MEASURING AND RECORDING

PATIENT VITAL SIGNS

ABSTRACT:

Vital sign measurements are effective tools to assess if a patient is ill. They are quick, simple measurements and reliable indicators of a person's basic state of health. Abnormal changes in these measurements are one of the quickest, simplest, and most reliable indicators that someone is ill. Certified nursing assistants are required to competently measure and record patient vital signs for all age groups, and to know how to report when patient vital signs are not within normal ranges.

Learning Goals:

1. Identify one reason why measuring temperature, pulse, and respirations is important.
2. Identify the most accurate methods for measuring temperature.
3. Describe an abnormal pulse rate for an adult and child.
4. Describe the normal respiratory rate for an adult and child.
5. Describe how abnormal vital signs in an elderly person may be different from that of a child.

Introduction

Reading and recording a patient's vital signs is one of the most important patient care skills a Certified Nursing Assistant will perform. Vital sign measurements generally include the patient's temperature, pulse and respirations, which are important indicators of the patient's health. When a person's body temperature is outside that person's normal range, there may be a health concern or illness that needs to be treated. Treatments are also available for abnormal body temperatures caused by external factors. When a person's pulse is not normal, such as an irregular or rapid pulse, this indicates that something is wrong. The respiratory rate can also reveal a decline in the patient's health.

Overview Of Vital Signs

It is easy to see why the body temperature, pulse, and respirations are collectively called the *vital signs.* These measurements are very sensitive tools that can inform clinicians whether a patient has an infection, having an adverse reaction to a drug, or needs oxygen. Temperature, pulse and respirations provide a "window" through which clinicians can assess someone's medical condition.

These measurements are effective for two simple reasons. Firstly, these measurements are quick, simple, and reliable indicators of a person's basic state of health. Secondly, abnormal changes in these measurements are one of the quickest, simplest, and most reliable indicators that someone is ill.

Measuring Body Temperature

Human physiology has adapted so that a human body can maintain body temperature within a relatively narrow range. If a person is too hot or too cold, bodily functions will not work properly. Body heat can be produced by an illness; that is, if body temperature rises or falls above or below certain limits, there can be serious effects to a person's health.

There are five methods commonly used to measure body temperature. Some of these methods are more effective than others.

What is Body Temperature?

Body temperature is basically a measurement of a person's core body temperature, or how warm or cold the human body is. It represents a balance between two things: *the amount of heat the body produces and the heat it loses*.

How is Body Heat Produced?

Body heat is produced by the process of metabolism and by normal physical activity. In these processes, heat is a byproduct. Body heat is also affected by the environment. The environment can affect body temperature, and body temperature can also be increased or decreased by the presence of a disease, an injury, an infection, the time of day or hormone levels, or by the level of a person's physical activity.

How is Body Heat Controlled?

Regardless of why body heat is decreased or increased, human physiology always strives to balance and control heat loss and heat production to maintain a body temperature within a certain range. Body heat may be controlled through processes that cause body heat to be lost.

Body heat may be lost by one or more of the following mechanisms: radiation, conduction, convection, evaporation. Most body heat is lost through radiation but all of these can be working at the same time.

Radiation

A basic law of science is that heat will move to an area that is cold - it will radiate. This law also applies to human physiology, so human body heat radiates to the environment if the surrounding temperature is lower than body temperature.

Heat naturally moves away from our bodies to the surrounding area in much the same way that a radiator spreads heat into a room. If the environment is warm and humid, mechanisms that try and lower body temperature by radiation are initiated. If the environment is cold, the body will try to decrease radiation and heat loss by such mechanisms as shivering and decreasing blood flow to the surface of the skin.

Conduction

Heat moves from a hot object, *i.e.*, from a human body, to a cold object, when the two come in contact. The heat is *conducted* from the warm object to the cold object. If a person sits on a block of ice,

he/she will lose body heat. Conduction then is the transfer of heat from one object to another.

Convection

There is always a layer of air surrounding a person's body that is slightly warmed by the radiation of body heat. However, if a cold wind, or a strong breeze of almost any temperature is blowing directly on someone, that layer of warm air is removed. When that happens, the radiation of body heat is increased and body heat is lost. The warm air is moved away and then the person's body heat is lost to the cold air.

Evaporation

Water on the skin is evaporated by body heat and as this happens, body heat is lost.

Small amounts of body heat are lost when a person has a bowel movement, is urinating, or is breathing, but the four mechanisms discussed above are the primary ways in which body heat is lost.

Hypothalamus and Body Temperature

Body heat is controlled by an area of the brain called the hypothalamus. The hypothalamus is similar to a thermostat. The hypothalamus has a "set point" and if the body temperature goes too far above or too far below that set point, the hypothalamus can initiate physiological processes that will bring the body temperature back to within the normal range.
If body temperature is too high, sweating increases, which leads to a loss of body heat by evaporation. Blood vessels dilate to allow body

heat to radiate, and metabolic rate and muscle activity are decreased so that less body heat is produced. All of these processes are reversed if more body heat is needed. These processes are shown in the table below.

Increased Body Temperature	**Decreased Body Temperature**
↓	↓
Increased sweating	Decreased sweating
↓	↓
Blood vessels dilate	Blood vessels constrict
↓	↓
Metabolic rate is decreased	Metabolic rate is increased
↓	↓
Muscular activity is decreased	Muscular activity is increased

Normal Body Temperature

A normal body temperature is not an exact number. Traditionally, normal body temperature has been defined as an oral temperature of 98.6°F (Fahrenheit). Fahrenheit is simply the name of one of the systems of measurement that can be used to record body temperature. When working in a clinical setting, the body temperature is generally measured and recorded using the *Celsius system (abbreviated as C)*.

The temperature ranges listed below are approximations and guidelines. Every health facility will have protocols for the normal range of body temperatures and facility protocols will be very similar to what is listed here. Normal body temperature is defined using the two temperature systems, Fahrenheit and Celsius.

Fahrenheit: A normal oral temperature is **98.2°F ± 1.2°F**. A normal oral temperature would then be anywhere from **97°F to 99.4°F**.
A normal rectal temperature is defined **as 99.6° F ±1°F**. A normal rectal temperature would then be **98.6°F to 100.6°F**.

Celsius: A normal body temperature is defined as an oral temperature of **36.8°C ± 0.7°**. A normal rectal temperature would be **37.5°C ± 0.7°**. Normal temperatures in the Celsius system would then be **36.1°C-37.5°C**, orally, and **36.8°C-38.2°C**.

It is important to know what normal body temperature is and how it varies from person-to-person. *Normal* body temperature differs from person-to-person as much as one degree (1°). Also, every person's body temperature goes up and down throughout the day. A person's body temperature is the lowest during the middle of the night during sleep and it is the highest during the day when a person is active. Body temperature also fluctuates for women when they are ovulating or menstruating.

A clinician must evaluate body temperature based on an individual's "normal" temperature and other factors. For example, if a person has his/her temperature taken and the reading is 99.4°F, this temperature reading would appear to be in the normal range; however, if the person's normal body temperature is 97°F, then this may not be a normal temperature for that person, since this is a significant rise in temperature of almost 2.5 degrees. If this temperature of 99.4°F is accompanied by coughing, and the person feels nauseous and tired, there is a health concern. On the other hand, if the client has no coughing or nausea, and has just exercised, then the exercise could be responsible for the 2.5-degree higher body temperature. Strenuous exercise can raise body temperature up to 40°C/104°F.

Children normally have a body temperature that is higher than that of adults, and the elderly have a lower body temperature than children and younger adults.

Pediatric Temperature Chart

Age 0-2 years (rectal measurement): 97.9-100.4°F, or 36.6-38°C
Age 3-10 years (rectal measurement): 97.9-100.4°F, or 36.6-38°C
Age 11 and older (rectal measurement): 98.6-100.4°F, or 37-38°C

Why Measure Body Temperature?

Body temperature is checked to detect the presence of a fever or to check for the presence of an illness, as part of the normal health screening process, and to determine the effectiveness of medications given to reduce a fever.

How Is Body Temperature Measured?

To obtain an *accurate* measurement of core body temperature a direct, invasive measuring method must be used; however, unless the patient is very ill, invasive methods of measuring body temperature are not needed nor are they practical.

In any situation in which a clinician would be measuring and recording body temperature, an *indirect* measuring technique would be used. The term indirect does not mean that these methods are not valuable. It simply means they are a reflection of core temperature, and they are perfectly appropriate for the majority of clinical settings.

The body temperature can be measured in multiple ways. It can be measured orally, rectally, axillary (by placing the thermometer in the armpit), by the otic or tympanic method (by placing the thermometer in the ear canal), or by placing a thermometer against the forehead. The proper method to use will depend on several things, as noted below.

Patient's Age: Very young children and very elderly people may have difficulty keeping an oral thermometer in the mouth for the required time.
Patient's Medical Condition: There are many instances in which a patient's medical condition would determine how his/her temperature would be measured. For example, someone who is unconscious or disoriented would not be a candidate for an oral temperature measurement, or someone who cannot breathe through the nose would not be a candidate for an oral temperature.

Need for Accuracy: Although all the methods (*i.e.*, oral, rectal, *etc.*) used to measure body temperature are valuable if they are done properly, some will more closely reflect the core temperature than others. The rectal route is the preferred method for checking body temperature because it provides the closest approximation of core temperature, and it is the method that is the least likely to be done incorrectly. If the rectal method cannot be used, the otic or tympanic method would be the second choice for measuring a reflection of the patient's core temperature.

Clinical Setting: The clinical setting can determine which method of measuring body temperature is the most appropriate to use. For example, in a busy adult clinic there would be limited time and limited options for maintaining privacy and protecting the patient's modesty, and measuring body temperatures rectally would obviously be impractical. Another example would be in a busy pediatric clinic where privacy and modesty concerns might not be as important and using the rectal method would be acceptable. It would also be preferable in many cases since infants and young children often cannot cooperate with the procedure of taking the temperature orally. The rectal method could be faster and more efficient.

Methods Of Measuring Body Temperature

Methods of measuring body temperature are identified and described in this section.

Oral Temperature

Clinicians should wait at least 20 to 30 minutes to taka an oral temperature after a patient has eaten or had something to drink or

smoked a cigarette. If the temperature is taken before the suggested waiting period, the temperature may not be accurate.

The thermometer should be placed in the patient's mouth under the tongue and the patient instructed to close his/her mouth tightly. Oral temperatures are lower than core temperatures, and they are usually lower than rectal temperatures.

Rectal Temperature

A rectal temperature is the closest reflection of core temperature. Clinician should make sure to protect the patient's privacy and modesty. A lubricating jelly is applied to the tip of the thermometer, and the tip gently inserted 0.5 to 1 inch into the rectum.

Forceful insertion or inserting the thermometer against firm resistance should *never* be done. If there is a large amount of stool in the rectum, the temperature may not be accurate.

Otic or Tympanic Temperature

Otic or tympanic temperatures measure the heat of the eardrum and the ear canal, and is considered to be an accurate reflection of core temperature. An otic/tympanic temperature is usually lower than a rectal temperature.

To take an otic/tympanic temperature, the tip of the thermometer is gently inserted into the ear canal. Force should not be used.

Axillary Temperature

The medical term for the armpit is axilla, and the axilla can be used to measure body temperature. An axillary temperature is usually lower than an oral temperature and always lower than a rectal temperature.

To take an axillary temperature, the clinician should place the tip of the thermometer in the center of the patient's armpit, then have the patient hold his/her arm tightly against the side of the body.

Temperature Strips

Temperature strips are quick and accurate. They can be used in the axilla or on the forehead. To use a temperature strip, the clinician should first make sure the skin is clean and dry and then place the strip for the specified amount of time.

Temperature Sensors

Temperature sensors measure the heat of the blood flowing through the temporal artery in the forehead. This is a quick and accurate way of measuring body temperature.
Electronic thermometers are used almost exclusively today. When a temperature is recorded, these units produce an audible signal that indicate that the procedure is complete.

Remember, a rectal or otic/tympanic temperature measurement is preferred for accuracy if the patient is ill. A rectal or otic/tympanic temperature measurement may also be done if the oral/axillary/forehead temperature is elevated. Rectal and otic/tympanic temperatures are usually 0.5° to 1° F higher than an oral temperature. An axillary temperature is usually 0.5° to 1° F lower than an oral temperature.

Inaccurate body temperature measurement may be due to the patient recently eating, drinking or smoking, recent vigorous physical activity, not keeping the mouth closed around the thermometer, not leaving the thermometer in place for the proper length of time, or not putting the thermometer in the proper area.

Using one of the "less accurate" methods for measuring body temperature would be appropriate for routine screening and assessment but if the oral temperature is elevated or the patient may be ill or is obviously sick then it is best to take the temperature rectally, if possible.

Clinicians should make sure to *record* the patient's body temperature as soon as possible after having performed the procedure. It is all too easy to forget the reading during a busy day. When you record the temperature always document what method you used.

High and Low Body Temperatures

The normal physiological activities do not function well if body temperature is too high or too low. It is important to determine a high or low body temperature because these conditions imply different causes or health conditions.

High Body Temperature

A high body temperature is called a fever. However, to be considered a fever the body temperature must be elevated a certain number of degrees. This figure is somewhat arbitrary but most sources agree that a fever should be defined as: a body temperature that is 100°F or

higher (if the temperature is taken orally) or 101°F (if the temperature is taken rectally. In the Celsius scale, a fever would be an oral temperature higher than 37.7°C or a rectal temperature higher than 38.3°C.

Fever is always an indication that a patient has an illness and in most cases a fever is caused by an infection. Fever can also be the result of a side effect of some drugs, and a fever can be caused by medical conditions that do not involve an infection. People with a fever often have a rapid pulse, they are frequently diaphoretic, and they typically feel uncomfortable.

A high fever can be very uncomfortable for the patient, and it is frightening to lay people. However, fever is a natural response by the body to infection and illness, and although a fever is unpleasant to have there is a lot of evidence that a fever may be more helpful than it is harmful. A fever may help the body fight off infection and lowering an elevated temperature will interfere with this natural defense. Although a high fever can be alarming, there is only so high a fever can go. Many people, even health clinicians, become upset and concerned when body temperature begins to rise over a certain point, but if a fever is caused by an infection the body temperature cannot go to levels that are dangerous; there are protective mechanisms that prevent this from happening.

Deciding whether a fever should be lowered is a complicated issue, and a fever should never be ignored. A fever is always an indication that something is wrong, and a fever always needs to be evaluated according to the individual patient. A fever of 104° in a two-year-old

child who has a simple viral illness such as the flu is not the same as a fever of 104° in an 87-year-old patient who has pneumonia and has a medical history of heart and lung disease. For a child, a fever is not terribly concerning but for an adult, it is concerning. In both cases, however, a fever is a warning sign.

The certified nurse assistant (CNA) should notify a Registered Nurse or an immediate supervisor if a patient's body temperature is abnormally high or if there has been a significant change from the patient's normal baseline.

The CNA should know that an extremely high body temperature is called *hyperthermia,* and that the terms fever and hyperthermia are sometimes used interchangeably but they are not the same. Hyperthermia is defined as a body temperature that is 40.5°C/104.91°F or higher. At times, a patient who is hyperthermic can have a body temperature of over 106° but a fever caused by an infection cannot reach that high. Most cases of hyperthermia are caused by heat stroke or they are an adverse effect from a drug. The body temperature of a patient who is hyperthermic can rise so high that permanent neurological damage is possible.

Fever may be a natural defense mechanism, but as mentioned earlier, it is an indication of an ongoing pathological process; in simpler terms, a fever is informing clinicians that a patient is sick. A fever also adds stress to the body. It increases heart rate, it raises metabolic demands of the body, and it can cause dehydration. In addition, many of the normal physiological activities do not function well if the body temperature is too high.

Remember, the definition of fever and the definition of normal body temperature overlap. There is no universal agreement about what a "normal" body temperature range is and what temperature is considered a "fever." Body temperature differs for everyone. It differs depending on age, gender, and it fluctuates throughout the day.

Low Body Temperature

A low body temperature is called *hypothermia*. Hypothermia is defined as a temperature that is less than the lower limit of normal, specifically less than 97°F orally, or less than 98.6°F rectally. In the Celsius scale, these would be 36.1°C orally and 37°C.

In most cases hypothermia is caused by prolonged exposure to the cold. There are also certain drugs and medical conditions that can cause hypothermia. These would include alcohol, barbiturates, narcotics such as heroin, or a stroke.

Hypothermia affects the body in much the same way as hyperthermia: the normal physiological activities do not function well if body temperature is too cold.

Treatment of Fever and Hypothermia

Measuring and recording a patient's temperature is an important skill for the CNA, but a short discussion of therapies used to treat fever and hypothermia is useful.

Fever is treated by using medications, as well as utilizing external, and internal cooling techniques. Acetaminophen and ibuprofen reduce a

fever by "re-setting" the hypothalamus, also known as the body's "thermostat." External cooling techniques work by conduction, convection, evaporation, and radiation. These techniques include cold water immersion, cooling blankets, ice packing, and fans, and each one, *i.e.*, cooling blankets and ice packs, work to cool the patient by radiation. The internal methods of cooling are much more complicated and sophisticated. They are used for patients who have extremely high body temperatures, and are not discussed here.

Hypothermia is treated by using internal and external and internal warming techniques. External warming techniques are immersion in warm water or use of a warming blanket. The internal warming methods are all invasive techniques and will also not be discussed.

To briefly review, the above section discussed measurement of the body temperature and the fact it is a reliable and easy way to determine someone's basic state of health and if a person is ill. Body temperature represents the balance between heat production and heat loss, and body temperature can be lost by conduction, convection, evaporation, or radiation.

Body temperature can be measured in various ways; the rectal or otic/tympanic methods are the most accurate and are higher than the axillary, forehead, or oral methods. The normal oral temperature is 98.2°F ± 1.2° or 36.8°C ± 0.7°. The normal rectal temperature is 99.6°F ± 0.7° or 37.5°C ± 0.7°. Fever is defined as an oral temperature 100°F or higher or a rectal temperature 101°F or higher.

In the Celsius scale, a fever would be an oral temperature 37.7° or higher or a rectal temperature 38.3° or higher.

The specific numbers for normal body temperature and fever are not absolute. If a patient has a fever, the CNA should report this immediately to a Registered Nurse or supervisor.

Measuring The Pulse

The heart, the blood, and the blood vessels make up the circulatory system. The heart pushes the blood through the blood vessels to vital organs and tissues. The blood carries the oxygen that the organs and tissues need to function. It removes waste products that are a byproduct of metabolism, and carries them to the lungs for elimination.

The heart acts like a pump and each heartbeat has two phases, a resting phase (*diastole)* and a pumping phase (*systole*). During diastole, the chambers of the heart fill with oxygenated blood that is received from the lungs. During systole, the walls of these chambers contract and send out a "wave" of blood to the lungs, brain, kidneys, muscles, *etc.* Taken together, systole and diastole make up the heartbeat. The heart beats constantly and rhythmically, and the pulse – the waves of blood the heart sends out with each beat – is a measurement of the number of heart beats per minute.

In certain areas of the body, the blood vessels are close to the surface of the skin and this wave of blood that represents a heartbeat can be felt. The pulse can also be measured by listening to the heart with a stethoscope. Measuring the pulse rate is like measuring the body temperature; it is a quick, reliable, and easy way to determine

someone's basic state of health or to determine if he/she is sick. The heart rate speeds up or slows down in response to stress, injury, infection, activity level, changes in the environment, drugs, *etc.* The following examples help illustrate this point.

Example #1

If someone is bleeding, for example, because of a very a large internal blood vessel that has ruptured, there is less blood available in the circulation. Less blood in the circulation means that there is a diminished capacity of the circulatory system to deliver oxygen and without oxygen the body cannot function. To compensate for this loss of blood and oxygen carrying capacity, the heart speeds up and the pulse rate increases.

Example #2

An asthma attack narrows the bronchial passages in the lungs and decreases the amount of oxygen that can be transferred from the lungs to the blood. In response, the heart will speed up in order to deliver a greater amount of blood per minute to the body because each volume of blood is not carrying the normal load of oxygen.

Example #3

Patients who take the cardiac medication digoxin will often have heart rates that are slow and below the normal limit. Digoxin affects the "pacemaker" cells of the heart and in someone who is taking digoxin the heart will not beat as fast as it normally would.

What Is A Normal Pulse Rate?

As with the other vital signs, there is a range of heartbeats that is considered normal:

- Babies up to the age of 1: 100-160 beats per minute.
- Children of the ages 1 to 10: 60 to 120 beats per minute
- Children of the ages 11-17: 60 to 100 beats per minute.
- Adults: 60 to 100 beats per minute.
- Athletes: 40-60 beats per minute.

These values are considered normal for the given ages but as with all of the vital signs, the normal pulse varies from person-to-person. The heart *rhythm* is just as important as the rate. A normal heartbeat will be regular like the ticking of a clock. The amount of time between each beat should be the same. If the time between each beat is not the same, the heart rhythm is considered abnormal.

A pulse rate that is below the lower limit of normal is called *bradycardia.* A pulse rate that is above the upper limit of normal is called *tachycardia.* An *irregular* pulse occurs when the interval between each heartbeat is different. In most circumstances, bradycardia, tachycardia, and an irregular pulse are considered to be abnormal.

How to Measure and Record the Pulse

Measuring and recording the pulse is simple. It can be done in many places of the body. For example, the pulse may be checked on the forehead, on the arm opposite the elbow (the area where blood samples are often taken from), the feet, both sides of the wrist, or in certain locations on the legs.

The two simplest and most commonly used sites for checking the pulse are 1) the chest, directly over the heart, using a stethoscope, and 2) on the side of the wrist using the radial artery, palpating with the fingers. Either method is acceptable.

Radial Artery

The radial artery is located on the wrist (on the side *opposite* the back of the hand) just below the base of the thumb. It can be found by taking two fingers and placing them in this area. A rhythmic pulse can easily be felt. The pulse should be counted for at least 30 seconds and then multiplied times two. The result is the pulse rate. The thumb should not be used to count the pulse. Many people have a strong pulse in their thumbs and this can interfere with accurately feeling someone's pulse.

Chest

The heart is located on the left side of the chest, *approximately* midway between the waist and the shoulder. A stethoscope should be placed in that area to listen for the heartbeat. The clinician should count for 30 seconds and then multiply times two. The result will be the pulse rate.

When listening to someone's heart rate with a stethoscope, two sounds with each beat are heard, and are commonly described as "lub-dub." These are the sounds of the heart valves opening and closing with each single heart beat and *together* they represent *one heart beat.*

The clinician should make a note of the heart rate *and* the rhythm (regular or irregular) and record it in the proper place in the patient's chart. If the heart rate is abnormally slow, fast or irregular, the CNA should notify a Registered Nurse or a supervisor immediately. The CNA should also notify a Registered Nurse or supervisor if the patient's heart rate is unusually slow or fast for that patient.

Tachycardia, Bradycardia, and an Irregular Pulse

Tachycardia, bradycardia, and an irregular pulse are abnormal; they indicate that something is wrong. However, unlike a high temperature which in most cases indicates the presence of an infection, abnormal pulse readings can be caused by many things. For example, tachycardia, bradycardia, and an irregular pulse can all be adverse reactions to a drug and depending on the situation they can all be adverse reactions to the same drug. Although measurement of the pulse is important, it is less specific than the measurement of body temperature as an indicator of why the patient is ill.

To review, the pulse is a measurement of the number of heartbeats in one minute. The pulse can be increased or slowed down by illness, injury, infection, drugs, the environment, or activity level. The normal pulse for an adult should be regular and between 60 and 100 beats per minute. A pulse rate that is abnormally slow is called bradycardia, and a pulse rate that is abnormally fast is called tachycardia. The two most accurate places to measure the pulse are the radial artery and the chest. The CNA should notify the Registered nurse or supervisor if the patient's heart rate is bradycardic, tachycardic or is unusually slow or fast for that patient.

Measuring The Respirations

Respiration is the medical term for breathing. The respiratory system delivers oxygen to the blood when a person inhales and helps eliminate by-products of metabolism (specifically, carbon dioxide) when a person exhales. Depending on the need for oxygen or the need to eliminate carbon dioxide, the respiratory rate - the number of breaths in a minute - can increase or decrease. The respiratory rate can be influenced by the environment, stress, drugs, illness, activity level, or injury.

For example, a myocardial infarction (heart attack) is caused by blockage of the arteries in the heart. The heart is deprived of oxygen and to compensate, the respiratory rate increases. Another example is when someone exercises; the muscles have a greater need for oxygen because they are working harder. In response, the respiratory rate is increased.

How to Measure and Record Respirations

When measuring a patient's respirations, the clinician should observe the patient's chest, count the number of breaths the patient takes for 30 seconds and then multiply times two to calculate a patient's respiratory rate. The normal respiratory rate for an adult is 12 to 20 a minute. For infants and children, the respiratory rate is higher. The normal rate for newborns and infants is 30 to 40 breaths a minute. The normal rate for children is 25 to 30 breaths a minute.

A respiratory rate that is below the normal limits is called *bradypnea.* A respiratory rate that is above the normal limits is called *tachypnea.* The respiratory rate should be regular. If the CNA identifies the

respirations are below or above the normal limits for a patient, a Registered nurse or supervisor should be immediately notified.

To briefly summarize, the respiratory rate is a measurement of the number of breaths in one minute. The normal respiratory rate for an adult is 12 to 20 breaths a minute. The respiratory rate for newborns, infants, and children is higher than the respiratory rate of adults. The respiratory rate should be regular, and if a respiratory rate is below the normal limits (bradypnea) or above the normal limits (tachypnea), an immediate report should be made to a clinical supervisor or Registered Nurse.

Summary

Reading and recording a patient's vital signs is one of the most important patient care skills a Certified Nursing Assistant will perform. Vital sign measurements generally include the patient's temperature, pulse and respirations, which are important indicators of the patient's health. When a person's body temperature is outside that person's normal range, there may be a health concern or illness that needs to be treated. Treatments are also available for abnormal body temperatures caused by external factors.

When a person's pulse is not normal, such as an irregular or rapid pulse, this indicates that something is wrong. The respiratory rate can also reveal a decline in the patient's health.

Vital sign measurements are effective tools to assess if a patient is ill. They are quick, simple measurements and reliable indicators of a

person’s basic state of health. Certified nursing assistants are required to competently measure and record patient vital signs for all age groups, and to know how to report when patient vital signs are not within normal ranges. Abnormal vital signs obtained by a CNA should be immediately documented and reported to a Registered Nurse or supervisor.