



Florida Conference of Seventh-day Adventists
Florida Conference Brigade, Medical Cadet Corps
351 S State Rd 434, Altamonte Springs, FL 32714



Taking Vital Signs

This is a practical skill to learn. There are some on line learning sessions available on YouTube and www.usamedicalsurgical.com/blog/how-to-take-vital-signs-step-by-step-manual-instructions. Some simple guidelines will be outlined here.

The vital signs usually monitored in patients are:

- Heart Rate (pulse)
- Respiration Rate
- Body Temperature
- Blood Pressure
- Oxygen Saturation

Vital signs stand for measurements of the workings of the body. When recorded over time, a picture of the body's functioning and health is made. Taking a vital sign in one point in time is a guide to how the body is doing at that moment.

Heart Rate

Heart rate or pulse is the number of times a heart beats per minute. This varies by person, ranging from **60 to 100 beats per minute**. The pulse will change with activity, illness, stress, and injury. Physical training tends to lower the baseline heart rate in most individuals.

Steps to take pulse:

1. Have the person at rest, preferably sitting.
2. The easiest access point is the radial artery found on the inside of the wrist closest to the thumb. Other points are on the inside of the elbow, behind the knee, and neck.
3. Use the first and second fingertips to press firmly but gently on the wrist until you feel a pulse.
4. Use a watch, analog is easiest, to count the beats that you feel for 15 seconds. Multiply by 4 and that is the pulse rate for a minute.



Respiration Rate

This is the breathing rate. A single respiration is equal to the chest rising and then falling. The normal range for an adult is **12-20 respirations** per minute while resting.

Steps to take respiration rate:

1. Have the person at rest.
2. Place your fingers placed on the patient's wrist
3. Count breaths (inhale + exhale = 1 respiration) for one minute
4. Notice any wheezing or extra sounds or difficulty breathing.

Temperature

Simply put, this is the amount of heat in the body. Core body temperature is controlled by a process called thermoregulation. The body's temperature fluctuates though out the day. The normal temperature is **98.6 degrees F, with a range of 1 degree less or more** (97.6-99.6 degree F). A temperature over 100.4 degrees F indicates a fever. Hypothermia is when the body temperature dips below 95 degrees F. Thermometers are the tools used to measure body temperature. There are many types available now. A glass thermometer needs to be cleaned before use; digital thermometers, tympanic thermometers and forehead thermometers are used now as well.



Steps to take a temperature reading.

- Mostly, digital thermometers are used that are covered with a plastic sheath or cover for single use.
- Next place the sensor end under the tongue and close the mouth. This may take a couple minutes.
- The device needs to be charged or have functioning batteries.
- This is not recommended if the patient has a history of seizures.
- A digital thermometer can also be used for an axillary temperature, the normal range is less by 1 degree, however (96.6-98.6 degree F).
- The forehead digital reader is convenient, after turning on the device, scan the center of the forehead and wait for the reading to display.

Blood Pressure

Blood pressure is a reading of how effectively blood is moving through the circulatory system. So, when the heart contracts, it pushes blood into the Aorta causing a peak pressure point. This is the systolic pressure. The pressure in the artery drops as the heart relaxes and is refilled with blood. This is the diastolic pressure. The blood pressure (BP) reading has two numbers, the systolic and the diastolic. So, the number looks like 120/80 in millimeters of mercury (mm Hg). The normal range of BP in an adult is 90/60 to 130/85 mm Hg. Blood pressure routinely held over 140/90 is called hypertension. A low blood pressure (under 90/60) is called hypotension.

Instruments used to take blood pressure include a stethoscope, blood pressure cuff with inflatable balloon (sphygmomanometer), and a numbered pressure gauge called a digital monitor or aneroid monitor.

Steps for taking a Blood Pressure reading.

- Check to make sure the monitor and cuff are functional.
- Take the reading with the patient at rest, usually sitting.
- Find the brachial pulse on the inside of the elbow and wrap the cuff snugly around the upper arm one inch above that spot.
- Insert the stethoscope earpieces and position the round diaphragm directly over the brachial pulse.
- Close the valve knob to the cuff and squeeze the bulb to inflate the balloon of the cuff, the dial pointer should go above 170.
- Gently open the valve to slowly release air from the cuff and watch the dial as it drops.
- Listen for the first thump sound and note the number on the dial that occurs (systolic).
- Note the number where the last thump is heard (diastolic).
- Deflate and remove cuff.
- Document the recording where instructed. You may tell the patient what it is.



Oxygenation Saturation

Saturation is the level of oxygen circulating in the blood. The tool to measure the saturation is a pulse oximeter. The device slides over a digit (finger, toe) and reads the oxygen level in the blood that is circulating in the arms or legs. The normal range is 95-100%. A reading under 90% would suggest the need for supplemental oxygen to be given. The reading is written as 96% SpO₂.



Measuring Vital Signs

These measurements are ideally taken when a patient is at rest and hasn't eaten, drank, smoked or exercised within the last 20-30 minutes. T, P, R and BP stand for the temperature, pulse, respirations, and blood pressure. Now, we add the pulse oximetry reading for a more complete set of vital signs. A set of vital signs would look like the following:

- T: 98.4 F
- P: 82 regular
- R: 16 regular
- BP: 126/84
- 97% SpO₂

Manual Vital Signs

Rough estimates in the field when equipment is not available can be helpful to determine the patient's status. A respiratory rate is read by visual cues, or a hand may be placed lightly on the chest to help.

A radial pulse is palpable with a systolic pressure of at least 80 mmHg. Only being able to palpate a carotid pulse (neck) means a pressure of about 60-70 mmHg. Being able to feel both the carotid and the femoral pulse (groin), the pressure is in the range of 70-80 mmHg.

Although feeling the skin for a temperature is not accurate, it can give a clue as to how the body is responding to stress, whether burning with fever, or shivering with cold.

Blue colored lips and tongue can be signs of cyanosis (oxygen less than 85% saturation), a medication's toxic effects or extreme cold.

Exercises

Gather equipment to measure a patient's vital signs. Thermometers, sphygmometer, stethoscope, BP cuff, pulse oximeter. Break into pairs to practice on each other. Record your observations. Measure one sitting and try either running in place, standing or lying flat to record the differences.

Sit:

1. T _____
2. P _____
3. R _____
4. BP _____
5. SaO₂ _____

Stand

1. T _____
2. P _____
3. R _____
4. BP _____
5. SaO₂ _____

Run

1. T _____
2. P _____
3. R _____
4. BP _____
5. SaO₂ _____

Supine

1. T _____
2. P _____
3. R _____
4. BP _____
5. SaO₂ _____

Which measurement varied the most?

Taking Vital Signs

For course certification, the form must be filled out.

Member Name (Print) _____ Instructor Name (Print) _____

Member Position Number _____ Instructor Position Number _____

Member FEMA SID _____ Instructor FEMA SID _____

Date of Instruction _____

_____ Demonstrate the correct method for taking TPR and BP with SaO₂.

 Understand the normal ranges for each vital sign.

With a complete sheet of initials, the instructor's signature signifies certification of completion for the Taking Vital Signs course.

Instructor Signature _____