

Vital Signs Module

For Volunteers in
Nursing and Emergency
Room



Introduction

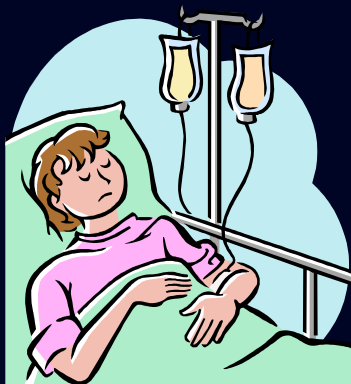
- Vital Signs are indicators of health
 - Temperature, pulse rate, respiratory rate and blood pressure – or TPR and BP.
 - Like fingerprints, each person's profile is a little different, but most people fall within normal ranges.
 - Vital signs above or below normal are often symptoms of a disorder.

Monitoring Vital Signs

- How often each patient is measured will differ. Normally the ER measures every hour while other departments measure every 4-8 hours.
- All measurements must be accurate since they directly affect the patient's treatment.
- Any time you are uncertain of the information or feel you may have made a mistake, start over.
- Report all results to the patients nurse.
- Always write results clearly, following departments reporting policy.

Patient Comfort

- The patient should be at rest and in a comfortable position for the time it takes to measure.
- Do not say anything or react in any way that will alarm the patient about results that may seem high, low or changed.



Communication

- Make sure you have a pen that works and paper.
- Record results as soon as possible so you don't forget them.
- Record measurements correctly and according to department guidelines.



Safety

- Be alert for abnormal readings or changes. Remember abnormal readings or major changes in vital signs may reflect a life-threatening condition.
- Clean all equipment following department guidelines.
- Check all electronic connections and outlets for safe conditions.
- Follow clean practices and Standard Precautions when taking temperature.

Temperature

- The body produces heat and uses it to keep a warm environment for its systems.
- There are slight differences in temperature between people depending on age, activity, and other factors.
- However, there is a normal range above or below which a patient may be showing a symptom of a serious disorder.

Temperature

- Fahrenheit is the temperature system used in the United States.
- Temperature is usually measured by mouth (oral), but is also measure in the rectum (rectal ** don't worry you won't have to do this), under the arm (axillary), and in the ears (tympanic).
- You will be measuring oral temperature.



Electronic Thermometers

- Take less time.
- Avoids mistakes by automatically recording temperature using a probe.
- Battery operated, portable and easy to use.
- Use of plastic covers:
 - To reduce the risk of body fluid contamination, disposable plastic covers are used on all electronic probes.

Tympanic Thermometers

- Measures the temperature of the tympanic membrane and ear canal.
- Comes closest to measuring the body's internal ("core") temperature.
- Used with infants and small children and becoming more popular in general because of its speed and convenience.

Changes From Normal Temperature

- The normal range for oral temperature is:
97.6 – 99.6 degrees Fahrenheit
- Readings above or below should be reported immediately.
- As temperature rises above 104°, it can damage the body's systems and become life-threatening.

Pulse

- The pulse is a measure of how the heart beats.
 - Each beat sends blood surging through the arteries, creating a pulse.
 - The normal range:
pulse rate 60-100 beats
 - The pulse can be felt with your fingertips at various locations in the body called pulse points.

Pulse Points

- You check the pulse at the wrist (radial artery), throat (carotid artery), and elbow (brachial artery).
- You will note the number of beats per minute and their regularity.
- Each person's pulse is different.
 - Women have a little higher than men
 - Infants and small children are higher
 - Lower in athletes

Radial Pulse

- The radial artery is the most common location for measuring the pulse.
- Patients must be relaxed and at rest before measuring their pulse as stress and exertion will affect results.

1. Locate Pulse

- Position patient for comfort either sitting or reclining. Bare patient's wrist and place it palm-up, extended, and resting on the bed or other surface.
- Feel for pulse just above the patient's wrist and thumb using the fingertips of your first three fingers.
 - *If you cannot locate the radial pulse, try the brachial pulse inside the elbow or the carotid under the jaw.*
 - *You cannot read a pulse with your thumb because the thumb has its own strong pulse.*

2. Count

- Start counting beats as your watch displays a starting point you will find easy to read, remember, and use.
- Count the beats for 30 seconds and multiply by 2. Note if the pulse is irregular in rhythm or force. If so, count for full minute.
 - *You may want to begin by counting for the full 60 seconds because it's easier to notice irregularities and you won't have to multiply.*
 - *Be careful. It is easy to make a mistake reading or calculating seconds, especially since you are also counting beats.*
 - *If you have any doubt about your count or regularity of the pulse, take it again.*

Pulse Oximetry

- A convenient and noninvasive method of monitoring a patient's respiratory condition. A sensor is attached to the ear, finger, toe, nose or forehead detects the oxygen saturation level in arterial blood.
- A monitoring screen displays the percentage of oxygen saturation, its waveform, and the patient's pulse rate.
- The saturation level and any changes provide important information regarding the patient's respiratory condition.

Pulse Oximetry

1. Attach Sensor

- Explain the procedure to the patient. Plug sensor into oximeter and turn it on.
- Attach sensor to patient as indicated:
 - Finger: use index, middle or ring.
 - Clip or slip-on finger sensor: place red lit side of the sensor over the nail bed.
 - Adhesive sensor: place red lit end on the nail bed and wrap adhesive around the finger or toe until secure.

The finger is usually the placement of choice. However, with patients that have poor circulation, amputations, aggressive behavior, etc, the ear lobe, nose or forehead may be indicated.

Pulse Oximetry

2. Monitor and Report

- Observe oximetry screen for optimal waveform and saturation reading. Optimal reading is 100%.
- Document saturation level and report to nurse as indicated.
- Assess site of sensor placement every hour for signs of redness, skin breakdown, or circulation problems. Rotate sites of placement as needed.
- *Some patient may only reach 90% or lower as their normal oximetry range yet may appear comfortable. Results this low should always be reported.*
- *Desaturation is when a patient's oxygen level suddenly drops. If this occurs, quickly check sensor placement to see that it has not come loose. If it is attached correctly, alert a nurse immediately.*

Respiratory Rate

- The respiratory rate is the number of breaths per minute a person takes. The normal range for adults:

14-20 breaths (respirations) per minute

- It is measured by watching the rise and fall of the chest, with each rise and fall counted together as one respiration.
- Counting respirations is best when the patient is unaware of it so their breathing will be natural and unaffected. As a result, it is often taken with the pulse.



Measuring Respiration

1. Maintain Pulse Position

- Continue the position of feeling or listening for the pulse. Be sure to remember the pulse you have just taken.
- Watch for the chest to rise and note the time. Begin counting. Count each rise and fall as a single respiration. Observe the patient for any signs of difficulty or pain.

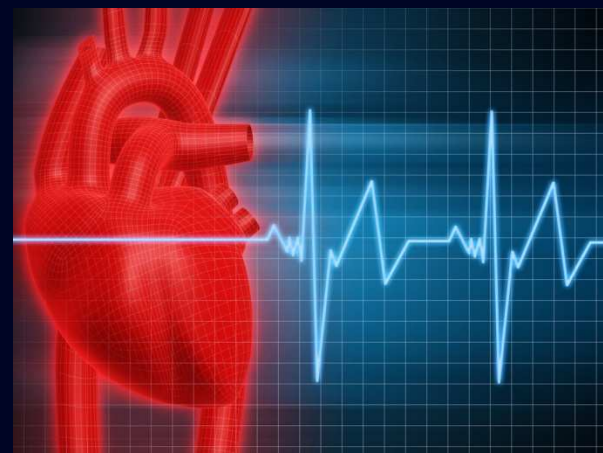
Measuring Respirations

2. Count and Observe

- Count for thirty seconds and multiply by 2. If breathing is irregular by rhythm or sound, count a full minute.
- Record pulse and respiratory rate.
- Notify nurse of findings.
 - *Respirations should be regularly spaced and quiet.*
 - *You may want to begin by counting for the full 60 seconds because it is easier to notice irregularities and you won't have to multiply.*

Blood Pressure

- Blood pressure is what forces blood through the arteries.
 - The outward pressure of the blood against the arteries is measured by using a sphygmomanometer (sfig-mo-ma-NOM-e-ter) which measures systolic and diastolic pressure.



Systolic

- Systolic is the maximum pressure during heart contraction.
- Readings between 100 and 140 are considered normal in adults, though this will differ by patient.



Diastolic

- Diastolic is the minimum pressure when the heart relaxes.
- A diastolic reading between 60 and 90 is considered normal in adults.

Blood Pressure

- Blood pressure is written as a fraction with systolic over diastolic:
 - e.g., 110/80
- Children have lower blood pressure and the elderly generally have higher.
- *Hypertension* is the condition of abnormally high pressure.
- *Hypotension* is the condition of abnormally low pressure.



About the Procedure

- In measuring a patient's blood pressure you will temporarily stop the circulation in the arm by inflating a cuff wrapped around the arm. When you deflate the cuff, blood flow will resume. A sensor in the cuff will indicate the amount of blood pressure in the brachial artery as circulation resumes.



1. Preparation

- Collect the correct sized cuff for the patient. Cuffs come in regular, large, and pediatric.
- Make sure the patient is completely relaxed, has not just exercised, and is not upset or feeling stressed.

2. Position the patient

- Position patient for comfort, either sitting or reclining. Position the arm on a pillow or surface so the arm is level with the patient's heart.
- Bare the patient's arm and place it palm-up, extended, resting on a bed or other surface.
 - *Make sure the blouse or shirt doesn't restrict circulation*
 - *Make sure the arm is straight*
 - *The brachial artery is found at lower inside of arm*

3. Put on Cuff

- Check the sphygmomanometer cuff is fully deflated. Wrap it snugly but not tightly around the arm approximately 1.5 inches above the elbow, centering the sensory device above the brachial artery.
 - *Never cuff on an arm that has an injury or IV.*
 - *Many cuffs have an arrow or indicator for centering on the brachial artery.*

Guidelines for Volunteers

- Always show your vital sign results to the nurse before recording.

Taking Patient Vital Signs

- This module is to provide basic understanding of temperature, pulse, respiration and blood pressure.
- At your scheduled orientation or at another scheduled time, you will be shown how to use an electronic machine and will be able to perform the procedure once on another volunteer.
- To be certified as competent to take patient vitals, you will have to demonstrate to your assigned department and they will complete a competency form for you.
- The competency form, once completed, must be returned to Volunteer Services for your file.