Respiratory Assessment for the Home Health Care Provider

Objectives

- Identify five techniques used in respiratory assessment
- Describe normal breath sounds
- Describe abnormal breath sounds
- Identify pertinent information when assessing respiratory status
- Identify correct documentation techniques
- Identify common respiratory treatments

Techniques Used in Respiratory Assessment

There are five techniques used in respiratory assessment:

1. Inspection
2. Auscultation
3. Palpation
4. Percussion
5. Olfaction

1. Inspection

Chest inspection allows you to see visible external signs of respiratory function. Observe for symmetry of chest wall movement. Observe the duration of the inspiratory/expiratory cycle. Note the client's respiratory pattern and breathing rhythm. Look to see if the client uses muscles of respiration. Observe for intercostals retractions, nasal flaring, or pursed lip breathing. Inspect the neck for contraction of the sternocleidomastoid or other accessory muscles of respiration during inspiration. Observe the client's level of consciousness.

Normal Findings for Chest Inspection

- Side to side symmetric chest shape.
- Distance from the front to the back of the chest (anterior-posterior diameter) less than the size of the chest from side to side (transverse diameter.)
- Normal chest shape, with no visible deformities.
- No muscle retractions when breathing.
- Quiet, unlabored respirations with no use of accessory, neck, shoulder, or abdominal muscles.
- A regular respiratory rhythm, with expiration taking about twice as long as inspiration.
- Skin color matches the rest of the body's complexion.
- A respiratory rate of 12 to 20 in an adult, 30 to 60 breaths per minute for a newborn and between 20 and 40 per minute for children over one year of age.

2. Auscultation

Auscultation of the lungs is the most important examining technique for assessing airflow through the tracheobronchial tree. Auscultation is the technique of listening to the sounds of the chest with a stethoscope. The movement of air in and out of the respiratory system produces breath sounds. Breath sounds are transmitted through the chest wall and may be heard through the diaphragm (flat piece) of a stethoscope placed firmly against the chest wall. Listen carefully for at least one full breath in each location. Start by listening to posterior chest, beginning with the areas above the scapulae. Move downward in a stair-step fashion, comparing your findings from one side with those from the other side.

Chest auscultation involves:

1. Listening for the sounds generated by normal breathing.
2. Listening for any adventitious or added sounds.
3. If abnormalities are detected, listening to the sounds of the client's spoken or whispered voice as they are transmitted through the chest wall.

Breath sounds are described by:

- Duration (how long the sound lasts)
- Intensity (how loud the sound is)
- Pitch (how high or low the sound is)
- Timing (when the sound occurs in the respiratory cycle)

3. Palpation

Palpation is an assessment technique in which the examiner uses the surface of the fingers and hands to feel for abnormalities. Assessment data includes identifying chest movement symmetry, chest skeletal abnormalities, tenderness, skin temperature changes, swelling, and masses.

Normal Findings on Palpation

- Normal chest size and shape
- Warm, dry skin
- No tender spots
- Symmetrical chest expansion
- Tactile fremitus over the mainstem bronchi in front and between the scapulae in the back of the chest

4. Percussion

Percussion is an assessment technique that produces sounds by the examiner tapping on the client's chest wall. Percussion sets the chest wall and underlying tissue into motion, producing audible sounds and palpable vibrations. Percussion helps to determine whether the underlying tissues are filled with air, fluid, or solid material.

Normal Findings on Percussion

- Resonant sounds - are low pitched, hollow sounds heard over normal lung tissue.
- Flat or extremely dull sounds - are normally heard over solid areas such as bones.

5. Olfaction

Olfaction is using your sense of smell to detect abnormalities not recognized by other means. For example a client's breathe or tracheostomy area should not have any fetid, sweet odor which could be caused by an infection in the bronchial tree. A sweet, fruity breath could mean problems with diabetic controls.

Normal Breath Sounds

- Tracheal breath sounds - are heard over the trachea. These sounds are harsh and sound like air is being blown through a pipe.
- Bronchial sounds - are heard over the large airways in the anterior chest near the second and third intercostals spaces. These sounds are more tubular and hollow-sounding than vesicular sounds, but not as harsh as tracheal breath sounds. Bronchial sounds are loud and high in pitch with a short pause between inspiration and expiration; expiratory sounds last longer than inspiratory sounds.
- Bronchovesicular sounds - are heard in the posterior chest between the scapulae and in the center part of the anterior chest. Bronchovesicular sounds are softer than bronchial sounds, but have a tubular quality. Bronchovesicular sounds are about equal during inspiration and expiration; differences in pitch and intensity are often more easily heard during expiration.
- Vesicular sounds - are soft, blowing, or rustling sounds normally heard throughout most of the lung fields. Vesicular sounds are normally heard throughout inspiration, continue without a pause through expiration, and then fade away about one third of the way through expiration.

Normal Findings on Auscultation

- Loud, high-pitched bronchial breath sounds over the trachea.
- Medium pitched bronchovesicular sounds over the mainstream bronchi, between the scapulae, and below the clavicles.
- Soft, breezy, low-pitched vesicular breath sounds over most of the peripheral lung fields.

Abnormal Breath Sounds

Abnormal breath sounds include the absence of sound where it should be, and the presence of "normal" sounds in areas where they are not normally heard. The term "adventitious breath sounds" refers to extra or additional sounds that are heard over normal breath sounds.

Abnormal Findings on Auscultation

- Crackles - are caused by collapsed or fluid filled alveoli popping open when the patient inhales. Coarse crackles are louder and lower in pitch and are referred to as rhonchi. Fine crackles are soft and high-pitched and are referred to as rales. Crackles may be heard on inspiration and expiration.
- Wheezes - are sounds that are heard continuously during inspiration or expiration. They are caused by air moving through airways narrowed by constriction or swelling of airway or partial airway obstruction. High-pitched wheezes are caused by a narrowed airway. Low-pitched wheezes are caused by an oscillating airway.

- Pleural friction rub -is a low pitched, grating, rubbing sound heard when the client inhales and exhales, caused by pleural inflammation of the two layers of pleura rubbing together.
- Stridor - is a loud, high-pitched crowing sound heard (usually without a stethoscope) during inspiration (louder in the neck than over the chest wall) and is caused by an obstruction in the upper airway. Stridor warrants immediate medical attention.

Vocal Fremitus

Vocal fremitus is the sound that chest vibrations produce as the client speaks. Abnormal voice sounds may occur over areas that are consolidated.

- Bronchophony - ask the client to say “ninety-nine” or “blue moon.” The sound is normally muffled. Over consolidated areas, the words sound unusually loud.
- Egophony - ask the client to say “E.” Over normal lung tissue, the sound is muffled. Over consolidated lung tissue, it will sound like the letter "A."
- Whispered pectoriloquy - ask the client to whisper “1, 2, 3.” Over normal lung tissue, the numbers will be almost indistinguishable. Over consolidated lung tissue the numbers will be loud and clear.

Pertinent Information for Assessing Respiratory Status

When assessing respiratory status, keep in mind these important factors:

- **Cough -** productive or non-productive.
- **Sputum production (or secretions) -** describe color, quantity, consistency, odors present. Clear and thin is good. Thick and colored could indicate signs of an infection.
- **Breathing effort -** unlabored or labored (note presence of retractions, nasal flaring, abdominal breathing.)
- **Lung sounds -** note the presence of wheezing, crackles, stridor or diminished lung sounds.
- **Pulse oximetry -** note any variations from baseline as determined by physician.
- **Skin color -** a dusky or bluish tint may indicate decreased hemoglobin oxygen saturation.

Documentation Techniques

When documenting your respiratory assessment, **record your findings legibly** on the appropriate flow sheet using **accepted terminology or abbreviations**. Document any variations from baseline or changes in status on the client flow sheet and take the appropriate action. Additional respiratory treatments to be documented include the use of normal saline lavage, administration of nebulizer treatments and when you perform suctioning or bronchial drainage.

Accepted Abbreviations

Effort:

U	Unlabored	Fl	Flaring
ND	No distress	MR	Mild Retraction
La	Labored	SevR	Severe Retraction
R	Retractions	Abd Br	Abdominal Breathing

Lung Sounds

ALF	All Lung Fields	EA	Equal Aeration
UL	Upper Lobes	CL	Clear
LL	Lower Lobes	Dim	Diminished
RUL	Right Upper Lobe	EW	Expiratory Wheeze
RML	Right Middle Lobe	IW	Inspiratory Wheeze
RLL	Right Lower Lobe	S	Stridor
LUL	Left Upper Lobe	Cr	Crackles
LLL	Left Lower Lobe	Fn	Fine
EE	Equal Expansion	Crs	Coarse

Secretions

Th	Thin	Red	Red
Tk	Thick	Tn	Tan
Ten	Tenacious	Sc	Scant
W	White	Sm	Small
Cl	Clear	Mod	Moderate
Cldy	Cloudy	Lg	Large
Gr	Green	Sl	Slightly
Cm	Cream	O	Oral
Y	Yellow	Tr	Tracheal
Pi	Pink	Nas	Nasal

References

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