Chapter 15
Respiratory Emergencies

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

Respiratory System Anatomy
- Respiratory system: all the structures that contribute to ________________
- Includes diaphragm, chest wall muscles, accessory muscles of breathing, and nerves to the muscles
- Upper airway consists of all structures above the ________________ cords

Anatomy of the Respiratory System

Physiology of Respiration

Causes of Poor Breathing
- Pulmonary vessels become obstructed.
  - ________________ are damaged.
- Air passages are obstructed.
- Blood flow to the lungs is obstructed.
- ________________ space is filled.

Physiology of Respiration
- In the alveoli
  - Oxygen passes into the capillaries
  - Carbon dioxide returns to lungs
- Brain stem senses blood’s ________________ levels
  - Regulates breathing rate and depth
9 Signs of Abnormal Breathing
- Slower than 12 breaths/min or faster than 20 breaths/min
- Unequal chest expansion
- Muscle ________________
- Pale or cyanotic skin
- Cool, damp (clammy) skin
- Decreased or abnormal lung ________________

10 Signs of Abnormal Breathing
- Shallow or irregular respirations
- Pursed lips
- Nasal flaring
- ________________ breathing: pattern with increasing rate and depth followed by periods of non breathing (apnea)

11 Dyspnea
- Shortness of breath or difficulty breathing
- Patient may not be alert enough to complain of shortness of breath.

12 Dyspnea
- Patients often have dyspnea/hypoxia with:
  - Pulmonary ________________
  - Hay fever
  - Pleural effusion
  - Obstruction of the airway
  - ________________ syndrome
  - Environmental/industrial exposure
  - Drug overdose

13 Causes of Dyspnea

14 Upper or Lower Airway Infection
- Infectious diseases may affect all parts of the airway.
- The problem is some form of obstruction to the air flow or the exchange of gases.
• Patient normally has ______________________

15 □ Pneumonia
• ________________________ I pneumonia will come on quickly and result in high fever.
• ________________________ pneumonia presents more gradually and is less severe.
• Especially affects people who are chronically ill
• Assess temperature and provide airway support and supplemental oxygen

16 □ Pertussis
• Airborne bacterial infection that mostly affect children under 6 years
• Patients will be feverish and exhibit a ________________________ sound after a coughing attack.
• Watch for dehydration and suction as needed.

17 □ Influenza Type A
• Became pandemic in 2009
• Symptoms include fever, cough, sore throat, muscle aches, headache, and fatigue.
• May lead to ________________________ or dehydration

18 □ Acute Pulmonary Edema
• Fluid build-up in the lungs increasing the distance between the alveoli and ________________________
• Signs and symptoms
  – Dyspnea
  – Frothy pink sputum
• History of chronic congestive heart ________________________
• Recurrence high

19 □ Tuberculosis (TB)
• ________________________ infection that most often affects the lungs
• Can remain inactive for years
• Patients often complain of fever, coughing, fatigue, night sweats, and weight loss.
• Wear gloves, eye protection, and an N-95 respirator.

20 □ Chronic Obstructive Pulmonary Disease (COPD)
• COPD is the result of direct lung and airway damage from repeated infections or inhalation of toxic agents.
• **Chronic Bronchitis**: Chronic irritation of the t_________________________ and bronchi (“Blue Bloater”)
• **Emphysema**: Dilation and scarring of the alveoli (“Pink Puffer”)

21 □ Chronic Obstructive Pulmonary Disease (COPD)
• ______________________ is the most common type of COPD.
  – Loss of elastic material in the lungs
  – Causes include inflamed airway and smoking.
• Most patients with COPD have elements of both chronic bronchitis and emphysema.

22 □ Chronic Obstructive Pulmonary Disease (COPD)
• Patients with pulmonary edema will have ______________________ lung sounds.
• Patients with COPD will have “dry” lung sounds.
• Can sometimes be confused

23 □ COPD

24 □ Signs/Symptoms of COPD
  1. Usually in elderly
     • ______________________ chest
     • Dyspnea
     • Cyanosis
     • Sitting Upright (Tripod Position)
  2. Pursing lips
     • ______________________
     • Wheezing
     • Rhonchi

25 □ Asthma or Allergic Reactions
• Asthma is an acute spasm of the bronchioles associated with increased __________________ production.
• __________________ may be audible without a stethoscope.
• An allergen can trigger an asthma attack.
• Asthma and anaphylactic reactions can be similar.

26 □ Asthma

27 □ Asthma

28 □ Hay Fever and Anaphylaxis

29 □ Spontaneous Pneumothorax
• Accumulation of air in the __________________ space
• Caused by trauma or some medical conditions
• Very common in pts with emphysema
• Dyspnea and sharp chest pain on one side
• __________________ or decreased breath sounds on one side

30 □ Spontaneous Pneumothorax

31 □ Pleural Effusion
• Collection of __________________ outside lung
• Compresses lung and causes dyspnea
• Caused by irritation, infection, congestive heart failure, or cancer
• Decreased breath sounds over region of the chest where fluid has moved the lung away from the chest wall
• Eased if patient is __________________ up

32 □ Mechanical Obstruction of the Airway
• Be prepared to treat __________________ .
• Obstruction may result from the position of head, the tongue, aspiration of vomitus, or a foreign body.
• Opening the airway with the head tilt-chin lift maneuver may solve the problem.

33 □ Pulmonary Embolism
• A __________________ that breaks off and circulates through the venous system

Signs and symptoms:
• Dyspnea
• Acute pleuritic pain
• _____________________: coughing up blood
• Cyanosis
• Tachypnea
• Varying degrees of hypoxia

34 Pulmonary Embolism

35 Pulmonary Embolism
• Risk Factors:
  - Recent _____________________
  - Prolonged bed rest or immobility
  - Unusually fast blood clotting
• A PE is a _____________________ life threat
• If large enough, can cause sudden death

36 Hyperventilation
• Over breathing resulting in a decrease in the level of
  _____________________
• Signs and symptoms can mimic an MI
  – Anxiety/Stressful situation
  – Numbness
  – A sense of dyspnea despite rapid breathing
  – Dizziness
  – _____________________ in hands and feet

37 Environmental/Industrial Exposure
• Pesticides, cleaning solutions, chemicals, chlorine, and other gases can be released.
• Carbon monoxide
  – _____________________
  – Highly poisonous
  – Produced by fuel-burning appliances and smoke.
• Do not put yourself at risk.

38 Acute Pulmonary Edema (1 of 2)
• Heart muscle can’t circulate blood properly.
• Fluid builds up within _________________ and in lung tissue.
  – Referred to as pulmonary edema
  – Usually result of congestive heart failure
  – Common cause of hospital admission

39 □ Acute Pulmonary Edema (2 of 2)

40 □ Dyspnea Signs and Symptoms (1 of 2)
• Difficulty breathing
• Anxiety or restlessness
• Decreased respirations
• _________________
• Abnormal breath sounds
• Difficulty speaking
• Accessory muscles

41 □ Dyspnea Signs and Symptoms (2 of 2)
• Altered mental status
• Coughing
• Irregular breathing rhythm
• _________________ position
• Barrel chest
• Pale conjunctivae
• Increased pulse and respirations

42 □ General Emergency Care
• Give supplemental _________________ at 10 to 15 L/min via nonrebreathing mask.
• Patients with longstanding COPD may be started on low-flow oxygen (2 L/min) and pulse ox monitored.
• Assist with _________________ if available.
• Consult medical control.

43 □ General Emergency Care
• Transport in position of comfort
• Give _________________ if authorized
• Contact ALS backup if severe.
• Severe asthma attacks require injection of _________________
44 □ Treatment of Airway Infections
   • Administer warm, humidified oxygen.
   • Do not attempt to suction the airway or insert an oropharyngeal
     airway in a patient with suspected ________________.
   • Transport patient in position of comfort.
   • Transport promptly.

45 □ Treatment of Acute Pulmonary Edema
   • Administer 100% oxygen via NRB at 10-15LPM.
   • Suction secretions.
   • Transport in position of comfort.
   • Provide ________________ if indicated and allowed by
     protocol
   • Transport promptly

46 □ Treatment of COPD
   • Assist with prescribed inhaler if patient has one or give
     ________________ if authorized
     –Watch for side effects from overuse
   • Transport promptly in position of comfort.
   • Give oxygen (may begin with low concentration and increase until
     relieved)
   • Monitor ________________ drive

47 □ Treatment of Spontaneous Pneumothorax
   • Administer oxygen.
   • Transport in position of comfort.
   • Monitor closely.
   • Transport promptly.

48 □ Treatment of Asthma or Allergic Reactions
   • Obtain ________________.
   • Assess vital signs.
   • Assist with inhaler if patient has one.
   • Administer humidified oxygen via NRB at 10-15 LPM
   • Transport promptly.
   • ________________ will respond to epinephrine
   • Be prepared to suction
49. **Status Asthmaticus**
   - Severe ____________________ attack that is not relieved by medications
   - Severe life threat
   - Paramedic backup and rapid transport is vital

50. **Treatment of Pleural Effusion**
   - Definitive treatment is performed in a ____________________ .
   - Administer oxygen and supportive measures.
   - Transport promptly.

51. **Treatment of Mechanical Obstruction**
   - Clear airway.
   - Administer oxygen.
   - Transport promptly.

52. **Treatment of Pulmonary Embolism**
   - Supplemental oxygen is mandatory
   - Place patient in comfortable position, usually ____________________ .
   - Assist breathing as necessary.
   - Keep airway clear.
   - Transport promptly.

53. **Treatment of Hyperventilation**
   - Complete initial assessment and history of the event.
   - Assume ____________________ problems.
   - Having patient breathe into a paper bag is ____________________ recommended
   - Give oxygen.
   - Reassure patient and transport.

54. **Treatment of Environmental/Industrial Exposure**
   - Environmental/industrial exposure
     - Ensure patients are ____________________ .
     - Treat with oxygen, adjuncts, and suction based on presentation.
55 □ Treatment of Foreign Body Aspiration
   – Clear the airway.
   – Provide oxygen and transport.

56 □ Treatment of Tracheostomy Dysfunction
   – Position comfortably.
   – __________________________
   – Provide oxygen.

57 □ Treatment of Cystic Fibrosis
   – Genetic disorder that affects the lungs and digestive system
   – _________________________ and oxygenate as needed.

58 □ Geriatric Needs
   • Aging alters respiratory system.
   • _________________________ patients are at risk for lung diseases.
   • They may need ventilatory support.

59 □ Pediatric Needs
   • _________________________ is common in childhood.
   • Cyanosis is a _________________________ finding.
   • Treatment is the same as for an adult.

60 □ Inhalers/Respiratory Drugs
   • Bronchodilators: Relaxes _________________________ muscles in the
     tracheobronchial tree
   • Results in _________________________ or opening of the airways
   • Helps to loosen mucus plugs

61 □ Common Respiratory Medications
1 □ Trade names:
   • Proventil
   • _________________________
   • Alupent
   • Metaprel
   • Brethine
2 □ Generic names:
• ________________
• Metaproterenol
• Terbutaline

62 □ **Respiratory Medications**
• Route is by ______________________
• Administration Devices
  - Multi Dose Inhaler (MDI)
  - ______________________

63 □ **Bronchodilators**
**Actions:**
• Relax the muscles surrounding the ______________________
• Enlarge the airways leading to easier passage of air

**Side effects:**
• Increased ______________________ rate
• Nervousness
• Muscle tremors

64 □ **Prior to Administration**
• Read label carefully.
• Verify it has been prescribed by a ______________________ for this patient.
• Consult medical control as required.
• Make sure the medication is ______________________.
• Check for ______________________.

65 □ **Contraindications for Bronchodilators**
• Patient unable to help coordinate ______________________
• Inhaler not prescribed for patient
• No permission from medical control
• ______________________ dose prescribed has been taken.

66 □ **Administration of MDI (1 of 3)**
• Obtain order from medical control or local ______________________ I.
• Check for right medication, right patient, right route.
• Make sure the patient is alert.
• Check the ______________________ date.
• Check how many doses have been taken.
67 □ Administration of MDI (2 of 3)
- Make sure inhaler is at ________________ temperature or warmer.
- Shake inhaler.
- Stop administration of oxygen.
- Ask the patient to exhale deeply and put lips around opening.
- If the inhaler has a ________________, use it.

68 □ Administration of MDI (3 of 3)
- Have the patient depress the inhaler and inhale deeply.
- Instruct the patient to ________________ his or her breath.
- Continue administration of oxygen.
- Allow the patient to breathe a few times then repeat dose according to protocol.

69 □ Albuterol (Ventolin)
- Most ________________ used bronchodilator in EMS
- Precautions
  - Patients with cardiovascular disease
  - Patients with hypertension
- Dosage
  - 2.5mg in 3cc of normal saline
  - Usually premixed in ________________
  - Pediatric dosage must be determined by medical control

70 □ Xopenex (Levalbuterol)
- Bronchodilator
- Normally used if ________________ is ineffective or if patient is already taking Xopenex at home
- Precautions
  - Same as Albuterol (C/V disease and HTN)
- Dosage
  - 1.25mg in 3cc of normal saline
  - Usually premixed in nebulers
  - Pediatric dosage must be determined by medical control
•

71  Giving Meds Via Nebulizer (1 of 2)
• Route—Inhalation through hand held nebulizer (HHN)
• Confirm order—____________________ it back
• Confirm medication and ______________________ date
• Check for cloudiness
• Assemble nebulizer
• Place solution in nebulizer

72  Giving Meds Via Nebulizer (2 of 2)
• Turn on oxygen (unhumidified) at ______________________ to ______________________ lpm
• Have patient hold nebulizer in mouth and breath in mist
• Give until solution is all gone
• Give oxygen after treatment

73  Key Points in Giving Any Medications
• 1. Confirm (repeat) the order
• 2. Make sure patient is NOT ______________________
• 3. Make sure you select the right medication
• 4. Check for cloudiness/discoloration
• 5. Check the expiration date
• 6. Check and recheck the dosage
• 7. Watch for effects as well as ______________________ effects and allergic reactions

74  Reassessment
• Carefully watch for shortness of breath.
• ______________________ minutes after administration:
  • Obtain vital signs again.
  • Perform focused reassessment.
  • Transport and continue to assess breathing.