

Vital Signs Review

The normal blood pressure range for an adult is

- A) 90/60 to 140/90.
- B) 84/54 to 120/80.
- C) 80/50 to 112/80.
- D) 74/50 to 100/70

The normal adult range for respirations per minute is

- A) 26-40.
- B) 20-30.
- C) 18-24.
- D) 12-20.

Vital signs include the temperature, pulse, respirations, and

- A) weight.
- B) blood pressure.
- C) height.
- D) circumference.

The normal adult temperature is

- A) 98.6°F.
- B) 96°F.
- C) 97°F.
- D) 99°F.

Which temperature is lowest and least accurate?

- A) axillary
- B) rectal
- C) oral
- D) tympanic

Which of the following is important when using a tympanic thermometer?

- A) shake the thermometer down to a reading between 96.0°F and 97.0°F
- B) remove the thermometer from the recharging unit and put it in the ear before the light goes on
- C) attach a disposable sheath, and place the thermometer snugly in the ear
- D) pull the ear down and forward for an adult

Which of the following is important when measuring an oral temperature?

- A) the patient must be able to breathe through the nose
- B) place the thermometer on top of the tongue and in the center
- C) the patient should hold the thermometer between the teeth
- D) wait 5 minutes after a patient eats or drinks before taking the temperature

Which thermometer is most appropriate to use on a patient who just had lunch and a cigarette?

- A) oral mercury
- B) rectal
- C) tympanic
- D) oral electronic digital

This is one of the common causes of a rise in pulse rate.

- * Loss of appetite
- * Aggressive behavior
- * Lack of sleep
- * Exercise

what are the pulse characteristics

- A. rhythm, volume, sound
- B. rate, sound, feel
- C. rate, rhythm, volume
- D. none of the above

what is afebrile

- A. with fever
- B. without fever
- C. a dangerous fever
- D. a very low body temperature

what is a blood pressure gauge called

- A. stethoscope
- B. sphygmomanometer
- C. blood pressure cuff
- D. none of the above

b/p is measured in what?

- A. grams
- B. liters
- C. millimeters of mercury
- D. millileters

A blood pressure of 139/49 would be considered what?

- A. A normal blood pressure reading
- B. An orthostatic blood pressure reading
- C. A high blood pressure reading
- D. Prehypertension blood pressure reading

what are the factors that would decrease temperature?

- A. medication
- B. exposure to heat
- C. eating or drinking hot foods
- D. tanning beds

Case Study

- * John, a 78 year old man with Dementia has been assigned to you. He fell out of his bed and sprained his wrist. He is diabetic and suffers from left-sided weakness due to a stroke. He requires total care and assistance with everything he does. He has dentures. He can no longer walk alone, feed himself, bathe or dress himself, and he is incontinent of urine and stool. His vital signs are to be monitored q 4 hrs.

Assessment Scenario Case A1 (Smith)

Patient Name: Betty Smith

Age: 25

Weight: 54.6 kg

Height: 160 cm

Gender: Female

Background: Annual physical examination with primary care provider

Setting: Clinic

Patient Information:

Betty Smith is a 25-year-old female who is attending her annual physical examination with her primary care provider. She has no known allergies, no hospitalizations, surgeries, or diagnosis. She presently takes oral contraceptives

Prior Vital Signs:

Last appointment one year ago:

BP = 125/80

HR = 62

RR = 14

Temp. = 98.4F

Assessment Scenario Case A2 (White)

Patient Name: Frank White

Age: 63

Weight: 82.3 kg

Height: 182.9 cm

Gender: Male

Background: History of diabetes and arrhythmias

Setting: Emergency Department

Patient Information:

Frank White is a 63-year-old male who has been presented to the emergency department. Frank was mowing his lawn in 100-degree weather.

Prior Vital Signs:

On arrival to the ED, vital signs:

BP = 122/76

HR = 96

RR = 18

Temp. = 98.9F

Assessment Scenario Case A3 (Class)

Patient Name: Christina Class

Age: 72

Weight: 61.4 kg

Height: 152.4 cm

Gender: Female

Background: History of hypertension, degenerative joint disease, hip replacement, and dementia.

Setting: Long-term care facility

Patient Information:

Christina Class is a 72-year-old patient who resides in the long-term care facility. You are making re-assessments of vital signs after morning medication administration to document in the progress notes of the medical record.

Prior Vital Signs:

Prior to medication administration at 0730:

BP = 166/92

HR = 101

RR = 22

Temp. = 98.7F

Assessment Scenario Case A4 (Perry)

Patient Name: James Perry

Age: 44

Weight: 102.3 kg

Height: 190.5 cm

Gender: Male

Background: History of hypertension and coronary artery disease.

Setting: Hospital

Patient Information:

James Perry is a 44-year-old male who is in the hospital for a fall. He is a smoker. He has routine vitals every four hours and it is time to assess his vital signs for 1600.

Prior Vital Signs:

At 1200:

BP = 158/86

HR = 110

RR = 20

Temp. = 98.9F

Assessment Scenario B3 (Smith)

Patient Name: Lane Smith

Age: 66

Weight: 54.6 kg

Height: 165.1 cm

Gender: Male

Background: History of hypertension, asthma, and degenerative disc disease.

Setting: Long-term care facility

Patient Information:

Lane Smith is a 66-year-old male in the long-term care facility. He has prior diagnosis of hypertension, asthma, and degenerative joint disease. It is 0800 and vital signs need to be obtained prior to medication administration. The nurse has asked for you to assess his vital signs.

Prior Vital Signs:

Yesterday's 0900 vital signs assessment:

BP = 172/84

HR = 110

RR = 22

Temp. = 100.6F

Assessment Scenario C2 (Beal)

Patient Name: Allison Beal

Age: 70

Weight: 72 kg

Height: 160.3 cm

Gender: Female

Background: History of dementia, diabetes, hip replacement, and falls.

Setting: Long-term care center

Patient Information:

Allison Beal is a 70-year-old female who was admitted to the long-term care facility for multiple falls in her home and monitoring. She has been complaining of dizziness and you are performing vitals per the physician's orders. You are to assess her vital signs for 1600.

Prior Vital Signs:

At 1200:

BP = 176/88

HR = 108

RR = 16

Procedural Scenario

I. Procedure Preparation

a. Check the medical record

- i. Check the patient's medical records for vital signs orders.
- ii. Verify health care organization's protocol for routine vital signs assessment.

b. Patient Communication

- i. Introduce him/herself.
- ii. Explain to the client the purpose of vital signs and all steps in the assessment.
- iii. Screen for contraindications of vital signs assessment. Screen for use of drugs that may cause alteration in vital signs. For example: antipyretics will lower temperature and beta-blockers will slow heart rate resulting in a decreased pulse.
- iv. Screen health history for any conditions that may alter vital signs. For example, individuals with a history of a mastectomy or an arteriovenous fistula should not have blood pressure measured in the affected extremity.
- v. Identify patient using two identifiers.
- vi. Prepare the patient, including positioning into a supine or erect sitting position.

Procedural Scenario

- * Equipment List
 - * a. Required
 - * i. Oral, tympanic, or rectal thermometer
 - * ii. Blood pressure cuff in various sizes (i.e. extra small, small, or extra large)
 - * iii. Sphygmomanometer
 - * iv. Stethoscope
 - * v. Gloves
 - * vi. Optional-water soluble lubricant
 - * vii. Pen/pencil and paper
 - * viii. Clock or watch with second hand
 - * b. Special Considerations of Equipment Use -- Disposable stethoscopes are
 - * not recommended for students during the assessment as they may
 - * contribute to the inability to clearly auscultate the apical pulse.

Procedural Steps

Temperature

1. Don gloves in clean technique.
2. Reset the thermometer prior to use.
3. Apply probe cover for the thermometer.
4. Place the thermometer via oral, tympanic, axillary or rectal route as indicated. (Note: Steps for using the thermometers are listed in the following sections)
5. Wait approximately two to three minutes before removing unless the thermometer is electronic and provides indication when temperature has been measured.
6. Once the thermometer has indicated the reading has been obtained, remove from the selected cavity and note the temperature.
7. Dispose of the probe cover.
8. Perform hand hygiene.
9. Record temperature in the designated health care record.
10. If the assessment is greater than 10% in difference (higher or lower) from prior trends, report the assessment to the health care provider.

Procedural Steps

Oral Thermometer

- a. Ask the patient if they have consumed food, drink, or tobacco products in the last 15 to 30 minutes.
- b. Ensure the client can close their lips around the thermometer. If lips cannot be closed around the thermometer to form a light seal, a lower temperature reading may occur.
- c. Encourage the client not to bite down on the thermometer.
Note: Do not use the oral route if the client has an endotracheal tube or is unable to follow instructions to ensure an accurate reading.

Procedural Steps

Tympanic Thermometer

- a. Turn the patient's head to right or left side.
- b. Pull the pinna up and back for an adult.
- c. Pull pinna down and back for a child.
- d. Insert the end of the thermometer directly into the ear canal.
- e. Do not force the thermometer, but make sure it is inserted completely into the ear canal.
- f. Tilt the thermometer slightly toward the nose to get an accurate temperature assessment.

Procedural Steps

Rectal Thermometer

- a. Position patient onto the right side, side-facing away from you.
- b. Apply lubrication to the last inch of the distal end of the thermometer.
- c. Spread the buttocks with the non-dominant hand exposing the anus.
- d. Insert the thermometer through the anus into the anal canal.
Guide the thermometer perpendicular to the anus in all planes.
Do not force the thermometer into the rectum if resistance is met.
Insert the thermometer 1.5" inches in the adult or 1" in the child.
- e. Wait two to three minutes or until the thermometer has indicated temperature assessment is complete.
- f. Remove the thermometer from the rectum.

Procedural Steps

Axillary Thermometer

- a. Insert the thermometer into the axilla, with the end resting in the middle area of the axilla.
- b. Have the patient rest their arm against the lateral aspect of the thorax covering the probe.
- c. Leave the thermometer in place until reading alarm sounds.

Procedural Steps

Topical Thermometer

- a. Temporal artery thermometer: Sweep the across the forehead, across the temporal area of the cranium, and behind the ear as if you are outlining the posterior area of the ear. Wait until the thermometer "beeps," indicating the reading is complete.
- b. Topical thermometer (skin thermometer): Make sure the plastic of the thermometer is in full contact with the skin.
- c. Infrared thermometer: These are the most accurate thermometers. They require no contact with the skin or client. The thermometer is held at the distance from the body recommended by the manufacturer. The infrared thermometer uses a sensor detecting the energy expended by the body, surrounded ambience, and uses a conversion to provide an accurate temperature assessment.

Procedural Steps

Radial Pulse

1. Locate the radial artery on the underside of the lateral forearm near the wrist, sitting upon the distal lateral border of the radius bone.

2. Palpate the pulse.

Place the index, middle, and ring fingers on the location of the radial artery.

Hold fingers almost perpendicular to the patient's wrist.

Fingers should not rest "flat" against the wrist.

Apply enough pressure to feel the pulse. However, excessive pressure will obliterate the pulse.

3. The pulse is counted for 20 seconds and multiplied by three to calculate beats per minute. If any irregularity is present, the pulse should be counted for one full minute. For example, if a patient has atrial fibrillation, the pulse should be counted for one minute due to the irregular rhythm associated with the alteration.

4. Note pulse amplitude during palpation.

5. Record the findings.

6. If the assessment is greater than 10% in difference (higher or lower) from prior trends, report the assessment to the health care provider.

Procedural Steps

Apical Pulse

1. Locate the point of maximum impulse for the apical pulse over the apex of the heart (A).
2. Warm the stethoscope prior to auscultation with gloved hands. Use the bell of the stethoscope during the auscultation.
3. Auscultate the apical pulse at the PMI (B).
4. Once auscultation is occurring, begin counting the heart rate for one full minute.
5. Record the findings.
6. If the assessment is greater than 10% in difference (higher or lower) from prior trends, report the assessment to the health care provider.

Procedural Steps

Blood Pressure

1. Select the correct size for the blood pressure cuff based on the size of the patient's arm.
2. Ask the patient to extend and relax the extremity of choice for blood pressure assessment.

Avoid measuring blood pressure in an arm with extensive axillary node dissection or an arteriovenous fistula.

3. Expose the upper part of the patient's arm with palm upward, arm slightly flexed, with the whole arm supported at heart level.
4. Using the index, middle, and ring fingers, palpate the brachial artery. The brachial artery is located medially of the forearm in the bend of the elbow (medial aspect of the antecubital fossa).
Do not apply too much pressure to the artery as you may cause occlusion resulting in the inability to palpate the brachial artery.

Procedural Steps

Blood Pressure

5. Place the stethoscope into the ears ensuring the ear tips are pointed toward the nose.
6. Tighten the screw valve on the air pump (turning to the right will tighten the screw valve and tightening to the left will loosen the screw valve).
7. Wrap the blood pressure cuff around the upper arm approximately 2 to 5 centimeters above the elbow.
8. Ensure the line designation for the artery on the blood pressure cuff is aligned with the brachial artery.
9. Palpate the brachial artery to ensure accurate placement of the stethoscope.
10. Ensure the sphygmomanometer gauge is at zero prior to cuff inflation.
11. Explain to the patient you will need to pump the blood pressure cuff to designated amount to ensure an accurate reading and the inflated cuff may cause a small amount of discomfort.
12. While palpating the brachial artery, squeeze the air pump to inflate the blood pressure cuff until you can no longer palpate the brachial artery. Further pump the cuff 30 mmHg above the number at which you can no longer palpate the brachial pulse. (For example: If palpation of the brachial artery ceases at 150 mmHg, continue to pump the cuff until 180 mmHg).

Procedural Steps

Blood Pressure

13. Place the diaphragm of the stethoscope where the index, middle, and ring fingers were palpating the brachial artery.
14. Slowly deflate the blood pressure cuff by loosening the screw valve on the air pump while watching the sphygmomanometer gauge. (Deflation of the cuff should occur slowly at 2-4 mmHg per second).
15. Monitor the sphygmomanometer gauge needle as the cuff deflates and auscultation occurs. When using a sphygmomanometer gauge, the blood pressure can only be measured in multiples of two.
16. Note the first Korotkoff sound heard through auscultation. The corresponding gauge reading is the systolic blood pressure.
17. Note the last Korotkoff sound heard, or cessation of Korotkoff sounds, through auscultation. The corresponding gauge reading is the diastolic blood pressure.
18. If re-assessment of the blood pressure is needed, wait at least two minutes before performing the assessment again.
19. Remove the blood pressure cuff from the client's arm.
20. Perform hand hygiene.
21. Record the blood pressure in the designated health care record.
22. If the assessment is greater than 10% in difference (higher or lower) from prior trends, report the assessment to the healthcare provider.

Procedural Steps

Respirations

After the radial pulse has been measured, continue to palpate the artery

1. Begin counting respirations for one full minute by watching the chest rise and fall or by placing one hand on the chest.

One chest rise and one chest fall is equaled to one respiration.

Count 20 seconds and multiply times three, unless an abnormal breathing pattern is noted. If an abnormal breathing pattern is noted, count respirations for one full minute.

2. Compare inspiration to expiration to note any characteristics.

3. Observe the depth of respirations.

4. Observe the pattern of the respirations.

5. Note the quality of the respirations.

6. Perform hand hygiene.

7. Record in the designated healthcare record.

8. Report dyspnea, tachypnea, hypoventilation, or hyperventilation to the healthcare provider.

apical pulse	PULSE LOCATED AT THE FIFTH INTERCOSTAL SPACE, TO THE LEFT OF THE STERNUM, AT THE APEX (TIP) OF THE HEART
apnea	absence of breathing
arrhythmia	Abnormal heart rhythm
aural	perceived by the ear
axillary	pertaining to the armpit
blood pressure	the pressure of the circulating blood against the walls of the blood vessels
bradycardia	abnormally slow heartbeat
Cheyne –Stoke	very rapid, deep inspiration and expiration and then period of apnea
clinical thermometers	Instruments used to measure body temperature
cyanosis	bluish color of the skin, nail beds, and/or lips due to an insufficient amount of oxygen in the blood
diastolic	the blood pressure during that part of the heartbeat when the hearts ventricles are relaxing
dyspnea	difficult or labored respiration
electronic thermometer	registers the temperature on a viewer in a few seconds; can be used to take oral, rectal, axillary, and/or groin
fever	a rise in the temperature of the body
Homeostasis	process by which organisms maintain a relatively stable internal environment
Hypertension	a common disorder in which blood pressure remains abnormally high (a reading of 140/90 mm Hg or greater)
Hypotension	abnormally low blood pressure

Reference

*Vital Signs Assessment for Nursing Scenario Set
Consolidated Instructor Manual*

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