

Blood Pressure



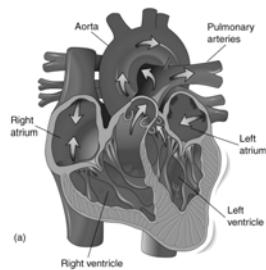
Blood pressure is...

- The force exerted against blood vessel walls
- Responsible for the flow of blood
- The result of:
 - Pumping action of the heart
 - Resistance of the blood vessels
 - Volume of blood



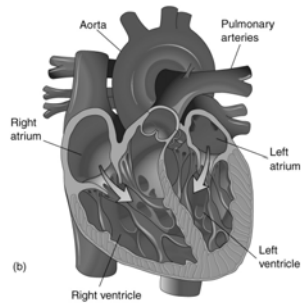
Pumping action of the heart...

- Systolic phase
- Systole
- Ventricles contract
- Blood flows to the body



Pumping action of the heart...

- Diastolic phase
- Diastole
- Heart relaxes



Blood pressure is...

- Recorded as a fraction 120/80
- Systolic pressure is the numerator
 - The first sound heard
- Diastolic pressure is the denominator
 - The change of sound or the last sound heard



Blood pressure sounds are...

- Auscultated through a stethoscope
- Sounds are correlated with the readings on a sphygmomanometer
- Blood pressure is recorded in millimeters of mercury (mm Hg)



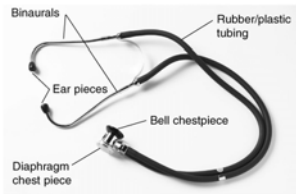
Blood pressure variations...

- **Determine baseline:**
 - From medical record
 - Systolic palpated pressure
- **Hypertension**
 - High blood pressure
- **Hypotension**
 - Low blood pressure
- **Orthostatic hypotension**
 - Decrease in B/P with position change from supine to erect



Stethoscope

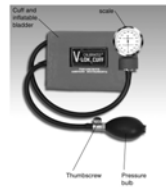
Figure 16.15
Parts of a Stethoscope



Aneroid Sphygmomanometer

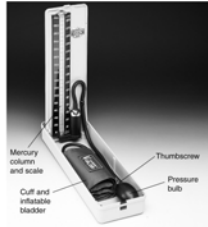
Figure 16.14
Aneroid Sphygmomanometer

Use the proper width cuff
Width should be approximately 80% of arm circumference



Mercury Sphygmomanometer

Figure 16.13
Mercury Sphygmomanometer



Korotkoff Sounds

- **Sounds auscultated while assessing B/P**
- **5 Phases:**
 - Phase I: first sound, sharp tapping sound - systolic pressure
 - Phase II: soft swishing sound
 - Phase III: rhythmic tapping sound
 - Phase IV: muffling / fading of tapping sound
 - Phase V: point at which all sounds disappear – diastolic pressure

Trouble-shooting

- **False high reading:**
 - Cuff too small
 - Cuff too loose
 - Slow cuff deflation
 - Column or dial not at eye level
 - Poorly timed: anxiety, exercise, after eating
- Take B/P first in infant or small child.



Trouble-shooting

- **False low reading:**
 - Incorrect position of arm or leg
 - Position at heart level
 - Failure to notice auscultatory gap
 - Sounds fade out for 10 to 15 mm Hg then return
 - Inaudibility of low volume sounds
 - Column or dial not at eye level

Blood pressure values

- **Systolic normal range 90 – 140 mm Hg**
- **Diastolic normal range 60 – 90 mm Hg**
- **Pulse pressure: difference between systolic & diastolic pressure, approximately 40 mm Hg**

Blood pressure readings...

- **Use same arm for readings**
- **Do not take B/P on arm with:**
 - An IV
 - Paralysis
 - Injury
 - A – V shunt
 - Edema