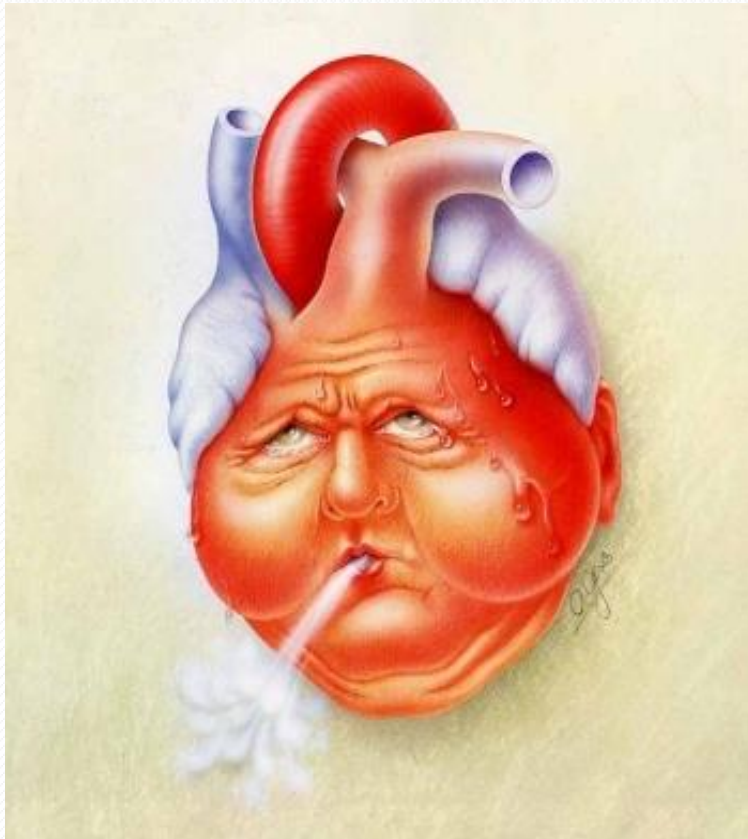


# Congestive Heart Failure



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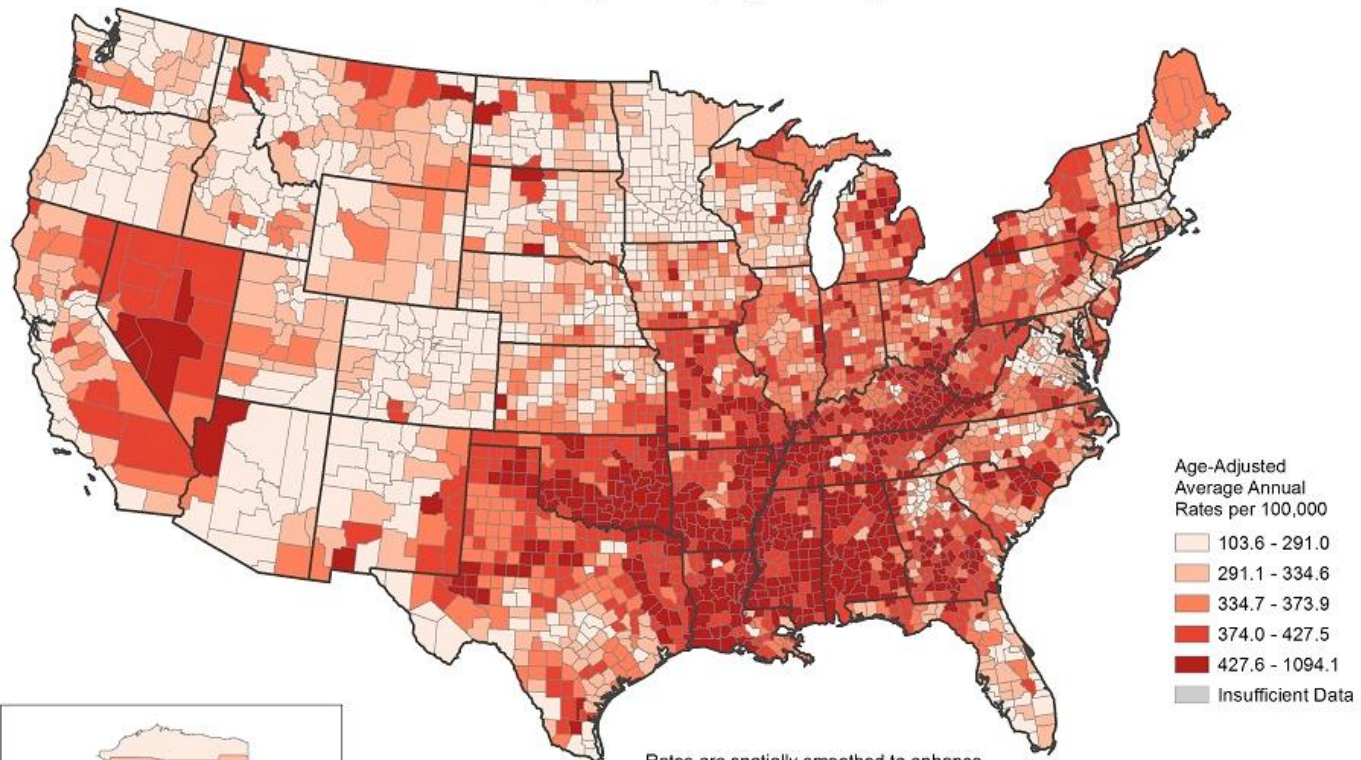
# Objectives

- Epidemiology of Heart Failure
- Mechanisms
- Risk Factors
- Symptoms
- Diagnosis
- Treatments

# Epidemiology

- In the United States, 5.7 million patients with heart failure
- 1 in 9 deaths include heart failure as a cause
- About 50% die within 5 years of heart failure diagnosis

## Heart Disease Death Rates, 2011-2013 Adults, Ages 35+, by County

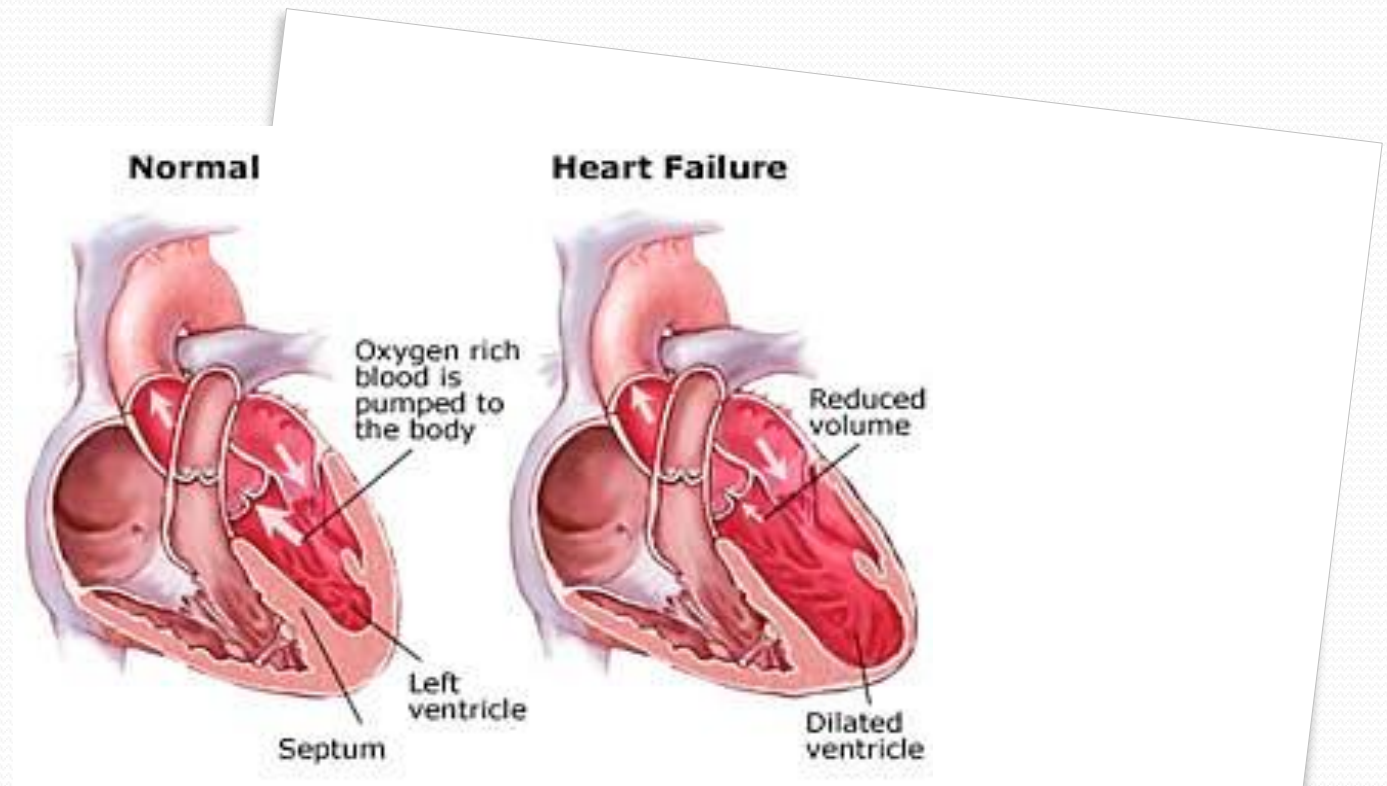


Rates are spatially smoothed to enhance the stability of rates in counties with small populations.

Data Source:  
National Vital Statistics System  
National Center for Health Statistics



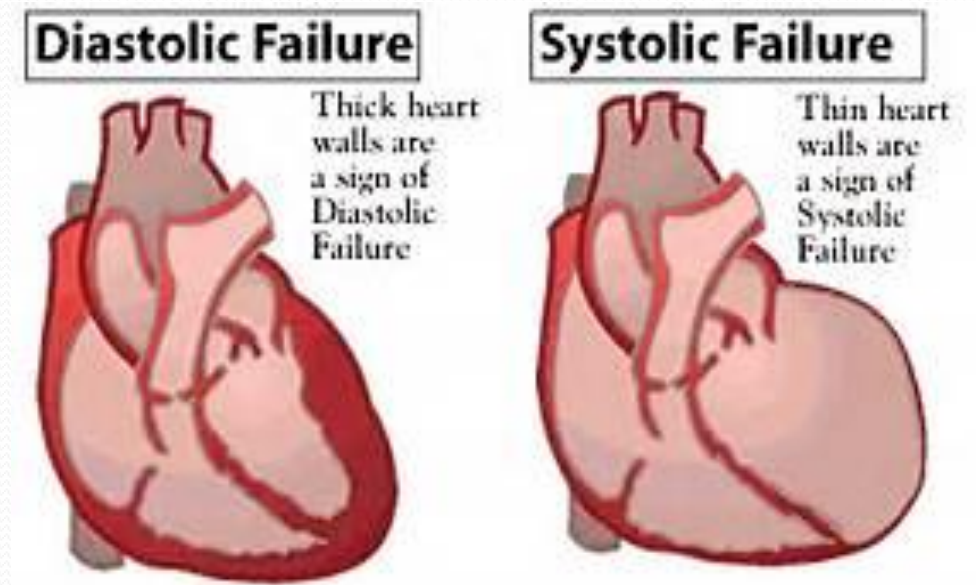
# What is Heart Failure?



- Heart failure occurs when the heart pumps blood less well
- Fluid back up in the body instead of moving forward
- Organs do not receive the amount of blood they need

# Types of Heart Failure

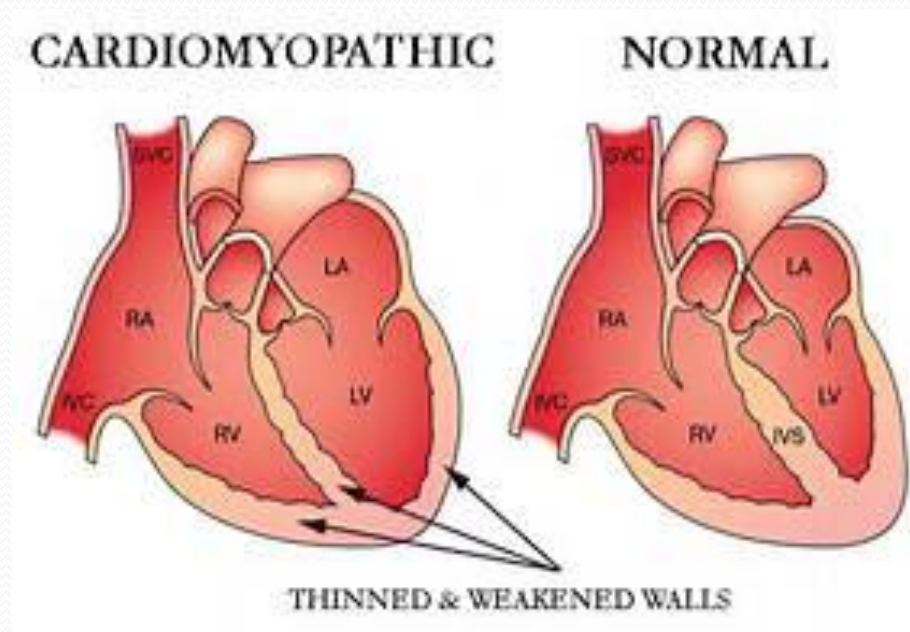
- Systolic heart failure
- Diastolic heart failure





# Systolic Heart Failure

- The heart can enlarge and the heart walls can thin over time
- The pump of the heart starts to fail



# Diastolic Heart Failure

- Normal ejection fraction, but the heart is stiff
- Cannot relax properly



# Contributing Factors

- Coronary Artery Disease
- High blood pressure
- Diabetes
- Thyroid dysfunction
- Valve abnormalities
- Infection
- Drugs, like chemotherapy



# Causes

- Need to identify potentially reversible causes of heart disease
  - Open blockages stents or surgery
  - Repair abnormally functioning heart valves
- Can lead to some improvement of ejection fraction

# Symptoms

- Shortness of breath
  - With exertion
  - Laying flat
- Swelling in the abdomen, feet, or ankles
- Weakness or dizziness
- A racing heartbeat while at rest



# Congestive Heart Failure

- As pump function worsens:
  - Increased probability of fluid retention
  - Increased risk of life-threatening arrhythmia



# Congestive Heart Failure

- As heart failure worsens, more likely to die from heart failure than life-threatening arrhythmias

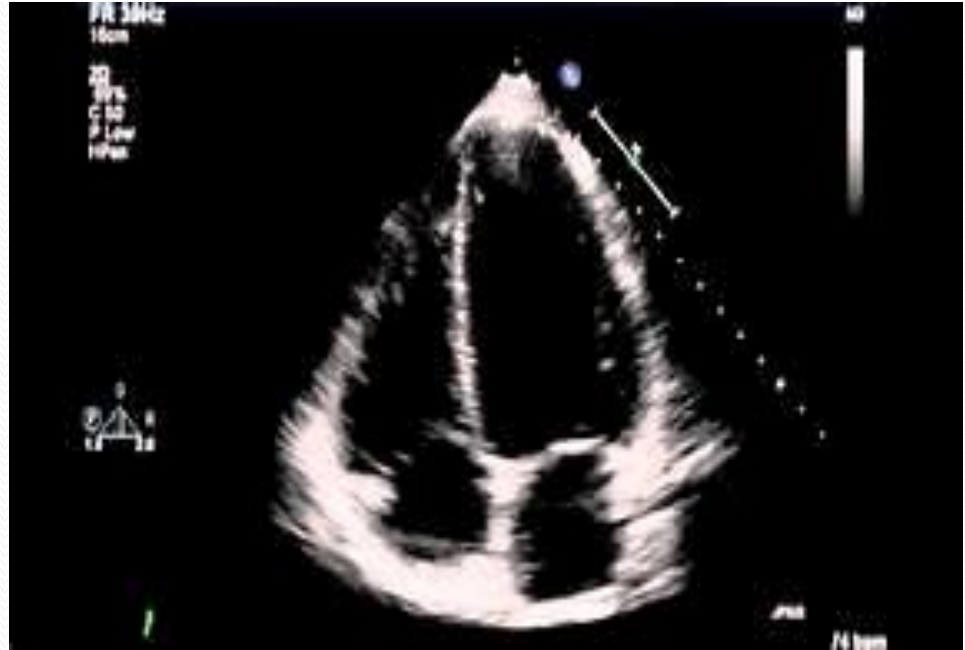
# Is there a cure to heart failure?

- No, but it can be managed with medications and device therapy



# Diagnosis

- Echocardiogram
  - Evaluate ejection fraction or “squeezing function” of the heart
  - Evaluate the relaxation of the heart
  - Evaluate the size of the heart



# How is Heart Failure Treated?

- Early treatment is important
  - Delaying treatment may lead to significant heart damage
- Taking medications regularly will reduce symptoms and help stabilize heart function
  - Reduce hospitalizations

# Medications

- Angiotensin converting enzyme (ACE) inhibitor or Angiotensive receptor blocker (ARB)
  - Block harmful stress hormones that worsen heart failure
  - Improve remodeling of the heart
- Beta blocker
  - Block harmful stress hormones that worsen heart failure
  - Improve remodeling of the heart



# Medications

- Diuretic
  - Reduce excess fluid
- Mineralocorticoid receptor antagonist
  - Block harmful stress hormones
  - Improve remodeling of the heart
- Nitrate with hydralazine
  - Beneficial in certain populations



# Lifestyle Modification

- Stop smoking
- Restrict alcohol
  - $\leq 2$  drinks for men,  $\leq 1$  drink for women
- Restrict sodium  $< 1500$  mg
- Lose weight if overweight
- Daily weights



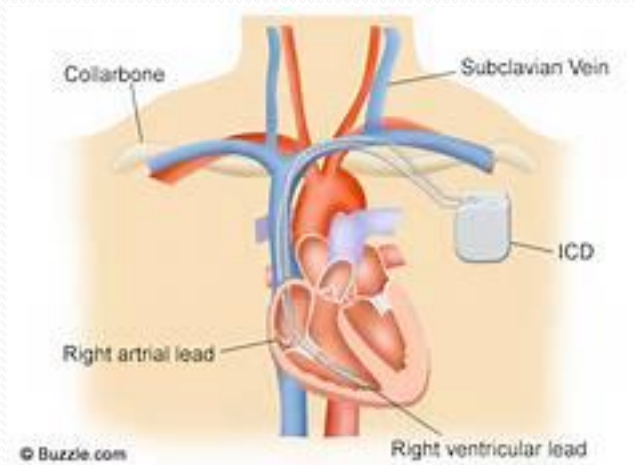
# Exercise

- Ok to exercise with heart failure
- Beneficial to participate in moderate exercise
  - Decreased fatigue
  - Less shortness of breath
  - Higher quality of life



# Device Therapy

- Defibrillators
  - Reduces life-threatening arrhythmias
- Chronic resynchronization therapy
  - Re-synchronize heart contraction



# Device Therapy

- A mechanical pump that helps pump blood when heart function is severely impaired
  - End-stage heart failure
- Implanted inside a patient's chest



# Heart Transplant

- Replaces a severely diseased heart with a healthy heart





Thank You