**SARASOTA MEMORIAL HOSPITAL**

**NURSING PROCEDURE**

| TITLE: MEASURING BLOOD PRESSURE - MANUAL (equ04) | DATE: 2/80 |
| ISSUED FOR: Nursing | REVIEWED: 7/17 |
| RESPONSIBILITY: RN, LPN, Patient Care Technician, Multi-skilled Tech |

**PURPOSE:** To measure a manual systolic and diastolic blood pressure (BP).

**DEFINITION:**
1. **Sphygmomanometer:** A device consisting of an inflatable compression cuff linked to a simple air pump and a mercury manometer or an aneroid gauge.
2. **Auscultation:** A method of determining systolic and diastolic pressures by listening to the arterial sounds.
3. **Palpation:** A method of determining systolic pressure by manually feeling the change in the radial pulse.

**KNOWLEDGE BASE:** Blood pressure, the lateral force exerted by blood on the arterial walls, depends on the force of ventricular contractions, arterial wall elasticity, peripheral vascular resistance, and blood volume and viscosity. Systolic, or maximum, pressure occurs during left ventricular contraction and reflects the integrity of heart, arteries, and arterioles. Diastolic, or minimum pressure, occurs during left ventricular relaxation and directly indicates blood vessel resistance.

**PATIENT EDUCATION:**

Explain the procedure and its purpose to the patient. As ordered by the physician, it may be necessary to teach the patient or significant other the technique of measuring blood pressure.

**INDICATIONS:**

Frequent blood pressure measurement is critical after any invasive procedure, serious injury, surgery, or anesthesia and during any illness or condition that threatens cardiovascular stability. Regular measurement is indicated for patients with a history of hypertension or hypotension.
EQUIPMENT:
1. Aneroid manometer (attached to some cuffs)
2. The selection of appropriate blood pressure blood pressure cuff is necessary. The size of the cuff can be determined by the circumference of the patient’s arm. Use the appropriate sized cuff recommended by the American Heart Association. (See attachment with recommended guidelines).

Bladder and cuff: Bladder should completely encircle arm without overlapping; cuff should be secure and fit snugly. An excessively narrow cuff may cause a falsely high pressure reading; an excessively wide one may cause a falsely low reading. (Lippincott, 2015; Perry & Potter, 2018; AHA Scientific Statement, 2005).

3. Stethoscope

PROCEDURE: PREPARING THE PATIENT:

1. Perform hand hygiene. Place the patient in a comfortable position, sitting or lying, with forearm extended, supported and the palm upward. If the patient is sitting in a chair, make sure the back is supported and instruct them to keep their feet flat and legs not crossed. If supine, patient should not have legs crossed (Perry & Potter, 2018, Lippincott, 2015).

2. Determine best site for blood pressure assessment. Avoid applying cuff to extremity when IV fluids are infusing, an AV shunt or fistula is present, or breast or axillary surgery has been performed (Perry & Potter, 2014). Apply a pink armband on the affected limb as a visual cue to not use that side.

3. Remove any restrictive clothing from the arms or legs. Expose the arm for about five inches above the elbow.

When using the thigh for blood pressure measurement place the patient in supine position, with the knee slightly bend.
When using the calf for blood pressure measurement, place the patient in the supine position. (Perry & Potter, 2018)

4. Center rubber bladder of cuff over brachial artery and wrap cuff firmly and smoothly around the arm, one inch above the bend of the elbow (antecubital space). Position arm so cuff is at heart level.
5. When using the thigh for blood pressure measurement, apply the appropriate sized cuff over the lower third of the patient’s thigh so that the lower edge of the cuff is about an inch above the popliteal fossa. A thigh cuff may need to be ordered through CS.

When using the calf for blood pressure measurement, apply the appropriate sized cuff so that the lower edge of the cuff is about an inch above the malleoli.

(Perry & Potter, 2018)

NOTE: Place blood pressure cuff on non-operative side of all post-operative patients.

MEASURING THE PRESSURE:

1. On a new patient, you may estimate the systolic reading by the PALPATORY method first.
   a. With the first three fingers, find the radial or popliteal pulse.
   b. Inflate the cuff to about 30 mm Hg above the pressure at which the pulse disappears.
   c. Deflate the cuff slowly.

2. The level of pressure at which the pulse returns is noted as the systolic arterial blood pressure.

   NOTE: The diastolic pressure is not measured this way.

3. Determine blood pressure by the AUSCULTATORY method, as follows:
   a. Locate strongest pulsation of brachial artery, popliteal artery, or posterior tibial with fingers and put stethoscope diaphragm against the bare skin at this place.
   b. Adjust ear pieces of stethoscope to position best suited for you.
   c. Inflate cuff, with air valve closed, to about 30 mm Hg above the expected systolic pressure.
   d. While watching manometer scale, open the valve to allow slow escape of air; note reading when first sound is heard. Continue to release air slowly, noting reading of last audible sound (or a change in the sound). Open the valve completely to release all air from the cuff.

   NOTE: If cuff was previously inflated, drop pressure to "0" before re-inflating.

   CAUTION: Inflate and deflate the cuff slowly. If
necessary to retake BP, wait 60 seconds before re-inflating cuff the second time. (AHA Scientific Statement, 2005)

**NOTE:** Blood pressure cuffs will be disinfected in between patients by the housekeeper or nursing personnel. They need to be sent to Central Processing for cleaning if soiled with blood and body fluids.

**DOCUMENTATION:**

*EMR Vital Signs Flowsheet:* Enter blood pressure at time of measurement.

Occasionally, it may be necessary to record blood pressure with the patient in two-three different positions.

**REFERENCE(S):**


**REVIEWING AUTHOR(S):**

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**APPROVAL(S):**

Clinical Practice Council    7/6/17
<table>
<thead>
<tr>
<th>Cuff</th>
<th>Arm circumference (cm)</th>
<th>Bladder width (cm)</th>
<th>Bladder length (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>&lt;6</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Infant</td>
<td>6 - 15</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Child</td>
<td>16 - 21</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Small Adult</td>
<td>22 - 26</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Adult</td>
<td>27 - 34</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Large Adult</td>
<td>35 - 44</td>
<td>16</td>
<td>38</td>
</tr>
</tbody>
</table>

**American Heart Association –Recommended Guidelines for Cuff Sizes**

**NOTE:** At SMH, there may be a variation with the cuff sizes that are available—the guidelines above can be used.