



Vital signs

Vital signs are measurements of the body's most basic systems and provide critical information about the health of an individual. The five main vital signs are **temperature, pulse, respiration, blood pressure, and pain.**

Vital signs are important indicators of illness, disease, and other health problems. As a CNA, you must know how to properly measure the vital signs of your residents. However, mastering the **measuring procedures and techniques** is not enough. You must also be able to identify the **normal range** for each vital sign and recognize when a measurement could indicate a health problem.

This issue will teach you the normal range of vital signs and how to measure them in a manner that ensures accuracy and ease.

Have a good day of training, and stay tuned for next month's issue of **CNA Training Advisor** on mental illness.

Editor's note: The information for this inservice was adapted from The Long-Term Care Nursing Desk Reference, Second Edition, by Barbara Acello. For more information or to order, call 800/650-6787 or visit www.hcmarketplace.com.

About your CNA training advisor

Judith Ryan, RN, BSN, is the senior advisor for **CNA Training Advisor**. She is the director of staff development at Abbott House, a 55-bed nursing home in Lynn, MA. Ryan has been a nurse for 20 years. As part of her job, she is responsible for conducting inservices on a wide range of topics for CNAs.

PROGRAM PREP

Program time

Approximately 30 minutes

Learning objectives

Participants in this activity will learn how to:

- Use correct methods to accurately measure vital signs
- Recognize normal ranges for vital signs
- Identify when a vital sign measurement could indicate illness or disease

Preparation

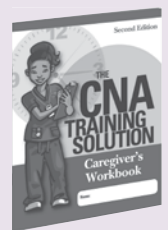
- Review the material on pp. 2–4
- Duplicate the **CNA Professor** insert for participants
- Gather equipment for participants (e.g., an attendance sheet, pencils, etc.)

Method

1. Place a copy of **CNA Professor** and a pencil at each participant's seat
2. Conduct the questionnaire as a pretest or, if participants' reading skills are limited, as an oral posttest
3. Present the program material
4. Review the questionnaire
5. Discuss the answers

Save hours of preparation time

The CNA Training Solution, Second Edition, is updated with new and complete lesson plans for staff trainers, interactive lessons for CNAs, and many additional activities and invaluable tools. This book gives you what you need to conduct informative, innovative training for every CNA in your facility and is packed with games, training tools, and tips that will change the way you do inservice training.



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VITAL SIGNS

Temperature, pulse, respiration, blood pressure, and pain are the five main vital signs regularly monitored in healthcare settings. These vital signs can reveal a lot about a resident's condition and are often the first indicators of illness or disease. Accurately measuring vital signs is an essential aspect of resident care.

Upon admission to a nursing home, take the baseline measurements of a resident's vital signs. Baseline measurements act as a benchmark with which staff members can compare later measurements.

How often vital signs should be measured varies for each resident but should always be taken in the following situations:

- Upon admission
- During a physical examination
- When ordered by a doctor
- When a resident's health declines or illness is suspected
- When a resident complains of a health problem that could affect the vital signs

Although there is a normal range for each vital sign measurement, these values tend to change with age.

The elderly tend to have slightly lower temperatures and slightly higher pulse, respirations, and blood pressure than younger people. Also, pain often increases with age.

The vital sign measurements for older people may be on the lower or higher side of the normal range but may still be normal for the individual and the age.

Some people have conditions that cause their normal vital sign measurements to be different from the standard ranges. Contact a physician to establish an acceptable range for a resident who operates outside of the normal range the majority of the time. Report all abnormal vital sign measurements and those beyond the normal ranges to the physician.

Temperature

Our bodies make heat to keep our internal systems functioning. A sudden or rapid change in normal temperature may indicate infection, illness, disease, or another acute change of condition. Also, body temperature regulation becomes more difficult with age, and, as a result, elderly persons are at a higher risk for complications of heat-related illness, such as hypothermia or heat stroke.

Determining a resident's normal body temperature range can be a challenge. Body temperatures vary from person to person, and age, gender, time of day, level of activity, medication, and food or fluids ingested are also affecting factors. You should try to establish a resident's normal temperature range as soon as possible after admission.

CNAs can measure a resident's temperature in several ways, but the method of obtaining the temperature will cause the normal range to vary.

Four methods of temperature measurement and their corresponding normal ranges for people over age 65 are:

- Oral temperature (taken by mouth): 96.4°–98.5°F
- Rectal temperature (taken in the rectum): 97.1°–99.2°F
- Tympanic temperature (taken in the ear): 97.5°–99.5°F
- Axillary temperature (taken under the armpit): 96°–97.4°F

For all methods of measuring temperature, you must adhere to your facility's policy, follow safety guidelines, and ensure that you meet the specific needs of the residents. For examples of basic procedures for each method, visit www.hcpro.com/content/223952.cfm.

Pulse

Pulse measures a person's heartbeat by determining the number of beats per minute (BPM).

CNAs can measure a resident's pulse at any place on the body where an artery is compressed against bone, such as the:

- Inside of the wrist (radial pulse)
- Neck (carotid pulse)
- Temple, directly in front of the ear (temporal pulse)
- 4.5th or 5th intercostal space, just to the left of the sternum (apical pulse) (this pulse site is over the heart, not an artery)

Pulse is manually measured. To do so, lightly press two or three fingers on the site. If you apply too much pressure, you will compress the artery and eliminate the pulse beat. Once you feel the pulse, count the beats for 60 seconds, or 30 seconds and multiply the number by two. The site most commonly used in clinical settings is the radial pulse.

A normal pulse range is approximately 60–100 BPMs, but this can vary by about 10%. Compare a resident's pulse to his or her established baseline measurement.

The following clinical presentations may indicate an acute condition change and may need further assessment:

- Sustained change from normal range
- Change in usual pulse rhythm or regularity
- Pulse greater or less than set facility criteria
- Pulse greater than 100 BPM combined with other symptoms (e.g., palpitations, dyspnea, or dizziness)

You should note and document whether pulses are:

- Strong
- Weak
- Absent
- Equal bilaterally
- Greater on the right
- Greater on the left
- Regular or irregular

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Respiration

Respiration rate refers to the amount of breaths a person takes each minute. A CNA can measure this by counting the number of times a resident's chest rises and falls in a minute. Unlike other vital signs, people have the ability to control their breathing and, when monitored, will often alter their respirations. Therefore, it is best if the resident does not know you are counting his or her respirations.

The normal respiration rate for elderly people is 16–25 breaths per minute, with an approximate 2:1 inspiration/expiration ratio.

The following is an example of a basic procedure for measuring a resident's respirations:

1. Look at your watch and find a starting point.
2. Count each time a resident's chest rises and falls as one respiration.
3. Count respirations for 30 seconds and multiply by two. If breathing is irregular, count for a full minute and do not multiply.

You should report when a resident's respiration rate is abnormal or the individual exhibits any of the following signs and symptoms:

- Respiratory rate greater than 28 breaths per minute (or rates above the resident's normal range)
- Shallow depth
- Marked change from usual respiration pattern or rhythm
- Irregular breathing, long pauses between breaths, or audible noises related to breathing
- Struggling to breathe (e.g., gasping for breath or using accessory muscles of neck)

Blood pressure

Blood pressure refers to the force placed on artery walls by blood circulating through the body. There are two types of blood pressure:

- **Systolic blood pressure** measures the amount of force put on the arteries when the heart is contracting and pushing blood outward

through the arteries. This is the top number in written blood pressure. The normal range for systolic blood pressure in adults is 100–140 mmHg. However, a higher range of 140–160 mmHg is normal for older people.

- **Diastolic blood pressure** measures the amount of force put on the arteries when the heart is relaxing and not pushing blood outward through the arteries. This is the bottom number in written blood pressure, and a normal range is 60–90 mmHg.

A change in blood pressure is more often a symptom than a cause of an acute change in condition. Isolated blood pressure elevations generally are not significant. Sustained elevations in systolic pressure should trigger further assessment.

Use a sphygmomanometer, also known as a blood pressure cuff, to measure blood pressure. Sphygmomanometers can be digital or manual. A stethoscope is required when using a manual device.

It is important to note that blood pressure should not be measured on the same side of the body as a mastectomy or shunt placement.

The following is an example of a basic procedure for measuring a resident's blood pressure using a manual sphygmomanometer and a stethoscope:

1. The resident should be relaxed and comfortable, either sitting or laying down. Be sure there is no tight clothing restricting circulation to the arm. The arm should be bare. Push up loose sleeves.
2. Rest the resident's arm on a surface, such as a table or chair arm, with the palm up and the arm out straight.
3. Use a blood pressure cuff that is the right size for the resident. A cuff that is the wrong size will give an incorrect reading.
4. Wrap the fully deflated cuff snugly around the resident's arm about an inch above the bend in the elbow. The cuff contains a sensor, usually marked with an arrow, that should be placed over the brachial artery. The brachial artery runs along the inside of the arm, on the side next to the body.

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5. Close the valve on the sphygmomanometer bulb.
6. Find the brachial pulse by placing your fingers just above the bend in the elbow along the inside of the arm. Keeping your fingers on the pulse, inflate the cuff until you can no longer feel the pulse, and then continue inflating for an additional 30mm on the gauge.
7. Place the flat disk of your stethoscope on the brachial artery just below the cuff.
8. Open the valve on the bulb slowly and steadily. The cuff will begin to deflate.
9. Listen closely to the sounds coming through the stethoscope. At the first pulse sound you hear, note the gauge reading. This is the systolic pressure.
10. Note the gauge reading again when the pulse sound disappears. This is the diastolic pressure.

Pain

Pain was not always considered a vital sign. In 1995, the American Pain Society launched a movement to add pain to the list and, eventually, it was adopted as the fifth vital sign.

Pain is never normal; it is always a sign of something wrong. Unrelieved pain is a serious problem, with many significant physical and psychological consequences. It interferes with the resident's optimal level of function and self-care.

There are four basic types of pain:

1. **Acute pain:** Occurs suddenly and without warning, but usually dissipates over time. This type of pain commonly occurs because of an injury or surgical procedure.
2. **Persistent (chronic) pain:** This type of pain persists for more than six months. It may be constant or intermittent. Chronic disease, residual from an old injury, or multiple medical problems often cause this type of pain.
3. **Phantom pain:** Develops as a result of an amputation. The pain is real and not imaginary.
4. **Radiating pain:** This pain moves from the site of origin to another area of the body.

If pain is present, you should determine the location, duration, character, and frequency. Other considerations for pain observation are:

- Pain quality
- Pain intensity
- Radiation, if any
- Variation or patterns of pain
- Aggravating and alleviating factors
- Pain management history, if any
- Present pain management regimen, if any, and its effectiveness
- Effect of pain upon activities of daily living, sleep, appetite, relationships, emotions, concentration, etc.
- Direct observation/examination of the site of the pain
- Side effects or analgesic medications, if applicable
- Response to analgesia and other forms of treatment, if applicable

As part of the observation process, you should monitor for and document:

- Behavior changes
- Facial expressions
- Body language
- Verbal indications of pain (such as moaning)

Because pain is subjective, consistent pain observation is a concern. Using a pain scale prevents subjective opinions, provides consistency, and gives the residents a way to describe the pain accurately. Your facility should have various tools available to meet the needs of a diverse group of residents.

Residents are often asked to rate their pain on a scale of 1–10. However, number scales can be problematic with cognitively impaired residents. Some residents respond best to word scales, whereas others find that pictures help them describe pain intensity accurately. Allow residents to select the scale that helps them best express and describe pain. ■

Questions? Comments? Ideas?

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VITAL SIGNS

Mark the correct response.

Name: _____

Date: _____

1. What are the five main vital signs?
 - a. Temperature, pulse, strength, weight, and age
 - b. Pulse, respiration, blood pressure, mood, and weight
 - c. Temperature, pulse, respiration, blood pressure, and pain
 - d. Blood pressure, height, age, respiration, and pulse
2. The four basic types of pain are:
 - a. Persistent, oral, chronic, and acute
 - b. Acute, persistent, phantom, and radiating
 - c. Weak, mild, moderate, and severe
 - d. Acute, chronic, sharp, and dull
3. Where on the body would you measure radial pulse?
 - a. Chest
 - b. Inner arm
 - c. Neck
 - d. Wrist
4. Which of the following is a type of blood pressure?
 - a. Systolic
 - b. Apical
 - c. Diastolic
 - d. Both a and c
5. Older adults tend to have slightly lower temperatures than younger people.
 - a. True
 - b. False
6. It is best if a resident does not know that you are counting his or her respirations.
 - a. True
 - b. False
7. What is the normal range for oral temperature in people over age 65?
 - a. 92°–96°F
 - b. 94.5°–100°F
 - c. 96.4°–98.5°F
 - d. 98.5°–101.5°F
8. Older people tend to have slightly higher blood pressure, pulse, and respirations than younger people.
 - a. True
 - b. False
9. What is the normal respiration rate for elderly people?
 - a. 10–15 breaths per minute
 - b. 16–25 breaths per minute
 - c. 20–32 breaths per minute
 - d. 25–35 breaths per minute
10. Vital sign measurements that fall outside of the normal range could indicate the presence of:
 - a. Disease
 - b. Illness
 - c. Other health problems
 - d. All of the above