

**NorthEast Ohio Neighborhood Health Services, Inc**  
**PROCEDURE FOR OBTAINING A RELIABLE BLOOD PRESSURE READING**  
**10/2010**

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**Purpose:**

To provide uniform guidelines for obtaining reliable blood pressure readings.

**Affirmation:**

When a blood pressure reading is ordered or part of protocol such a procedure shall be performed in manner that ensures that the BP reading can be utilized in such a way that affords the health care team the best opportunity to effectively serve the patient.

**Responsibility:**

All health care staff who perform or BP readings or are responsible for acting on the information clinically.

**Procedure:**

As described below.

**Cuff Size Determination**

BP measurements should usually be taken in the right arm. The left arm may be used if the BP is known to be higher in that arm or in the presence of an anomaly or other circumstance prohibiting use of the right arm.

Proper cuff size must be used to avoid under or over-estimation of blood pressure. Cuff size refers to the cuff's bladder, not the cloth. A copy of the chart below should be attached to the sphygmomanometer for easy reference.

**Cuff Size** Indicated by measured **Arm Circumference** tabulated below:

<b>Arm Circumference</b>	<b>Cuff Size</b>
32-42 cm (13-17")	Large
22-32 cm (9-13")	Medium
17-22 cm (7-9")	Small
>42 cm (>17")	Extra large or thigh

1. Have the participant remove his/her upper garment (bare arm).
2. Have the participant stand, holding forearm horizontal (parallel) to the floor. Measure arm length from the acromion (bony protuberance at the shoulder) to the olecranon (tip of the elbow), using a metric tape.
3. To measure the arm circumference:
  - Mark the midpoint on the dorsal surface of the arm.
  - Have participant relax arm along side of the body.

- Draw the tape snugly around the arm at the midpoint mark. NOTE: Keep the tape horizontal. Tape should not indent the skin.
- Use the criteria in the Table (above) for determining cuff size.

### **Wrapping the Blood Pressure Cuff Around the Arm**

The participant should then be seated with back supported, legs uncrossed, in a quiet room, with the elbow and forearm resting comfortably on the armrest of the blood pressure measurement chair (or the table) with the palm of the hand turned upward. The area to which the cuff is to be applied must be bare.

Locate the brachial artery by palpation and mark the skin with a little dot. (The brachial artery is usually found at the crease of the arm, under the muscle and slightly towards the body).

Place the appropriate cuff around the upper right arm so that:

- a) The midpoint of the length of the bladder lies over the brachial artery, and
- b) The mid-height of the cuff is at heart level. NOTE: Confirm for yourself where the midpoint of the length of the bladder is by folding the bladder in two. Do not trust the marking on the cuff.
- c) Place the lower edge of the cuff, with its tubing connections,  $\frac{1}{2}$  to 1 inch above the natural crease across the inner aspect of the elbow.
- d) Wrap the cuff snugly about the arm, with the palm of the participant's hand turned upward. Make sure that the long edges of the cuff lie on top of each other as you wrap the cuff around.
- e) Secure the wrapped cuff firmly by applying pressure to the locking fabric fastener over the area where it is applied to the cuff.

Do not wrap the cuff too tightly around the arm, but so that you can insert only one finger between the cuff and arm.

### **Taking the Seated Blood Pressure and Pulse Measurements**

The participant should sit quietly for a period of 5 minutes before the first blood pressure is taken. They should be seated comfortably, feet flat on the floor with their back supported. Ideally they should not have smoked or had any caffeine within the last 30 minutes prior to the BP determinations.

For standing BP measurement, the arm should be bent slightly and the hand of the cuffed arm supported at heart level (a Mayo stand is acceptable for support).

### **Arm measurement:**

The proper size cuff must be used to obtain accurate blood pressure (BP) readings. See the table above (9.2.3) for determination of proper cuff size.

### **Applying the BP Cuff**

1. Place the midpoint of the length of the bladder over the brachial artery and the mid-height of the cuff at heart level.
2. The lower edge of the cuff should be about 1 inch above the natural crease of the inner aspect of the elbow.
3. Wrap the cuff snugly and secure firmly.
4. The participant should rest with their palm turned upward.

\*\*\*The patient should be allowed to sit quietly for 5 minutes. They should be seated comfortably, feet flat on the floor with their back supported. Ideally they should not have smoked or had any caffeine within the last 30 minutes prior to the BP determinations.

### **Determination of Peak Inflation Level**

The peak inflation level (pressure) should be determined to assure accurate measurement of the systolic blood pressure. This pressure is determined by:

1. Inflating the BP cuff while palpating the radial pulse and watching the mercury column.
2. When sufficient pressure has been applied, the pulse is no longer felt. When the pulse disappearance is detected, note the level and continue to inflate the cuff another 20 mm Hg.
3. Slowly deflate the cuff while watching the pressure dial. Note the level where the pulse reappears, then quickly and completely deflate the cuff.

### **Blood Pressure Readings**

#### *Blood Pressure Sounds*

- Systolic blood pressure (SBP) is the first of at least two regular tapping sounds heard when deflating the cuff.
- Diastolic blood pressure (DBP) is the level at which the last of the rhythmic sounds are heard.
- A single sound heard in isolation either before the SBP or after the DBP does not meet the BP criteria.

#### *Obtaining the BP Readings*

1. Following determination of the peak inflation level or any other BP measurement, wait 60 seconds after complete deflation of the cuff before re-inflating for the next reading.
2. Place the diaphragm of the stethoscope over the brachial artery.
3. Inflate the cuff at a rapid, smooth, continuous rate to the peak inflation level.
4. At a slow and constant rate of 2 mm Hg/second deflate the cuff listening throughout the entire range of deflation to 10 mm Hg below the DBP (last regular sound heard).
5. Quickly and completely deflate the cuff.
6. Wait at least 60 seconds between readings.