

BLOOD PRESSURE ASSESSMENT

OBJECTIVES/RATIONALE

Health care workers are responsible for the accurate assessment of vital signs. The student will accurately measure adult blood pressure.

TEKS: 121.23 5C, 7A, 8A, 10A
121.3 1A, 1B, 13A

TAKS ELA 1
Mathematics 1, 8
Science 1, 2, 5

Duration of Lesson: Approximately 6-8 hours

KEY POINTS

Teacher Note:

Review the Cardiovascular System

- I. Definition of Blood Pressure
 - A. The measurement of the force of blood against artery walls.
 1. Force comes from the pumping of the heart
 2. If arteries are hardened or narrowed, this force might be increased to pump the blood throughout the body
 - B. Measurement is done by listening for two sounds with a stethoscope – the first sound and the change in sound/or in some instances the last sound
 1. The first sound is called the systolic blood pressure – it measures the pressure in an artery when the heart is contracting
 2. The change in sound/or last sound heard is the diastolic blood pressure – it measure the pressure in an artery when the heart relaxes between contractions
 - C. The units of measurement are millimeters of mercury
 1. the top number/systolic is charted first, then the diastolic as in systolic/diastolic
 2. 120/80 is an example of a blood pressure and this would be in millimeters of mercury or mm Hg
- II. Blood pressure values
 - A. Normal range of B/P = 90-100/60 - 140/90
 - B. Someone whose B/P is < 90-100/60 is said to be hypotensive
 1. Someone with hypotension may have symptoms of dizziness, light-headedness, might faint
 2. No presence of signs and symptoms
 3. Contributing factors include
 - a. medications
 - b. level of physical fitness – ex. Someone who is extremely fit might be hypotensive, but this is normal for them
 - c. illness

- d. injury
- C. Someone with a B/P greater than 140/90 is said to be hypertensive
 1. Hypertension is called the silent killer because there are often no symptoms. Some people might experience headache, pressure in the head, ringing in ears, general feeling of malaise
 2. Continued elevation over time may result in a Cerebral Vascular Accident (stroke)
 3. Contributing factors may include
 - a. overweight
 - b. emotional upset
 - c. family history
 - d. high salt diet
 - e. pain
 - f. illness
 - g. medications
- III. Instruments necessary to complete the procedure
 - A. Blood pressure cuff/sphygmomanometer
 1. This must fit the arm properly. The width of the cuff should approximately equal the width of the upper arm.
 2. The gauge should be calibrated and the needle should be on 0
 - B. Stethoscope
- IV. Procedure
 - A. Person should be comfortably seated or lying down
 - B. Should have rested for 10-15 minutes prior to the reading
 - C. Arms that are paralyzed, injured, have an IV or shunt should not be used
 - D. Infant blood pressures can be taken on the leg, but adults must use the arm
 - E. Electronic blood pressure equipment can be used – the type used most often in the hospital setting is the Dyna-map
 - F. Excess air should be squeezed out of the cuff
 - G. Cuff should be placed snugly on upper arm.
 - H. Gauge should be easily visualized
 - I. Valve should be closed, but easily able to be opened
 - J. Two techniques for obtaining the pressure
 1. Find radial pulse. Pump cuff till pulse no longer palpated. Then pump another 30 mm Hg higher. Place diaphragm of stethoscope on brachial artery about ½ - 1 inch above the elbow. Release the valve and listen for the two measurements – slowly deflating the cuff.
 2. Find brachial artery and put diaphragm over the site. Pump cuff to 120 mm Hg and listen for the heart beat. If it is heard, pump another 30 mm Hg and listen again. When the pulse is no longer heard, then pump another 30 mm Hg and slowly deflate, listening for the two measurements.
 - K. If reading is uncertain, wait 30 seconds to 1 minute before re-measuring
 - L. Record the reading and report any abnormalities. If the B/P reading is outside of the normal limits, retake it before reporting the value to a supervisor to be certain of accuracy

ACTIVITIES

- I. Measure and record partner's B/P.
- II. Complete the terms associated with this lesson and also participate in the supplemental activity, "Could you Get Me That Thing-a-ma-jig?"

MATERIALS NEEDED

Aneroid Sphygmomanometers

Stethoscopes

Alcohol Swabs or cotton balls and alcohol for disinfecting stethoscopes

Supplemental lesson materials "Could you Get Me That Thing-a-ma-jig?"

Any materials that you choose to include in supplemental lesson: i.e. urinals, bedpans, IV pole, restraints, etc.

ASSESSMENT

Record of each student's blood pressure.

Successful completion of Skills Check list

Written objective test

ACCOMMODATIONS

For reinforcement, the student will list the steps and retake the blood pressure of partner.

For enrichment, the student will design a pamphlet and set up a blood pressure booth in a local store, offering blood pressure checks and pamphlets to any interested customers

REFLECTIONS

COULD YOU GIVE ME THAT THING-A-MA-JIG?
STUDENT GUIDELINE

Using your textbook and other reference books in the classroom, identify each of the items that the instructor has placed in the classroom for you to know and remember. Remember that the correct name will be required and spelling will count. Once you have identified the item, you can verify the name with the instructor.

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COULD YOU GET ME THAT THING-A-MA-JIG?

INSTRUCTOR GUIDELINE

Identify 50 items that you want the students to know well and use the name properly. Number each item with paper and tape. Give the students a copy of their guideline for this exercise and tell them that they can use any reference book in the classroom to find the name of each item. They can then verify the item name with you.

This activity can be done while the instructor is testing Blood Pressures. Once all Blood Pressures have been tested, a test can be given using 25 or even all 50 or more items. Students are given an answer sheet and they must write the name of the item in the space allotted. Again spelling counts.

Some suggested items to use are:

Thermometer Probe Covers

IVAC/Electronic Thermometer

Thermoscan/Tympanic Thermometer

Aneroid Sphygmomanometer

Mercury Sphygmomanometer

Mercury Thermometer

Biohazardous Bag

4x4 Gauze

Sterile Glove Size 6 (or 7, 8, etc)

Suction Cather Size 10 (or 14, 6, or whatever)

Overbed table

Bedside Stand

Side Rail

Trapeze

Fracture Pan

Bedpan

Bath Basin

Emesis Basin

Graduated Pitcher/Graduate

Syringe

N/G tube

Urinary Catheter

IV Pole

Heel-Bow/Heel Protector/Elbow Protector
Sheepskin
Splint
CHUX
Incontinent Brief
Dentures
Denture Cup
Wrist Restraint
Vest Restraint
Waist Restraint
Bag Valve Mask/Ambu Bag
Oxygen Regulator
Oxygen Humidifier
Nasal Prongs
Wheelchair
Walker
Urinal
Catheter Bag
Bedside Commode
Hand Roll
Call Signal/Call Light
Hoyer Lift/Sara Lift
Gait Belt
Sharps Container
Draw Sheet
Top Sheet
Fitted Sheet
Vacutainer
Tongue Depressor
Cotton-tipped Swab
Lemon Glycerin Swab
Toothette

WRITTEN TEST: BLOOD PRESSURE

NAME: _____

For each of the following, write the correct word that completes the sentence in the space provided on your answer sheet.

1. When measuring blood pressure, you are measuring the _____ of blood flowing through the arteries.
2. Blood pressure is measured in _____ (give the abbreviation).
3. The answer to number 2 stands for _____.
4. When a patient's blood pressure is higher than normal, we say he has _____.
5. When a patient's blood pressure is lower than normal, we say he has _____.
6. Lower than normal blood pressure occurs when the blood pressure drops below _____/_____.
7. Higher than normal blood pressure occurs when the blood pressure is above _____/_____.
8. – 10. Give three reasons why a blood pressure SHOULD NOT be taken on a particular arm.
11. If a blood pressure has to be repeated, the health care worker should wait a minimum of _____ seconds.
12. When pumping up a blood pressure cuff, the valve is _____.
13. Blood is carried to the heart by way of _____.
14. The thicker vessels that carry blood away from the heart are the _____.
15. Systolic blood pressure measures what?
16. Diastolic blood pressure measures what?
17. When taking a blood pressure the top number is the _____ pressure.
18. When taking a blood pressure the bottom number is the _____ pressure.

19. If the arteries are narrow and hard, the blood pressure is likely to be (higher, lower) than normal.

True/False

20. The blood pressure cuff is placed approximately one inch above the radial pulse.

21. The diaphragm of the stethoscope is placed over the brachial artery to hear the blood pressure.

22. It is best to measure the blood pressure while a person is standing.

23. The brachial pulse is located on the thumb side of the arm at the elbow.

Identify the following blood pressures as normal or abnormal by writing the appropriate word in the space on your answer sheet.

24. 60/132

25. 154/72

26. 110/64

27. 88/52

28. 186/96

Fill in the Blank: For each of the following, write the correct word(s) in the space provided on your answer sheet.

29. Consistently elevated blood pressure might result in a stroke or _____
_____.

30. True/False. Blood pressure can be increased by high salt diet, emotion, and illness.

ANSWER SHEET: BLOOD PRESSURE TEST

1. force
2. mm Hg
3. millimeters of mercury
4. hypertension
5. hypotension
6. 90-100/60
7. 140-90
8. – 10. Shunt, IV, paralysis, pain, injury
11. 30 seconds
12. closed
13. veins
14. arteries
15. contraction of heart
16. relaxation of heart between contractions
17. systolic
18. diastolic
19. higher
20. False
21. True
22. False
23. False
24. Abnormal
25. Abnormal
26. Normal
27. Abnormal
28. Normal
29. Cerebral Vascular Accident/Cerebrovascular Accident
30. True

NURSE AIDE SKILLS EXAM

BLOOD PRESSURE/procedural guideline # 47**

Adapted from the Texas Department of Human Services Nurse Aide Curriculum.

(Note to Nurse Examiner: Instruct nurse aide to inflate cuff no more than 2 times to obtain reading.
Wait 30 seconds before each reinflation. Use teaching stethoscope if available.)

**If students do not complete Check 1, peer evaluation, they will receive a 0 for the Check 2 Skill Test. The initials of the peer performing the check must appear above the check 1 column.

POSSIBLE POINTS	PROCEDURE	CHECK 1	CHECK 2
4	1. Properly cleans hands before procedure as appropriate.	_____	_____
3	2. Identifies resident, explains procedure to resident, and encourages resident to participate as appropriate.	_____	_____
2	3. Assembles appropriate equipment before procedure such as correct sized cuff. a. stethoscope b. sphygmomanometer	_____	_____
1	4. Provides for resident's privacy as appropriate.	_____	_____
2	5. INSURES RESIDENT'S SAFETY. a. bed wheels locked b. side rails up	_____	_____
1	6. Provides adequate lighting.	_____	_____
4	7. Assists resident into a comfortable sitting or recumbent position with forearm relaxed and supported in a palm-up position, approximately at the level of the heart.	_____	_____
2	8. Rolls resident's sleeve up about 5 inches above the elbow and applies the cuff around the upper arm just above the elbow.	_____	_____
2	9. Cleans earpiece of stethoscope appropriately and places in ears.	_____	_____
2	10. LOCATES BRACHIAL ARTERY and places blood pressure cuff over artery, applying cuff smoothly and snugly.	_____	_____
1	11. Tightens valve attached to air bulb.	_____	_____
5	12. 1) Quickly pumps air into cuff, while 2) palpating radial artery with finger tips, 3) to about 20 – 30 mm above the point where the pulse ceased to be detected. 4) Places stethoscope over brachial artery	_____	_____

now 5) making sure NOT to touch the B/P cuff.

6 13. 1) Opens valve on air bulb, 2) letting air escape slowly and evenly, while _____
3) watching gauge and 4) listening for pulse sounds. 5) Notes the systolic pressure (when the first regular sound is heard) and the 6) diastolic pressure (when the pulse changes from a loud beat to a faint murmur, or if no change is heard until it disappears. _____

2 14. Records the systolic and diastolic pressure. (Instructions to Examiner: Ask nurse aide to record blood pressure, Then examiner checks blood pressure In same arm and records results. Use Teaching stethoscope if available.) _____

NURSE EXAMINER'S RESULTS _____ NURSE AIDE'S RESULTS _____

2 15. **NURSE AIDES RECORDED BLOOD PRESSURE READING (BOTH SYSTOLIC AND DIASTOLIC) MEASURES NO MORE THAN 10 MM HG. FROM NURSE EXAMINER'S BLOOD PRESSURE MEASUREMENT.** _____

2 16. Removes blood pressure cuff and leaves resident in a position of comfort. _____

2 17. Cleans stethoscope with alcohol pads and puts away B/P cuff appropriately. _____

TOTAL POSSIBLE POINTS = 43

TOTAL POINTS EARNED = _____