



Cardiovascular Disease Risk and Women

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Disclosures

- No conflicts of interest
- Presentation given as part of the CV Research team I am affiliated with
- *St Vincent's Hospital, Melbourne*
- *Australian Catholic University*
- *St Vincent Cardiovascular Nursing Research Centre*



Objectives

- State current statistics of cardiovascular disease and women
- Compare and contrast cardiovascular risk factors for men and women
- Describe cardiovascular risk stratification for women



Women &
Heart Disease



heart

DISEASE IS THE #1 KILLER OF WOMEN

The facts

- Cardiovascular disease (CVD) continues to kill more women than men annually in the United States
- CVD rates have decreased in older women but increased in young women
- Women constitute more than 1/2 of all CVD deaths, but only 1/3 of the CHD and MI burden

AHA: Heart Disease and Stroke Statistics--2014 Update



CVD causes 1 in 3 deaths
each year.

That's approximately one
woman every minute!



AHA: Heart Disease and Stroke Statistics--2014 Update



By the end of this
presentation 60 women
would have died from CVD

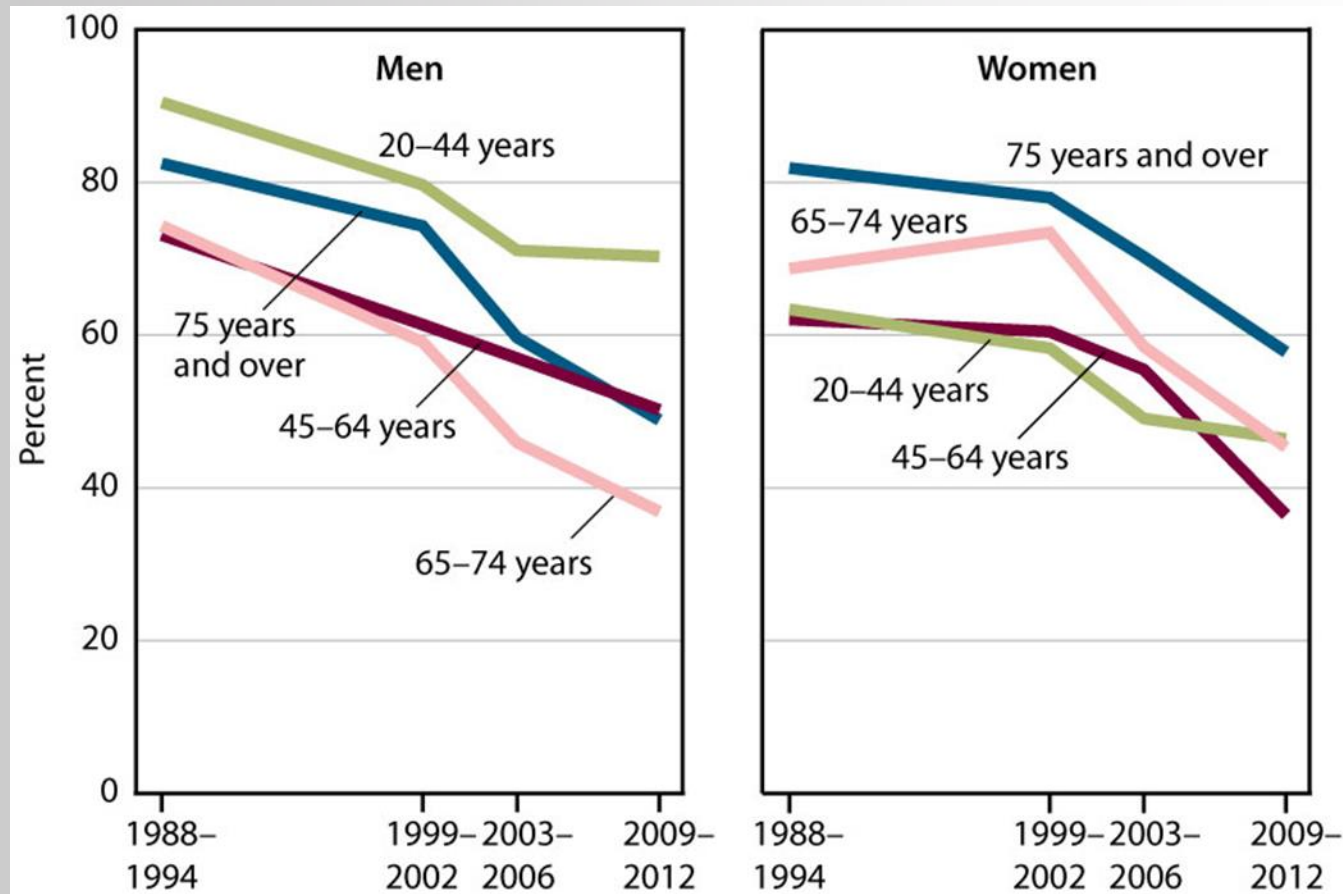


Cardiovascular Risk Factors

Personal history of CVD	Hypertension 
Age over 55 Inactivity	Peripheral vascular disease
Dyslipidemia	Family history of CVD
Smoking	Diabetes Mellitus 

90% of all cardiac events occur with only one elevated risk factor

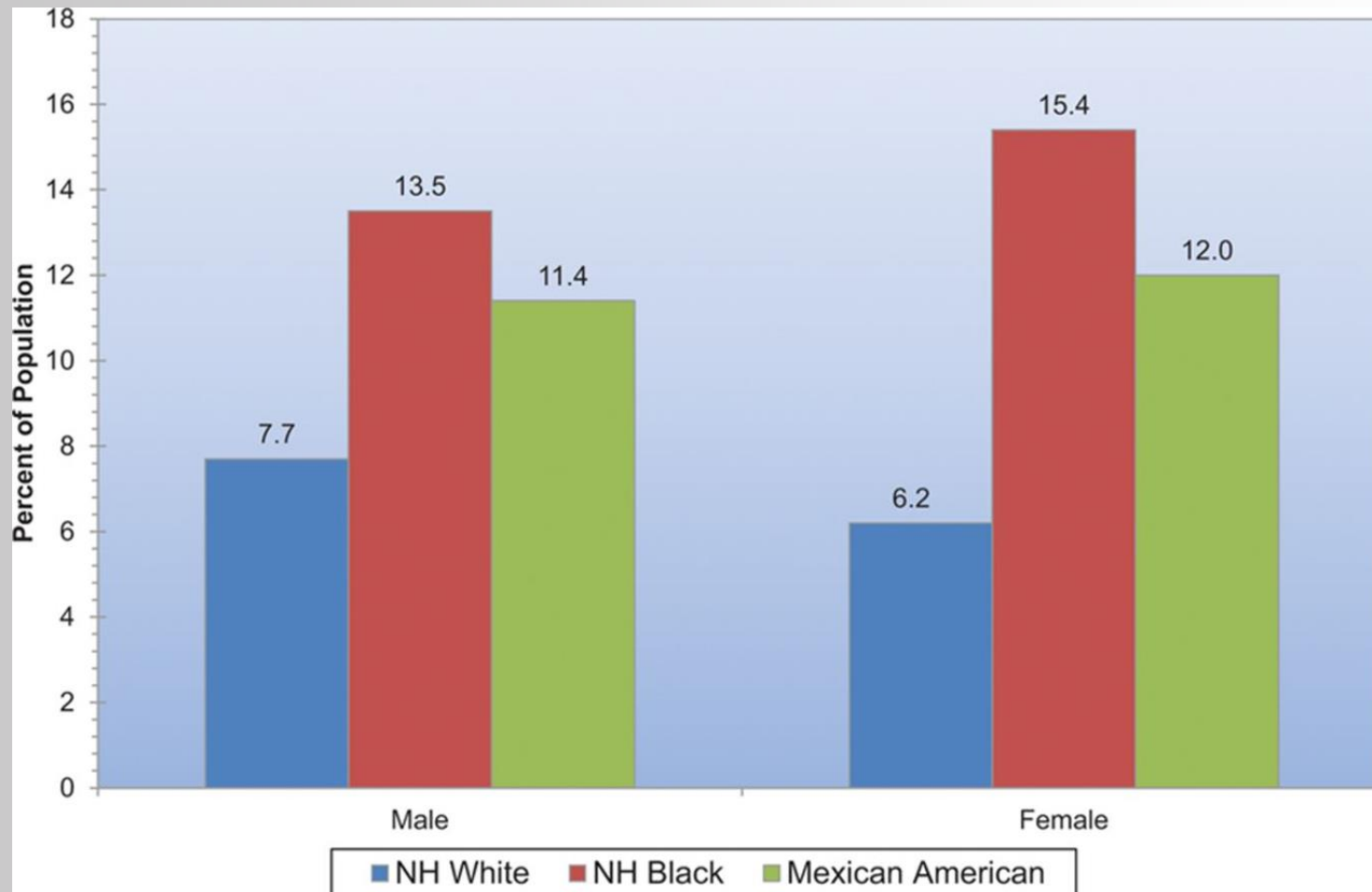
Uncontrolled high blood pressure among adults with hypertension



NOTE: Uncontrolled high blood pressure is a measured systolic blood pressure of at least 140 mm Hg or a measured diastolic blood pressure of at least 90 mm Hg, among those with measured high blood pressure or who reported taking antihypertensive medication.

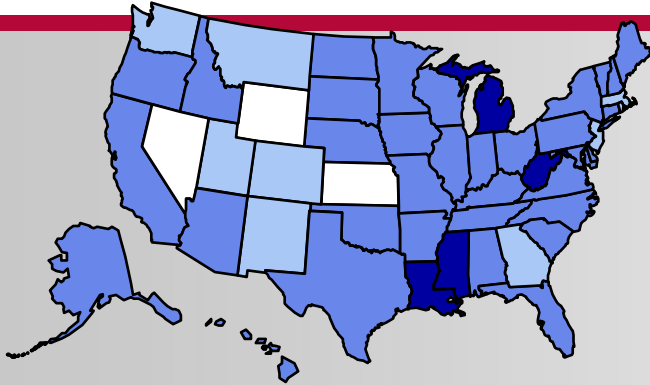
SOURCE: CDC/NCHS, Health, United States, 2013, Figure 9. Data from the National Health and Nutrition Examination Survey.

Age-adjusted prevalence of physician-diagnosed diabetes mellitus in adults ≥ 20 years of age by race/ethnicity and sex (National Health and Nutrition Examination Survey: 2007–2010).

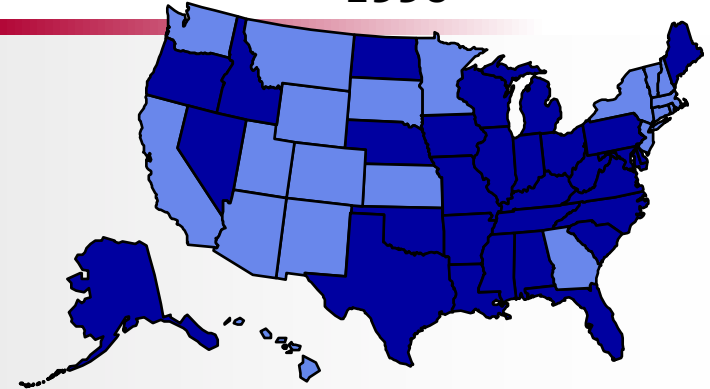


Prevalence of Obesity in U.S. Adults

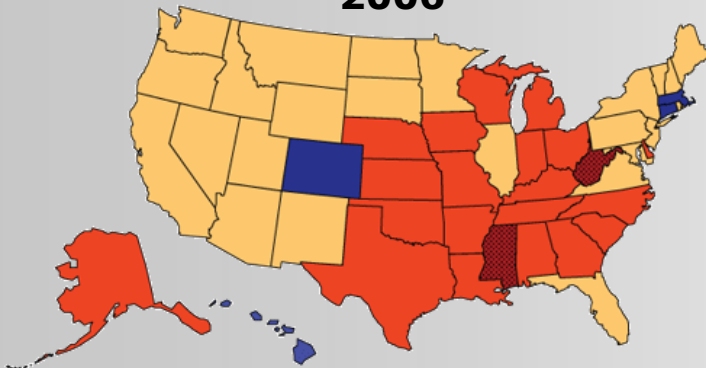
1991



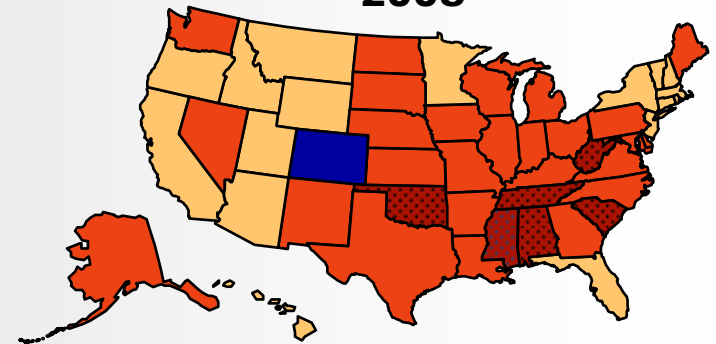
1996



2006



2008

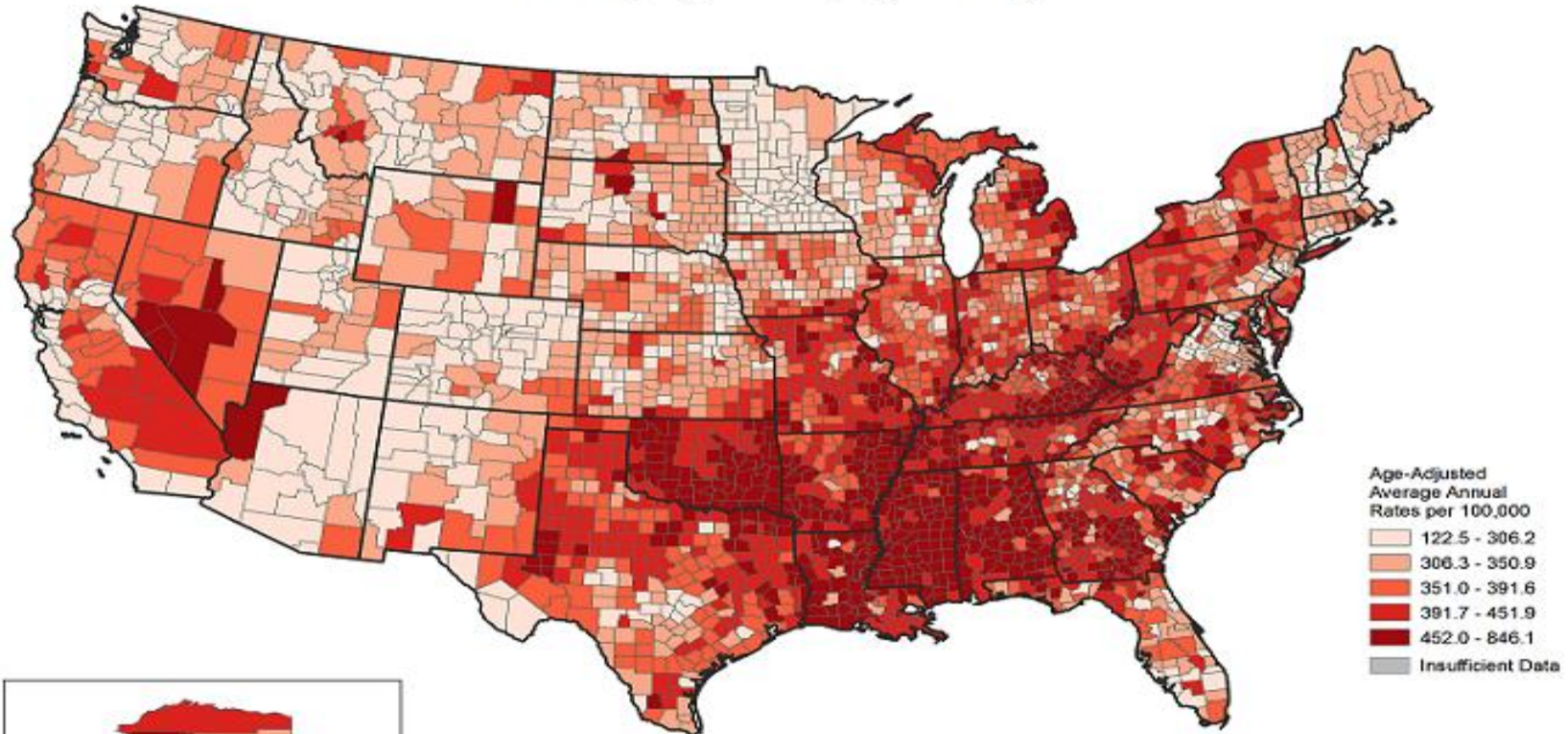


Percentage of State Obese (BMI \geq 30)



Heart Disease Death Rates

**Heart Disease Death Rates, 2008-2010
Adults, Ages 35+, by County**



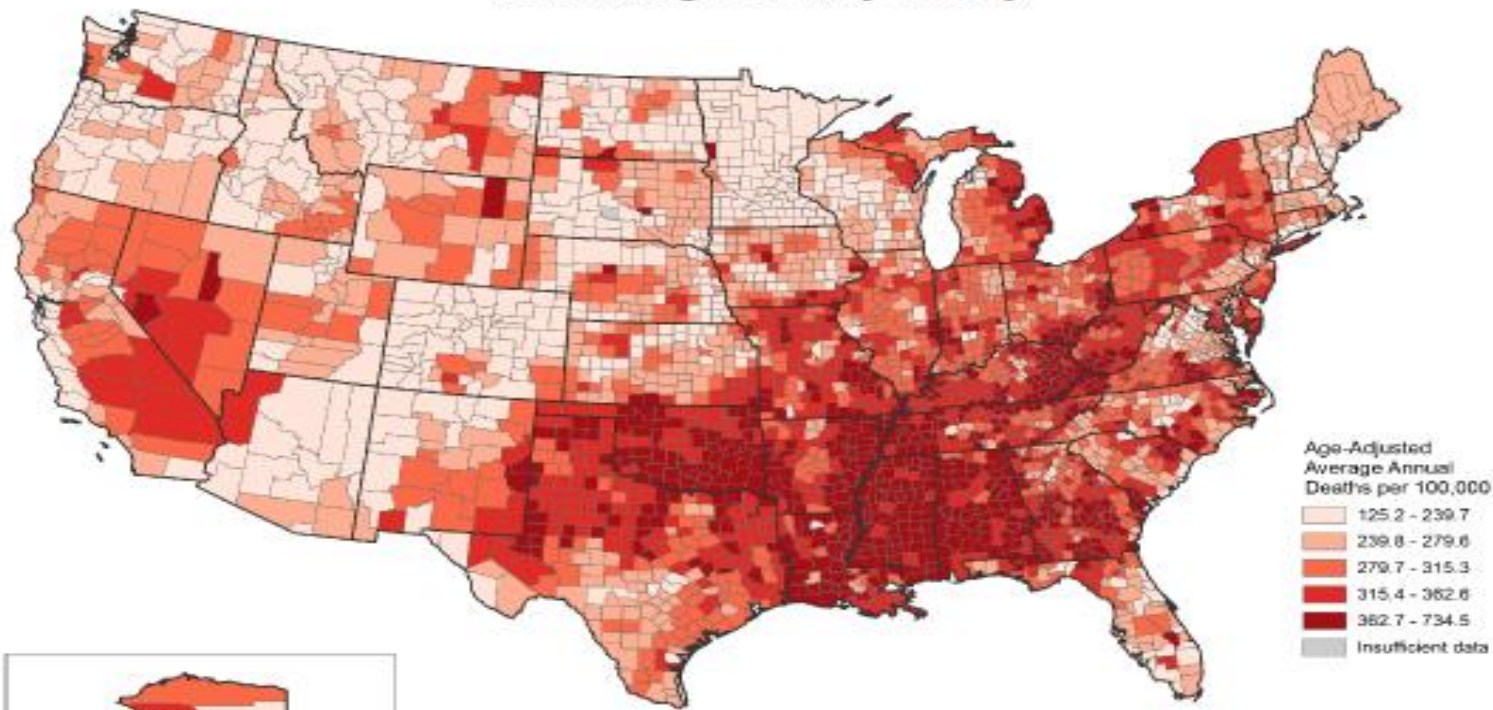
Rates are spatially smoothed to enhance the stability of rates in counties with small populations.

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



Women

**Heart Disease Death Rates, 2008-2010
Women Ages 35+, by County**



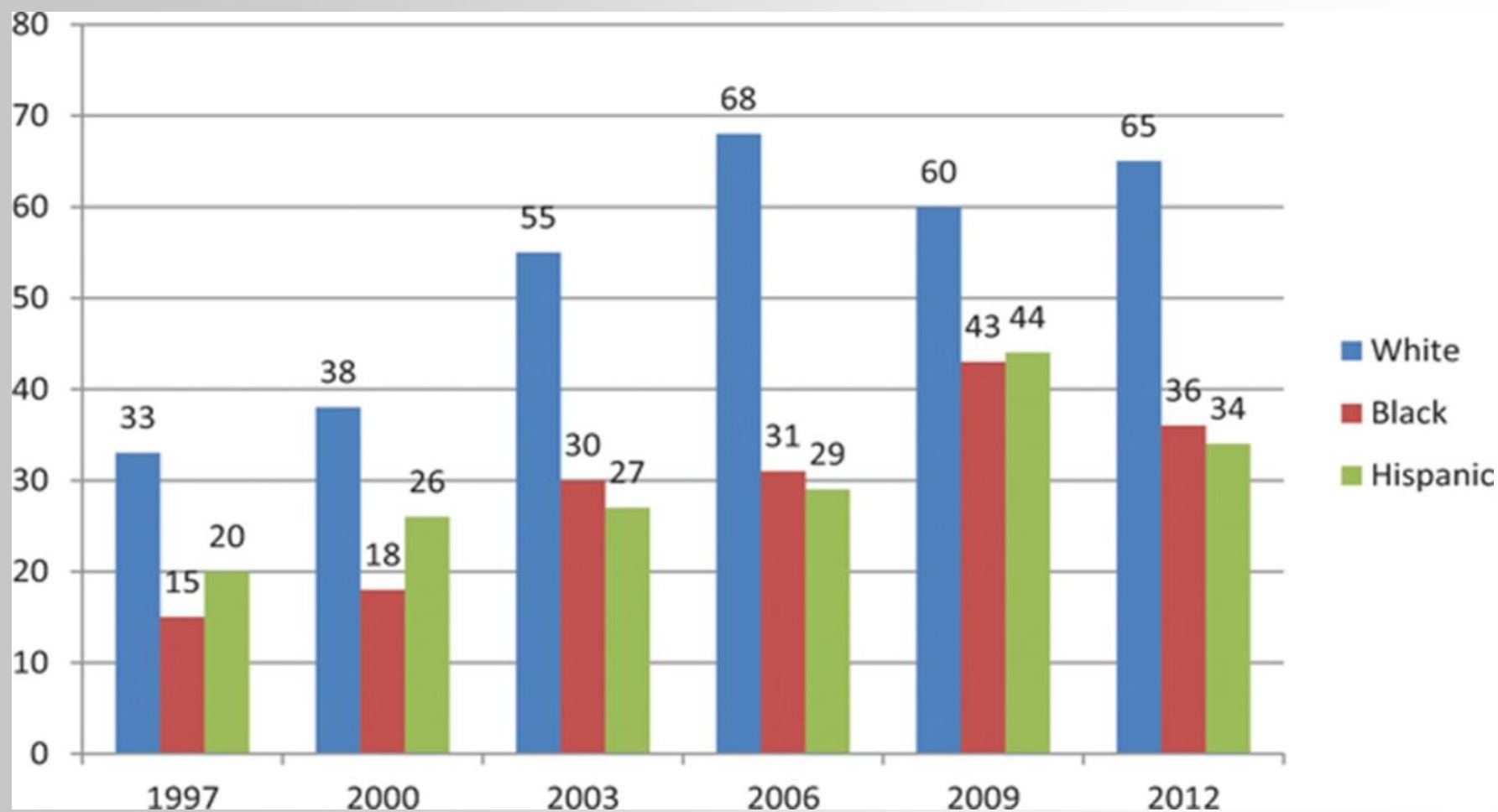
Rates are spatially smoothed to enhance the stability of rates in counties with small populations.

ICD-10 codes for heart disease: I00-I09, I11, I13, I20-I51

Data Source: National Vital Statistics System and the U.S. Census Bureau



Trends in awareness that heart disease is the leading cause of death in women.



Men and Women



Women are different from men

- Women at coronary angiography have less obstructive coronary artery disease
- In men the plaque forms in clumps, in women it is distributed evenly in the microvasculature of the artery
- Angiography “normal arteries” in women- due to this
- Women delay seeking treatment longer than men



Women &
Heart Disease

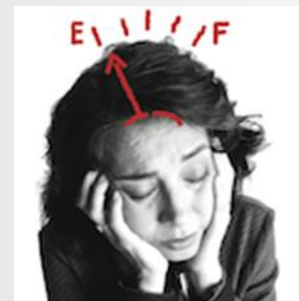


heart DISEASE IS THE #1 KILLER OF WOMEN

- Women are roughly 10 yrs older than men when they present, and have more co-morbidities

- Most common symptoms of MI in women

- Dyspnea
- Weakness
- Fatigue



- Prodromal symptoms more common in women

- Majority of women do not have chest pain
- Higher in-hospital mortality in women
- Younger women without chest pain are at the highest risk
- 64% of women who die suddenly from cardiac disease have no previous symptoms of the disease

Canto JG et al. JAMA 2012;307:813; Heart Disease and Stroke Statistics--2014 Update: A Report From the American Heart Association



Women &
Heart Disease



heart DISEASE IS THE #1 KILLER OF WOMEN

EKG Differences

- ECG abnormalities are less likely to be diagnostic for obstructive coronary artery disease in women than in men
- Women have a longer corrected QT interval and greater sensitivity to QT-prolonging medications
- Women with left bundle branch block benefit from cardiac resynchronization therapy at a shorter QRS duration than men



- **HOWEVER**

- existing diagnostic MI and coronary heart disease strategies developed in men, for men, and by men fail to diagnose approximately 20% to 30% of women with ischemic heart disease

AND

Women comprise only 25% of participants in all heart-related research studies.

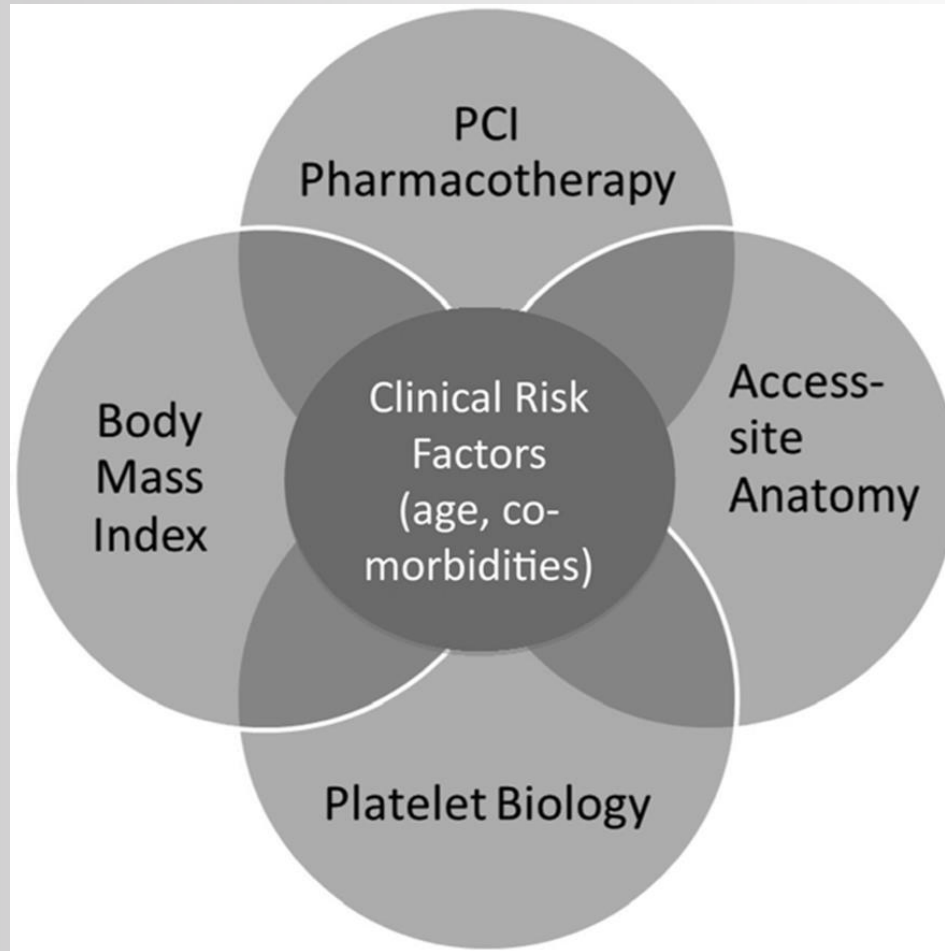
Noel Bairey Merz, *Circulation*. 2014;130:740-742.



Secondary Risk

- The number of women dying within a few weeks after a MI are double that of men
- 38% of women and 25% of men will die within one year of a MI
- Heart failure within 6 years after a MI- 46% (F), 22% (M)
- Bleeding after a percutaneous coronary intervention is more likely in women than men

The female predisposition to bleeding after a PCI



Risk Factors/Prevention

- The Multiplier Effect
 - 1 risk factor doubles your risk
 - 2 risk factors quadruple your risk
 - 3 or more risk factors can increase your risk more than tenfold
- KNOW your risk of CVD



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Classification of CVD Risk in Women

(Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women-2011 Update: AHA)

Risk Status	Criteria
High risk ≥ 1	Clinical manifest CHD
	Clinical manifest cerebral vascular disease
	Clinical manifest PAD
	AAA
	ESRD or CKD
	DM
	10 year predicted CVD risk >10%



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Risk Status	Criteria
At risk \geq 1 major risk factor	Smoking, inactivity, Cholesterol 200 mg /dL or above/HDL-c < 50 mg/dL,
	Obesity, poor dietary habits, family history,
	Metabolic syndrome, systemic autoimmune vascular disease (SLE, rheumatoid arthritis)
	Poor exercise tolerance on treadmill test
	History of preeclampsia, gestational diabetes or pregnancy induced hypertension
	Evidence of subclinical atherosclerosis

How to reduce your CVD risk (Maybe not)

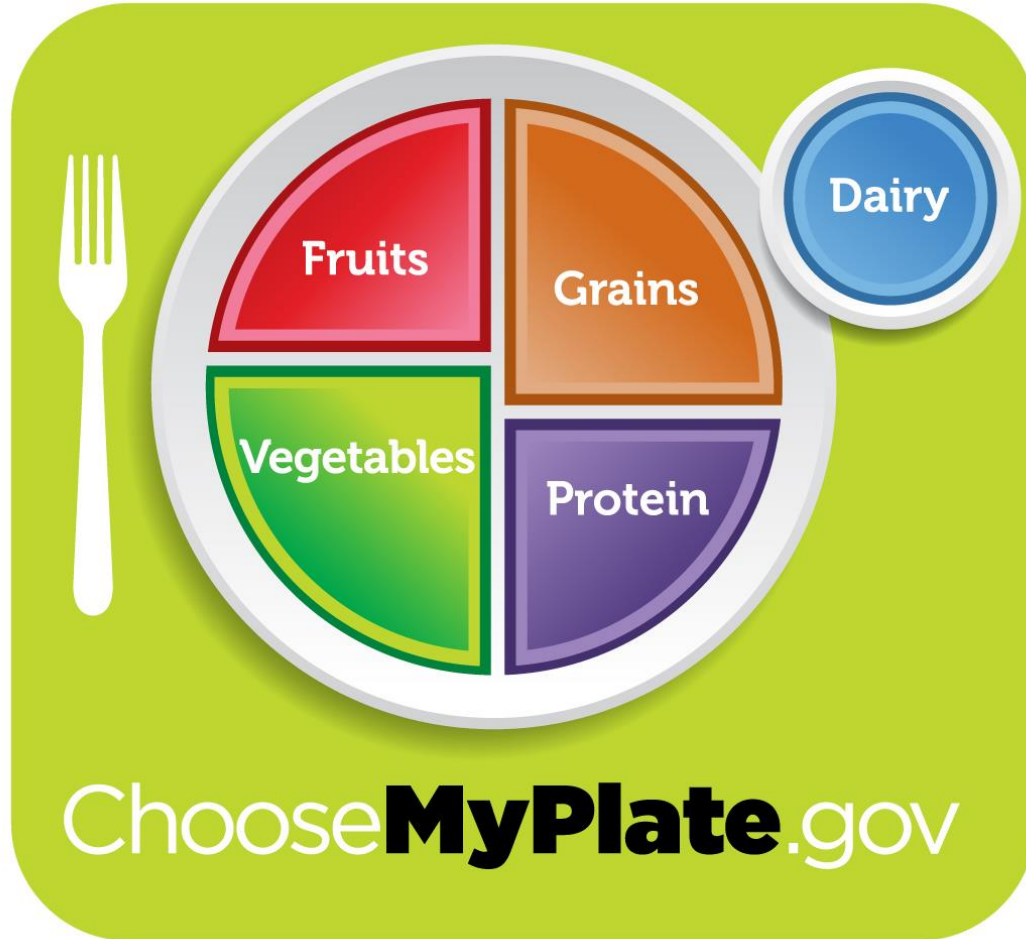


Ideal Cardiovascular Health for Women

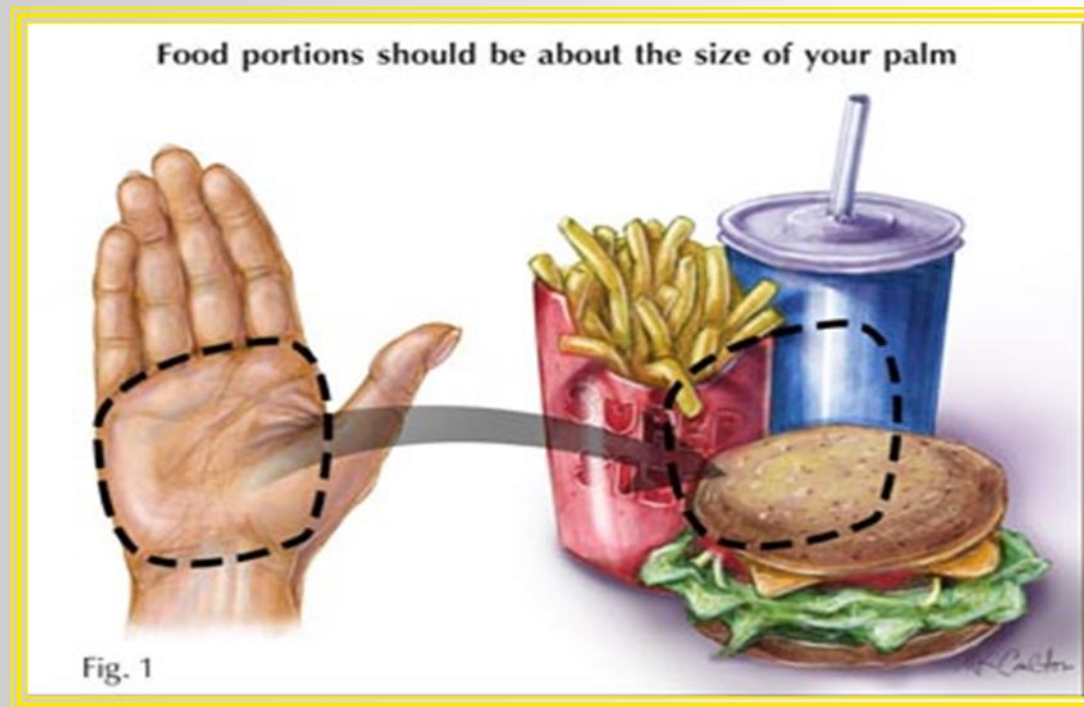
All of these

1. Total cholesterol <200 mg/dL untreated
2. BP <120/<80 mm Hg untreated
3. BMI <25 kg/m²
4. No smoking
5. Activity \geq 150 minutes per week- moderate intensity / \geq 75 minutes week vigorous intensity or combination of both
6. Health DASH like diet (Dietary approaches to stop hypertension)
7. FBG < 100 mg /dL

Diet Evidence: Making Smart Food Choices



- **Helps consumers make better food choices**
- **Reminds individuals to eat healthfully**
- **Illustrates the 5 food groups using a mealtime visual**
- **Selected messages include:**
 - **Balancing calories**
 - **Foods to increase**
 - **Foods to reduce**



Specific Dietary Intake Recommendations for Women (Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women-2011 Update: AHA)

Nutrient	Serving	Serving Size
Fruits and vegetables	≥4.5 cups/d	1 cup raw leafy vegetable, 1/2 cup cut-up raw or cooked vegetable, 1/2 cup vegetable juice; 1 medium fruit, 1/4 cup dried fruit, 1/2 cup fresh, frozen, or canned fruit, 1/2 cup fruit juice
Fish	2/wk	3.5 oz, cooked (preferably oily types of fish)
Fiber	30 g/d (1.1 g/10 g carbohydrate)	Bran cereal, berries, avocado, etc
Whole grains	3/d	1 slice bread, 1 oz dry cereal, 1/2 cup cooked rice, pasta, or cereal (all whole-grain products)
Sugar	≤5/wk (≤450 kcal/wk from sugar-sweetened beverages)	1 tablespoon sugar, 1 tablespoon jelly or jam, 1/2 cup sorbet, 1 cup lemonade
Nuts, legumes, and seeds	≥4/wk	1/3 cup or 1 1/2 oz nuts (avoid macadamia nuts and salted nuts), 2 tablespoons peanut butter, 2 tablespoon or 1/2 oz seeds, 1/2 cup cooked legumes (dry beans and peas)
Saturated fat	<7%/total energy intake	Found in fried foods, fat on meat or chicken skin, packaged desserts, butter, cheese, sour cream, etc
Cholesterol	<150 mg/d	Found in animal meats, organ meats, eggs, etc
Alcohol	≤1/d	4 oz wine, 12 oz beer, 1.5 oz of 80-proof spirits, or 1 oz of 100-proof spirits
Sodium	<1500 mg/d	
Trans-fatty acids	0	0

Note: The recommended serving amounts are based on a 2000-kcal diet, and recommendations vary according to individual preference and needs.¹⁴¹

Note for Vitamin D: It is expected that ongoing research regarding the role of vitamin D supplementation in the prevention of cardiovascular disease will shed further light on this issue for future versions of this guideline.¹⁴²



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Summary

- For all women
 - Manage your weight
 - Get up and move- exercise every day
 - CEASE smoking
 - Know your risk (present and future)
 - Change your diet- small modifications to begin with
 - Treat depression
 - Women's symptoms of a MI are different- know the differences- it could save your life