

EVIDENCE-BASED PRACTICE (EBP) PROTOCOL:
Selecting an Appropriately-Sized Cuff to Ensure Accurate BP Readings

This EBP BP Protocol was originally designed to ensure caregivers select appropriate sized BP cuffs for consistent use in bariatric surgical patients. Since the original pilot project was undertaken in the Surgical Care Center at United Hospital, the Nursing Research Council identified a need to review with staff the importance of selecting an appropriately-sized cuff to ensure accurate BP for all patients across the lifespan.

Step 1. MEASURE CIRCUMFERENCE OF UPPER ARM

On first point of patient contact, RN/LPN/PCA/NA to **measure circumference of upper arm** (at midpoint between shoulder & elbow) and evaluate shape of upper arm.



Based on these dimensions, **select an appropriate cuff size** that will most closely meet the American Heart Associations (AHA's) guidelines* on BP cuff size.

Cuff	Arm Circumference:
• NEWBORN	<2.5" (< 6 cm)
• INFANT	2.5-6" (6-15 cm)
• CHILD	6-8.5" (16-21 cm)
• SMALL ADULT	8-10" (22-26 cm)
• ADULT REGULAR	11-13" (27-34 cm)
• ADULT REGULAR LONG	Longer cuff (but not larger than Adult Regular)
• ADULT LARGE	14-17" (35-44 cm)
• THIGH	18-21" (45-52 cm)

There is some overlapping of recommended ranges for arm circumference in order to limit the number of cuffs. AHA generally recommends larger cuffs be used for borderline measurements.

*These recommendations are based on the following principle outlined by the AHA:
WIDTH of inflatable bladder of BP cuff should be 40% of mid-circumference of limb **and**
LENGTH of cuff should be 2X width of upper arm (from shoulder to elbow)

In children with large upper arms, the appropriate-sized cuff should also be selected based on measurements from the above table.

Step 2. DETERMINE IF FOREARM METHOD INDICATED

AHA guidelines recommend the forearm method **for selected Bariatric patients** only when 1 of the following 2 criteria is met:

- Upper arm circumference is >20" (50 cm)
- Size & shape of upper arm suggest available cuffs will fit extremely poorly (e.g., upside-down pear shaped arm that has large circumference but narrows quickly above elbow)

When appropriate (per AHA guidelines), forearm BP's should be assessed using an ADULT REGULAR cuff at the radial artery (a regular size cuff is appropriate since morbid obesity generally spares the wrist).



- Place BP cuff 2-3 cm above radial artery, with the arrow positioned over the radial artery. The direction of the cuff/tubing apparently doesn't matter as specific directions regarding direction are not specified in the AHA's guidelines.
- Support forearm around the level of the heart and take BP as usual.

Forearm BPs differ from upper arm BPs. Recent evidence suggests forearm BP's often overestimate systolic, diastolic & mean values anywhere from 10 to 33 mmHg. Trends in BP readings & patient status will need to be carefully evaluated prior to treatment. As a result, it is **critical that when the forearm method is indicated, all caregivers consistently use the forearm for BP readings.**

Step 3. ASSESS BP IN BOTH ARMS

Assessing BP in both the right and left arm is recommended by the AHA to help detect coarctation of the aorta and upper extremity arterial obstruction (and is further supported in Perry & Potter's Clinical Nursing Skills & Techniques). When there is a consistent difference in BP between the right and left arms, the arm with the higher pressure should be used.

IMPORTANT NOTE: BP's should **not** be taken in upper extremities with an AV shunt/fistula or vascular access device, or on the same surgical side as a mastectomy. In these clinical situations, take BP on the thigh or calf if necessary.

Step 4. COMPLETE DOCUMENTATION IN INITIAL NURSING ASSESSMENT & "STAFF ALERT" SECTION

The following should be documented on the initial assessment:

- a) Cuff selected – Small Adult, Adult Regular, Adult Regular Long, Adult Large, or Thigh
- b) If forearm method used – Indicate under BP site
- c) Arm used – Right or left (only if difference in BP between right & left arms)

This communication is critical to ensure caregivers across shifts or units/depts. use consistent techniques when assessing BP (& thus, reduce potential variations in BP that can be introduced when various size BP cuffs are used).

Step 5. KEEP DISPOSABLE CUFFS WITH PATIENT

For Bariatric patients and those on contact precautions, keep disposable cuff selected on admission in patient's room. When these patients change beds on a unit, transfer to another unit, or move from one department/procedural area to another, send disposable BP cuff with patient.

For example: A bariatric patient (defined as BMI >30) presents to ED. The caregiver selects appropriate size BP cuff for patient. When patient is admitted to inpatient room, RN sends selected cuff with patient. This cuff is then used throughout the patient's hospitalization to assess BP.

This practice will ensure that all caregivers are consistently using the same cuff to improve the reliability of BP readings in bariatric patients, and to reduce cross-contamination from patients with resistant organisms.

Step 6. DISCHARGE PROCEDURE

On discharge, place disposable BP cuff for any patient on contact precautions into regular waste if disposable. If re-usable, wipe all surfaces using disinfectant (quat).

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