How To Measure Vital Signs
How to Use This Tutorial

• This tutorial is intended for healthcare providers or students to teach basic vital signs skills

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- Use this button to advance to the next slide
- Use this button to go back to the previous slide
- Click here to get started!
Why Measure Vital Signs?

Vital signs are:

• A very useful tool in maintaining optimum health status.
• Helpful in detecting medical problems
• Critical during emergencies to ensure current health status and prevent deterioration
What are the four main vital signs?

• Temperature
• Pulse
• Respiratory Rate
• Blood Pressure
Body Temperature

• A measurement of the balance between heat lost and heat produced by the body

• Can be an indicator of the body’s metabolic status

• Can be a sign of infection or an invasion of harmful organisms
Devices Used to Measure Body Temperature

Electronic Thermometer

Disposable Thermometer

eletronicthermometer.jpg © Leslie Burge. Used with permission
disposablethermom.jpg © Leslie Burge. Used with permission
Protect Your Patient!

- Use the appropriate probe cover for the device you are using
- This protects the patient from unnecessary exposure to harmful organisms

probecover.jpg © Leslie Burge. Used with permission
Taking an Oral Temperature

- Place the temperature probe under the tongue
- Make sure that the patient has not had anything to eat or drink or has not smoked before taking an oral temperature
Taking an Axillary Temperature

- Wipe away any perspiration
- Place the temperature probe under the axilla or “arm pit”
- Be sure that clothing does not interfere with skin-to-thermometer contact under the arm
Document the Results

• Keep the thermometer in place until an audible “beep” is heard or until the temperature stops flashing

• Read and record the temperature according to facility policy
Normal Body Temperature

- Normal body temperature ranges from 97.6 degrees Fahrenheit to 99.6 degrees Fahrenheit

- A temperature above 99.6 degrees is hyperthermia or a fever

- A temperature below 97.6 degrees is hypothermia
Pulse

- The wave of blood created by the heart pumping as it travels along arteries
- It is felt when an artery is partially occluded by two fingers
- Never use the thumb because it has a pulse and can be confused with the patient’s pulse
Measuring the Pulse

• Using two fingers, find the radial pulse along the thumb-side of the wrist

• Count each pulse for thirty-seconds while watching the second hand of a watch or clock

pulse.jpg © Leslie Burge. Used with permission
Measuring Respirations

- After counting the pulse for thirty seconds, leave fingers in place to count respirations.
- Do not tell the patient that you are counting respirations.
- One respiration equals one inspiration (rise of the chest) and one exhalation (fall of the chest).
• Count each respiration for thirty seconds
• Multiply the pulse and respirations by two to get the number per minute

*example:*

counted pulse = $36 \times 2 = 72$ beats *per minute*

counted respirations = $9 \times 2 = 18$ respirations *per minute*
Document the Results

- Record the pulse and respirations according to facility policy

Example:
- Pulse = 80
- Respiration = 20
Normal Pulse Rate

- Normal pulse for an adult ranges from 60 to 90 beats per minute
- Normal pulse for a child or infant will be higher than an adult
- A pulse that is lower than normal is called bradycardia
- A pulse that is higher than normal is called tachycardia
Normal Respiratory Rate

- Normal respiratory rate for an adult ranges from 12 to 20 breaths per minute.
- Normal respiratory rate for a child or infant will be higher than an adult's.
- A respiratory rate that is lower than normal is called bradypnea.
- A pulse that is higher than normal is called tachypnea.
Blood Pressure

• The pressure that is exerted against the walls of an artery
• When the heart contracts, the pressure is the greatest and this is called the **systolic pressure**
• When the heart is at rest, the pressure is the lowest and this is called the **diastolic pressure**
Equipment Used for Measuring Blood Pressure

Blood Pressure Cuff

Stethoscope

bloodpressurecuff.jpg © Leslie Burge. Used with permission

stethoscope.jpg © Leslie Burge. Used with permission
Blood Pressure Cuff Placement

- Place the cuff securely around the upper arm about 1/12 to 2 inches above the elbow
- Align the “Artery” arrow along the inner aspect of the upper arm
Inflating the Blood Pressure Cuff

• Close the valve control knob
• Inflate the cuff by squeezing and releasing the bulb
Measuring Blood Pressure

• Put the stethoscope in place with the ear pieces in your ears

• Feel the patient’s pulse while inflating the cuff
• Place the bell of the stethoscope over the brachial artery

• When the patient’s pulse is no longer felt, continue inflating the cuff until the manometer reads approximately 40 mm Hg higher
- **Slowly**, release the valve using the valve control knob
- It may take practice to master control in opening the valve
• Listen for pulsing sounds called *Korotkoff sounds*

• When the first sound is heard, not the pressure reading on the manometer

• This is the *systolic pressure* and should be the larger number
• Continue listening until the last sound is heard

• This is the *diastolic pressure* and this should be the smaller number

• Continue to release the air until the cuff is deflated

• Remove the cuff from the patient
Record the Results

- The blood pressure should be written as a fraction
- The **systolic** pressure is written on top
- The **diastolic** pressure is written on bottom

example: 120/80
Document the Results

- Record the blood pressure according to facility policy

Example:
blood pressure = 120/80

<table>
<thead>
<tr>
<th>Blood Pressure</th>
<th>120</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid Intake</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Normal Blood Pressure

• Normal systolic pressure for an adult is 100-120

• Normal diastolic pressure for an adult is 50-80

• A blood pressure that is lower than normal is called hypotension

• A blood pressure that is higher than normal is called hypertension
Protect Yourself and Your Patients!

Always remember to wash your hands before and after every patient contact to protect yourself and your patients from the spread of harmful organisms!