

Measuring Vital Signs

A guide to help Direct Support Professionals learn how to measure, and report vital sign measurements.

Outcomes:

- Know how to take each individual's vital signs.
- Demonstrate the correct procedure to take a temperature, pulse, respiration, and blood pressure
- Know the normal ranges for Adult Vital Signs
- Know where to record vital signs and report any abnormal or unusual results

MEASURING VITAL SIGNS TRAINING CHECKLIST

1. Have the DSP read the unit.
2. Have the DSP complete the following worksheets:
 - How to Read a Mercury Free or Glass Thermometer
 - Reading the Manometer
3. Trainer will review the worksheets with the DSP.
4. Trainer will show DSP the location of equipment and supplies required to complete a set of vitals.
5. Trainer will demonstrate the correct procedure for taking a blood pressure, respiration, pulse and temperature.

Note: Trainer should demonstrate and have DSP practice with the equipment that is typically used in this residential setting.

6. DSP will practice taking a set of vitals on the individuals who have agreed to assist with this training.
 1. Trainer will complete Temperature, Pulse, Respirations & Blood Pressure Check Off Sheet.
 2. Trainer will review documentation requirements and the procedure for reporting abnormal readings.
 3. Trainer will have the DSP review each individual's plan of service and medical protocols.
 4. DSP will take the test.
 5. Trainer will review the test with the DSP and answer any questions.

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In your role as a detective, you may be called upon to take an individual's vital signs. **Vital signs** are important. They show how well the vital organs of the body, such as the heart and lungs are working. The four vital signs are the individual's temperature, pulse, respiration, and blood pressure. Vitals should be taken on a regular basis: this helps you to know what is normal for the person so that you can monitor changes and recognize them as signs or symptoms of illness.

All vital signs should be taken when the individual is "at rest." You should wait 30 minutes to take a temperature, pulse, respiration, or blood pressure if a person has just eaten, drank a hot or cold beverage, just smoked, or exercised.

You will receive training from a DSP trainer who has had experience taking each individuals vital signs. You will be trained to take vital signs with the equipment that is used in the residential facility in which you work. The information in this unit covers the procedure to be used for all types of equipment which may be available.

Normal Ranges for Adult Vital Signs

Temperature:	Oral	97.6 – 99.6
	Rectal	98.6 – 100.6
	Axillary	96.6 – 98.6

Pulse: 60 – 90 beats per minute

Respirations: 12 – 28 breaths per minute

Blood pressure: Systolic (top number) should be less than 130
Diastolic (bottom number) should be less than 85

Temperature



Temperature is the amount of heat in the body. Normal temperature is 98.6 degrees F. Anything within a degree either side (97.6 to 99.6) is considered normal. There are various methods of taking a person's temperature. The residential setting that you work in may have any or all of the following types of thermometers: A mercury free or glass thermometer, a digital thermometer, a tympanic (ear) thermometer, or a rectal thermometer. Rectal temperatures are the most accurate but are considered to be invasive and are not usually done unless recommended by a physician.

The easiest and most commonly used is a digital thermometer. Digital thermometers are easy to read and hard to break.

Before beginning any procedure:

- Have equipment clean and ready
- Wash hands
- Identify the person
- Introduce yourself if necessary
- Go to a private or quiet area
- Explain the procedure
- Document your results

How to take an individual's temperature using a digital thermometer:

- Use a plastic slip to cover the thermometer.
- Press the button to set the thermometer.
- Place the thermometer under the tongue; have individual close mouth (breathing through the nose), for several minutes.
- Take the thermometer out of the individual's mouth to read when the temperature indicator lights.

Note: If the individual is unable to keep the thermometer under his tongue, you may take an axillary temperature (under the armpit with tip of the thermometer against dry skin and held in place by the arm), waiting five minutes (not four).

Do not use an oral thermometer for an individual, who has a history of seizures, breathes through his or her mouth, has just had oral surgery, or is unconscious.

How to take an individual's temperature using a mercury-free thermometer or a glass thermometer:

- Hold the thermometer by the stem
- Shake the thermometer down to below the lowest number (at least below 96 degrees) before placing it under the individual's tongue.
- To shake thermometer down, hold it at the end opposite the bulb with the thumb and two fingers. With a snapping motion of the wrist shake the thermometer. Stand away from walls and furniture to prevent accidents!
- Use a plastic slip to cover thermometer (if available)
- Place the thermometer under the tongue and to one side; have individual close mouth (breathing through the nose), for at least three minutes
- Remove the thermometer. Wipe with tissue from stem to bulb or remove plastic cover
- Hold thermometer at eye level by the stem (not the bulb). Rotate until the line appears or the colored side is facing away from you. Roll the thermometer between your thumb and forefinger, and read temperature.

- Document temperature, date, time, and method used.
- Refer to worksheet for “Reading a mercury-free or glass thermometer”
- When doing an axillary (armpit) temperature you must leave the thermometer in place for 10 minutes

How to take an individuals temperature using a tympanic thermometer:

- Follow manufacturers directions for use
- Tympanic thermometers are inserted in the ear canal
- A disposable ear tip should be used

How to document a temperature:

Always document temperature, date, time taken, and the method used. Use “O” for oral, “R” for rectal, “A” for axillary, and “E” for ear. For example: 98.6A, or 98.6E.

How to clean and care for a thermometer:

Mercury-free or glass thermometers may be used to take oral, rectal, or axillary temperature. Thermometers must be labeled as “oral”, “rectal” or “axillary” and used only for that method. Glass thermometers must be cleaned before and after each use. Each individual should also have their own thermometer labeled with their name.

To clean the thermometer:

- Wipe off anything visible with a tissue or gauze square.
- Use a cotton ball or gauze square dipped in rubbing alcohol and wipe the thermometer from the cleanest to the dirtiest end
- Rinse the thermometer in cool water
- Air dry
- Place in container and put it away!
- Plastic slips or disposable sheaths may be used to cover the thermometer when taking temperatures. The thermometers must still be cleaned before and after each use
- Refer to manufacturer’s instructions for cleaning digital and ear thermometers
- All digital and electronic equipment should be checked frequently for accuracy and batteries should be replaced as needed

Pulse

The pulse rate is the number of times the heart beats per minute. Arteries carry blood from the heart to all parts of the body. A pulse is the beat of the heart felt at an artery as a wave of blood passes through the artery. You can feel a pulse every time the heart beats. You can feel a pulse most plainly over these arteries: Radial – in the wrist, usually at the base of the thumb

Carotid – on each side of the neck
Apical – over heart with a stethoscope

The easiest and most common place to measure the pulse is to feel the artery in the wrist. This area is located on the inside of the wrist on the thumb side. You will use two fingers to “feel” the artery. Never use the thumb because there is a pulse in it, press just hard enough to feel the pulse, if you press too hard you may not feel anything!

Take time to find your own pulse, now, count the beats for 60 seconds.

As you are learning what is common for each of the individuals you work with it is important to always take the pulse for 60 seconds. This will help you to learn what is normal for each individual you support. When you are taking a pulse you need to “feel” the pulse rhythm, and force. With a regular pulse rhythm you should feel a steady beat with even spacing between beats. An irregular pulse has no pattern and may skip beats and spacing between beats will vary. The force of the pulse is the strength of the beat against your fingers. The strength of the pulse is usually strong, the beats are easy to feel and steady. A weak and thready pulse is more difficult to feel and inconsistent. If you only take a pulse for 15 seconds, this may not be long enough for you to “feel” an irregular pulse. An irregular pulse and/or a weak pulse could be a sign of a serious health concern or illness and should be reported. If there is a change from what is normal for that person, you should re- check to verify that your results were correct.

How to take an individuals pulse:

- Place two or three fingers over the radial artery (in the wrist)
- Count beats for 60 seconds using watch or clock with a second hand
- Recount beats if pulse is irregular
- Note regularity and strength of beat
- Document and report any irregularities

Respiration

Respiration is the act of breathing air into the lungs and out of the lungs. Respiration rate measures the number of breaths a person takes in one minute. When counting respiration, pay close attention not only to the breathing rate, but also to wheezing, other sounds, and ease or difficulty breathing. Respiration (breaths in and out) is best counted without telling the individual what you are doing. If the individual knows you are counting her breath, it may change how she breathes. You may want to place your fingers on the individual's wrist while counting respirations; this will help to distract the person from changing their breathing and assure more accurate results. Respirations may be counted by watching the number of times a person's chest rises and falls in one

minute. They may also be counted by placing the hand on the chest or stomach and feeling the number of times the chest rises and falls in one minute.

One respiration is equal to the chest rising (inhale) and falling (exhale) one time. The normal adult rate is 12-28 respirations per minute.

How to take an individual's respiration rate:

- You may want to place your fingers on the persons wrist
- Count persons respirations for 60 seconds (inhale + exhale =1 breath)
- Note any irregularities
- Document respiration rate and any abnormal findings or irregularities

Blood Pressure

Blood pressure measures the force of the blood on the inside of the blood vessel or the walls of the artery. This measurement shows how well the heart is working. There are two parts of blood pressure: the systolic and diastolic measurement. A blood pressure has two numbers. The higher number or systolic measures the force when the heart is contracting. This measurement should be under 130. The lower number or diastolic measures the force when the heart muscle relaxes. This measurement should be less than 85.

Blood pressure is affected by time of day (low at night; peak about eight hours after awakening); emotions (stress increases blood pressure); weight (obesity typically increases blood pressure); activity level; excess sodium (salt) intake; excessive alcohol consumption; and use of certain drugs, including birth control pills, steroids, decongestants, and anti-inflammatory medications. If high blood pressure is suspected or has been diagnosed, the doctor may ask the DSP to take consistent readings under the same conditions over a period of time. Blood pressure should be measured with the same device, at the same time of day, on the same arm (or leg), and with the individual in the same position (for example, sitting up). Mark down anything that might have affected the blood pressure, such as exercise (for example, the individual came in 10 minutes after riding a bike). In these situations, the DSP will follow the doctor's instructions for taking blood pressure and documenting blood pressure readings.

A blood pressure is taken with a stethoscope and a blood pressure cuff (commonly called a sphygmomanometer). The cuff has an inflatable balloon inside and it expands when air is pumped into the cuff. There are two pieces of tubing connected to the cuff. One leads to a rubber bulb that pumps air into the cuff. A pressure control button lets you control the release of air from the cuff. The other piece of tubing is connected to a pressure gauge or dial with numbers. There may be electronic blood pressure cuffs available. There are a variety of these available, some automatically inflate and deflate, some are placed on the finger, wrist, or arm. All units display the blood pressure (systolic and diastolic) and pulse readings digitally. Follow the manufacturer's instructions for the proper use of this type of equipment.

Refer to worksheet “Reading a Manometer” to learn how to read the gauge/dial on the blood pressure cuff.

How to take an individual’s blood pressure:

- Clean ear pieces and diaphragm of stethoscope with alcohol and cotton balls. The diaphragm is the larger round side of the stethoscope.
- Locate brachial pulse on the inside of the elbow. It is about one to one and a half inches above the elbow; you should be able to feel a strong steady pulse with two or three of your fingers.
- Wrap and fasten deflated cuff smoothly and snugly around persons upper arm. (Place cuff at least one inch above elbow; point arrow on cuff at brachial pulse)
- Place ear pieces of stethoscope in your ears
- Place diaphragm of stethoscope over the brachial pulse
- Close valve on air pump (turn knob to the right to close)
- Pump air to inflate cuff until the dial points to 170
- Deflate cuff slowly and at a constant rate (turn knob to the left slowly)
- Watch numbers as needle falls
- Listen for the first thumping sound
- Note number where first thump (systolic pressure) is heard
- Note number where last clear thump (diastolic pressure) is heard
- Deflate cuff completely
- Document and report any abnormal readings

Learning to take an accurate blood pressure with a manual cuff takes time and practice. Be patient, the more you practice the more information you will gather about the person. Here are some common errors to avoid:

- Not squeezing all the air out of the cuff before putting it on the arm
- Not putting cuff high enough on the arm
- Not putting the cuff tight enough on the arm
- Not keeping the stethoscope pressed firmly against the pulse on the inside of the elbow
- Trying to hear pulse before inflating the cuff
- Letting the air out too quickly
- If you hear nothing...adjust the earpieces on the stethoscope by pushing them forward

After Completing any Procedure:

- Wash Hands
- Document
- Report abnormal readings
- Clean and put away equipment



Once you're finished reading the Vital Signs Unit

Please review and complete the following handouts:

- ❖ [Reading a Manometer](#)
- ❖ [Reading a Thermometer](#)

The DSP will need to demonstrate the correct procedure for taking a Blood Pressure, Respirations, Pulse, and Temperature. The Trainer will use the following check-off form to document completion of Vital Signs:

- ❖ [Vital Signs Check Off Sheet](#)

Click on the link below to take the test for Vital Signs:

- ❖ [Vital Signs Test](#)



RESOURCE MATERIALS

Some content in this section has been adapted from the following resource materials:

Providing Residential Services in Community Settings: A Training Guide
Michigan Department of Human Services
www.michigan.gov/afchfa

Licensing Rules for Adult Foster Care family Homes
http://www.michigan.gov/documents/dhs/BCAL-PUB-0332_281384_7.pdf
Licensing Rules for Adult foster Care large Group Homes (13-20)
http://www.michigan.gov/documents/dhs/DHS-BCAL-PUB-334_276575_7.pdf
Licensing Rules for Adult Foster Care Group Homes (12 or Less)
http://www.michigan.gov/documents/dhs/BCAL-PUB-0333_241598_7.pdf
Certification of Specialized Programs Offered In Adult Foster Care Home To
Clients With Mental Illness or Developmental Disability
http://www.michigan.gov/documents/dhs/BCAL-PUB-0336_214333_7.pdf

California Department of Developmental Services: Direct Support Professional
Training
Year 1 and Year 2 Teacher and Student resource Guides, 2004
<http://www.dds.ca.gov/DSPT/Guides.cfm>

Nursing Assistant Care, 2005

Ohio Department of Mental retardation and Developmental Disabilities
Prescribed Medication Handbook and Health-Related Activities Training Manual
<http://odmrdd.state.oh.us/health/masresources.htm#curriculum>

Healthline – “Blood pressure Health Article”
<http://www.healthline.com/adamcontent/blood-pressure>

Healthline – “Vital signs Health Article”
<http://www.healthline.com/adamcontent/vital-signs>