Application of Health Assessment

NUR 225

Module Four

Physical examination of Respiratory System
Lungs borders:

Lungs landmark:
Respiratory system assessment

NORMAL RANGE OF FINDINGS

1- Inspection

Chest
Shape and configuration
Symmetry
Movement should be symmetrical bilaterally and coordinated with breathing

Abnormal Findings

Kyphosis, Scoliosis, funnel and pigeon
Unequal symmetry may denote decreased air entry on the affected side

Position of nipples should be even.
Size and shape equal
Respirations: Rate, Rhythm
Effort, depth
Breathing should be free and easy
Breathing pattern
The neck and Trapezius muscles development are normally developed for age occupation.
Position the client takes to breathe.

Skin condition and nail beds
Cyanosis nail beds indicate hypoxemia
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 indicate barrel chest most commonaly occurred in emphysema client.

BARREL CHEST
Barrel dada - suatu kondisi yang ditandai dengan peningkatan diameter anterior-posterior dada yang disebabkan oleh peningkatan kapasitas residu fungsional karena perangkap udara dari rutinitnya jalan napas kecil. Sebuah dada barel sering terlihat pada pasien dengan penyakit obstruktif kronis, seperti bronkitis kronis dan emfisema.

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

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.
**Ascultation**

**Normal Breath sounds**
**Bronchial sounds**  
Heard over large airways, i.e. trachea  
shorter inspiratory phase and longer  
expiratory

**Bronchiovesicular sounds**  
Heard upper intrascapular areas.  
Inspirations and expired 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
First and second interspaces

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.
Choose the correct answer for each of the following questions:

1- To auscultate the apex of the lungs, the stethoscope is placed in which of the following locations?
   a- Near the anterior axillary line on the 7th interspace
   b- Above the clavicle, medial to the midclavicular
   c- Below the scapula, medial to the mid scapular border

2- Kussmaul respiration is defined as:
   a- Rapid, deep, sighing breathing
   b- Deep breaths alternate with short periods of apnea
   c- Periodical absence of breathing

3- In adults with chronic respiratory diseases the rib cage increases in anteroposterior diameter. What is the name given to this finding?
   a- Funnel chest
   b- Pigeon chest
   c- Barrel chest

4- What is the name of the normal lung sound, heard over the right lower lobe posteriorly?
   a- Vesicular
   b- Tracheal
   c- Bronchovesicular

5- On auscultation of the lungs, an adventitious sound with a high musical quality occurred at the end of inspiration. What is the name of this sound?
   a- Crackles
   b- Rhonchi
   c- Wheeze

6- Kussmaul respiration is main sign in which of the following condition:
   a- Diabetic ketoacidosis   b- head injury   c- cerebrovascular accident.
The student nurse should be able to:

<table>
<thead>
<tr>
<th>Performance criteria</th>
<th>Competency Level</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Collect appropriate objective data about respiratory system related to general</td>
<td></td>
<td>Done correctly (2)</td>
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Physical examination

**Inspection**

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.
7. Position of the trachea.

**Posterior Chest**

**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”.
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<th>percussion</th>
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<td>4- Diaphragmatic excursion.</td>
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Anterior chest

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Documentation.

Evaluated by: ___________________________ Date Evaluated: _______________

Name and Signature ofFaculty

Total grade _________
Medical-Surgical Nursing

Respiratory System

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2. Inspect neck and trapezius muscle development.
3. Skin color.
4. The anteroposterior diameter.
5. Accessory muscle use.
7. Position of the trachea.

### Posterior Chest

#### 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.
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**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, musical breathing 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=iizkdnlND84&feature=share&list=PLz27Rlp3y6Xt5VhIYamPYDooNDXG1Boxb&index=36](http://www.youtube.com/watch?v=iizkdnlND84&feature=share&list=PLz27Rlp3y6Xt5VhIYamPYDooNDXG1Boxb&index=36)

Kussmaul's breathing:


Cheyne-Stokes' breathing:


Respiratory assessment:

[http://www.youtube.com/watch?v=W05VubK454M&feature=share&list=PLED6A4FC5E175A62E](http://www.youtube.com/watch?v=W05VubK454M&feature=share&list=PLED6A4FC5E175A62E)