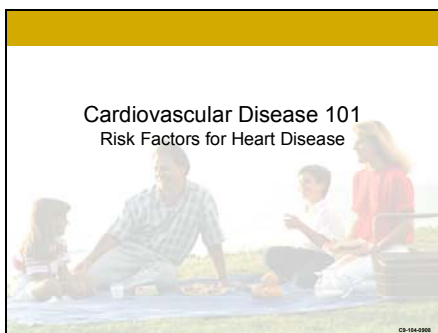


## Cardiovascular Risk Factors - script

### Slide 1




This presentation covers the types of CVD and their risk factors.

The source for this presentation is AHA Heart and Stroke Statistical Update, 2008 (*Circulation*. 2008;117:e25-e146.)

### Slide 2

**What is Cardiovascular Disease?**

- It is any disease of the heart – **cardio** and blood vessels - **vascular**
- Here are some examples:
  - **Coronary artery disease:** Blood flow to part of the heart is blocked causing injury or heart attack
  - **Arteriosclerosis:** Hardening of the arteries which causes high blood pressure or Hypertension
  - **Heart Failure:** the heart is not pumping blood as well as it should and, therefore, the body does not get all the blood and oxygen it needs.
  - **Atrial Fibrillation:** The atria quiver between 300 and 600 times per minute.



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Of 71 million American adults with one or more types of cardiovascular disease, 27 million are estimated to be 65 or older.

Cardiovascular disease includes a number of conditions affecting the structures or function of the heart (cardio) and blood vessels (vascular). They can include:

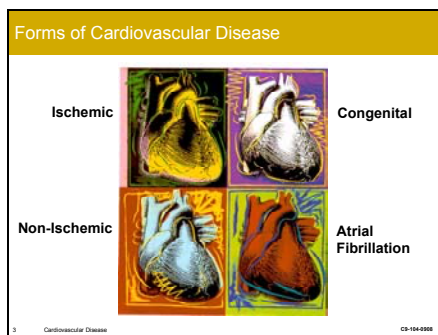
- Coronary heart disease, including myocardial infarction (heart attack) or angina (chest pain).
- Hardening of the Arteries (Atherosclerosis) – the inner walls of the arteries become narrower due to buildup of plaque.
- Heart Failure – the heart is not pumping blood as well as it should and, therefore, the body does not get all the blood and oxygen it needs.
- Stroke – a blood vessel that feeds the brain gets clogged or bursts; that part of the brain then can't function and neither can the part of the body it controls.

Other examples are:

- High Blood Pressure (Hypertension) – the force of blood pushing against blood vessel walls is too high (systolic 140 mmHg or greater and/or diastolic 90 mmHg or greater)
- Congenital cardiovascular disease

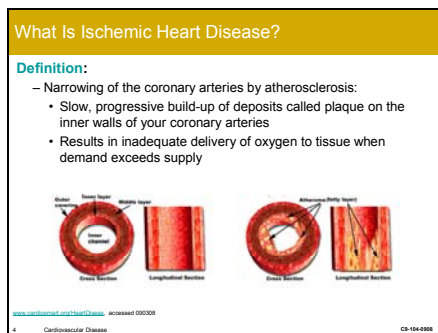
## Cardiovascular Risk Factors - script

### Slide 3



We will talk about these forms of cardiovascular disease and their risk factors.

### Slide 4



Ischemic heart disease is related to the arteries that feed the heart muscle.

Healthy arteries are normally clean, smooth and slick. The artery walls are flexible and can expand to let more blood through when necessary. Artery disease begins with an injury to the lining of the arterial walls. This injury makes the arteries susceptible to atherosclerosis.

Atherosclerosis comes from the Greek words athero (meaning gruel or paste) and sclerosis (hardness). It involves deposits of fatty substances, cholesterol, cellular waste products, calcium and fibrin (a clotting material in the blood) in the inner lining of an artery. The build-up that results is called plaque.

Atherosclerosis can affect any artery in the body.

Coronary artery disease (CAD) occurs when plaque builds up in the coronary (heart) arteries. CAD is a leading cause of death in the United States.

Carotid artery disease happens when plaque builds up in the carotid arteries (the arteries that supply blood and oxygen to your brain).

Peripheral arterial disease (PAD) occurs when plaque builds up in the major arteries of the legs, arms, and pelvis.

## Cardiovascular Risk Factors - script

### Slide 5

**What is Plaque?**

- Plaques are deposits of fat, cholesterol, calcium and other cellular sludge from your blood

As plaque builds up, it can become either stable or unstable. Unstable plaque is more prone to sudden rupture, a potentially life-threatening event.

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Plaque may partially or totally block the blood's flow through an artery. Two things that can happen where plaque occurs are:

- Bleeding (hemorrhage) into the plaque
- Formation of a blood clot (thrombus) on the plaque's surface
- If either of these occurs and blocks the entire artery, a heart attack or stroke may result.

### Slide 6

**Peripheral Artery Disease**

Atherosclerosis can affect any artery of your body.

- Peripheral artery disease (PAD) occurs when plaque builds up in the major arteries of the legs, arms, and pelvis.
- 8 million men and women  $\geq$  40 years of age have peripheral vascular disease
- PAD affects 12% to 20% of Americans 65 years of age

Cardiovascular Disease CS-104-0200

Peripheral artery disease (PAD) is a condition similar to coronary artery disease and carotid artery disease. In PAD, fatty deposits build up in the inner linings of the artery walls. These blockages restrict blood circulation, mainly in arteries leading to the kidneys, stomach, arms, legs and feet.

### Slide 7

**Coronary Artery Disease**

Blockage in right coronary artery

adam.com

Cardiovascular Disease CS-104-0200

Coronary artery disease (CAD), also known as coronary heart disease (CHD) or coronary atherosclerosis, involves the progressive narrowing of the arteries that nourish the heart muscle.

Often there are no symptoms, but if one or more of these arteries become severely narrowed, angina may develop during exercise, stress, or other times when the heart muscle is not getting enough blood.

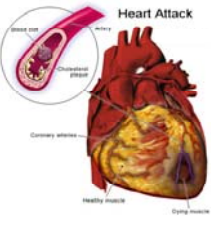
Coronary disease appears to be a lifelong process in some people, beginning at an early age and progressing slowly until the vessels become so occluded that the heart muscle no longer gets adequate nourishment.

## Cardiovascular Risk Factors - script

### Slide 8

**Myocardial Infarction (Heart Attack)**

- When a coronary artery is occluded oxygenated blood can't reach cells downstream causing:
  - **Ischemia** – low oxygen state leading to tissue hypoxia
  - **Infarction** – Area of tissue death due to lack of oxygen
  - **Arrhythmias**



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A heart attack (also known as a myocardial infarction) is the death of heart muscle from the sudden blockage of a coronary artery by a blood clot. Coronary arteries are blood vessels that supply the heart muscle with blood and oxygen. Blockage of a coronary artery deprives the heart muscle of blood and oxygen, causing injury to the heart muscle. Injury to the heart muscle causes chest pain and chest pressure sensation.

### Slide 9

**What is Ejection Fraction?**

- Ejection fraction, or "EF", is the percentage of blood that is pumped out of a filled ventricle during each beat (ejection).

Heart's pumping ability

35% or less	36-49%	50-75%
Low	Below Normal	Normal

- A low EF can be caused by:
  - Heart Attack
  - Long-term, uncontrolled blood pressure
  - Heart valve problems
  - Muscle damage (such as viral infection)
- A low EF is a serious health risk:

Cardiovascular Disease CS-104-0208

Your ejection fraction or "EF" is the percentage of blood that is pumped out of a filled ventricle during each beat (ejection). It essentially measures the capacity at which your heart is pumping and is used by doctors to diagnose and monitor heart failure and other heart diseases.

Your heart doesn't completely empty with a heart beat. About half of the blood is left; that is normal.

A low EF number can occur if your heart muscle has been damaged as a result of:

- Heart attack
- Long-term, uncontrolled blood pressure
- Heart valve problems
- Muscle damage (such as viral infection)

A low EF number is a serious health risk. If you're a heart patient with a low EF, you're at significantly higher risk for sudden cardiac arrest (SCA). SCA is a very dangerous health risk because it strikes without warning and there are no symptoms. It is fatal if not treated with defibrillation within minutes. SCA kills more than 325,000 people every year.

Ejection fraction is most commonly measured using an echocardiogram. Your doctor will recommend the test that is best for you.


## Cardiovascular Risk Factors - script

### Slide 10

**Ischemic Heart Disease – Myocardial infarction**

**Incidence:**

- In the year 2008 approximately 2 million Americans had a new or recurrent coronary attack
- Defined as myocardial infarction or fatal CHD
  - About 770,000 of these will be first attacks,
  - 430,000 will be recurrent attacks, and
  - 175,000 silent first heart attacks



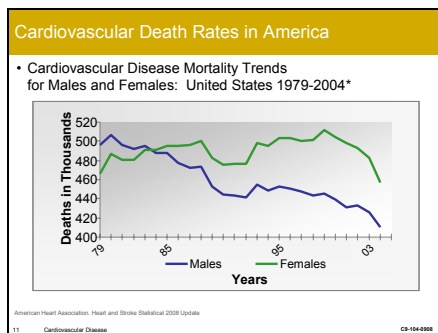
Every 26 seconds someone will have a coronary event; every minute someone will die from it.

American Heart Association, Heart and Stroke Statistical 2008 Update  
10 Cardiovascular Disease C9-104-0208

Every 26 seconds someone will have a coronary event; every minute someone will die from it.

Many terms are used interchangeably with coronary artery disease (CAD) which basically refers to disease of the coronary arteries. AHA uses the term “Coronary Heart Disease” and includes MI and angina in this category.

### Slide 11



Since the late 70's men have experienced a fairly steady decline in number of deaths from CV disease.

Much of this is due to improvements in cardiovascular research, medical and surgical interventional therapies, pharmacological advancements, and emphasis on lifestyle modifications.

Women on the other hand have did not experience a decline until the late 1990s. Why?

Heart disease was thought to be a man's disease, which did not affect females at the same rate.

The common belief was that males and females had the same disease presentation.

Women have been historically underrepresented in clinical trials, so there has been little data available about women. In 1993, women began to be included more in clinical trials, so in the past 10 years we were able to learn more about CVD in women.

As the number of female deaths from CVD increases, society is starting to look at this differently. Women's entry to the workplace has been accompanied by other changing sociocultural patterns that affect women's cardiovascular health.

The epidemic of obesity, physical inactivity and diabetes disproportionately affects women.

The rising death rate in women underscores the need for a new approach to cardiovascular care in women.

## Cardiovascular Risk Factors - script

### Slide 12

**Risk Factors for Ischemic Heart Disease:**  
Things you **can't** control

<b>AGE &amp; GENDER</b> Men over age 45 Women: - Over 55 with normal onset menopause - Over 45 with early menopause	<b>FAMILY HISTORY</b> of premature CAD 1. Definite MI or SCD 2. Parent or first-degree male or female relative under age 55
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The incidence of CAD in women lags behind men by 10 years for total CAD and by 20 years for more serious clinical events such as MI and sudden death.

### Slide 13

**Risk Factors for Ischemic Heart Disease:**  
Things you **can** control

<b>HYPERCHOLESTEROLEMIA</b> - LDL > 130 mg/dl - HDL < 40 mg/dl (men) - HDL < 50 mg/dl (women)	<b>DIABETES MELLITUS</b> - Increases CAD risk by 2-8x - Type I vs. Type II
<b>HYPERTENSION</b> Blood pressure >140/90 Prehypertension 120-139/80-89 Risk factor for CAD, stroke, & kidney disease Called "silent killer"	<b>SMOKING</b> Leading cause of heart disease & stroke Smoking raises BP and increases the risk of SCD
	<b>LIFESTYLE Choices</b> Sedentary lifestyle Obesity Stress

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Hypercholesterolemia a condition in which LDL ("bad") cholesterol levels are extremely high.

Diabetes: Raises the risk of heart disease 2 - 8x. This disease is a more powerful risk factor for heart disease in women than in men. Two-thirds of people with Diabetes Mellitus (DM) die of some form of heart or blood vessel disease.

Hypertension: Recent AHA update of prevention guidelines suggests BP be maintained below 130/85 for people with kidney damage or HF; and below 130/80 for people with diabetes.

Nicotine from cigarette smoke reduces oxygen in the blood, damages blood vessels and can trigger blood clots. Exposure to second hand smoke also increases cardiovascular risk. People who smoke are also at increased risk for stroke, lung cancer. Quitting begins to reduce cardiovascular risk immediately. Over time, the risk of heart disease returns to nearly normal.

Lifestyle: Inactivity increases risk of heart disease as much as 50%. Physical inactivity is associated with increased weight, higher cholesterol and diabetes, which all increase risk.

People who are about 30 pounds overweight are more likely to develop heart disease even if they have no other risk factors. Risk is greater if the weight is around the stomach instead of around the hips ("apple" versus "pear" shape)

Excess weight increases the risk of high blood pressure, high cholesterol, and triglycerides, Diabetes, coronary heart disease and stroke.

## Cardiovascular Risk Factors - script

### Slide 14

**Cholesterol: the good, the bad and the ugly**

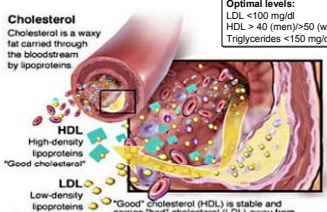
**Cholesterol**  
Cholesterol is a waxy fat carried through the bloodstream by lipoproteins

**Optimal levels:**  
LDL <100 mg/dl  
HDL >40 (men)>50 (women) mg/dl  
Triglycerides <150 mg/dl

**HDL**  
High-density lipoproteins  
"Good cholesterol"

**LDL**  
Low-density lipoproteins  
"Bad cholesterol"

"Good" cholesterol (HDL) is stable and carries "bad" cholesterol (LDL) away from the arteries. "Bad" cholesterol (LDL) sticks to artery walls and contributes to plaque build-up.



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5-7 years ago we understood much less than we now understand about the effect of cholesterol on the development of coronary disease. Many studies have examined aspects of cholesterol screening and treatment of elevated cholesterol. Earlier treatment is best. There has been a very big push to screen earlier for elevated cholesterol levels.

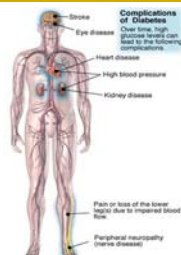
### Slide 15

**Diabetes**

- 1 ½ million new cases of diabetes were diagnosed in people 20 years of age in 2005.
- Among Americans 20 years of age, 9.6% have Diabetes Mellitus, and among those 60 years of age, 21% have DM. Men 20 years of age have a slightly higher prevalence (11%) than women (9%).

**Complications of Diabetes**  
Over time, high glucose levels can lead to the following complications:

- Stroke
- Eye disease
- Heart disease
- High blood pressure
- Kidney disease
- Pain or loss of the lower leg(s) due to impaired blood flow
- Peripheral neuropathy (nerve disease)



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Diabetes is a problem with the body's fuel system. It is syndrome of disordered metabolism, usually due to a combination of hereditary and environmental causes, resulting in abnormally high blood sugar levels caused by lack of insulin, a hormone made in the pancreas (an organ that secretes enzymes needed for digestion) that is essential for getting energy from food. There are two kinds of diabetes:

In type 1 diabetes, which usually starts in children, the body stops making insulin completely.

In type 2 diabetes, also called adult-onset diabetes, the body still makes some insulin, but cannot use it properly.

About 16 million people adults in the U.S have type 2 diabetes; in fact, type 2 diabetes accounts for 90 percent of all diabetes cases. Diabetes is treatable, not curable.

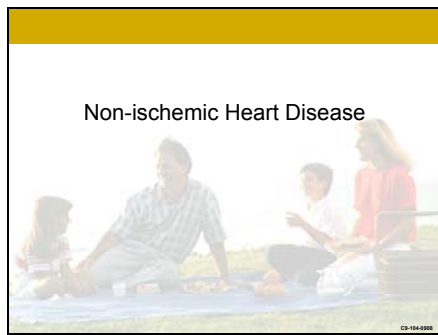
Diabetes often leads to blindness, heart and blood vessel disease, strokes, kidney failure, amputations, and nerve damage.

Uncontrolled diabetes can complicate pregnancy and put a mother at risk for having a baby with birth defects.

Obesity raises the risk for diabetes by as much as 93%, and an inactive lifestyle can raise it by as much as 25%.

## Cardiovascular Risk Factors - script

Slide 16

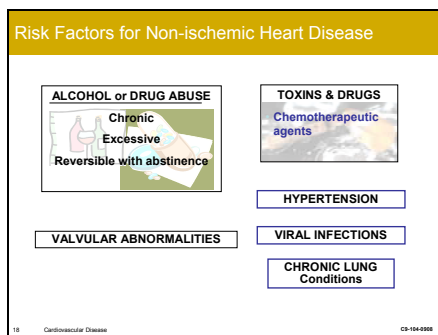


Another type of cardiovascular disease is non-ischemic heart disease, which is not caused by coronary artery disease.

Slide 17

Cardiomyopathy is a type of heart disease in which the heart is abnormally enlarged, thickened and/or stiffened, reducing its ability to pump.

Conditions that overwork the heart include high blood pressure (hypertension), valve disease, thyroid disease, kidney disease, diabetes mellitus or heart defect.



These are the most common causes of non-ischemic heart disease.

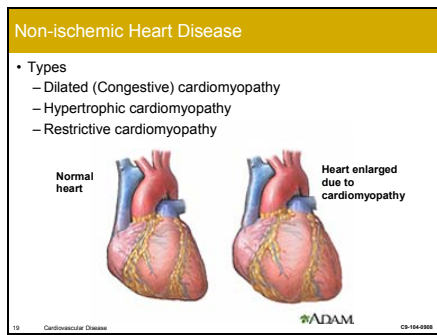
Alcohol abuse: For some individuals, alcohol behaves like a toxin to the heart and causes diminished cardiac muscle function. It is most common among middle-aged men. It is sometimes reversible with the cessation of alcohol consumption.

Toxins & Drugs: Most common example are drugs used to treat cancer or frequent use of cocaine.

Valvular Abnormalities: Heart valve defects, resulting in the inability of the heart valves to open or close completely with each heart beat, means the heart muscle has to pump hard to keep the blood moving. Untreated, the workload on the heart can become so great as to cause cardiomyopathy.

Hypertension and Chronic Lung Conditions: Uncontrolled high blood pressure doubles a person's risk of developing cardiomyopathy. If the pressure created by blood flow through the vessels of the circulatory system is too high, the heart has to pump harder to keep the blood circulating. Over time, the extra burden can thicken the heart muscle and eventually weaken the heart. Similar excess burden can occur with lung disease.

Viral Infections: Among known causes, the most common is thought to be acute myocarditis, an inflammation of the heart muscle due to a viral infection.



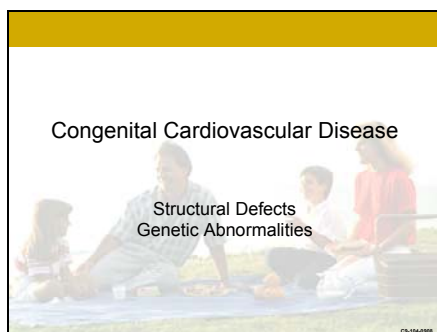
Non-ischemic cardiomyopathies where the primary pathology is outside the myocardium itself. Many diseases can result in cardiomyopathy. These include abnormal accumulations of iron in the liver and other organs, diabetes, hyperthyroidism and the muscular dystrophies.

Dilated cardiomyopathy (DCM), the most common form, is one of the leading indications for heart transplantation. In DCM the heart (especially the left ventricle) is enlarged and the pumping function is diminished. Approximately 40% of cases are familial, but the genetics are poorly understood compared with HCM. In some cases it manifests as peripartum cardiomyopathy, and in other cases it may be associated with alcoholism.

Hypertrophic cardiomyopathy (HCM or HOCM), a genetic disorder caused by various mutations in genes encoding sarcomeric proteins. In HCM the heart muscle is thickened, which can obstruct blood flow and prevent the heart from functioning properly.

Restrictive cardiomyopathy (RCM) is an uncommon cardiomyopathy. The walls of the ventricles are stiff, but may not be thickened, and resist the normal filling of the heart with blood.

From the Hypertrophic Cardiomyopathy Association.



Congenital refers to conditions present at birth.


# Cardiovascular Risk Factors - script

## Slide 21

**Congenital Abnormalities**

**Definition:**

- Incidence: About 40,000 babies are born each year with cardiovascular defects<sup>2</sup>
- In 2003, 25 000 cardiovascular operations for congenital cardiovascular defects were performed on children less than 20 years of age.
- At least 35 distinct types of defects are recognized<sup>1</sup>
  - Ventricular Septal Defect (VSD)
  - Valvular abnormalities
  - Abnormal connections among the veins, heart, and great arteries



1 American Heart Association, Statistics update, 2003  
2 Brannaman, Heart Disease, 2nd edition

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Patients born with heart problems have congenital heart disease. About 8 out of every 1000 babies are born with a disorder of the heart. They may have a variety of abnormalities of the heart valves, chambers, or great vessels.

Examples of the more common structural congenital defects include: septal defects, valvular stenosis or insufficiency, pulmonary stenosis, Tetralogy of Fallot (four defects-ventricular septal defect + displaced aorta + pulmonary stenosis + thickened RV), transposition of the great arteries. At least 35 distinct types of defects are recognized. Congenital heart disease is the most common of all major birth defects. About 1 million Americans with congenital CV defects are alive today.

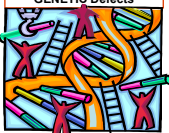
## Slide 22

**Risk Factors for Congenital Abnormalities**


**ALCOHOL or DRUG ABUSE DURING PREGNANCY**



**CHROMOSOMAL or GENETIC Defects**



**UNKNOWN in 90% of cases**



**MATERNAL VIRAL INFECTION, such as Rubella**


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The causes of congenital heart defects often are not known, but chromosomal or genetic defects, and infections such as rubella (measles) during pregnancy may play a role.

## Slide 23

**Congenital Abnormalities**

**Ventricular Septal Defect (VSD)**



- Most defects are correctable with surgery or catheter-based therapy<sup>1</sup>
- Arrhythmias develop post-operatively, sometimes years or decades later, as a result of scar tissue interrupting the conduction & may result in:<sup>1</sup>
  - Sinus node dysfunction
  - Heart block
  - Atrial or ventricular arrhythmias

A VSD is a hole between the left and right ventricles. In this image, a patch is seen over the hole. (This view is for illustration only. The actual operation is done through one of the heart's valves.)

1 American Heart Association

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Arrhythmias and conduction abnormalities can occur in adults with congenital heart disease who have had surgery, as a result of scar tissue development, interrupting the conduction system.

Ventricular Arrhythmias: PVCs occur in nearly 2/3 of some groups of adults with congenital heart disease. In general the more complicated the disease, the more operations, and the older the age at which surgery was done, the more frequent these extra beats. Sustained symptomatic VTs and VF obviously require more aggressive interventions.

Slide 24

**Congenital Abnormalities**

**Hypertrophic Obstructive Cardiomyopathy**

- *Hypertrophic* refers to an abnormal growth of muscle fibers in the heart muscle
- *Cardiomyopathy* is a disease in which the heart is abnormally enlarged, thickened and/or stiffened. As a result, the heart cannot pump blood as well as it should

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Hypertrophic CM (HCM) may also have an inherited connection, caused by an abnormality in the gene that codes the characteristics for the heart muscle. (HOCM, IHSS)

AHA 2008 Statistical Update states “recent studies show that 36% of young athletes who die suddenly have probable or definite hypertrophic CM.”

In HCM, the growth and arrangement of muscle fibers are abnormal, leading to thickened heart muscle walls. The greatest thickening tends to occur in the LV, reducing the size of the pumping chamber and obstructing blood flow.

HCM is rare, found in less than 2% of the US population.

Slide 25

**Congenital Abnormalities**

**Long QT Syndrome**

- Inherited type most common
- Dysfunction of ion channels
- First symptom often syncope

**Arrhythmogenic RV Dysplasia**

- Occurrence of 1/5,000
- Difficult to diagnose
- Causes V arrhythmias & HF, most commonly

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Normal QT interval varies based on heart rate; general rule of thumb is the QT should be no greater than half of the R-R interval.

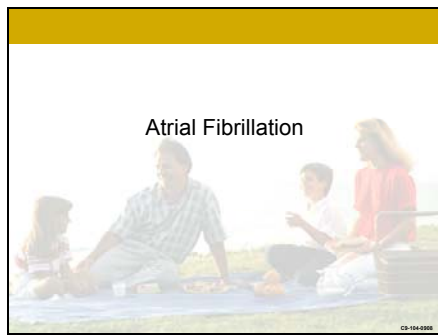
Long QT Syndrome is caused by a dysfunction of cells in the heart called ion channels. It is the flow of ions in and out of the cells that produce the heart's electrical activity. It is not known exactly how many people have LQTS, but the inherited type is thought to be a common cause of sudden, unexplained death in children and young adults.

Fainting is the primary symptom - and may be the only warning sign - of LQTS. Once a person has been diagnosed with the LQTS, all family members should be tested, including the parents, siblings and children of the affected individual.

Arrhythmogenic right ventricular dysplasia/cardiomyopathy (ARVD/C) is a cardiomyopathy that primarily affects the heart muscle in the right ventricle. Damaged muscle is replaced by fat and/or scar tissue in a spotty or diffuse process that starts on the outside surface of the right ventricle and replaces the heart muscle cells that die prematurely. This in turn can interfere with the normal smooth sequence of electrical activity that causes the heart muscle to contract and can lead to heart irregularities.

## Cardiovascular Risk Factors - script

Slide 26



Many patients have arrhythmias in the atrium

(This section was taken from [www.lifebeatonline.com](http://www.lifebeatonline.com), Atrial Fibrillation 101 and [www.mayoclinic.com/health/atrial-fibrillation](http://www.mayoclinic.com/health/atrial-fibrillation), accessed 090808)

Slide 27

**Atrial Fibrillation**

- Affects about 2.2 million people in the United States and about 6 million worldwide<sup>2</sup>
- Expected to grow by at least 200% over the next 35-45 years<sup>2</sup>
- Incidence of atrial fibrillation approximately doubles with each decade of adult life<sup>2</sup>

**Did you know?**

- The likelihood of developing atrial fibrillation increases with age. Three to five percent of people over 65 have the condition.<sup>1</sup>
- Treating atrial fibrillation is an important way to help prevent stroke. Your chances of having a stroke are five times higher if you have AF.<sup>1</sup>

1. American Heart Association website, [www.heart.org/ahajournals](http://www.heart.org/ahajournals), accessed May 27, 2008  
2. Fuster V, Rybin L, Alinger RW, et al. *J Am Coll Cardiol*. 2003;38:1086-94.

Cardiovascular Disease CS-104-0308

According to the American Heart Association, about 2.2 million Americans have a heart condition or rhythm called atrial fibrillation (AF). That makes it the most common heart rhythm abnormality.

Slide 28

**Risk Factors for Atrial Fibrillation**

<b>FAMILY HISTORY</b> Genetics Heart Disease History of MI Surgery	<b>ALCOHOL or DRUG ABUSE</b> Chronic Excessive Reversible with abstinence
<b>AGE</b> Over 65	<b>UNKNOWN</b> in 10% of cases
<b>Other chronic conditions</b> Thyroid problems High blood pressure Sleep apnea	

Cardiovascular Disease CS-104-0308

Age. The older you are, the greater your risk of developing atrial fibrillation. As you age, the electrical and structural properties of the atria can change. This may lead to the breakdown of the normal atrial rhythm.

Heart disease. Anyone with heart disease, including valve problems, history of heart attack and heart surgery, faces an increased risk of atrial fibrillation.

Other chronic conditions. People with thyroid problems, high blood pressure, sleep apnea and other medical problems have an elevated risk of atrial fibrillation.

Alcohol use. Use of alcohol, especially binge drinking, can trigger an episode of atrial fibrillation.

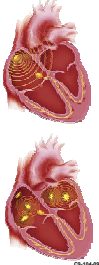
Family history. An increased risk of atrial fibrillation runs in some families. In some of these cases, specific genes have been identified as the likely cause of atrial fibrillation.

## Cardiovascular Risk Factors - script

### Slide 29

**What is Atrial Fibrillation?**

- An abnormally fast and chaotic heart rate in the atria
- Electrical signals start irregularly from many areas in the atria
- Disorganized electrical signals cause the atria to quiver
- It can create an irregular heart rhythm in the ventricles



29 Cardiovascular Disease C9-104-0292

Atrial fibrillation (AF) is a common heart rhythm in which there is an abnormally fast and chaotic heart rate in the heart's upper chambers (atria).


In a normal heart, the heart's electrical system sends out a signal that tells your heart to beat. Normally, this signal comes from the sinoatrial node, or SA node, in the right atrium.

During AF, signals start irregularly from several areas in the atria. These disorganized electrical signals occur so quickly that only some of them are transferred to the ventricles. The atria quiver rapidly and irregularly, instead of beating in a regular rhythm. AF prevents the atria and ventricles from working together properly. This can decrease your heart's pumping by as much as 20 to 30 percent.

### Slide 30

**Symptoms from Atrial Fibrillation**

- People with AF may experience one or more of the following symptoms:
  - Heart palpitations—sudden pounding, fluttering, or racing feeling in the chest
  - Lack of energy, feeling tired
  - Dizziness—a feeling of faintness or light-headedness
  - Chest discomfort—pain, pressure or discomfort in the chest
  - Shortness of breath



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People with AF may experience one or more of the following symptoms:

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- Chest discomfort—pain, pressure or discomfort in the chest
- Shortness of breath

### Slide 31

**Treatments for Atrial Fibrillation**

- No matter which AF treatment you receive, the goals may include:
  - Restoring normal heart rhythm
  - Controlling the heart rate
  - Preventing stroke
- Treatments include:
  - Medication
  - External cardioversion
  - Ablation
  - Surgery

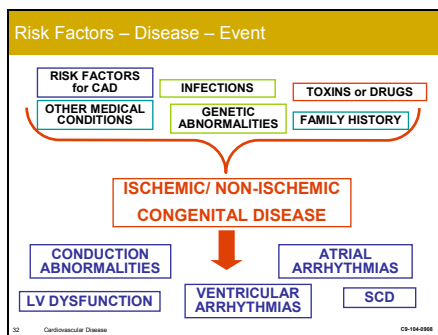


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There are a number of treatments available for AF. Your doctor will choose a treatment for you based on your heart's rhythm, symptoms, and any other medical conditions you may have.

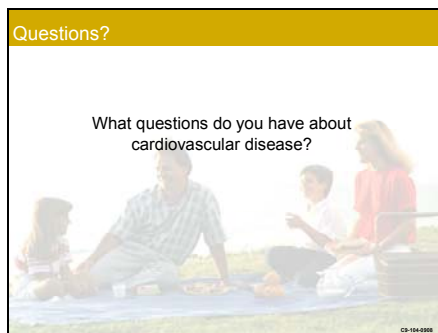
# Cardiovascular Risk Factors - script

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In summary, cardiovascular disease results from a number of risk factors that may be in your control. Other risk factors are based on gender, genes or age. The cardiac events may be diagnosed by symptoms or diagnostic testing. The end results of the events can be deadly.

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