

# PLANK 1

## TOOL: Checking Blood Pressures Nursing Competency (Sharp Rees-Stealy Medical Group)

### CHECKING BLOOD PRESSURES NURSING COMPETENCY

#### OBJECTIVES FOR THIS SKILL STATION

1. Participant will demonstrate appropriate cuff selection and placement on patient's arm.
2. Participant will accurately measure and record blood pressure as verified by teaching stethoscope.
3. Participant will verbalize technique for measuring orthostatic blood pressure.
4. Participant will verbalize the normal range of adult blood pressures and determine if reading is in a normal range for the individual patient.

#### BLOOD PRESSURE

Blood pressure is the force exerted by the blood on the walls of the arteries. This vital sign gives us information regarding a patient's overall status. Systolic pressure is the greatest force caused by the contraction of the left ventricle of the heart and is recorded as the first and highest number. Diastolic pressure occurs during the relaxation phase between heartbeats and is recorded as the second and lowest number (e.g. 120/70).

Goal blood pressure in a healthy adult varies between 100-139 mm Hg systolic and 60-89 mm Hg diastolic. Goal blood pressure for individuals with Diabetes Mellitus is 100-129/60-79. Goal blood pressure for individuals with Chronic Kidney Disease is 100-129/60-79. Blood pressure can vary with age, sex, and states of physical/mental stress and fatigue. A reading above these goals is consistent with hypertension.

#### CHECKING BLOOD PRESSURE

##### I. What is Blood Pressure?

- A. Blood pressure is the force of the blood pushing against the walls of the arteries. It correlates with how hard the heart has to work to pump blood throughout the body and how stiff the blood vessel walls are.
- B. It is an important indicator of cardiovascular health:
  1. Systolic - pressure in arteries when heart is contracting
  2. Diastolic - pressure in arteries when heart is relaxed and filling

##### II. Equipment

- A. Stethoscope that picks up sounds easily
- B. Blood Pressure Cuff (Sphygmomanometer)
  1. Correct size for patient:
    - a. Adult—width of bladder should be roughly 40% the circumference of the arm and length of bladder should cover about 80% of the circumference of the arm
    - b. Child—cuff should cover approximately 2/3 upper arm or thigh

##### III. Positioning Patient and Cuff

- A. Arm slightly flexed/comfortably supported.
- B. Cuff wrapped smoothly/evenly/snugly over the skin of the arm directly, not over clothing. A loose cuff gives inaccurate reading.
  1. Approximately 1" above bend in elbow
  2. Center of bladder over brachial artery unless otherwise marked
- C. Cuff should be level with heart.
- D. Patient's palm up.
- E. Prior to inflation, gage must point within small calibration box on dial or reading will be inaccurate. Change equipment if needed.



- F. Use index and middle fingers to palpate brachial artery.
- G. Hold stethoscope over pulse point. Sounds are heard best with the bell side of the stethoscope.
- H. Patient should sit with feet flat, not crossed at ankles, with back supported in a chair.

#### **IV. Reading Blood Pressure**

- A. Inflate bladder quickly to 24–30 mm Hg above patient’s usual systolic pressure (if known). If patient’s usual systolic is not known, then first estimate the systolic pressure by palpating over the brachial artery and inflating the cuff until the brachial pulse disappears. This will estimate the patient’s systolic blood pressure.
- B. Inflate the cuff 24–30 mm above pt’s usual or estimated systolic pressure. While listening over the brachial artery, release air slowly at 2–4 mm Hg per second; faster can distort reading.
- C. The first two beats heard is the systolic pressure. As air is released, the pulse may fade and then reappear 10-15mm Hg later. This is called an “auscultatory gap” and it is why it is important to estimate the systolic pressure by palpating the brachial artery first. Knowing the approximate systolic blood pressure by palpation will prevent underestimating a systolic blood pressure because of insufficient cuff inflation.
- D. Sound muffling is first diastolic.
- E. Sound disappearing is second diastolic.
- F. Record systolic and second diastolic as the patient’s blood pressure.
- G. If repeated readings needed:
  - 1. Deflate cuff fully
  - 2. Venous congestion could distort reading with slow or repeated inflations
  - 3. May elevate arm 1–2 minutes before readings
  - 4. Difference of 2–4 between readings is not unusual
- H. Readings between arms can vary as much as 10mm Hg. Record the lowest reading. If pressure varies more than 10mm Hg between arms, inform the physician and record each arm’s pressure.
- I. Factors That Influence Blood Pressure Reading:
  - 1. “White coat Syndrome”
  - 2. Nervousness, stress, anger, illness, long waiting time
  - 3. Lifestyle: diet, exercise, age, sex, ethnic background; smoking
  - 4. Air in cuff/cuff size
  - 5. Unevenly wrapped cuff
  - 6. Deflating cuff too quickly
  - 7. Auscultatory Gap (pulse disappears then reappears while deflating cuff)
  - 8. Looking at gauge at an angle
  - 9. Not inflating cuff high enough
  - 10. Too wide a cuff will underestimate BP
  - 11. Too narrow a cuff will overestimate BP

#### **V. Orthostatic Blood Pressure:**

- A. Patient lies supine for 3 minutes, take BP and pulse
- B. Patient sits up, after 3 minutes take BP and pulse: ask if light-headed
- C. Patient stands, after 3 minutes take BP and pulse; ask if light-headed
- D. Document findings and comments regarding light-headedness



**POINTS TO REMEMBER:**

1. Correct sizing is key:
  - A) Adult cuff width should be roughly 40% the circumference of the arm and length of bladder should cover approximately 80% of the arm circumference.
  - B) Child cuff should cover approximately 2/3 of upper arm or thigh.
2. Position cuff 1 inch above the antecubital area and at least 1 inch below axilla.
3. Patient's arm should be slightly flexed and comfortably supported with palm up.
4. Cuff must be wrapped smoothly, evenly and snugly.
5. The center of the bladder should be positioned over the brachial artery (unless cuff is marked differently).
6. The gauge must point within calibration box before inflation or reading will be inaccurate.
7. Place blood pressure cuff on the skin of the arm directly, not over clothing.
8. Inflate bladder quickly 24–30 mm Hg above usual systolic, then release air slowly.
9. If a repeat reading is needed, deflate cuff completely and wait 1–2 minutes before taking again or change arms.
10. Orthostatic BP patient lies supine for 3 minutes, take BP and pulse while patient lying down. Have pt sit up for 3 minutes, take BP and pulse again. Have patient stand for 3 minutes, take BP and pulse again. Record all measurements. Question patient regarding symptoms with each positional change and record in EHR.

