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 measured 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.