

## **Blood Pressure 101 for Healthcare Providers**

Produced by the Alabama Department of Public Health  
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## **Faculty**

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### **What is Blood Pressure?**

- **When the heart pumps blood, the blood pushes against the wall of the arteries (blood vessels)**
- **Blood pressure is the force exerted by the blood on the wall of the arteries**
- **This vital sign gives us information regarding a patient's overall status**

### **Blood Pressure Goals**

- **Health adult varies between 100-139 mmHg systolic and 60-89 mmHg diastolic**
- **Blood pressure can vary with age, sex, and states of physical/mental stress and fatigue**

### **Blood Pressure**

- **Measured in 2 numbers**
  - **The first number gives the pressure when the heart beats as it pumps blood to your body- systolic blood pressure (SBP)**
  - **The second number gives the pressure when the heart rests between beats- diastolic blood pressure (DBP)**

### **Importance of Measuring an Accurate Blood Pressure**

- **Blood pressure may be used to initiate treatment and to monitor effects of drug therapy**
- **A false low reading may lead to under treatment, which will lead to more organ damage**
- **A false high reading may lead to over treatment and the possibility of drug-induced side effects**

### **Steps for Obtaining Blood Pressure**

- **Position the Patient**
  - The patient should be resting for at least 5 minutes before the blood pressure is taken
  - Legs should not be crossed
  - Make sure patient's feet and back are supported

### **Steps for Obtaining Blood Pressure**

- The patient should not be talking during blood pressure measurement
- **Choose the appropriate cuff size**
  - Cuff size is determined by circumference of arm

### **Steps for Obtaining Blood Pressure**

- **Choose the appropriate arm**
  - You should not use an arm:
    - That has a dialysis shunt placed
    - On the same side as a mastectomy
    - On the side affected by a stroke

### **Steps for Obtaining Blood Pressure**

- You should try to use the same arm each time the blood pressure is taken

### **Right Size Cuff in the Right Place**

- The inflatable part should be long enough to encircle at least 80% of arm and wide enough to encircle 40% of arm at midpoint
- The lower edge should be centered two finger widths above the bend of the elbow and the midline of the bladder should be over the brachial artery pulsation

### **Steps for Obtaining Blood Pressure**

- **Palpate the pulse in the brachial artery**
- **Remove any obstructive clothing from between the blood pressure cuff and the arm**
  - The shirt sleeve can decrease the ability to hear the pulse sounds

### Steps for Obtaining Blood Pressure

- Place the cuff on the arm, checking the size and placement by use of the arrow or symbol on the cuff that should be over the artery

### Steps for Obtaining Blood Pressure

- Loosen the stopcock on the bulb by turning it several times before tightening closed
- Place the blood pressure gauge in good view
- The patient's arm should be supported and relaxed and placed at level even with his or her heart

### Impact of Incorrectly Obtaining Blood Pressure

Factor	Systolic (mmHg)
Cuff too small	10-40 ↑
Cuff over clothing	10-40 ↑ or ↓
Back/feet unsupported	5-15 ↑
Legs crossed	5-8 ↑
Arm tense	15 ↑
Not resting 3 to 5 minutes	10-20 ↑
Anxiety/white coat hypertension	As much as 30 ↑
Patient talking	10-15 ↑
Labored breathing	5-8 ↑
Full bladder	10-15 ↑
Arm below or above heart level	10 ↑ Or 10 ↓ For every 1 cm above or below heart, blood pressure varies by 0.8 mmHg

### Reading Blood Pressure

Inflate bladder quickly to 24-30 mmHg above patient's usual systolic pressure. 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.

Inflate the cuff 24-30 mm above patient's usual systolic pressure. While listening over the brachial artery, release air slowly at 2-4 mm per second.

The first two beats heard is the systolic pressure.

Sound muffling is first diastolic.

Sound disappearing is second diastolic.

Record systolic and second diastolic as the patient's blood pressure.

### The Importance of Blood Pressure Measurement

- High blood pressure is a major cause of heart attacks, heart failure, kidney damage, blindness, dementia and strokes
- Treatment of high blood pressure can dramatically decrease the risk of poor outcomes

### References

- Blood Pressure Measurement Toolkit: <http://dhs.wisconsin.gov/health/cardiovascular>
- Cardiovascular Health Program - ADPH: [www.adph.org/cvh](http://www.adph.org/cvh)
- American Society of Hypertension list of guidelines: [www.ash-us.org/About-Hypertension/Hypertension-Guidelines.aspx](http://www.ash-us.org/About-Hypertension/Hypertension-Guidelines.aspx)