



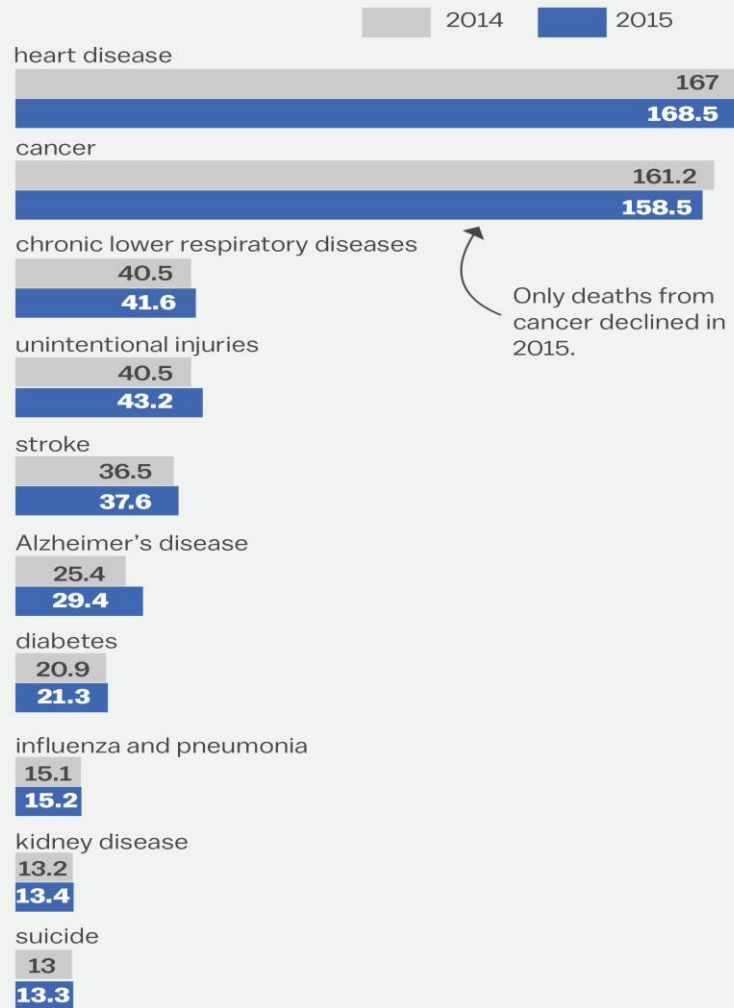
# Heart Disease 2

Heart Attack

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## Only one major cause of death in the US saw a decline in 2015

Rate of death for every 100,000 people



# Top 10 killers

Source: National Vital Statistics System  
Credit: Sarah Frostenson

Vox

- Heart disease describes a range of conditions that affect your heart. Diseases under the heart disease umbrella include blood vessel diseases, such as coronary artery disease; heart rhythm problems (arrhythmias); and heart defects you're born with (congenital heart defects), among others.

- (<http://www.mayoclinic.org/diseases-conditions/heart-disease/basics/definition/con-20034056>)

# Heart disease definition

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- Disease affecting the heart are including:
    - Coronary artery disease (coronary artery are the arteries feeding the heart with blood) (heart attack),
    - heart rhythm disorders (A fib, v fib, heart blocks),
    - congenital heart defects (heart problems one was born with),
    - heart muscle disease (CHF, valve problems).
-

- For You have formed my inward parts; You covered me in in my mother's womb.
- I will praise You; for I am fearfully and wonderfully made; Marvelous are Your works; and that my soul knows very well.
- My frame (substance) was not hidden from You, When I was made in secret, and skillfully wrought in the lowest parts of the earth.
- Your eyes saw my substance, being yet unformed. And in your book they all were written, The days fashioned for me, When as yet there were none of them

## **Ps 139: 13- 16**

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- Every 43 sec one person in US has a heart attack.
- Every year, about **735,000 Americans** have a heart attack.
- Of these cases:
  - 525,000 are a first heart attack.
  - 210,000 happen to people who have already had a first heart attack
- One of 5 heart attacks is silent—the damage is done, but the person is not aware of it.

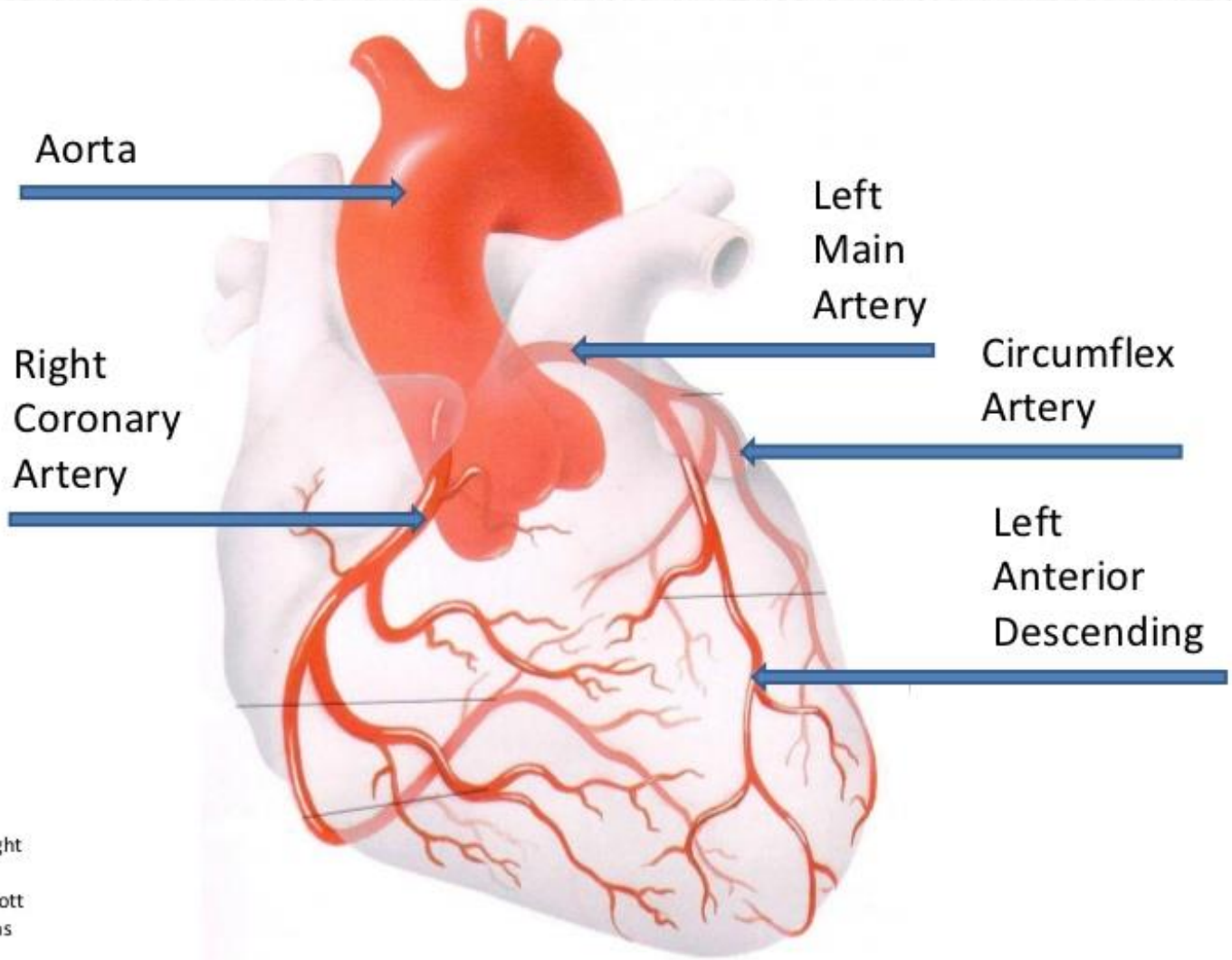
• ([https://www.cdc.gov/heartdisease/heart\\_attack.htm](https://www.cdc.gov/heartdisease/heart_attack.htm))

# Statistics

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- Your heart muscle needs oxygen to survive. A heart attack occurs when the blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely. This happens because **coronary arteries** that supply the heart muscle with blood flow can slowly become narrow from a buildup of fat, cholesterol and other substances that together are called plaque. This slow process is known as atherosclerosis. When a plaque in a heart artery breaks, a blood clot forms around the plaque. This blood clot can block the blood flow through the heart muscle. When the heart muscle is starved for oxygen and nutrients, it is called ischemia. When damage or death of part of the heart muscle occurs as a result of ischemia, it is called a heart attack or myocardial infarction (MI). About every 40 seconds, someone in the United States has a myocardial infarction (heart attack).

- ([http://www.heart.org/HEARTORG/Conditions/HeartAttack/AboutHeartAttacks/About-Heart-Attacks\\_UCM\\_002038\\_Article.jsp#.WPGGt4WWhoio](http://www.heart.org/HEARTORG/Conditions/HeartAttack/AboutHeartAttacks/About-Heart-Attacks_UCM_002038_Article.jsp#.WPGGt4WWhoio))
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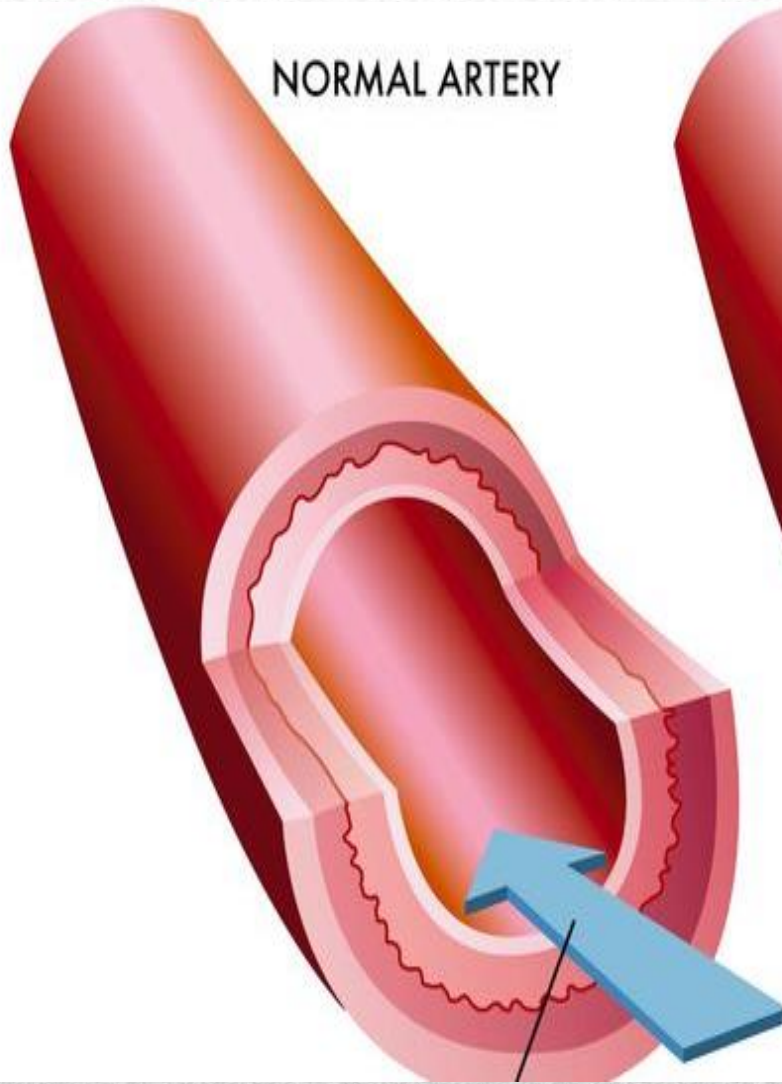
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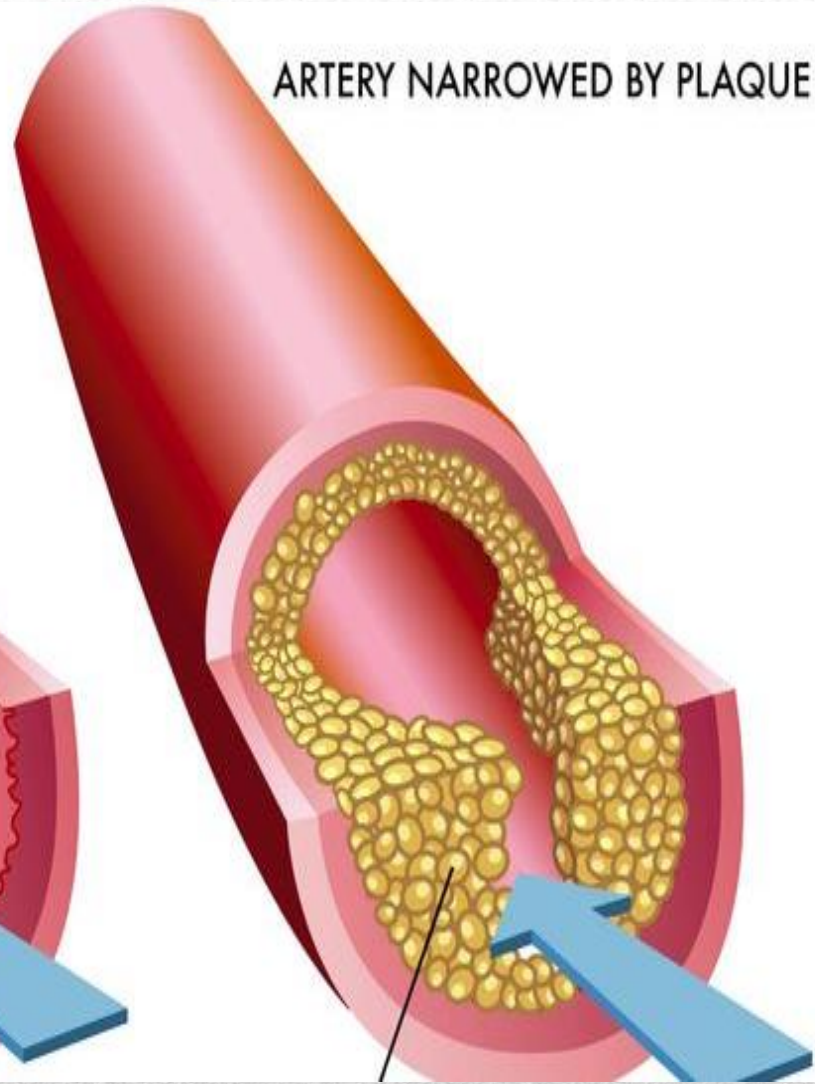
- Your heart muscle needs oxygen to survive. A heart attack occurs when the blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely. **This happens because coronary arteries that supply the heart muscle with blood flow can slowly become narrow from a buildup of fat, cholesterol and other substances that together are called plaque. This slow process is known as atherosclerosis. When a plaque in a heart artery breaks, a blood clot forms around the plaque. This blood clot can block the blood flow through the heart muscle.** When the heart muscle is starved for oxygen and nutrients, it is called ischemia. When damage or death of part of the heart muscle occurs as a result of ischemia, it is called a heart attack or myocardial infarction (MI). About every 40 seconds, someone in the United States has a myocardial infarction (heart attack).

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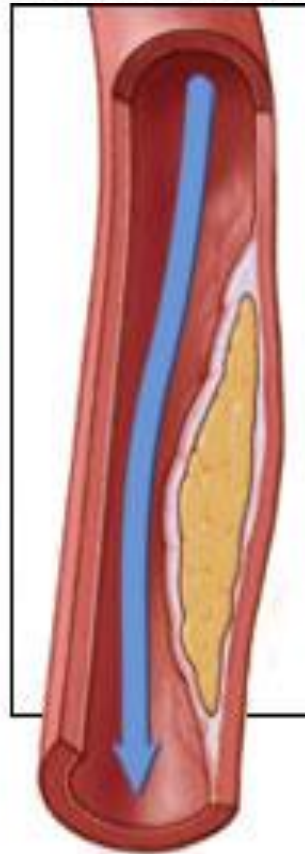
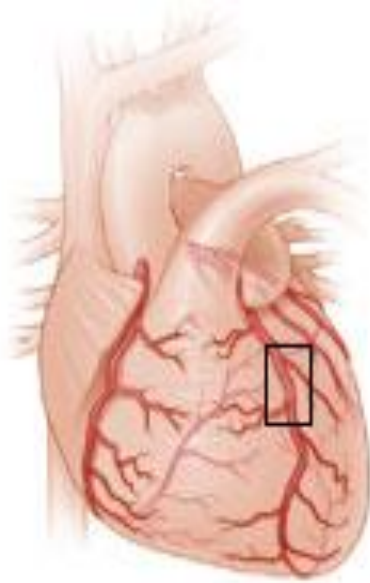
NORMAL ARTERY



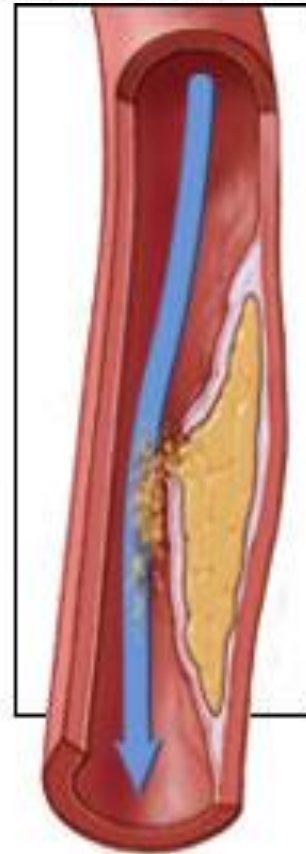
ARTERY NARROWED BY PLAQUE



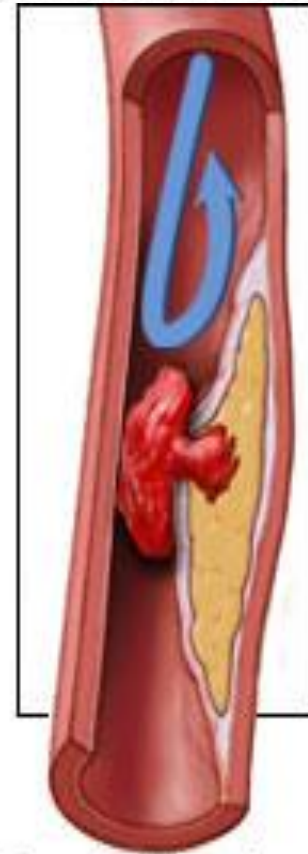




Plaque with  
fibrous cap



Cap  
ruptures



Blood clot forms  
around the rupture,  
blocking the artery

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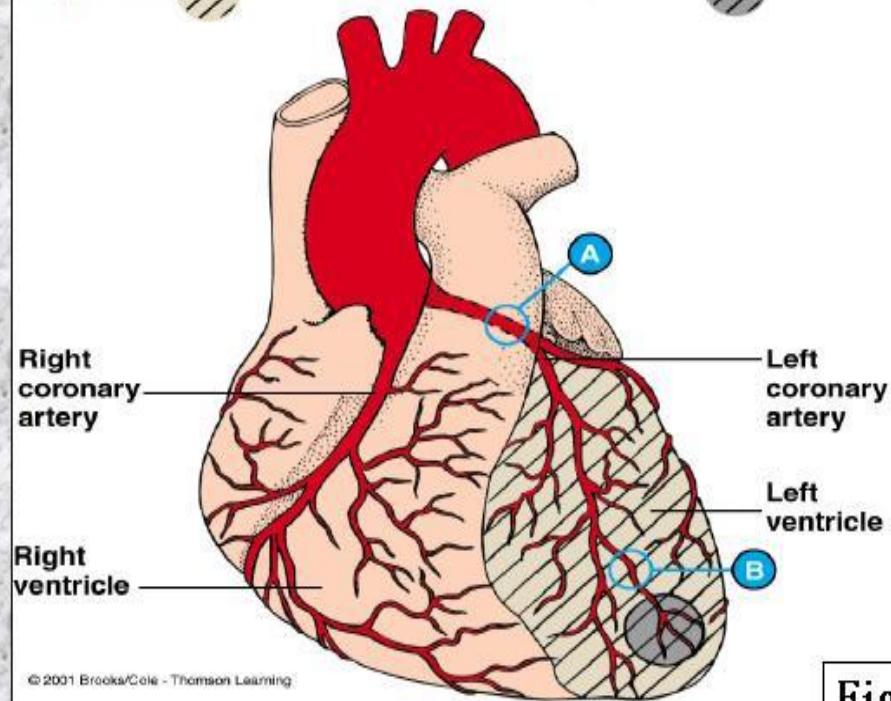
- ([http://www.heart.org/HEARTORG/Conditions/HeartAttack/AboutHeartAttacks/About-Heart-Attacks\\_UCM\\_002038\\_Article.jsp#.WPGGt4WHoio](http://www.heart.org/HEARTORG/Conditions/HeartAttack/AboutHeartAttacks/About-Heart-Attacks_UCM_002038_Article.jsp#.WPGGt4WHoio))
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# Coronary Artery Blockage and Myocardial Damage

Area of cardiac muscle deprived of blood supply if coronary vessel is blocked at point A:



Area of cardiac muscle deprived of blood supply if coronary vessel is blocked at point B:



© 2001 Brooks/Cole - Thomson Learning

Fig 9-35



**Call 911**

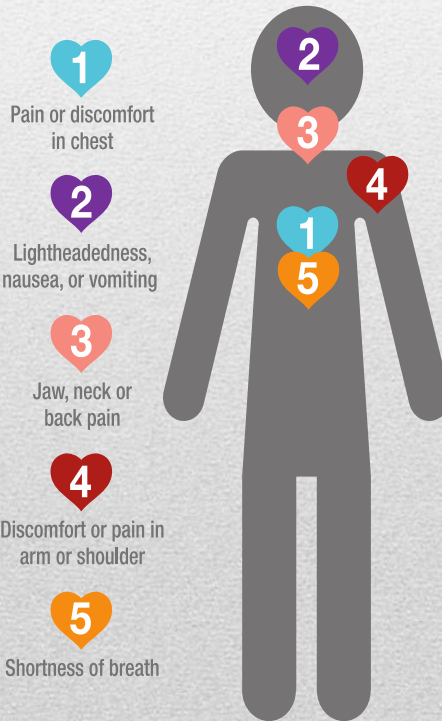
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- Time is tissue





# Common Heart Attack Warning Signs



Learn more at [Heart.org/HeartAttack](http://Heart.org/HeartAttack).

## • **Heart Attack Signs in Women**

- Uncomfortable pressure, squeezing, fullness or pain in the center of your chest. It lasts more than a few minutes, or goes away and comes back.
- Pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- Shortness of breath with or without chest discomfort.
- Other signs such as breaking out in a cold sweat, nausea or lightheadedness.
- As with men, women's most common heart attack symptom is chest pain or discomfort. But women are somewhat more likely than men to experience some of the other common symptoms, particularly shortness of breath, nausea/vomiting and back or jaw pain.

- ([http://www.heart.org/HEARTORG/Conditions/HeartAttack/WarningSignsofaHeartAttack/Heart-Attack-Symptoms-in-Women\\_UCM\\_436448\\_Article.jsp#.WQE1PIWHoio](http://www.heart.org/HEARTORG/Conditions/HeartAttack/WarningSignsofaHeartAttack/Heart-Attack-Symptoms-in-Women_UCM_436448_Article.jsp#.WQE1PIWHoio))
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- M – morphine
  - O – Oxygen
  - N – ntrioglycerine
  - A - aspirin
-

- Electrocardiogram or EKG/ECG,
- serial cardiac enzymes,
- stress test,
- cardiac catheterization.

# Diagnostic tests

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Serial cardiac enzymes

Stress test

Treatment according to the results from these tests

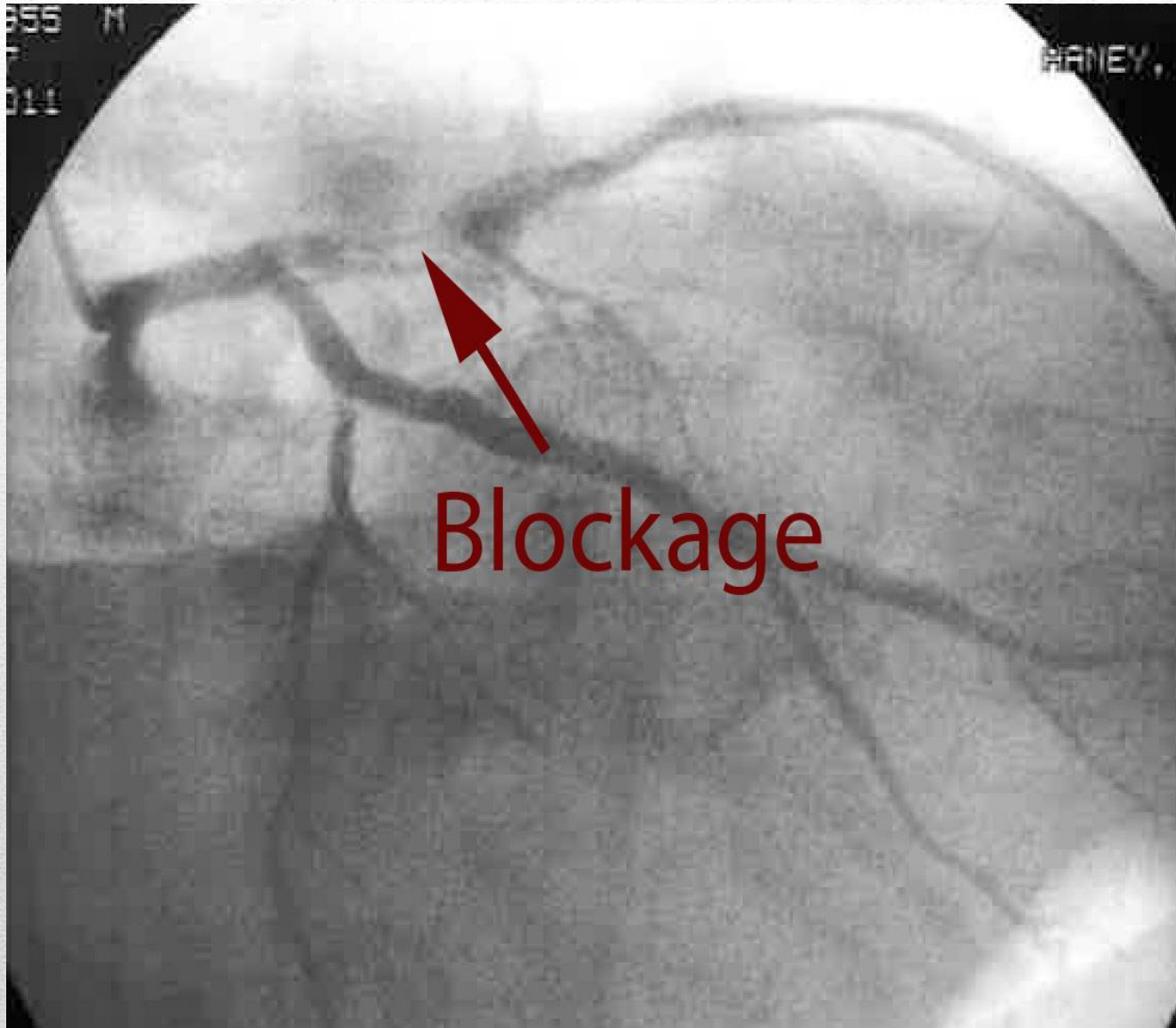
**No EKG changes**

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Emergency cardiac catheterization and treatment accordingly

**EKG changes**

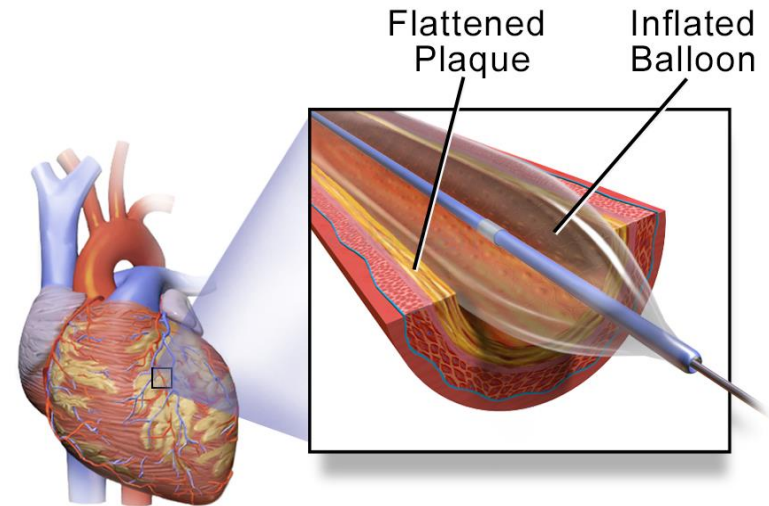
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Blockage

- Balloon angioplasty – a balloon is inflated and the plaque is compressed on the blood vessels walls. This will make the opening a little bigger

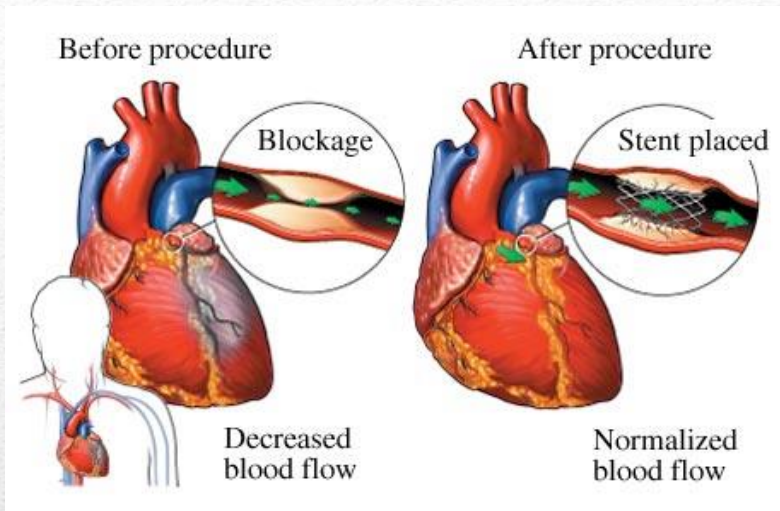
**Angioplasty - Balloon Inflating in Artery**



# Emergency treatment

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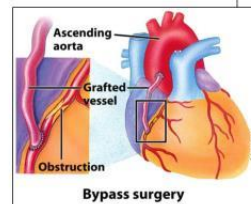
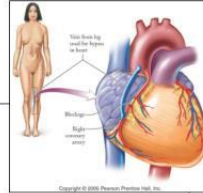
- Stent placement – stent is a metal mesh placed over the plaque that is permanently pushing the plaque against the blood vessel walls. I need to mention that there are different kinds of stents, however these stents can reocclude.

# Emergency treatment

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## CORONARY ARTERY DISEASE TREATMENTS

### Coronary Bypass Surgery:



- Open heart surgery called CABG (coronary artery bypass graft) will take a piece of a vein from the leg and will be connected in such a way to bypass the blocked area. This surgery can be emergent or non-emergent

# Emergency treatment

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• ([https://www.cdc.gov/heartdisease/heart\\_attack.htm](https://www.cdc.gov/heartdisease/heart_attack.htm))

# Statisites

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- Tobacco use
- Periodontal disease
- Erectile dysfunction
- Rheumatoid arthritis
- Career fields -firefighters, EMT's
- Lupus
- Psoriasis
- Xanthelasma
- Migraine
- Post breast cancer
- Restless leg syndrome
- Psychosocial issues
- Retinal
- Hypothyroidism
- Uric acid-gout
- Polycystic ovary syndrome
- Pre-eclampsia
- Obstructive sleep apnea
- Insulin resistance
- Diabetes
- Blood pressure
- Heart rate >75
- Metabolic syndrome
- Renal disease
- GGT

**“Red flags” should prompt additional screening**

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- Therefore, whether you eat or drink, or whatever you do, do all to the glory of God.

**1Corinthians 10:31**

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