TOPIC: VITAL SIGNS AND MEASUREMENTS

1. **Vital signs include temperature, pulse, respiration and blood pressure**. Vital signs provide important information about:

a. How the body is functioning.

b. How the client is responding to treatment.

c. How the client's condition is changing.

2. **Temperature is a measurement of heat in the body**. Temperature is affected by time of day, age, exercise, emotional state, environmental temperature, medication, pregnancy, illness, and menstruation.

a. Methods used to measure temperature include:

1) **Oral** (by mouth) – normal range is 97.6°F to 99.6°F.
2) **Axillary** (placed in the armpit) – normal range is 96.6°F to 98.6°F.
3) **Aural** (placed in the ear) – normal range is 98. 6°F to 100.6°F.

b. Types of thermometers include:

1) **Glass** - a hollow tube (stem) filled with a liquid metal (mercury) that expands and contracts with changes in temperature. One end is the tip (often red for rectal and blue for oral). The other end is the bulb (short and round for rectal and longer and slender for oral). To read, measure the mercury level against marks on the stem of the thermometer.
2) **Electronic** - a probe is covered by a plastic disposable sheath and placed under the tongue. The result is displayed on a screen.
3) **Paper or plastic tape** - placed on the forehead or abdomen. Changes in color indicate temperature.
4) **Aural (tympanic)** – a covered probe is placed in the ear to measure temperature at the eardrum and is considered as accurate as a rectal temperature.

3. **Pulse rate is the measurement of the number of heartbeats per minute.** Pulse rate is affected by age, sex, emotions, body position, medication, illness, fever, physical activity and fitness level. The pulse can be felt at many locations on the body.

a. The pulse points most often used are:

1) **Carotid** - located on either side of the neck and used during CPR.
2) **Apical** - located on the left side of the chest under the breastbone, and taken with a

stethoscope.

3) **Radial** - located on the thumb side of the wrist and used for standard pulse rate.
4) **Brachial** – located at the bend of the elbow and used for blood pressure measurement.

b. When taking a pulse, note three things: **1) Rate** – number of beats per minute (normal rate is 60 to 100 per minute). **2) Rhythm** – the regularity or skipping of beats. **3) Force** – strength or weakness of beats.

4. **Respiration rate is the measurement of the number of times a person inhales per minute.** Respirations are affected by age, sex, emotional stress, medication, lung disease, heat and cold, heart disease, and physical activity.

a. When taking respirations, note three things:

1) **Rate** – number of respirations per minute (normal rate is 12 to 20 per minute).
2) **Rhythm** – the regularity or irregularity of breathing.
3) **Character** – the type of breathing (shallow, deep, labored).

b. Special considerations when taking respirations:

1) Count respirations after finishing the pulse, without taking your fingers off the wrist or the stethoscope from the chest so that the client is unaware you are checking his respirations.
2) If client is agitated, place hand on client's chest and feel chest rise and fall during breathing.

5. **Blood pressure is a measurement of the force the blood exerts against the walls of the arteries.** In addition to the factors affecting other vital signs, heredity, diet, condition of vessels and volume of blood in the system affect blood pressure. Abnormally high blood pressure is called **hypertension.** Abnormally low blood pressure is called **hypotension**.

a. Two measurements are taken:

1) **Systolic** – first beat heard; upper number.
2) **Diastolic** – last beat heard; lower number.

b. In order to ensure accurate readings:

1) Take blood pressure only if the client is lying or sitting unless otherwise instructed.
2) Correctly apply the proper sized cuff and keep client's arm at or below the level of the heart.
3) Place diaphragm of the stethoscope over brachial artery and read the sphygmomanometer gauge accurately.

6. **The client's height and weight** are other important measurements.

a. The resident's height is measured at the time of admission or at significant change.

b. The client's weight is recorded at least monthly according to the client's care plan. Different types of scales include: standard, chair, and bed scales.

1) **Weight** must be checked at least every month to: (a) Assist physician to determine medication dosage. (b) Assess fluid balance, kidney and heart function. (c) Determine changes in nutritional status.

2) **To weigh resident:** (a) Have client wear the same type of clothing each time they are weighed. (b) Have client empty bladder before being weighed. (c) Schedule daily weights at the same time each day. (d) Follow manufacturer's guidelines for use of the scale.

7. **LNA's role**:

a. Be certain measurements are accurate. Document measurements and report unusual readings to the nurse immediately. If unsure of measurements, tell the nurse.

b. Provide for client's privacy when taking measurements.

c. Never leave the client unattended with a thermometer inserted.

d. Never take the oral temperature of a client who is unconscious or has seizures.

e. Never leave client standing or sitting on the scale.

f. Wait 15 minutes after smoking or drinking to take an oral temperature.

ADDITIONAL DEFINITIONS:

Diaphragm – piece at the end of the stethoscope which magnifies sound **Stethoscope** – instrument used to convey to the ear sounds produced in the body **Sphygmomanometer** – instrument for determining arterial pressure **Incentive Spyrometer-** instrument for determining amount of breath the client can puff into mouthpiece and measure