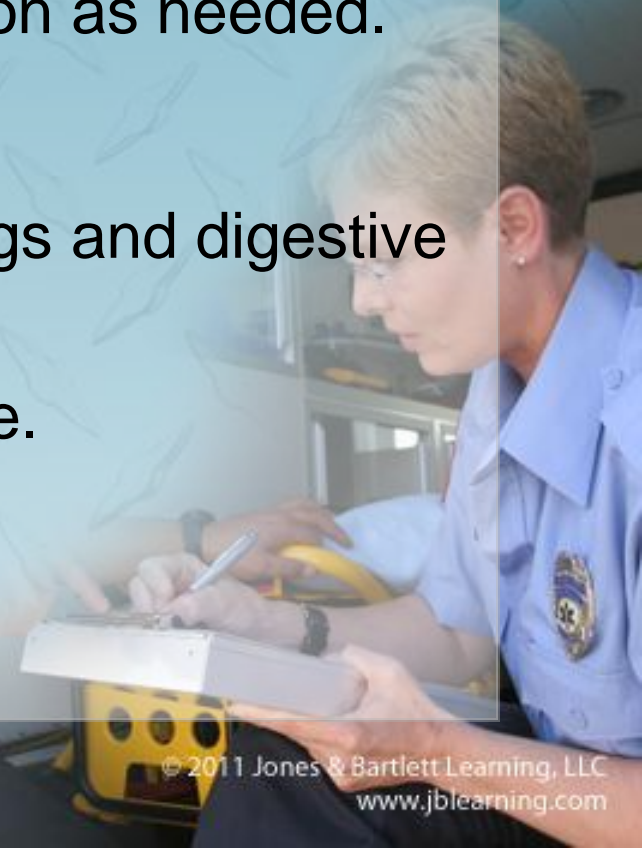
# Age-Related Assessment and Management (4 of 6)

- Pneumonia
  - Worldwide leading cause of death in children
  - Often a secondary infection
  - Will come on quickly and result in high fever.
  - Obtain a core temperature and treat with airway, ventilatory, and circulatory support.



# Age-Related Assessment and Management (5 of 6)

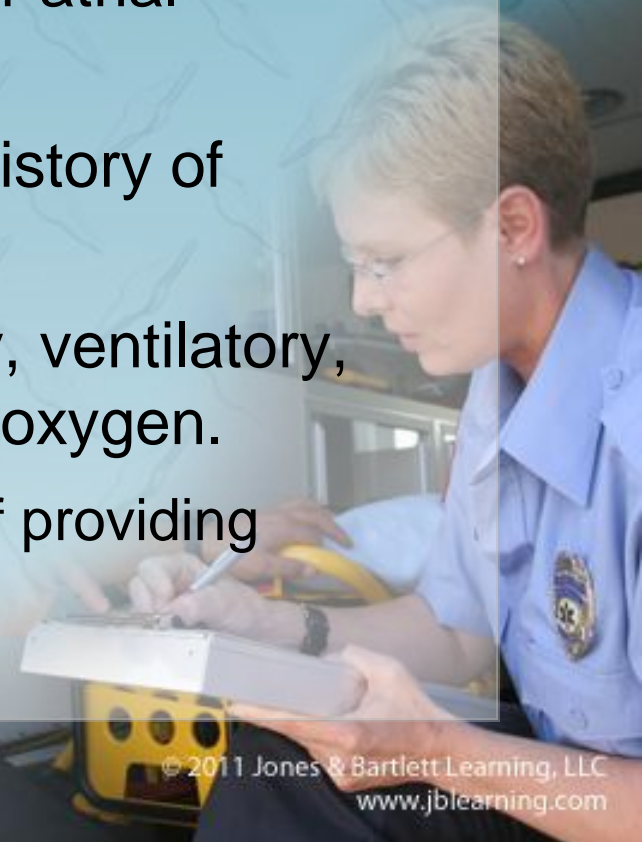
- Pertussis (whooping cough)
  - Airborne bacterial infection that is contagious
  - Watch for dehydration and suction as needed.
- Cystic fibrosis
  - Genetic disorder that affects lungs and digestive system
  - Treat with suction and oxygenate.





# Age-Related Assessment and Management (6 of 6)

- Congestive heart failure
  - Risk factors include hypertension and a history of coronary artery disease and/or atrial fibrillation.
  - In most cases, patients have a history of congestive heart failure.
  - Treatment should include airway, ventilatory, and circulatory support. Provide oxygen.
    - CPAP is a noninvasive means of providing ventilatory support.



# Summary (1 of 14)

- Dyspnea is a common complaint that may be caused by numerous medical problems.

# Summary (2 of 14)

- Causes of dyspnea include upper and lower airway infections, acute pulmonary edema, COPD, spontaneous pneumothorax, asthma, allergic reactions, pleural effusion, mechanical airway obstruction, pulmonary embolism, and hyperventilation.



# Summary (3 of 14)

- Lung disorders can interfere with the exchange of oxygen and carbon dioxide that takes place during respiration.

# Summary (4 of 14)

- This interference may be by damage to the alveoli, separation of the alveoli from the pulmonary vessels by fluid or infection, obstruction of the air passages, or air or excess fluid in the pleural space.

# Summary (5 of 14)

- Patients with long-standing lung diseases often have chronically high levels of blood carbon dioxide.
  - In some cases, giving too much oxygen to them may depress or stop respirations.
  - However, judicious use of oxygen is always an important priority in patients with dyspnea.

# Summary (6 of 14)

- Patients often develop breathing difficulty and/or hypoxia with upper or lower airway infection, acute pulmonary edema, chronic obstructive pulmonary disease, hay fever, asthma, anaphylaxis, spontaneous pneumothorax, and pleural effusion.



# Summary (7 of 14)

- Infectious diseases associated with dyspnea include epiglottitis, bronchitis, tuberculosis, pneumonia, and pertussis.
- Lung and breath sounds are some of the most important vital signs you should assess when treating a patient in respiratory distress.

# Summary (8 of 14)

- Signs and symptoms of breathing difficulty include wheezing, stridor, rales, and rhonchi; nasal flaring; pursed-lip breathing; cyanosis; inability to talk; use of accessory muscles to breathe; and sitting in tripod position.

# Summary (9 of 14)

- Interventions for respiratory problems:
  - Oxygen via nonrebreathing mask at 15 L/min, positive-pressure ventilations using bag-mask device, pocket mask, or a flow-restricted oxygen-powered ventilation device

# Summary (10 of 14)

- Interventions for respiratory problems (cont'd):
  - Airway management techniques such as use of an oropharyngeal airway, nasopharyngeal airway, suctioning, or airway positioning
  - Positioning in a high Fowler's position or a position of comfort to facilitate breathing



# Summary (11 of 14)

- Interventions for respiratory problems (cont'd):
  - Assistance with respiratory medications found in a prescribed MDI or a small-volume nebulizer. (Consult medical control to assist with its use, or follow standing orders if the orders allow for this.)

# Summary (12 of 14)

- Remember, a patient who is breathing rapidly may not be getting enough oxygen as a result of respiratory distress from a variety of problems.

# Summary (13 of 14)

- The problems include pneumonia or a pulmonary embolism; trying to “blow off” more carbon dioxide to compensate for acidosis caused by a poison, severe infection, or high blood glucose level; or having a stress reaction.

# Summary (14 of 14)

- In every case, prompt recognition of the problem, administration of oxygen, and prompt transport are essential.