



King Saud University

Collage of Nursing

Medical Surgical Nursing depart

Application of Health Assessment

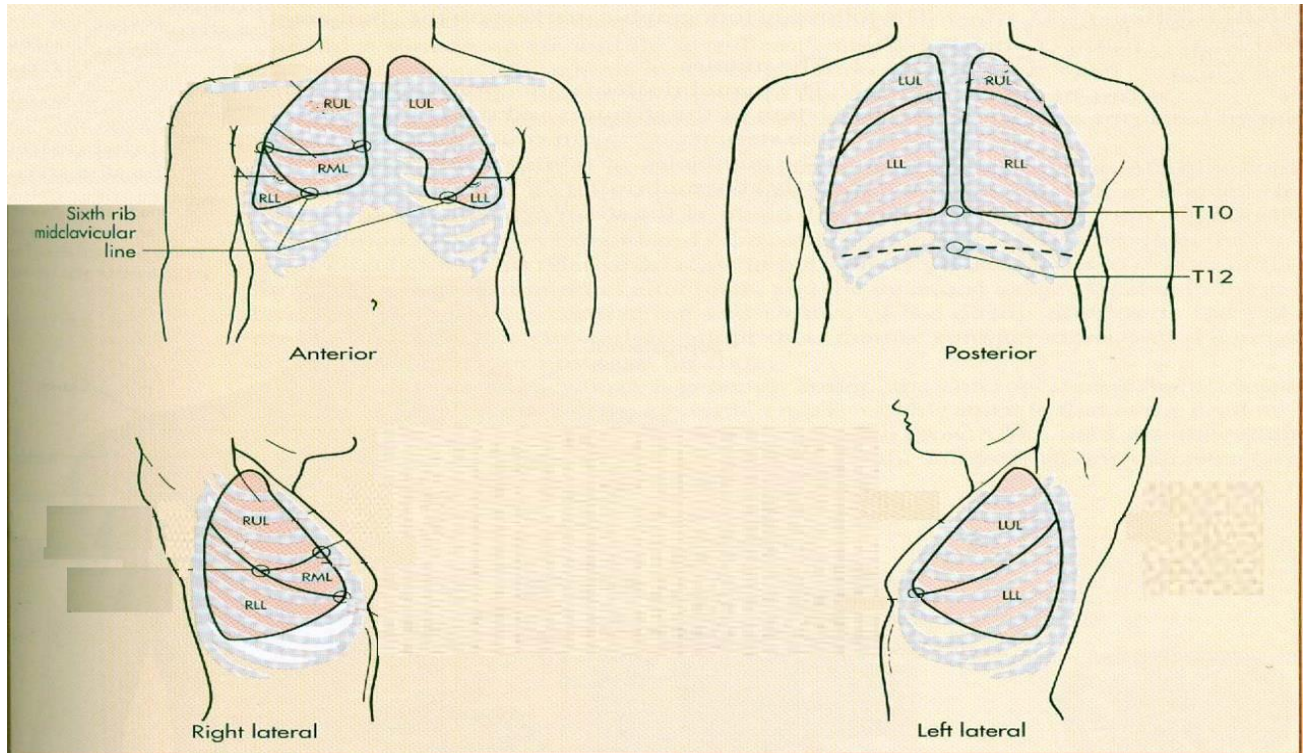
NUR 225

Module Four

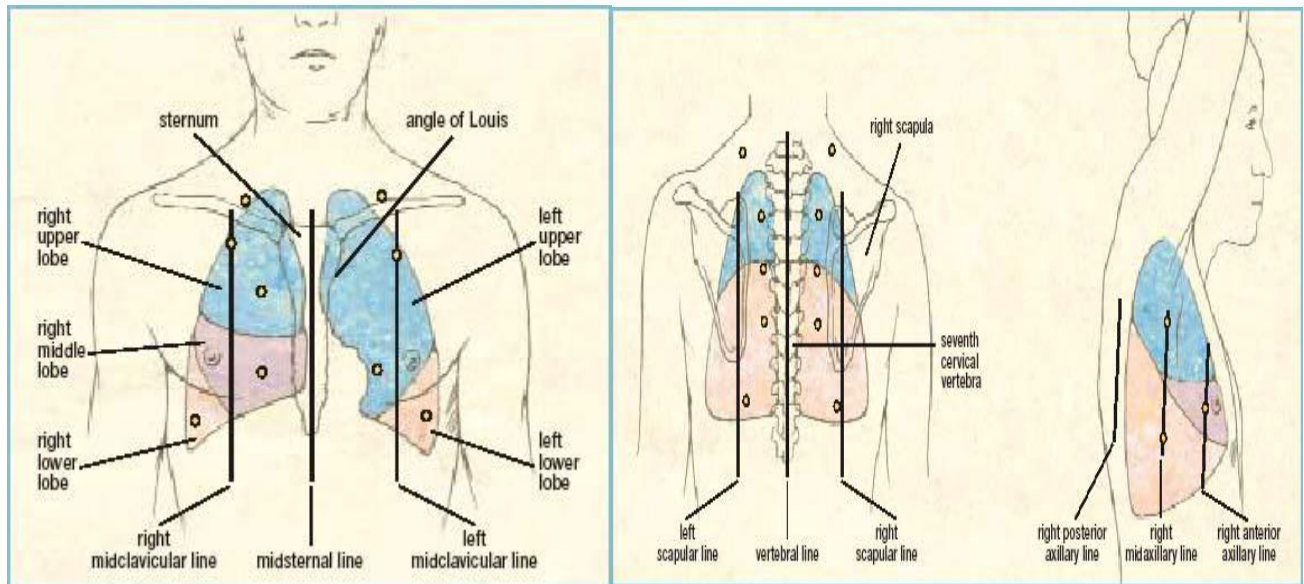
Physical examination of Respiratory Assessment



Lungs borders:



Lungs landmark:



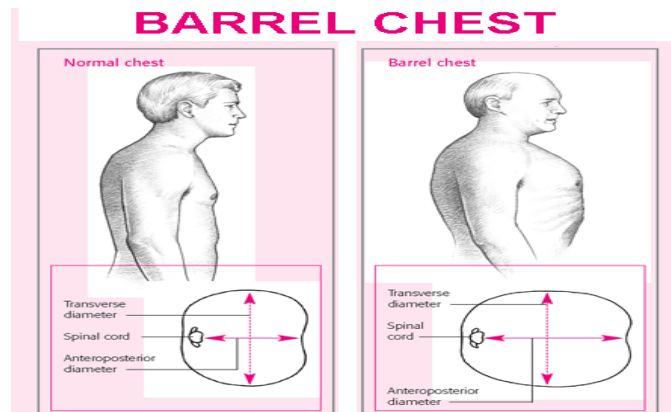
Respiratory system assessment

NORMAL RANGE OF FINDINGS	ABNORMAL FINDINGS
<p>1- Inspection</p> <p>Chest Shape and configuration Symmetry Movement should be symmetrical bilaterally and coordinated with breathing</p> <p>Position of nipples should be even.</p> <p>Size and shape equal</p> <p>Respirations: Rate, Rhythm, Effort, depth</p> <p>Breathing should be free and easy Breathing pattern</p> <p>The neck and Trapezius muscles development are normally developed for age occupation.</p> <p>Position the client takes to breathe</p> <p>Skin condition and nail beds</p>	<p>Kyphosis, Scoliosis, funnel and pigeon</p> <p>Unequal symmetry may denote decreased air entry on the affected side.</p> <div style="text-align: center;"> <p>Normal Kyphosis Lordosis Scoliosis</p> </div> <div style="text-align: center; margin-top: 10px;"> <p>Pigeon chest funnel chest</p> </div> <p>Shallow breathing may indicate pain, head injury or be related to medications.</p> <p>Note signs of respiratory distress Kussmaul's breathing: deep and laboured breathing, often associated with severe metabolic acidosis. Cheyne-Stokes' breathing: progressively deeper breathing followed by temporary apnea, which may occur with heart failure, cerebrovascular accident</p> <p>Cyanosis nail beds indicate hypoxemia</p>

The anteroposterior diameter:

Anteroposterior diameter is less than the transverse diameter.
The ratio of anteroposterior: transverse diameter is from 1:2

If anteroposterior diameter is larger than transverse diameter this indicates barrel chest most commonly occurred in emphysema client.



2- Palpation of chest:

Areas of tenderness, Skin (temperature, moisture, texture, superficial lumps or masses, and crepitus)

1- Symmetric Expansion

- Place your warmed hands on the posterolateral chest wall with thumbs at the level of T9 or T10 and on the anterolateral wall with the thumbs along the costal margins and pointing toward the xiphoid process.

- Ask client to take a deep breath.

- Slide your hands medially to pinch up a small fold of skin between your thumbs.

- Ask client to take a deep breath.

- As the client inhales deeply, inspect the movement of your thumbs for symmetrically movement.

- Noting any lag in expansion.



Asymmetrical reduction of chest wall expansion: absent expansion (e.g. **empyema** and **pleural effusion**) or reduced expansion (e.g. pulmonary consolidation and collapse).

2- Tactile Fremitus :

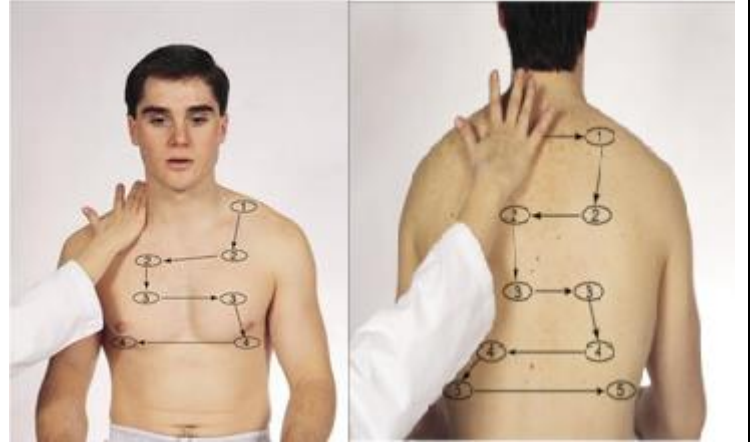
(a palpable vibration Sounds generated from the larynx are transmitted through patent bronchi and through the lung parenchyma to the chest wall where vibrations can be felt.

- Use the palmar base (the ball) of the fingers or the ulnar edge of one hand,

-Touch the client's chest while he or she repeats the words "ninety-nine" or "blue moon [Resonant phrases that generate strong vibrations].

-Start over the lung apices and palpate from one side to another

- Avoid palpating over the scapulae



Tactile vocal fremitus is increased over areas of consolidation and decreased or absent over areas of effusion or collapse

3- Percussion on chest:

■ Lung Fields

(predominant resonant note over the lung fields is normal).

-Start at the apices and percuss across the top of both shoulders

- percuss in the interspaces,make a side-to-side comparison all the way down the lung region.

-Percuss at 5-cm intervals.

-Avoid the damping effect of the scapulae and ribs.

- Percuss for diaphragmatic excursion. Ask the client to exhale forcefully and hold the breath. Beginning at the scapular line (T7), percuss the intercostal spaces of the right posterior chest wall. Percuss downward until



A hyper-resonant sound suggests hyperinflation or a pneumothorax.

A dull sound is easier to distinguish from normal. It may suggest collapse or consolidation, or a pleural effusion

Diaphragmatic descent may be limited by atelectasis of the lower lobes or by emphysema, in which diaphragmatic movement and air trapping are minimal. The diaphragm remains in a low position on inspiration and

the tone changes from resonance to dullness. Mark this level and allow the client to breathe. Next ask the client to inhale deeply and hold it. Percuss the intercostal spaces from the mark downward until resonance changes to dullness. Mark the level and allow the client to breathe. Measure the distance between the two marks. Perform this assessment technique on both sides of the posterior thorax. Excursion should be equal bilaterally and measure 3–5 cm in adults. The level of the diaphragm may be higher on the right because of the position of the liver.

expiration. Other possible causes for limited descent can be pain or abdominal changes such as extreme ascites, tumors, or pregnancy. Uneven excursion may be seen with inflammation from unilateral pneumonia, damage to the phrenic nerve, or splenomegaly



4-Ascultation

Normal Breath sounds

Bronchial sounds

Heard over large airways, i.e. trachea shorter inspiratory phase and longer expiratory

Bronchovesicular sounds

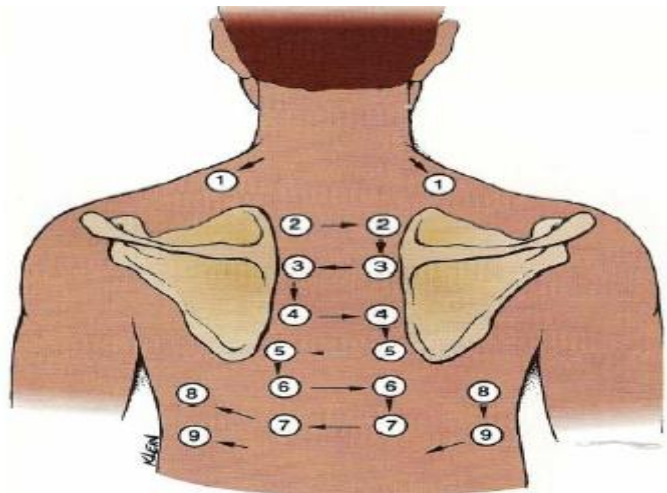
Heard upper intrascapular areas. Inspirations and expirations are equal

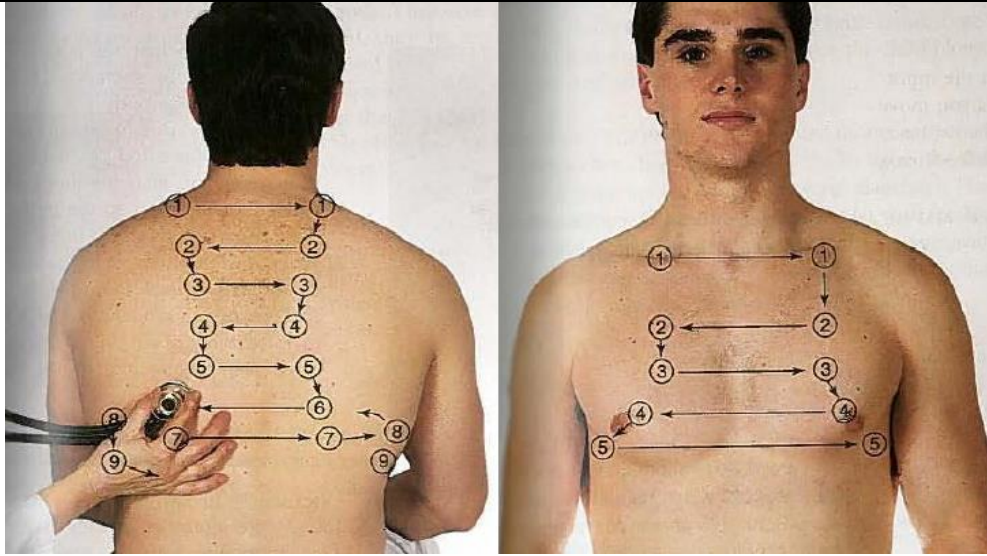
Vesicular sounds

Heard over peripheral lung fields. Inspiratory phase longer than expiratory Phase

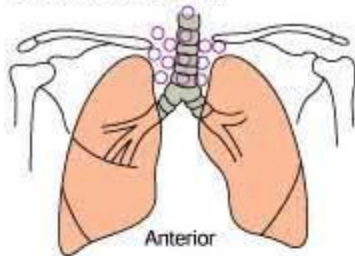
Auscultate in a systematic manner from right to left from top of the lungs towards the bottom carefully comparing all entry from lobe to lobe.

Identify type of abnormal breath sound is a skill acquired over time.



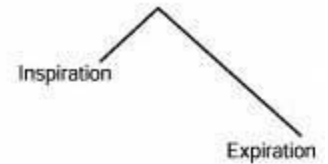


Bronchial or Tubular



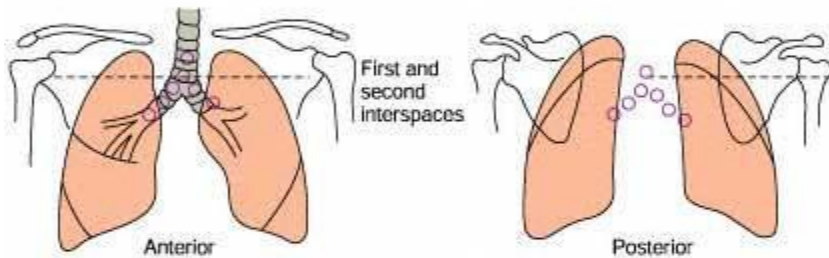
Blowing, hollow sounds auscultated over the trachea

Ratio of inspiration to expiration

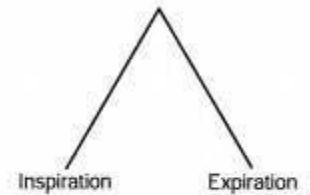


Inspiration is shorter than expiration. Expiration is longer, lower, and higher-pitched than inspiration.

Bronchovesicular

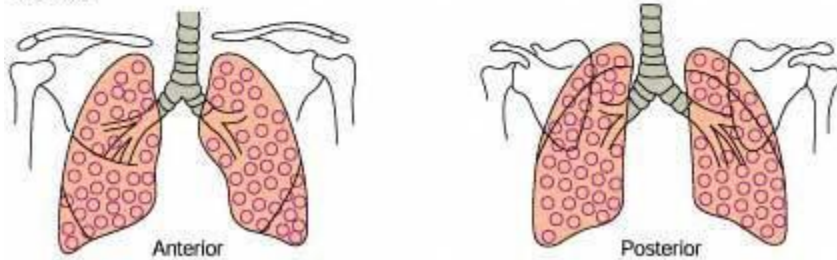


Medium-pitched, medium intensity, blowing sounds auscultated over the first and second interspaces anteriorly and the scapula posteriorly

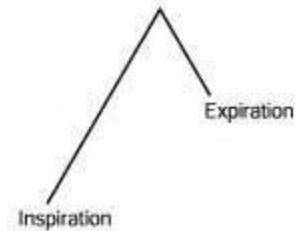


Inspiration and expiration have similar pitch.

Vesicular



Soft, low-pitched sounds auscultated over the lung periphery



Inspiration is longer, louder, and higher-pitched than expiration.

Abnormal breath sound:

1- Discontinued Sound:

- Crackles (fine):

High-pitched, short, popping sounds heard during inspiration and not cleared with coughing.

- Crackles (coarse):

Low-pitched, bubbling, moist sounds that may persist from early inspiration to early expiration.

2- Continuous Sounds:

- Pleural friction rub:

Low-pitched, dry, grating sound; sound is much like crackles, only more superficial and occurring during both inspiration and expiration.

- Wheeze (sibilant):

High-pitched, musical sounds heard primarily during expiration but may also be heard on inspiration.

- Wheeze (sonorous):

Low-pitched snoring or moaning sounds heard primarily during expiration but may be heard throughout the respiratory cycle. These wheezes may clear with coughing.

Performance checklist

Respiratory System

The student nurse should be able to:

Performance criteria	Competency Level						Comment
	Trial 1			Trial 2			
	Done correctly (2)	Done with assistance (1)	Not done (0)	Done correctly (2)	Done with assistance (1)	Not done (0)	
-Collect appropriate objective data about respiratory system related to general survey. -Collect appropriate subjective data related to respiratory system. - Chest pain, shortness of breath (dyspnea), wheezing, cough dry or produce sputum, sputum or hemoptysis. - Sputum or hemoptysis characteristics: color, odor, amount, frequency and consistency.							
Physical examination							
Inspection	Done correctly (2)	Done with assistance (1)	Not done (0)	Done correctly (2)	Done with assistance (1)	Not done (0)	
1- Inspect chest for: - Shape and symmetry of the anterior and posterior chest. - Movement. - Nipple position, size and shape. - Respiration rate, rhythm, effort and depth, 2-Inspect neck and trapezius muscle development. 3- Skin color. 4- The anteroposterior diameter. 5- Accessory muscle use. 6- Nails beds and clubbing nail.							

Posterior Chest	Trial 1			Trial 2			Comment
	Done correctly (2)	Done with assistance (1)	Not done (0)	Done correctly (2)	Done with assistance (1)	Not done (0)	
palpation							
1- Assess any tender areas, masses, temperature, moisture, texture and crepitus.							
2- Test chest expansion-at the level of T9 or T10.							
3- Tactile fremitus- repeat "1 – 2 – 3" or "99".							
percussion							
1- Symmetry.							
2- Normal sound and location.							
3- Abnormal sound and location.							
4- Diaphragmatic excursion.							
Auscultation							
1- Symmetry.							
2- Normal breath sound, location and I:E.							
3- Abnormal breath sound and location							
Anterior chest							
palpation							
1- Assess any tender areas, masses, temperature, Moisture, texture and crepitus.							
2- Test chest expansion-at the level of costal margin.							
3- Tactile fremitus- repeat "1 – 2 – 3" or "99".							
Percussion							
1- Symmetry.							
2- Normal sound and location.							
3- Abnormal sound and location.							
Auscultation							
1- Symmetry.							
2- Normal breath sound, location and I:E.							
3- Abnormal breath sound and location.							
Documentation.							

Evaluated by: _____

Date Evaluated: _____

Name and Signature of Faculty

Total grade _____

Terminology:

Scoliosis: is a medical condition in which a person's spine is curved from side to side.

Kyphosis: is a condition of over-curvature of the thoracic vertebrae (upper back).

Lordosis: is a condition of over-curvature of the lumbar vertebrae (lower back).

Funnel chest: congenital deformity of the anterior wall of the chest, in which several ribs and the sternum grow abnormally. This produces a caved-in or sunken appearance of the chest.

Pigeon chest: is a deformity of the chest characterized by a protrusion of the sternum and ribs.

Kussmaul's breathing: deep and laboured breathing, often associated with severe metabolic acidosis.

Cheyne-Stokes' breathing: progressively deeper breathing followed by temporary apnea, which may occur with heart failure, cerebrovascular accident.

Trapezius muscle: is a large superficial muscle that extends longitudinally from the occipital bone to the lower thoracic vertebrae and laterally to the spine of the scapula (shoulder blade).

Barrel chest: a rounded, bulging, almost barrel-like appearance of the chest that occurs as a result of long-term over inflation of the lungs.

Costal margin: is the lower edge of the chest (thorax) formed by the bottom edge of the rib cage.

Empyema: is a collection of pus in the space between the lung and the inner surface of the chest wall (pleural space).

Pleural effusion: excess fluid in the pleural space.

Consolidation of the lungs: is a condition whereby the lung tissues solidify because of the accumulation of solid and liquid material in the air spaces.

Pneumothorax (collapsed lung): is an abnormal collection of air or gas in the pleural space that separates the lung from the chest wall and which may interfere with normal breathing.

Tactile Fremitus: a palpable vibration Sounds generated from the larynx are transmitted through patent bronchi and through the lung parenchyma to the chest wall where vibrations can be felt.

Crackles: are discontinue, explosive, "popping" sound produced by accumulation of secretion within the airway, collapse edema in surrounding pulmonary tissue.

Wheezing: is a high-pitched whistling sound during breathing. It occurs when air moves through narrowed breathing tubes.

Stridor: is an abnormal, high-pitched, musicalbreathing sound caused by a blockage in the throat or voice box (larynx). It is usually heard when taking in a breath

Links:

Breath sounds:

<http://www.youtube.com/watch?v=iizkdnIND84&feature=share&list=PLz27Rlp3y6Xt5VhIYamPYDooNDXG1Boxb&index=36>

Kussmaul's breathing:

<http://youtu.be/OYJxz-Sxx90>

Cheyne-Stokes' breathing:

http://youtu.be/6_kxzDyV6J8

Respiratory assessment:

<http://www.youtube.com/watch?v=W05VubK454M&feature=share&list=PLED6A4FC5E175A62E>