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

- **Pump**: Inflates the cuff to stop blood flow
- **Valve**: Lets air out of the cuff, allowing it to deflate
- **Dial**: Used to read blood pressure
- **Cuff**: Used to temporarily stop blood flow

The Sphygmomanometer is also called a *Blood Pressure Cuff*
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
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
Blood pressure is measured in mmHg, and given as a fraction.

- **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