* ***Lung & Thorax Assessment***
* **Dr. Sahar Adham**
* **2016- 2017**
* **Lung Examination**

**Objectives:**

At the end of this lab, the students will be able to:

1. Demonstrate the ability to safely & accurately complete thorax & lung assessment.

2. Demonstrate the ability to accurately document thorax & lung assessment data in organized

manner.

**Equipment Needed**

1. Stethoscope

2. Small ruler, marked in centimeters

3. Marking pen

4. Alcohol swab

**Preparation**

1. Ask the client to sit upright & the male to disrobe to the waist.

2. For female, leave the gown on & open at the back.

3. When examining the anterior chest, lift up the gown & drape it on her shoulders rather than

removing it completely.

4. For farther comfort: a warm room, a warm diaphragm end piece.

5. Private examination time with no interruption.

**Subjective data:**

* Cough
* Past history of respiratory infections
* Self-care behaviors
* Shortness of breath
* Smoking history
* Chest pain with breathing
* Environmental exposure
* **Chest Landmarks**

Anterior : Right anterior axillary line ,

Right midclavicular line ,

Mid sternum line

left midclavicular line ,

left anterior axillary line

Mid axillary line

Posterior: L . posterior axillary line , L .mid scapular line ,mid spinal line , R. mid scapular line and R. posterior axillary line ,

Inspect anterior, posterior, & lateral thorax for the following:

Color : Pink

Intercostals spaces : Even

Chest symmetry: Equal

Rib slope : Less than 90 degree downward

Respiration (rate, depth, rhythm) ,Even, 12-20/min, unlabored

Anterior-posterior to lateral diameter 1 : 2 ratio

Shape & position of sternum : level with ribs

Position of trachea Midline

* Breathing Pattern

**Eupnea**: Normal breathing is relaxed, effortless, and regular at 14-16 breath\minute

**Tachypnea:** Rapid shallow breathing is a rate above 20 breaths per minute, associated with increased activity or a disease process

* **Bradypnea**: slow breathing is a rate blow 12 breath per minute with normal depth and rhythm , associated with Sedation , anesthesia

Hypoventilation : Shallow irregular breathing hypercapnia and hypoxemia such as in COPD

Hyperventilation increased depth and rate of breathing (kussmaul ‘s respiration caused by diabetic ketoacidosis

* **Apnea** is the absence of respirations.
* **Cheyne-Stokes** is the term for cycles of breathing characterized by deep, rapid breaths for about 30 seconds, followed by absence of respirations for 10 to 30 seconds. Cheyne-Stokes respirations constitute a serious symptom and precedes death in cerebral hemorrhage, uremia, or heart disease

**Biot's respiration**

rapid, short breathing with pauses of several seconds, indicating increased intracranial pressure.

* Inspection

Normal chest

Slight retraction of intercostal spaces

2x as wide as deep

Anterior/posterior diameter

1:2

* Inspection

Barrel chest

The anterior-posterior diameter

2:2

Pigeon chest

Sternum protrudes outward

anterior-posterior diameter

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Scoliosis

Lateral curvature of thoracic spine

Shoulders elevated Complications

Lung & heart damage Back problems

Body image

* Kyphosis
  + Abnormal curvature of the thoracic spine
* Lordosis
  + - Sway-back
  + Abnormal curvature of the lumbar spine
  + Uniform expansion of the chest

Pneumonia

Pleural effusion

Pneumothorax

Bulging intercostal spaces

Obstruction

Emphysema

**Palpate thorax at three levels for the following**:

**Sensation** : no pain or tenderness

**Vocal fremitus ( tactius)** as client says ***99Use either the palm base (the ball)*** of fingers, or the ulnar edge of one hand.

- Touch the client's chest- Ask the client to repeat a resonant phrases that generate strong vibration

Like ***99.***

* Start over the lung apices & palpate from side to another.- Avoid palpating over the scapulae.
* Vibration decreased over periphery of lungs & increased over major airways .

**- Palpate chest expansion :**

**Posterior : placing your warmed** hand on the poster lateral chest wall

- The thumbs should be at level of **T9** or **T10.**

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

- Ask the client to take deep breath.

- Your thumb should move with respiration.

**Anterior: placing your** warmed hand on the anterolateral wall.

- Thumbs should be along the costal margins & pointing toward the xiphoid process. - Ask the client to take deep breath.

- Watch your thumbs move with respiration.

* 2 to 3-inch symmetrical thoracic expansion.  
  Symmetrical expansion (thumbs move apart equal distance in both directions).

**Percussion (Diaphragmatic Excursion)**

**Posteriorely :**

ask the client to exhale & hold it.

- Percuss down the scapular line until the sound changes from resonant to dull each side.

- Mark the level where the sound changed to dull.

- Ask the client to take deep breath & hold it. - Continue percussion from the mark down ward.

* Mark the level the sound changed to dull on deep inspiration.
* **Normal Finding** :

It should be equal bilaterally, & measure about 3-5cm in adult, although it may be up to 7-8cm.

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* **Auscultation**

Purpose

Asses normal and abnormal air flow through bronchial tree by using

Diaphragm of stethoscope

Compare R to L

* **Auscultation: normal lung sound**

Bronchial : Trachea , high , inspiration shorter than expiration

Bronchovesicular :

Moderate , Between scapulae

Side of sternum intercostal space , inspiration equal with expiration

Vesicular : Lung field , inspiration longer than expiration is it soft and low

* **Adventitious breath sound**

Crackles (fine): high, short, popping sound heard during inspiration not clear with cough

Caused by: inhaled air sudden open of the small deflated air passage with sticky with exudates , can be associated with pneumonia , congestive heart failure or bronchitis and asthma

Coarse crackles low pitch bubbling , moist sound that may persist from early inspiration to early expiration air comes into contact with secretions in the large bronchi and trachea may indicated pneumonia , pulmonary edema client with COPD

Wheeze(sibilant): high in pitch ,musical sound heard in expiration or may be inspiration ,air pass through constricted passage as secretion or tumor heard asthma or emphysema

Wheeze (sonorous): low pitch snoring or moaning sound heard during expiration clear with cough , heard in bronchitis , sleeping apnea .

Stridor: harsh honking wheeze heard with broncholaryngo spasm as in croup

Pleural friction rub: low pitch grating sound superficial occur during I&E result of rubbing of two inflamed pleural surface as pleuritis

Best heard anterior, Lower, lateral area