



# CVD 101:

*An Introduction to Cardiovascular Disease*

September 5, 2014



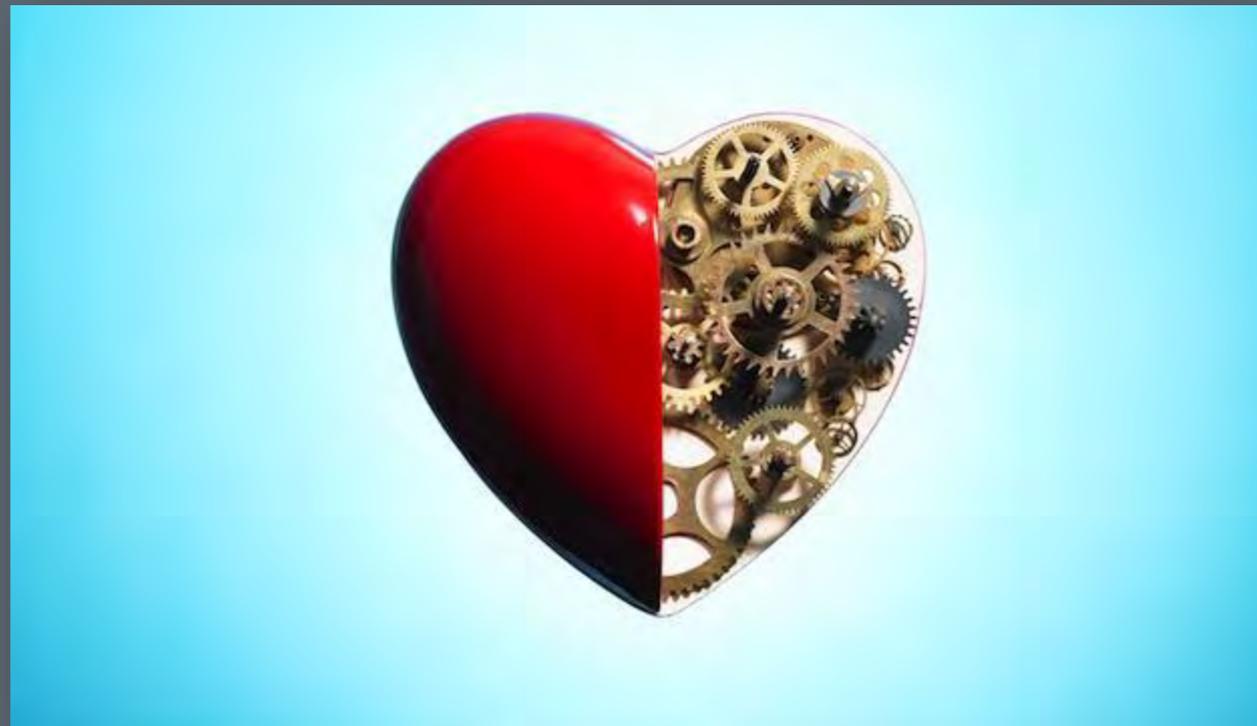
**COLORADO**  
Department of Public  
Health & Environment

# Course Objectives

- **Define and describe cardiovascular disease and its characteristics**
- **List modifiable and non-modifiable risk factors for cardiovascular disease**
- **Understand the basics of cardiovascular disease prevention**
- **Describe your role in supporting patients**

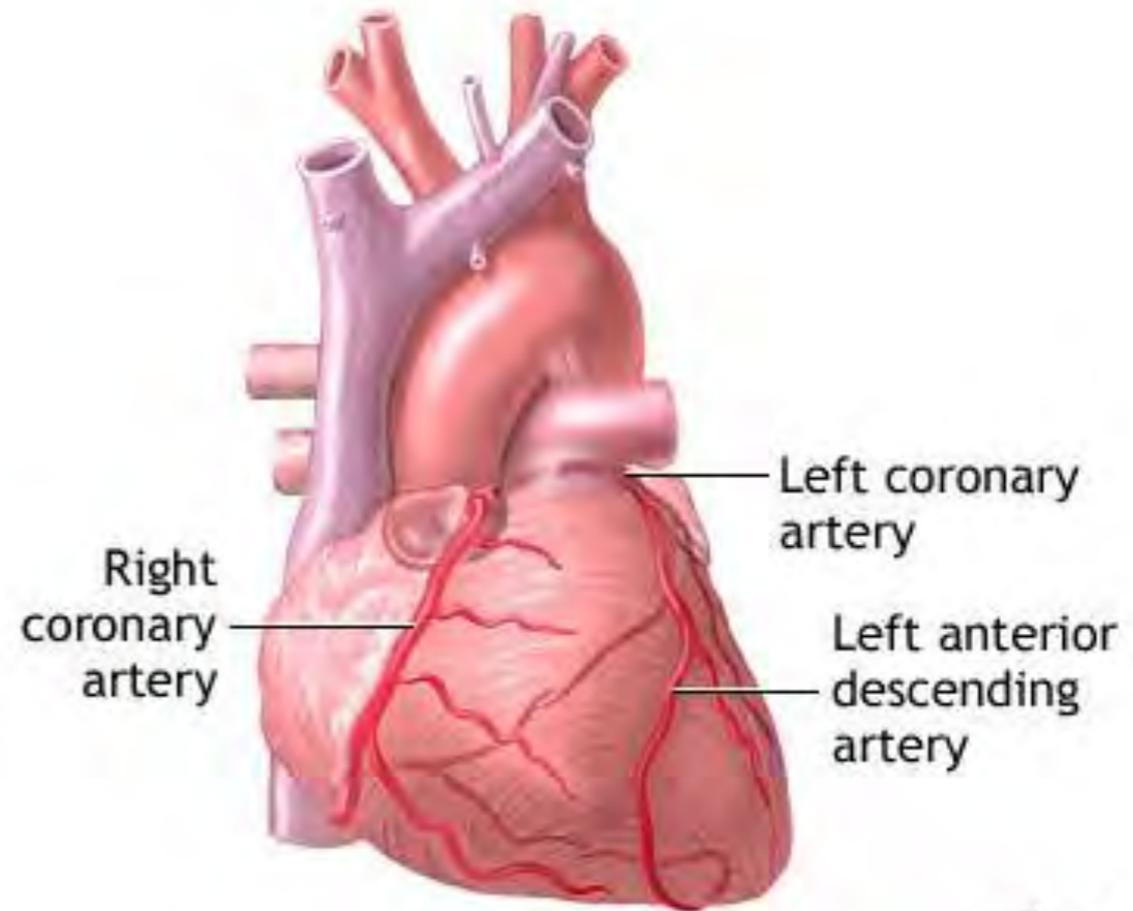
## Section 1

# How the Heart Works



# Essential Physiology

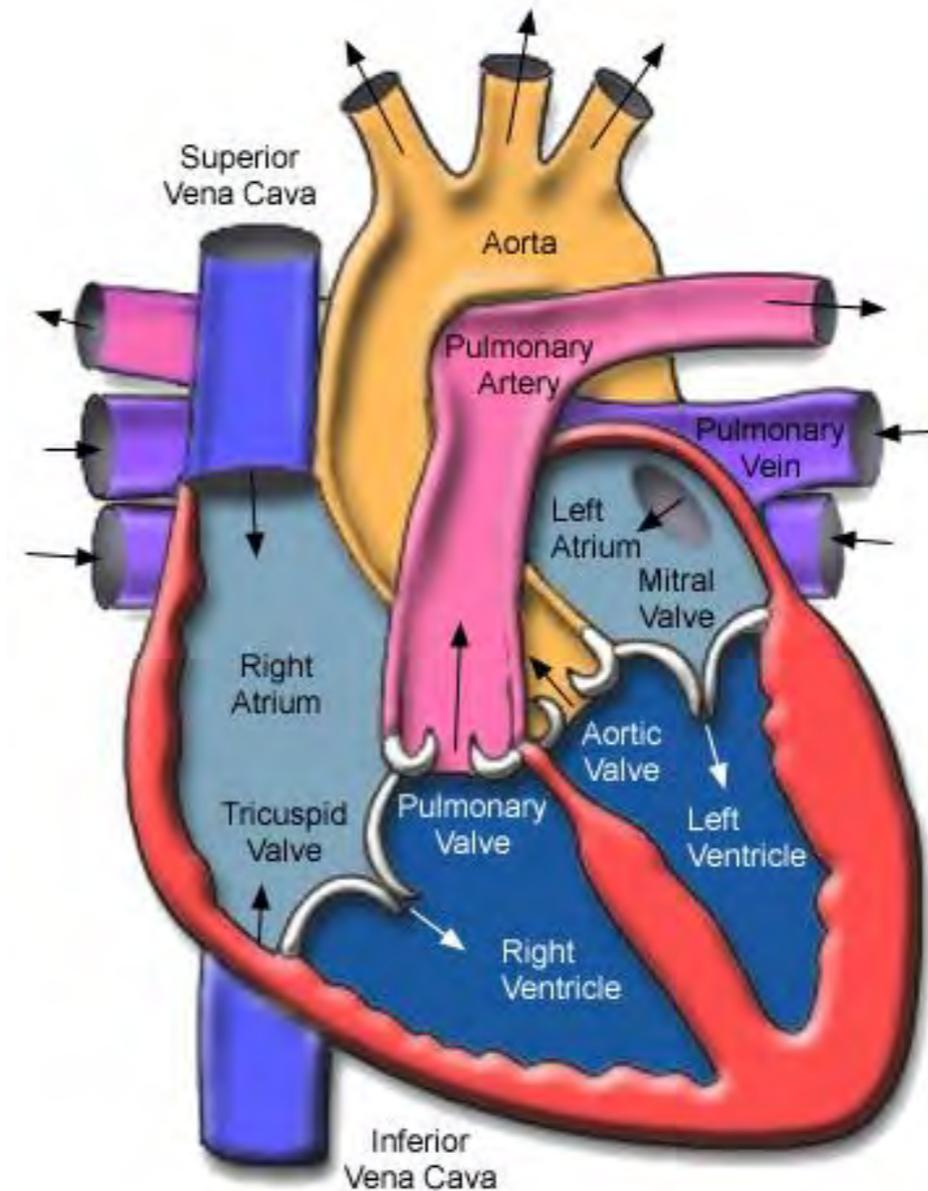
- The heart is a powerful muscle that pumps blood through the blood vessels, to every part of the body.
- It is located in the middle of the chest.



ADAM.

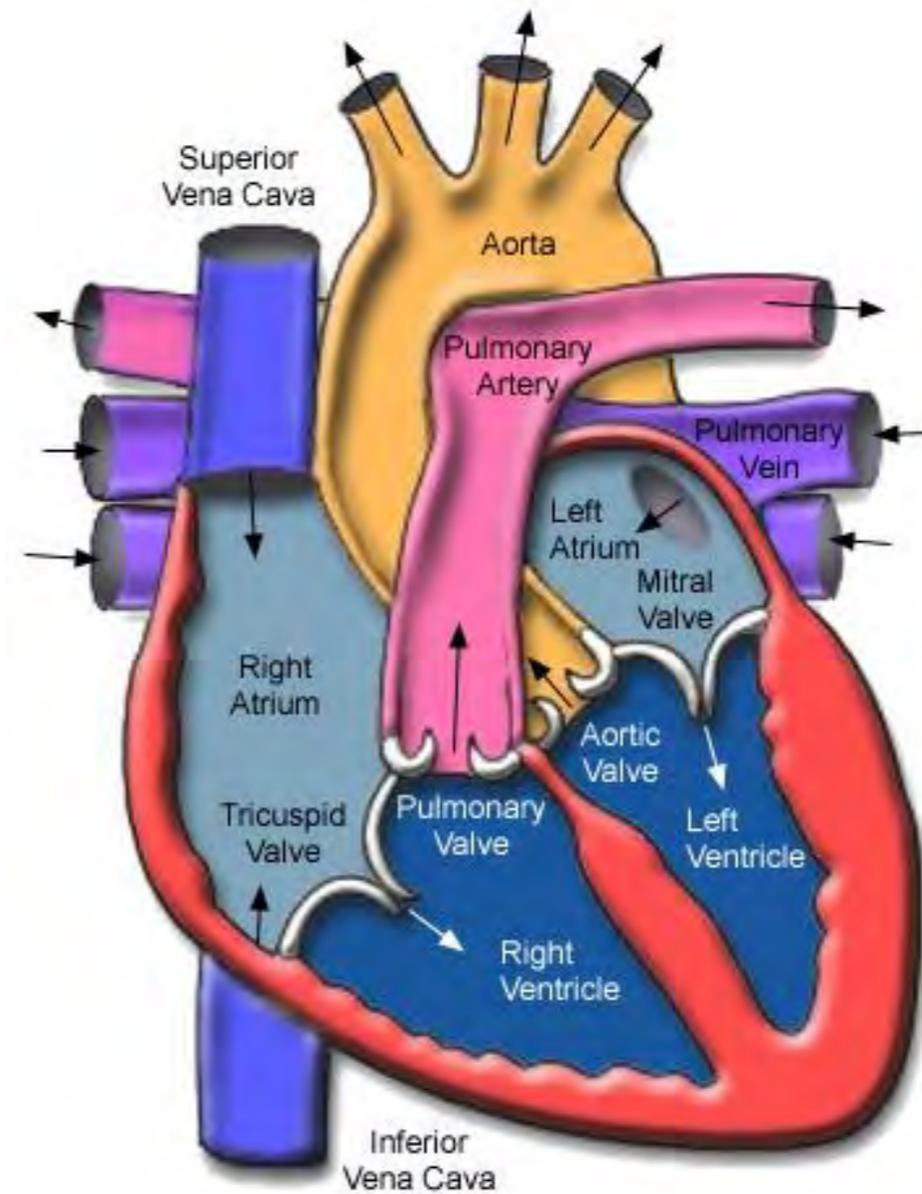
# How the Heart Works

- The right side of the heart collects blood that has already traveled through the body, which has given out most of the oxygen and nutrients
- It sends this blood to the lungs to get fresh oxygen and nutrients



# How the Heart Works

- The left side of the heart collects blood that is rich in oxygen and nutrients from the lungs
- It sends this blood circulating through the body to deliver fresh oxygen and nutrients



# How the Heart Works

- For you to stay alive, your heart needs to continually pump blood.
- If your heart stops for more than a few minutes, nutrients and oxygen can't get delivered, and organs of the body will be damaged.
- You will die unless the heart's pumping action is restored quickly.



# CVD: Defined

- Heart disease is often called **cardiovascular disease**.

**\*These are heart or blood vessel conditions that may lead to heart attack, stroke or chest pain(angina)**

- Many of these conditions are related to a process called **atherosclerosis**

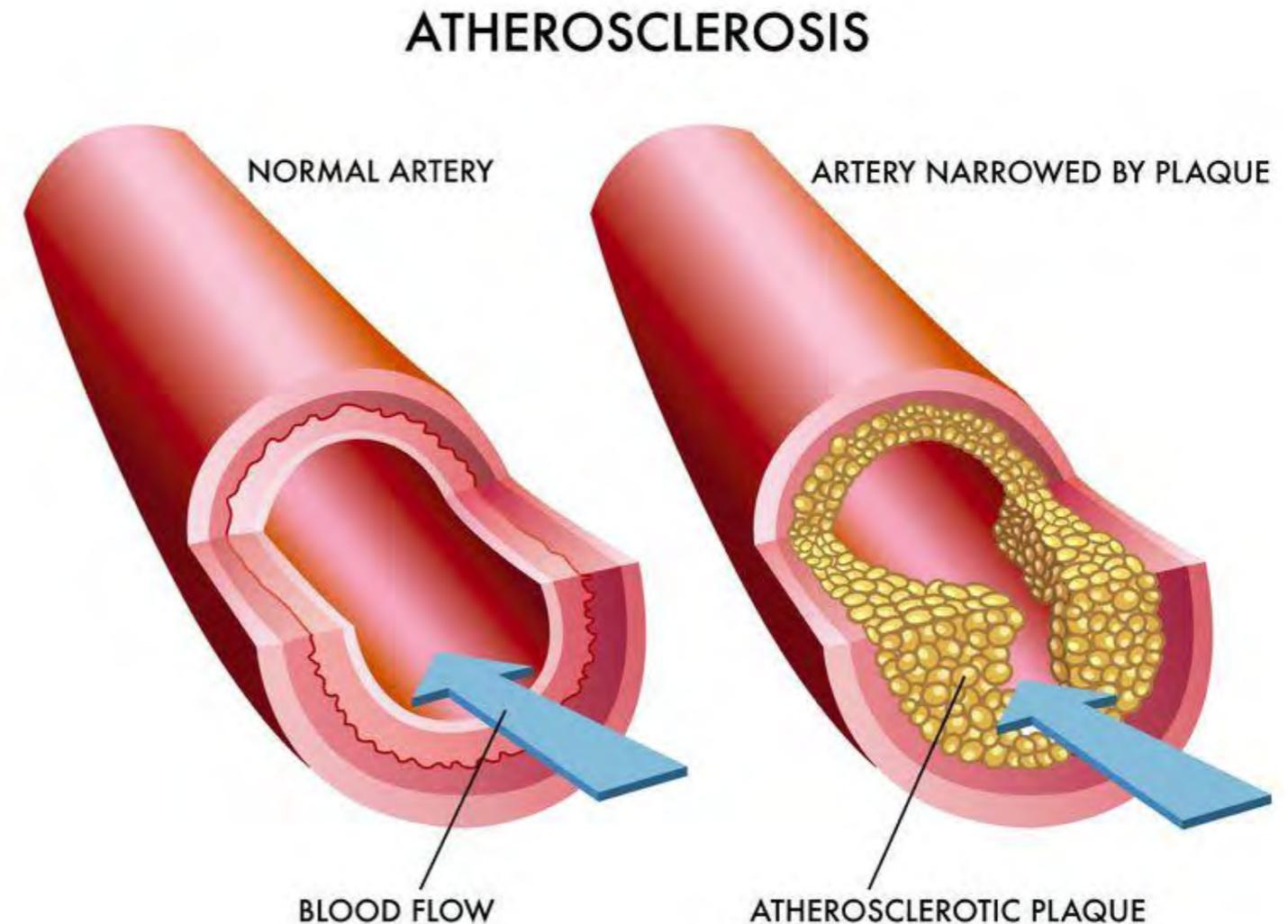
# CVD: Defined

- **Atherosclerosis** develops when a substance called **plaque** builds up in the walls of the arteries.
- This buildup **narrows the arteries**, making it harder for blood to flow through.
- If a **blood clot** forms, it can **stop the blood flow** → **heart attack** or **stroke**

# CVD: Defined

## ○ Coronary Artery Disease (CAD)

- Most common form of heart disease
- Leading cause of death in both sexes



# CVD: Defined

- **Heart Attack**

- **Blood flow to a part of the heart is blocked by a blood clot**
- **Without blood flow, the part of the heart muscle deprived of oxygen begins to die**



# CVD: Defined

- **Heart Attack-Symptoms**

Chest discomfort



Arm or back discomfort



Neck or jaw discomfort



Trouble breathing, with or without chest discomfort



Feeling light-headed or breaking into a cold sweat



Feeling sick or discomfort in your stomach

# CVD: Defined

- **Heart Failure**

- Heart muscle weakens and is unable to pump blood efficiently
- Body's need for blood and oxygen is not being met
- Symptoms can progress if untreated

# CVD: Defined

- **Heart Failure-  
Symptoms**



# CVD: Defined

- **Cerebrovascular Disease**
- **Ischemic Stroke (Clots)**
  - \*Blood vessel that feeds the brain gets **blocked**
  - \*Accounts for about **87%** of all stroke cases
- **Hemorrhagic Stroke (Bleeds)**
  - \*Blood vessel in the brain **bursts**
  - \*Typically caused by uncontrolled **high blood pressure**

# CVD: Defined

- **Stroke-**  
**Symptoms**



**SPOT A STROKE**

**F. | A. | S. | T.**

FACE  
DROOPING

ARM  
WEAKNESS

SPEECH  
DIFFICULTY

TIME  
TO CALL 911

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## Section 3

# Risk Factors



# What is a CVD Risk Factor?

- Risk factors are **traits and behaviors** that make it more likely that a person will get a disease
- Cardiovascular risk factors increase a person's chance of getting **cardiovascular disease**

# Types of Risk Factors

- **Non-Modifiable**

- \*Some factors cannot be changed

- **Modifiable**

- \*Some factors can be controlled, treated, or modified



# Non-Modifiable Risk Factors

- Previous heart attack or stroke
- Advancing Age
- Gender
- Race
- Family History



# Modifiable Risk Factors

- High blood pressure
- Obesity
- Tobacco Use
- Diet
- High Cholesterol
- Physical Inactivity
- Diabetes



# What is High Blood Pressure?

**Blood pressure** is made up of 2 numbers:

- **Systolic** (top number) is the pressure inside the arteries when the heart squeezes
- **Diastolic** (bottom number) is the pressure inside the arteries when the heart relaxes in between beats

## Know your numbers and what they mean



If you have diabetes, talk with your doctor about appropriate blood pressure levels.

# What is High Blood Pressure?

- **High blood pressure** (hypertension)  
increases a person's risk for heart attack and stroke
- \*Causes the heart to work harder than normal
- \*Heart and arteries more prone to injury

# What is High Blood Pressure?

<b>Blood Pressure Category</b>	<b>Systolic mm Hg (upper #)</b>		<b>Diastolic mm Hg (lower #)</b>
<b>Normal</b>	<b>less than 120</b>	<b>and</b>	<b>less than 80</b>
<b>Prehypertension</b>	<b>120 – 139</b>	<b>or</b>	<b>80 – 89</b>
<b>High Blood Pressure (Hypertension) Stage 1</b>	<b>140 – 159</b>	<b>or</b>	<b>90 – 99</b>
<b>High Blood Pressure (Hypertension) Stage 2</b>	<b>160 or higher</b>	<b>or</b>	<b>100 or higher</b>
<b><u>Hypertensive Crisis</u> (Emergency care needed)</b>	<b>Higher than 180</b>	<b>or</b>	<b>Higher than 110</b>

# Controlling Blood Pressure

- **Dietary changes**, which may include reducing salt
- Regular **physical activity**
- Maintain a healthy **weight**
- Manage **stress**
- Avoid **tobacco**
- **Medication** adherence
- Limit **alcohol**
- Practice **hot tub safety**

# What is Cholesterol?

- **Cholesterol** is a fat-like substance found in all cells of the body
- Cholesterol comes from **2 sources**: your **body** and **food**
- There are three types of fats: **LDL**, **HDL** and **triglycerides**
- The best way to measure cholesterol is by a **blood test**, after 9 to 12 hours of fasting

# LDL Cholesterol

- Termed “bad” cholesterol
- Contributes to plaque (atherosclerosis)
- Eating saturated fats, trans fats and cholesterol raises blood cholesterol
- The body naturally produces LDL cholesterol



# HDL Cholesterol

- Termed “good” cholesterol
- Helps find and remove LDL from arteries
-  HDL,  Risk of heart disease
- Genetics, type 2 diabetes, and certain drugs, can lower HDL cholesterol levels
- Smoking, being overweight and sedentary can also lower HDL

# Triglycerides

- The most common type of fat in the body
- Normal levels vary by age and sex
-  Triglycerides +  HDL or  LDL =  
 Atherosclerosis risk
- Weight, lifestyle, diet and family history impact levels

# Controlling Cholesterol

- **Dietary pattern-** emphasize fruits, vegetables, whole grains, low-fat dairy products, poultry, fish and nuts (DASH)
- **Physical Activity**
- **Tobacco Cessation**
- **Medication Therapy**



# What is Diabetes?

- Diabetes is a problem with the body that causes **blood sugar to rise higher than normal**.
- **Type 2 diabetes** is the most common form.
- In type 2 diabetes, the body does not use **insulin properly**.
- Insulin is necessary for the body to be able to use **sugar for energy**.

# The Diabetes-CVD Link

- Having diabetes can raise the risk of cardiovascular disease, because the high blood sugar can lead to blood vessel damage.
- This can lead to heart attacks or strokes.



# Type 2 Diabetes Risk Factors

- Overweight/obese
- Physical inactivity
- Family history
- Prediabetes
- Race or ethnicity
- High blood pressure
- Age
- History of gestational diabetes (diabetes while pregnant)

# Tobacco Use

- All tobacco products are harmful.
- Smoking is the most **preventable** cause of disease and death in the US.
- Smoking is a risk factor for heart disease and stroke, lung disease, and cancer.
- There are **resources** available to support patients who wish to quit.

## Section 4

# Understanding Your Role



# Patient Engagement

- How can *you* deliver service that is **meaningful** and provides the patient with information they can **understand**?



# The Problem



# The Problem

- 40-80% of **medical information** given is **forgotten** almost immediately; half retained is **incorrect**.<sup>1</sup>
- Physicians believed 89% of patients understood medication side effects, when in actuality only 57% of patients understood.<sup>2</sup>

1. Kessels, R.P (2003). Patients' memory for medication information. *Journal of Social Medicine*. 96(5); 219-222.
2. Training to Advance Physicians' Communication Skills. (n.d). Retrieved from AHRQ Website.

# Health Literacy

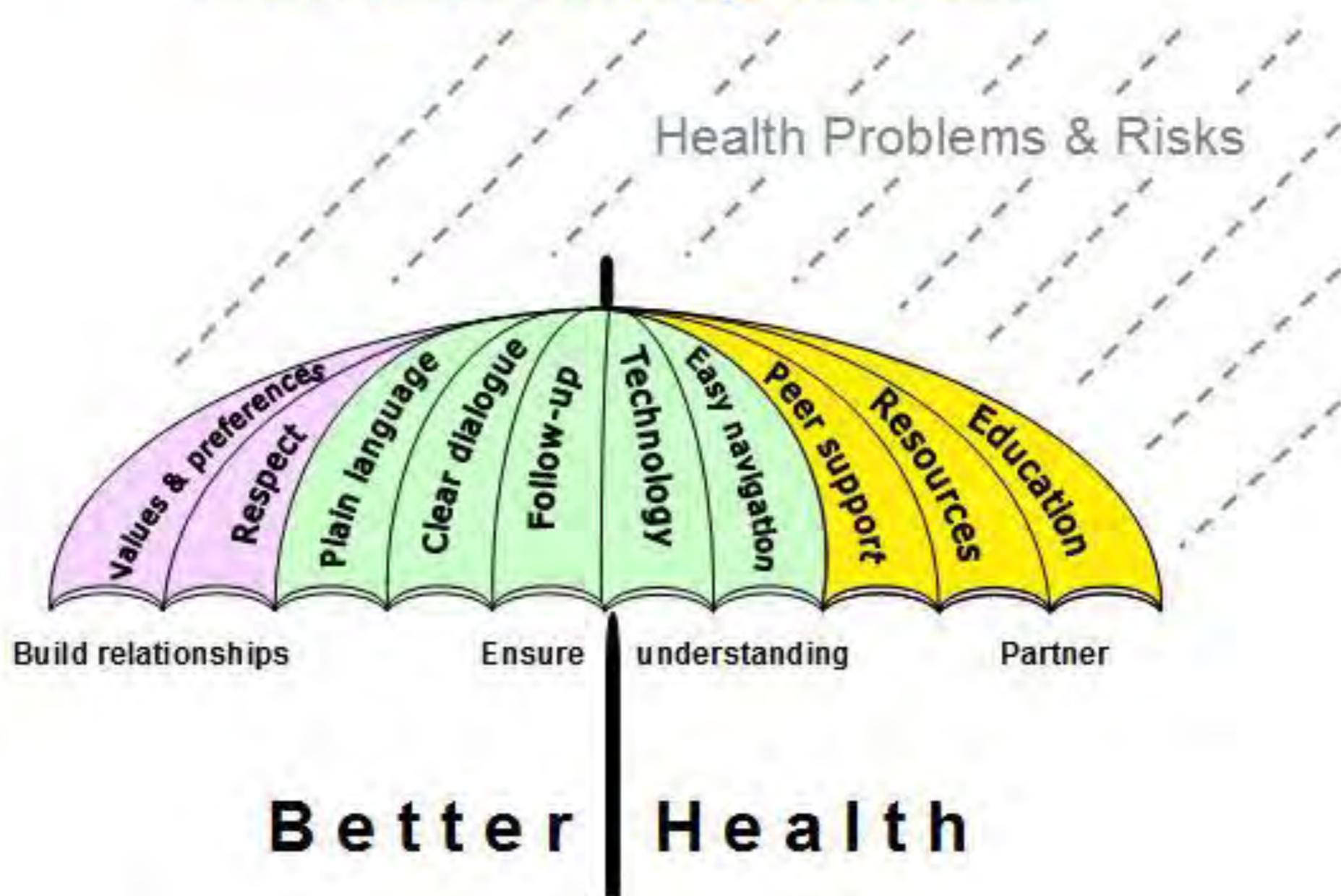
- The degree to which individuals have the capacity (**ability**) to **obtain**, **process** and **understand** basic health information and service needed to make appropriate health decisions.

# Health Literacy

- Low health literacy prevents:
  - **Understanding written/oral information** from healthcare providers
  - The ability to **follow directions** correctly
  - The ability to **navigate the health system** and obtain needed services

# Health Literacy

## The Health Literacy Umbrella



# Patient Engagement

- Listen: Assess patient concerns and feelings to determine patient readiness and priorities
- Understand behavior change and patient values. What motivates the patient?
- Avoid “to-do” lists and focus on *identifying* and establishing care priorities.
- Collaborate with patients *develop their care plan*, (not your care plan).

# Patient Engagement



<http://www.youtube.com/watch?v=8RcGyMenq08>

# Q & A