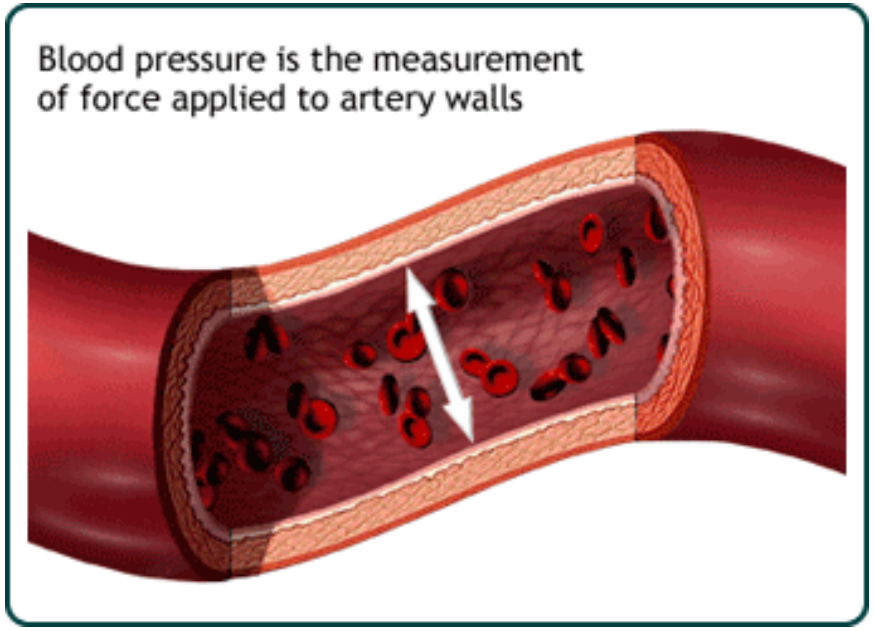
Blood Pressure Basics

What is blood pressure?

* The pressure that your blood exerts against your arteries as it is pumped through your body by the heart

* The pressure in the arteries *increases* when the heart beats and *decreases* while it is resting



http://www.cdc.gov/bloodpressure/about.htm

Measuring Blood Pressure
The Sphygmomanometer

* **The Sphygmomanometer is also called a *Blood Pressure Cuff***

Pump
Inflates the cuff to stop blood flow

Dial
Used to read blood pressure

Valve
Lets air out of the cuff, allowing it to deflate

Cuff
Used to temporarily stop blood flow

http://upload.wikimedia.org/wikipedia/commons/b/b9/CM-106.jpg

Measuring Blood Pressure
The Stethoscope

* A *stethoscope* allows you to hear your heart beat and your blood flow
* When used with a *sphygmomanometer*, you can hear the blood flow through your brachial artery, allowing you to measure your blood pressure

http://wakemedvoices.org/wp-content/uploads/2011/09/stethoscope.jpg

Measuring Blood Pressure
Procedure

* Sit comfortably with arm supported at heart level
* Snugly wrap the *sphygmomanometer* cuff around the upper arm, one inch above the elbow
* Place the stethoscope just above the crease of the elbow
* Pump the cuff to around 180-200 mmHg
* While listening with the *stethoscope*, slowly open the valve to let the pressure fall
  - When you first hear the beat of the blood flow, that is the *systolic* pressure
  - When you last hear the beat of the blood flow, that is the *diastolic* pressure

Reading Blood Pressure

* **Blood pressure is measured in mmHg, and given as a fraction**

$$\frac{120}{80}$$

Systolic Pressure
Pressure in the arteries while the heart beats

Diastolic Pressure
Pressure in the arteries while the heart rests

Variations in Blood Pressure

* **Abnormally high blood pressure is called *hypertension***
  - Any blood pressure reading greater than $\frac{140}{90}$ is considered high.
  - Hypertension is usually asymptomatic.
* **Abnormally low blood pressure is called *hypotension***
  - There is not a specific blood pressure value that is considered 'low.'
  - Symptoms define whether blood pressure is too low:
    - Dizziness
    - Blurred vision
    - Nausea
    - Fatigue

Hypertension

* Caused by both hereditary and behavioral factors
  - Diabetes
  - High-sodium diets
  - Smoking
  - Age
  - Genetic factors

* There are usually no symptoms of high blood pressure, but the consequences of untreated hypertension can be severe:
  - Heart disease
  - Heart failure
  - Kidney failure
  - General heart/artery damage