

Nursing Assessment, Interpretation, and Treatment of Lung Sounds

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Objectives:

▣ Participants will:

1. Be able to recognize normal and abnormal lung sounds.
2. Understand the components of a comprehensive nursing lung sound assessment.
3. Gain knowledge of appropriate treatments
4. Proper documentation

Respiratory Track Anatomy

- ▣ Lobes of the lungs:
 - Right: upper, middle, lower
 - Left: upper, lower
- ▣ Upper airway:
 - Nose/nasal cavity, mouth, pharynx (throat)
larynx (voice box).
- ▣ Lower airway:
 - Trachea, bronchi, bronchioles, alveoli.

Respiratory Rates/Patterns:

- ▣ Normal 14-24/min
- ▣ Tachypnea: >24/min
- ▣ Bradypnea: < 10/min
- ▣ Hyperventilation: > 24/min, regular shallow
- ▣ Kussmaul: deep rapid breathing
- ▣ Cheyenne-Stokes: deep/fast to shallow/slow; periods of apnea
- ▣ Agonal: rate intermittent, depth varies
- ▣ Apnea: No breaths

Causes: Abnormal Lung Sounds

- ▣ Acute/chronic bronchitis
- ▣ Asthma
- ▣ Tuberculosis
- ▣ Congestive heart failure
- ▣ Emphysema
- ▣ Lung disease/tumors/cancer
- ▣ Pneumonia
- ▣ Smoke or chemical inhalation
- ▣ Foreign body in airway or lungs
- ▣ Obstructive sleep apnea
- ▣ Anaphylaxis
- ▣ Trauma to lungs/chest/airway/diaphragm
- ▣ Pulmonary embolism

Signs of Low Oxygen Levels

- ▣ Cyanosis
- ▣ Bluish coloration of skin/ mucous membranes
- ▣ Nasal flaring
- ▣ Use of chest accessory muscles (use of neck and chest wall muscles)
- ▣ Abdominal breathing (use of the abdominal muscles to assist breathing)
- ▣ Unable to complete a full sentence
- ▣ Signs of confusion

Lung Sounds: Rales/Crackles

- ▣ Small crackling/clicking, bubbling or rattling sounds
- ▣ High pitched sound
- ▣ Fluid in the air sacs within the lung
- ▣ Defined as moist, dry, fine, or course

Lung Sounds: Rhonchi

- ▣ Sounds that resemble snoring.
- ▣ Low pitched lung sound
- ▣ They occur when air flow is blocked by fluid or mucus
- ▣ Air flow becomes rough through the large airways.

Lung Sounds: Wheezing

- ▣ High pitched whistling sounds produced by narrowed airways.
- ▣ May be inspiratory, expiratory or both
- ▣ Occurs when the bronchial tubes become inflamed and narrowed

Lung Sounds: Stridor

- ▣ Wheeze-like sound heard.
- ▣ Harsh, vibratory sounds
- ▣ Usually due to a blockage of airflow in the upper airway (trachea or back of throat).

Lung Sounds: Absent

- ▣ Air or fluid in or around the lungs
 - Pneumonia, Heart Failure, Plural Effusion
- ▣ Increased thickness of the chest wall
- ▣ Reduced airflow to part of the lungs
- ▣ Over-inflation of a part of the lungs
Emphysema, COPD

Nursing Assessment: Questions to Ask

- ▣ Ask your patient:
 - When did the difficulty breathing episode begin?
 - When did you notice any breath sounds?
 - How would you describe your breathing?
 - What makes it better or worse?
 - What other symptoms do you have?
 - Any cough/ expectoration/blood (color/quantity?)
 - Any chest pain?
 - Any dizziness?

Nursing Assessment: Inspection

▣ Inspect

- Respiratory rate/effort/pattern
 - ▣ Regular, irregular, deep, shallow, absent
- Drooling?
- Color of skin/Cyanosis
- Use of accessory muscles/nasal flaring
- Any trauma/bruising to chest/back
- Jugular vein distention
- Trachea deviation

Nursing Assessment: *Palpation*

- ▣ Feel for symmetrical chest expansion
- ▣ Does the patient report any areas of tenderness
- ▣ Check for crepitus; a crackling or popping sensation felt under the skin as a result of subcutaneous emphysema

Nursing Assessment: Percussion

- ▣ Percuss all lobes of the lung
- ▣ Percuss front and back
 - Dullness
 - Hyper-resonance
- ▣ Listening for sounds that suggest complications such as:
 - Effusion
 - Hemothorax
 - Pneumothorax

Nursing Assessment:

Auscultation

- ▣ Optimal patient position is upright
- ▣ Compare sides
- ▣ Start at the top and work down (handout)
- ▣ Full breath (inspiratory and expiratory)
- ▣ Duration of breath
- ▣ Identify sounds or absence of sounds
- ▣ Anterior (chest)
- ▣ Posterior (back)

Respiratory Exam

Abnormal Findings

- ▣ Respiratory distress (mild, moderate, severe)
- ▣ Decreased, abnormal, or absent lung sounds
- ▣ Increased or decreased respiratory rate
- ▣ Shallow or deep breaths
- ▣ Retractions, accessory muscle use, or nasal flaring
- ▣ Chest wall tenderness, bruising, rib or sternal tenderness
- ▣ Crepitus
- ▣ Depression or protrusion of the sternum

Nursing Assessment: Peak Flow Meter

- ▣ A peak flow meter measures how fast a person can push air out of the lungs and how open the airways are in the lungs.
- ▣ Proper Use:
 - Sit or stand up straight
 - Red marker at bottom of the meter
 - Deep breath in filling lungs, close lips around mouthpiece
 - Blast air out as hard and fast as possible
 - Measure/record the score

Nursing Assessment: Pulse Oximeter

- ▣ Pulse oximeter measures heart rate and the percentage of oxygen in the blood.
- ▣ Readings:
 - Normal 96% or greater
 - Acceptable 95 %
 - May need intervention 94%-93%
 - Needs urgent intervention 92% or less

Pulse Ox: Trouble Shooting

- ▣ Things that may effect an accurate reading:
 - Cool hands
 - Cyanosis to hands
 - Position of devise
 - Poor peripheral perfusion
 - ▣ Shock, vasoconstriction, hypotension
 - Severe anemia
 - Carbon monoxide poisoning
 - Hypothermia
 - Excessive patient movement
 - BP taken on same arm as pulse ox

Nursing Treatment:

- ▣ Position the patient
- ▣ Provide medication as prescribed
 - Nebulizer treatment
 - Oral/injectable
- ▣ Oxygen modalities
 - Nasal cannula (1-6 L/min)
 - Non-re-breather mask (6-15 L/min)
 - Ambu bag (with supplemental oxygen)

Nursing Treatment: Re-Assessment

- ▣ Must do a re-assessment after each treatment and document findings
- ▣ May need multiple re-assessments while patient is in your care
- ▣ Know when the patient must be transferred to a higher level of care based on your facility capabilities/staff

Documentation of Lung Sounds

- ▣ Patient Appearance
- ▣ Patient complaint, symptoms, history of event
- ▣ Respiratory effort
- ▣ Lung sounds identified and location
- ▣ Respiratory patterns
- ▣ Rate and depth of respirations per minute
- ▣ Pulse oximeter & peak flow meter findings
- ▣ Re-assessment findings
- ▣ Treatments and response to treatments
- ▣ Plan of care
- ▣ Use only accepted abbreviations

Documentation Exercise #1

- ▣ 45 year old patient; history of HTN/smoking
- ▣ Patient awake, alert, color pink, complaining of difficulty breathing that began last night and has gotten worse, has coughing episodes, in mild distress, winded with exertion, BP 166/90, P 122, R 26 Temp 99.8 Pulse ox 93% room air.
- ▣ Applied nasal oxygen at 2L/min; will observe

Documentation Exercise #2

- ▣ 15 year old male with history of asthma
- ▣ Patient awake, alert, via wheelchair complaining of sudden onset difficulty breathing while playing basketball, no albuterol inhaler used, in moderate respiratory distress, skin diaphoretic, color pale, inspiratory and expiratory wheezing in all lung fields auscultated. BP 132/88 P 130 R 32 Pulse ox 92%. Gave albuterol neb with poor effort. Called provider, order to send to ED.

Documentation Exercise #3

- ▣ 45 year old male, no medical history
- ▣ Patient ambulatory to medical unit complaining of cough, difficulty breathing and feeling hot for three days. Lung sounds have diminished breath sounds in bases bilaterally, left upper lobe has rhonchi on inspiration, mild respiratory distress upon exertion. BP 120/82 P 88 R 24 Pulse ox 95%. Oxygen applied 2L/min via nasal cannula.

Documentation Exercise # 4

- ▣ 56 year old male found on bunk; brought to medical via stretcher.
- ▣ Patient confused, excessive diaphoresis, skin cool/clammy, cyanosis to fingers. BP 92/60 P 130 R 14 Pulse ox 72%. Course crackles in all lung fields.
- ▣ Oxygen mask applied at 10 L/m. Called 911 for transfer to hospital.

Documentation Exercise # 5

- ▣ Pt found in cell, lethargic, color pale, skin clammy, BP 88/60 P-142 weak, R 10, Pulse ox “no reading”. Lung sounds diminished all fields. Oxygen applied via mask at 10L/m. Called 911 for transport to hospital.

Any Questions?



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