

Presentation of heart disease in women: Recognizing the unknown symptoms

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Objectives

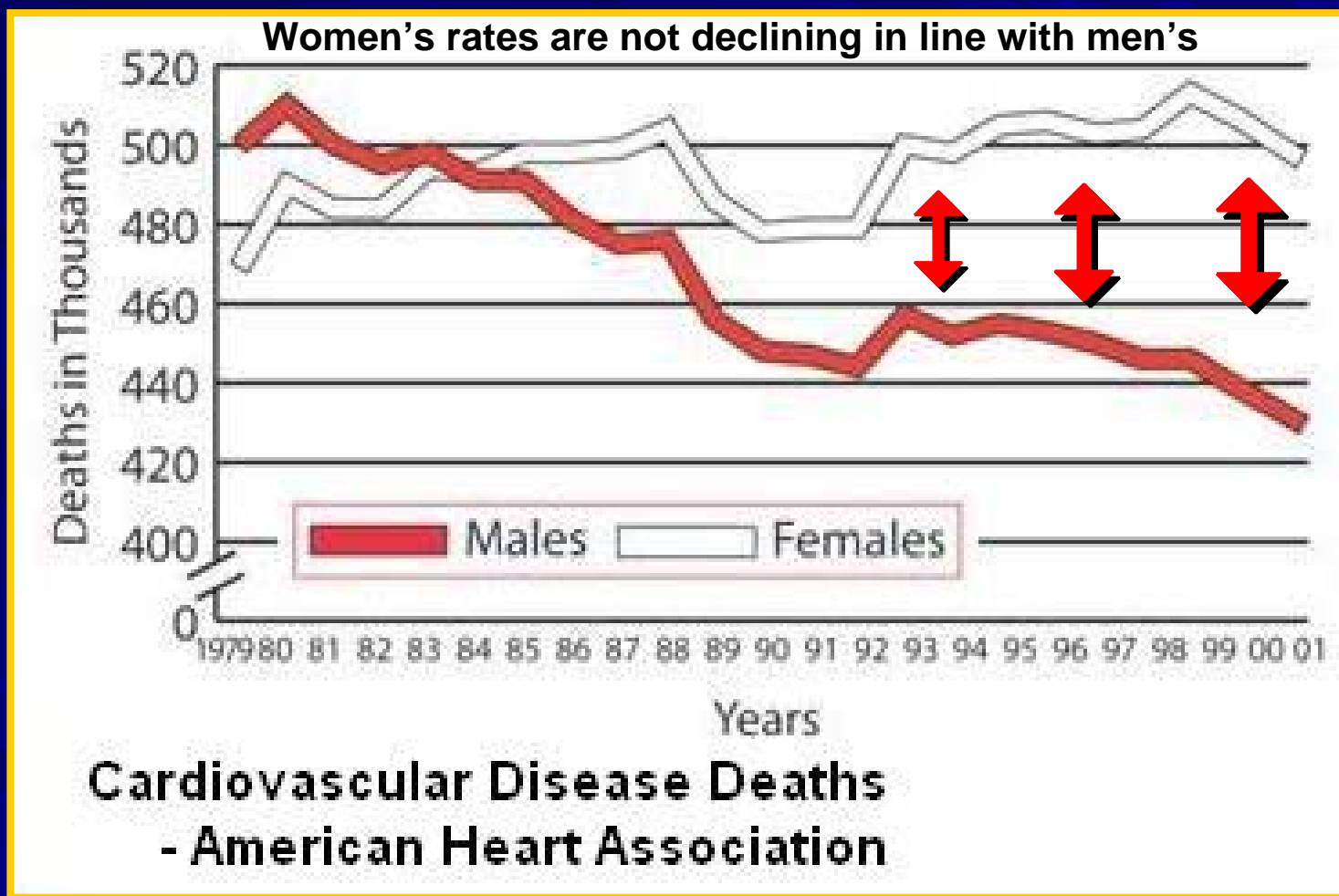


- Highlight the differences in heart disease presentation, occurrence and outcomes for women.
- Emphasize risk factors.
- Highlight disparities in health care.
- Suggest methods to reduce risk.

Women & Heart Disease

- 1 million people die each year with cardiovascular diseases → 53% are women.
- Cardiovascular disease includes hypertension, coronary artery disease, stroke, peripheral vascular disease.
- Almost one in two women will die of heart disease or stroke.
- 2/3 of women who die suddenly have no prior symptoms.

Cardiovascular Disease Mortality in Males and Females



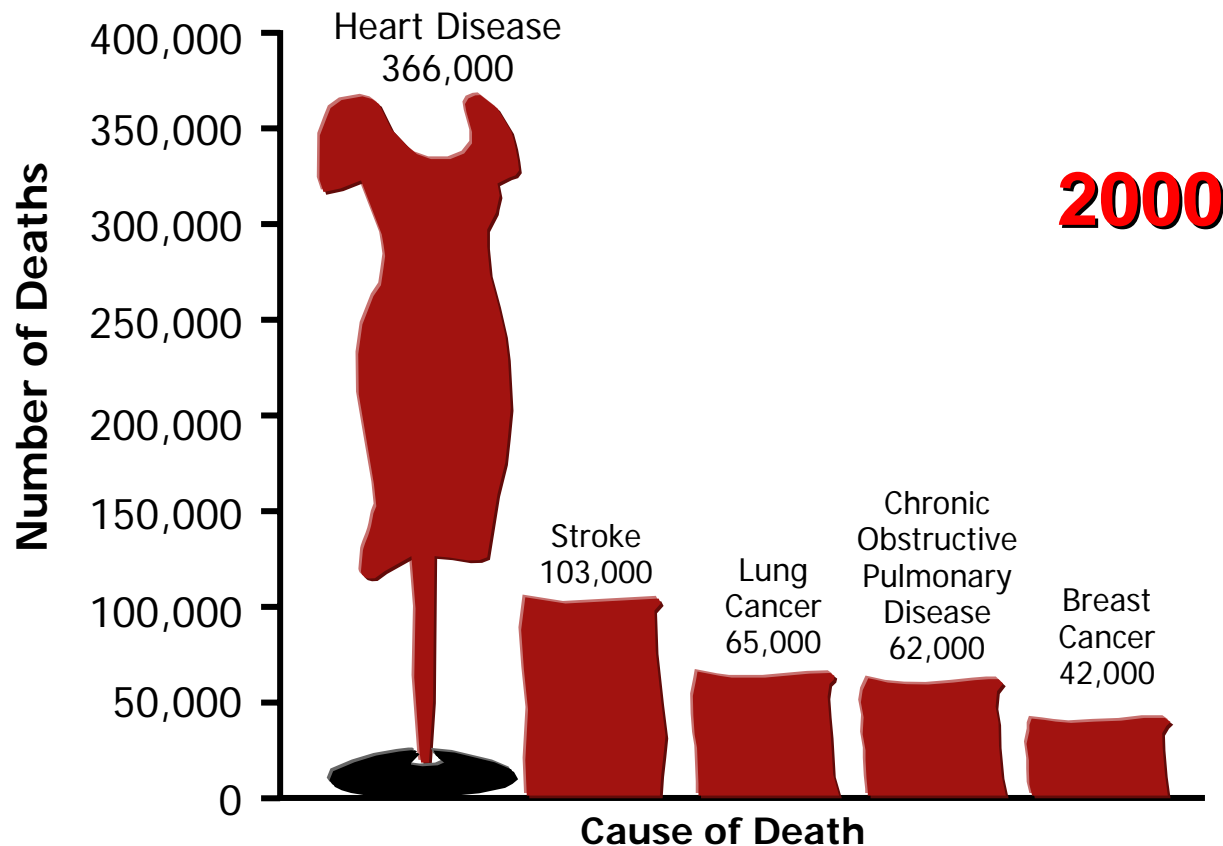
Socioeconomic and Ethnic Differences in CV Risk Factors in Women

- Black and Mexican-American women*:
 - higher rates of hypertension, diabetes.
 - lower physical activity.
 - higher BMI.
- Women of lower socioeconomic status had more CV risk factors, independent of ethnicity.

* After adjusting for years of education.

Leading Causes of Death in American Women

One in three women dies from heart disease. It's the #1 killer of women, regardless of race or ethnicity. It also strikes at younger ages than most people think, and the risk rises in middle age. Two-thirds of women who have heart attacks never fully recover.



*Numbers of deaths are rounded to the nearest thousand.

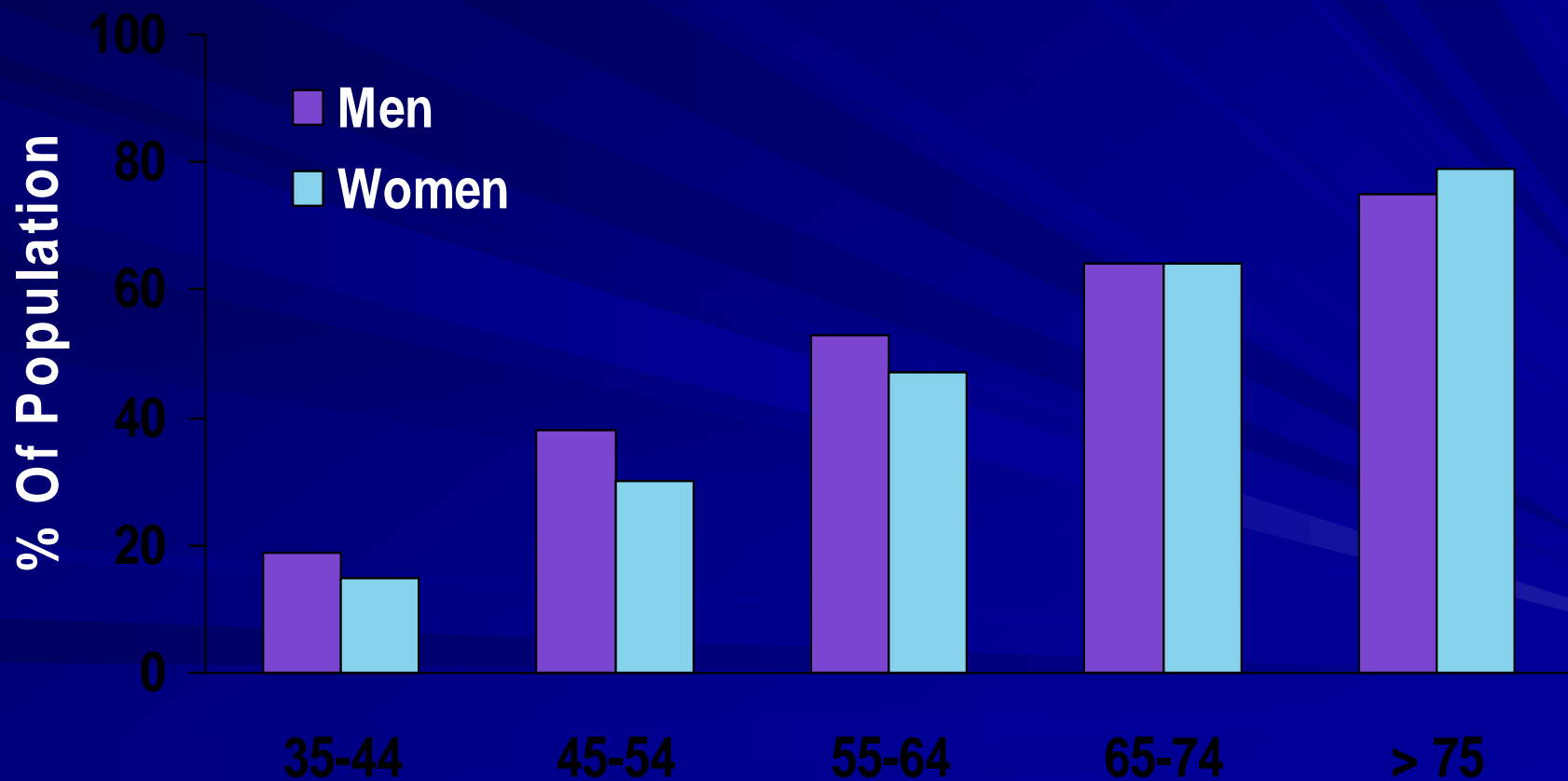
To learn more, visit www.nhlbi.nih.gov/health/hearttruth.

National Heart, Lung, and Blood Institute. *The Healthy Heart Handbook for Women*. 2003.

Heart Disease Affects Women in Every Age Group

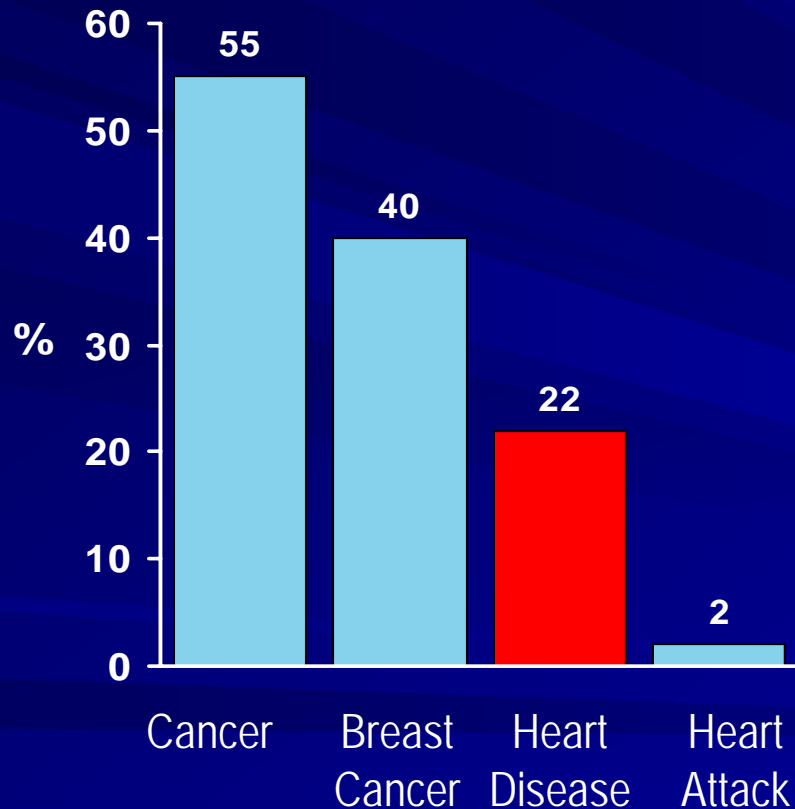
Estimated Prevalence of CVD by Age and Gender

U.S.: 1988 - 1994

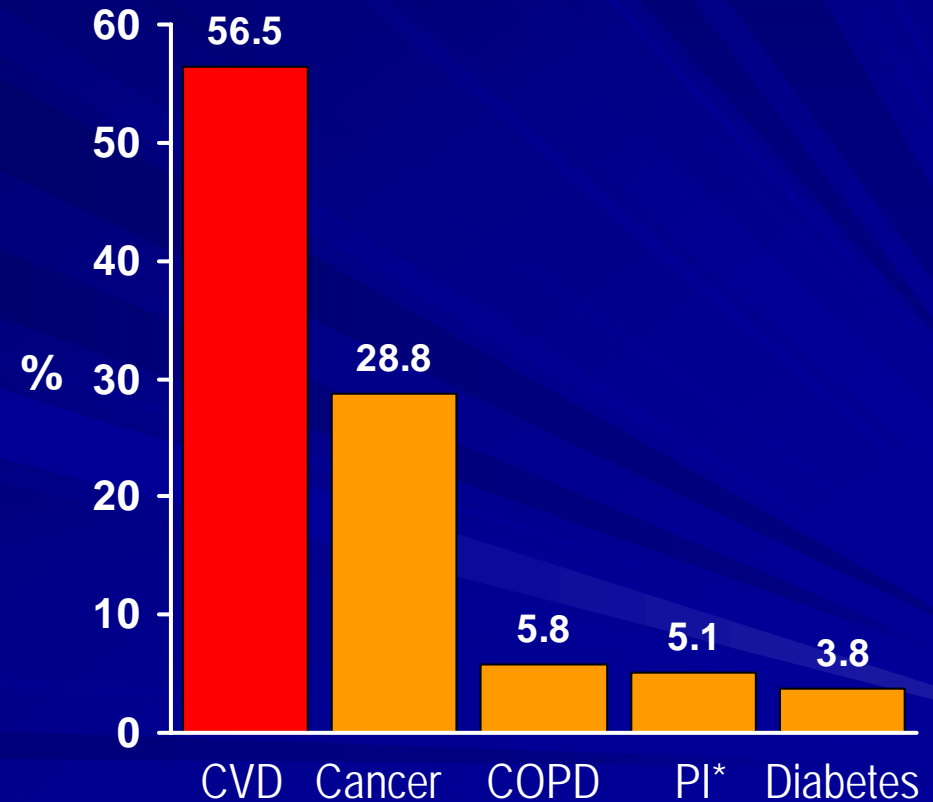


Women are Unaware of the Problem

Perceived Health Threats



Actual Leading Causes of Death



The Gallup Organization. Gallup Survey, 1995. Adapted from the American Heart Ass'n. 1999 *Heart and Stroke Statistical Update*. 1998:5.

*PI = pneumonia, influenza

Obstacles to Health Care for Women

■ Traditional Healthcare for Women:

- Focuses on reproductive issues.
- Ignores other potential health related problems.
- Fragmented and incomplete care.
- Relies on the healthcare provider to provide comprehensive care.

Obstacles to Health Care for Women

- Delayed and missed diagnosis.
- Less diagnostic tests and therapy.
- Less counseling and risk factor control.
- Fewer referrals to cardiac rehab and more “dropouts”.
- Lower adherence to treatment guidelines.

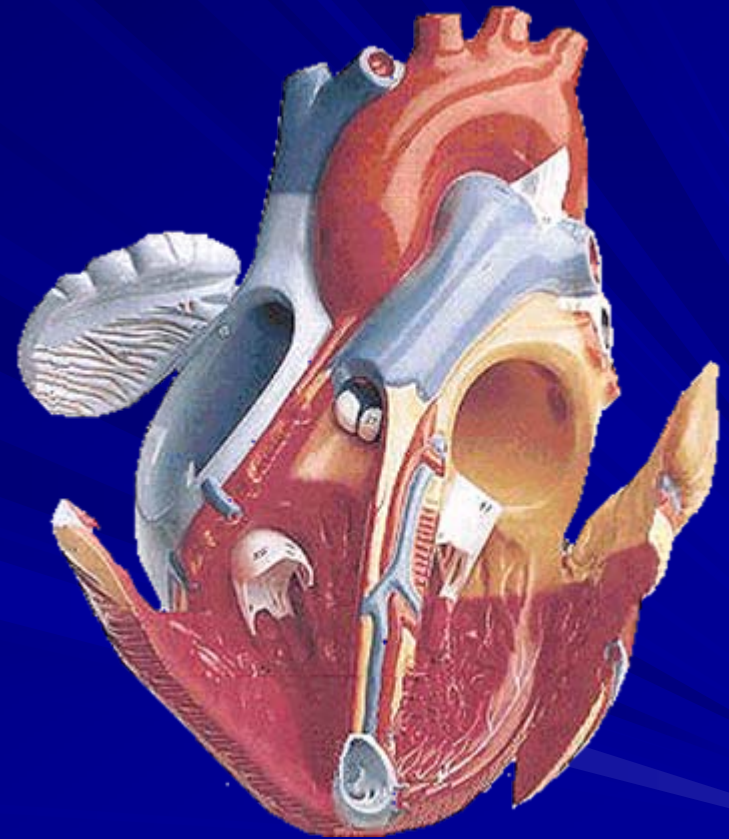
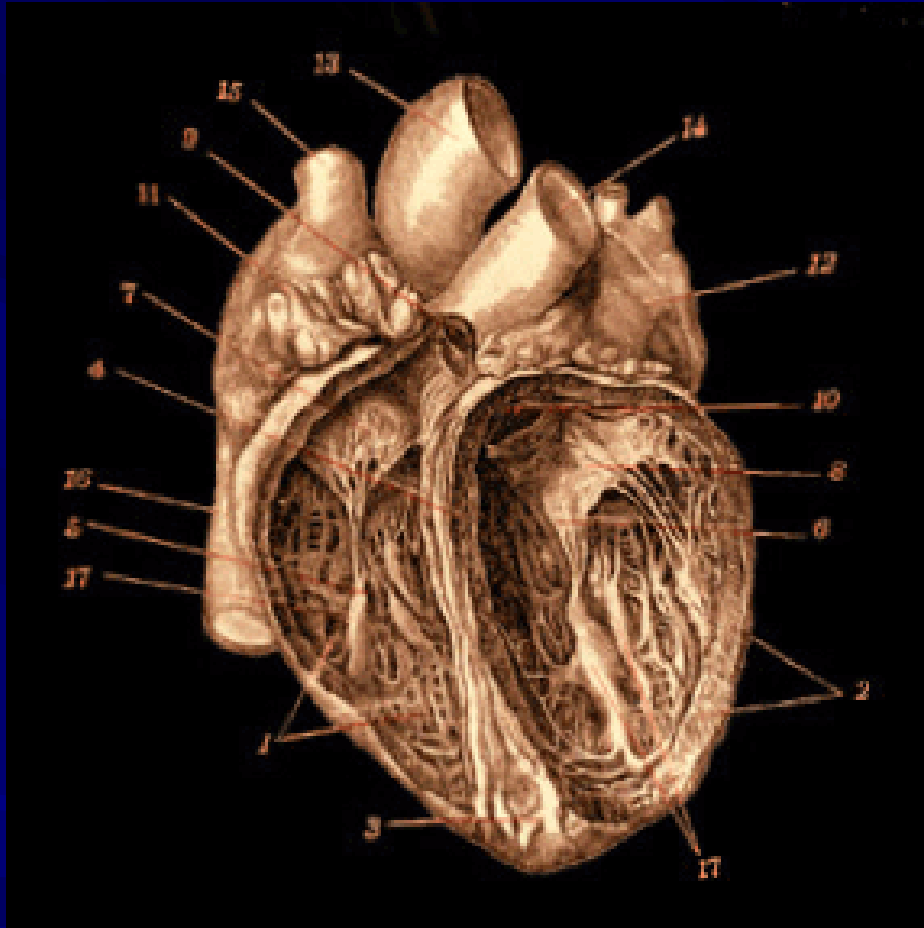
38%

- Percent of women whose doctor discussed heart disease prevention.
- ***Physicians*** underestimate CVD risk, particularly in women versus men.

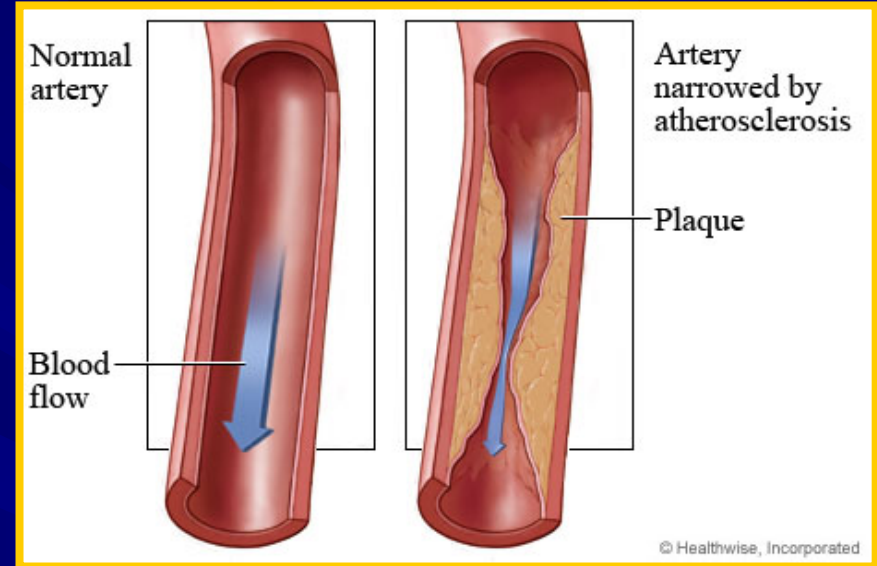
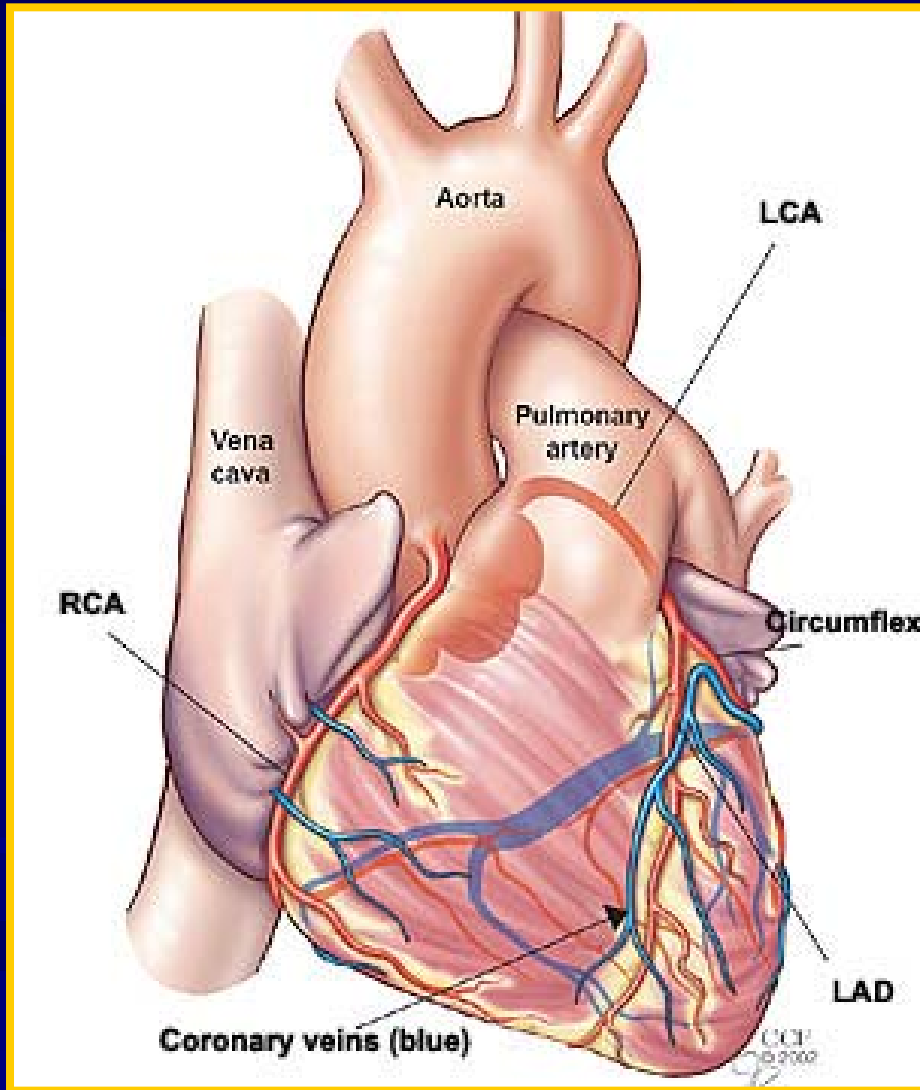
Terminology

- CAD-atherosclerosis of heart arteries
- Angina-chest pain with activity or at rest
- Heart attack-heart muscle damage
- PAD-atherosclerosis of other arteries; "poor circulation"
- Stroke-brain tissue damage
- TIA-"ministroke"; temporary neurological malfunction
- Sudden death-rhythm abnormality which fails to sustain life
- Heart failure- heart function abnormality (doesn't "squeeze" or doesn't "relax" correctly)
- Congenital heart disease-you are born with it

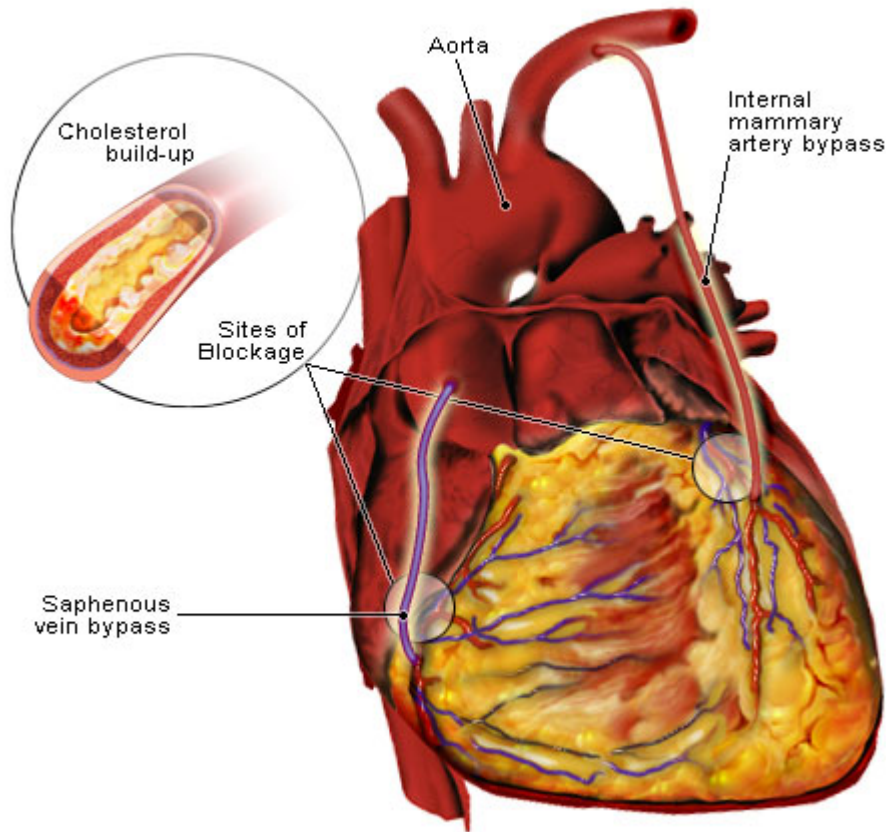
Normal Anatomy of the Heart



CAD

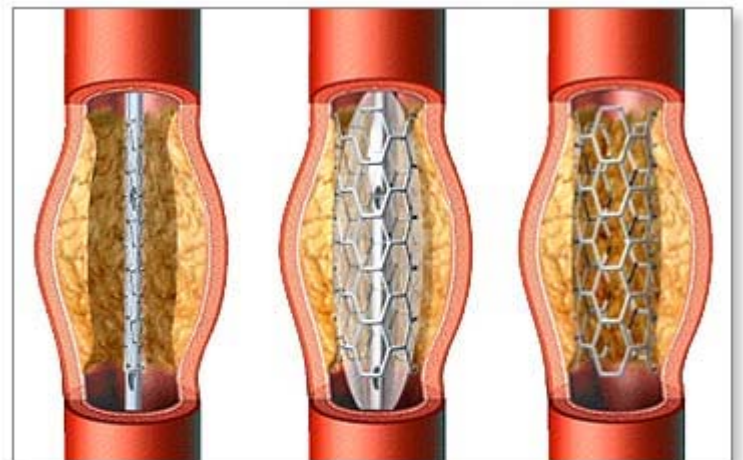


Coronary Artery Bypass



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CAD

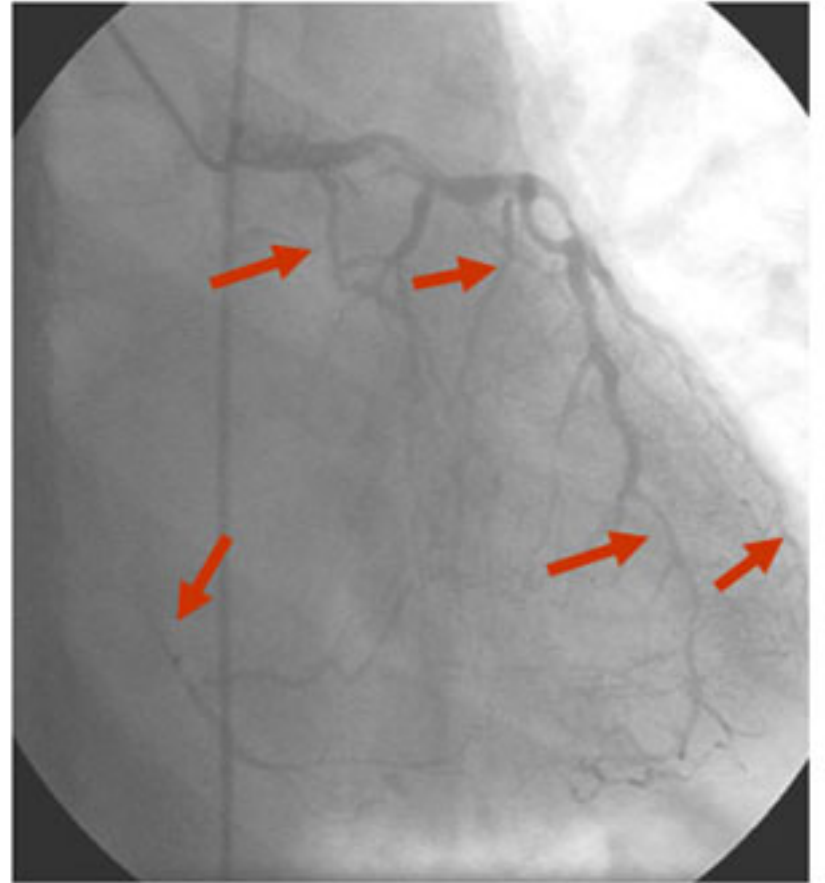
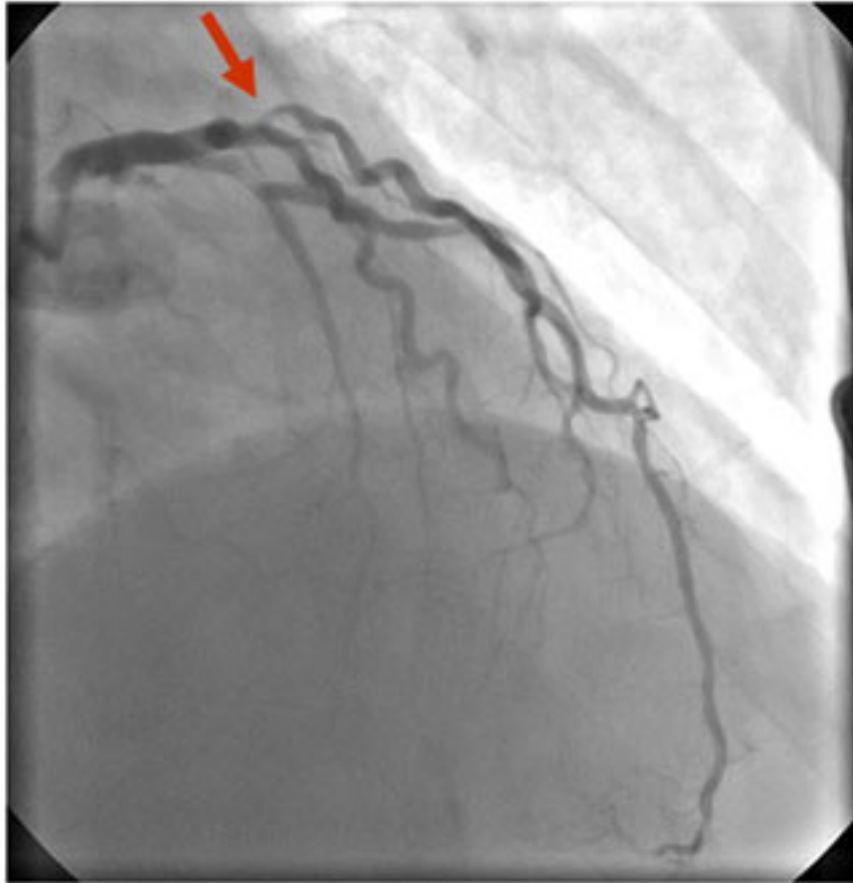


Stent insertion

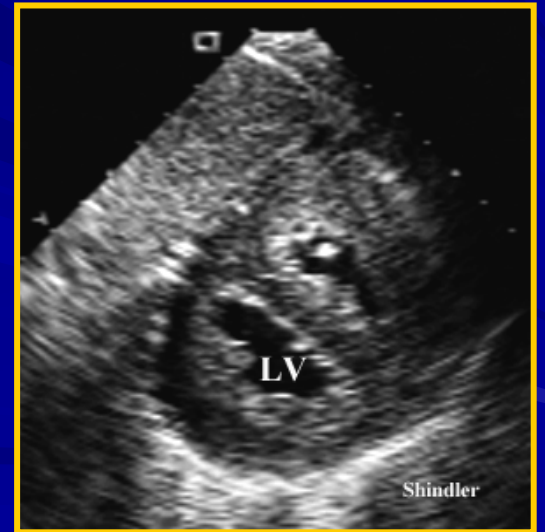
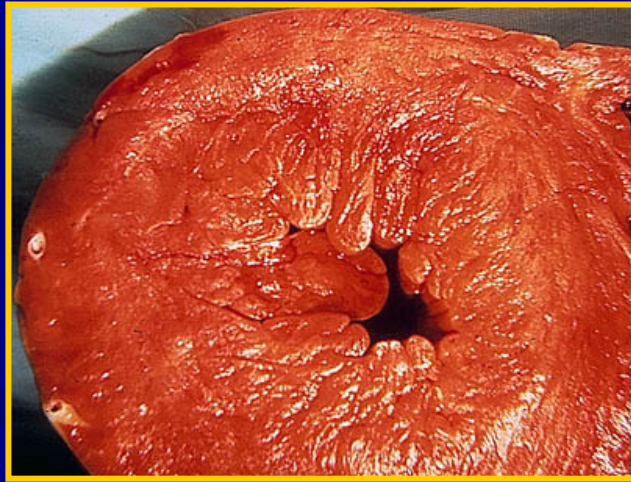
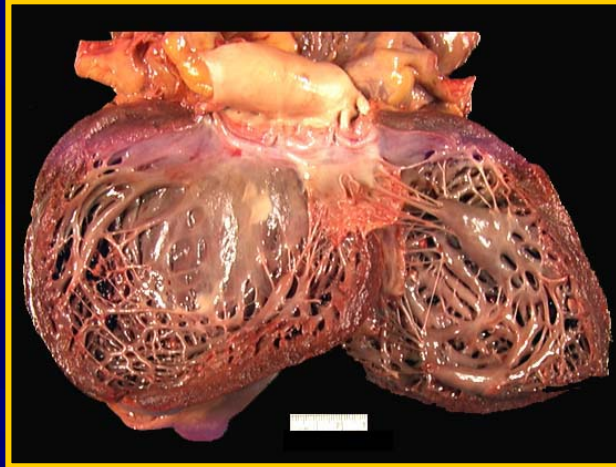
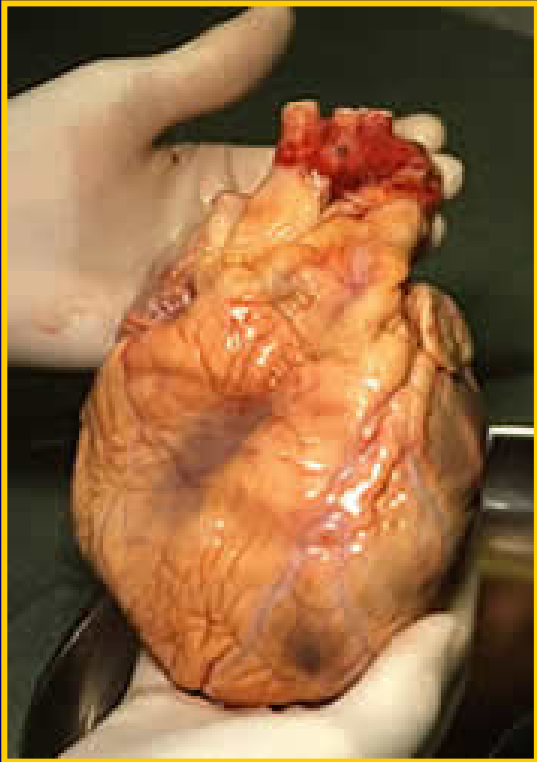
Stent expansion

Stent remains in coronary artery

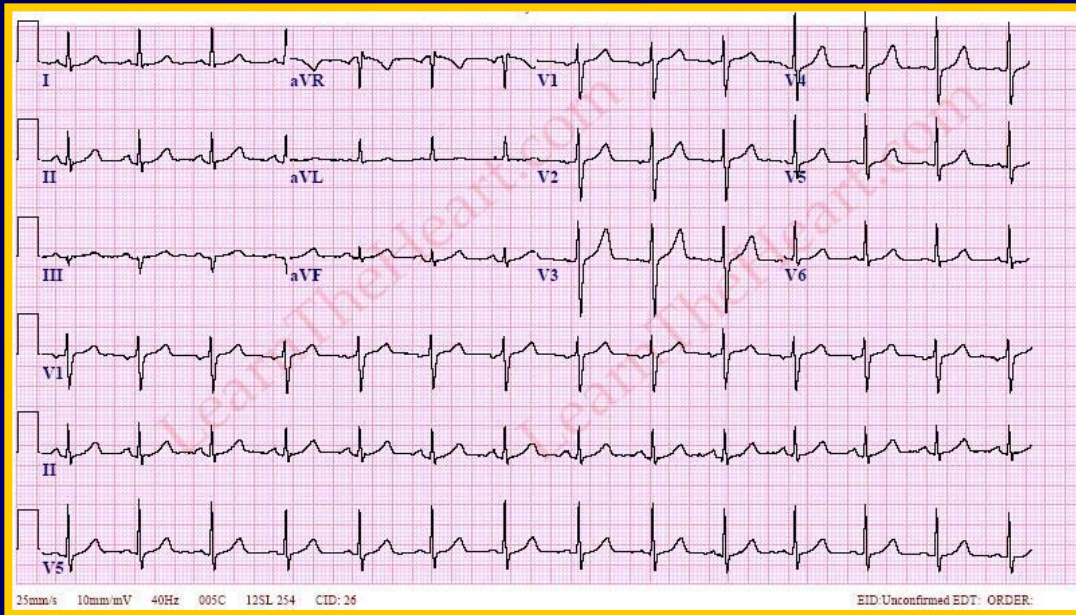
CAD



Heart Failure



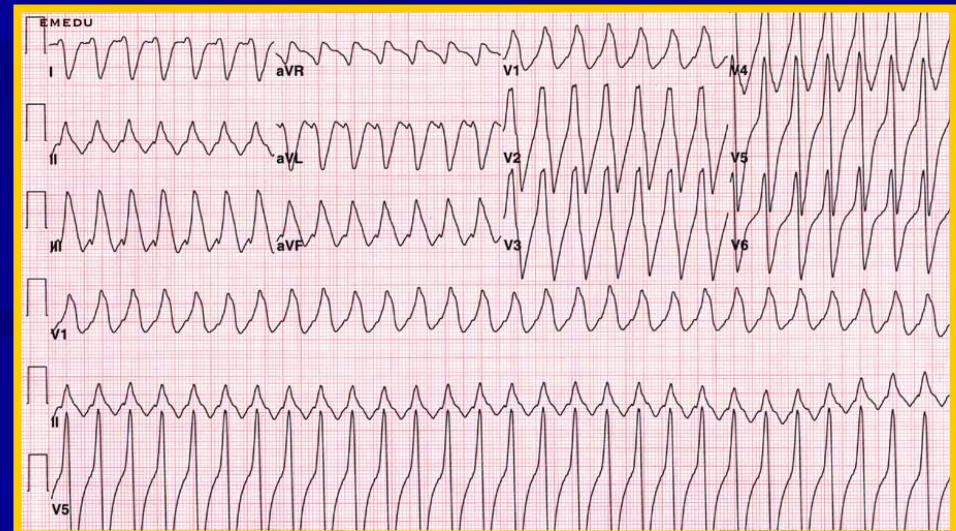
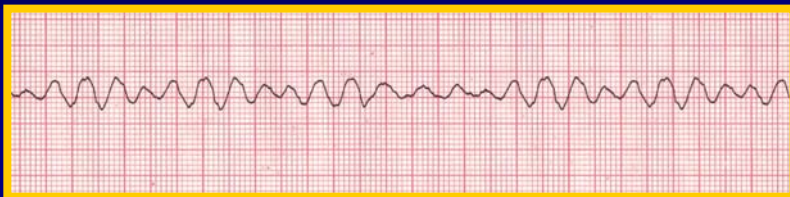
Sudden Death



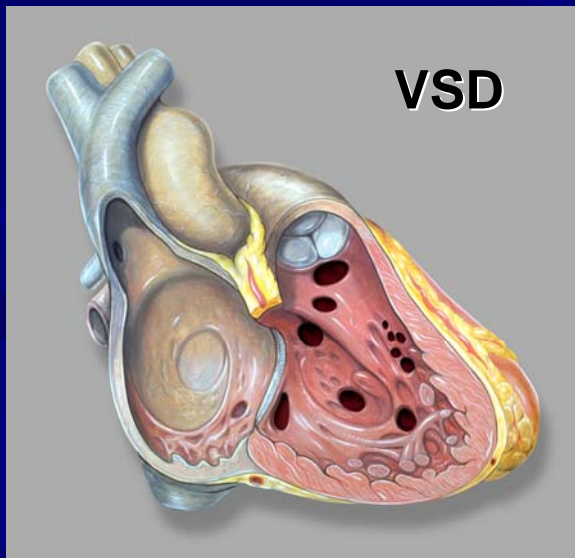
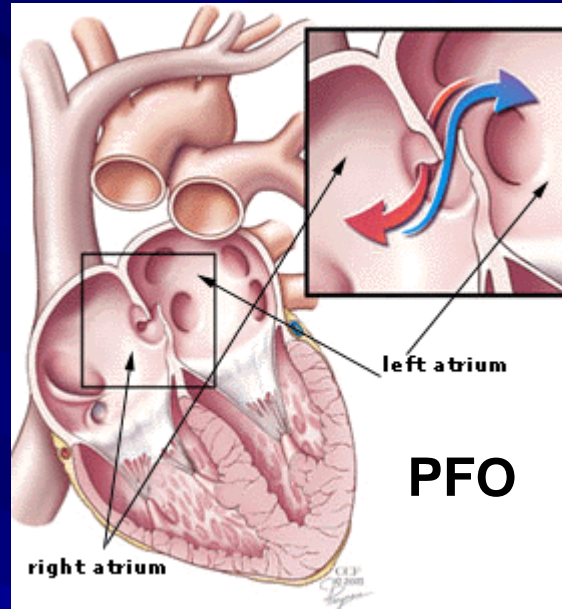
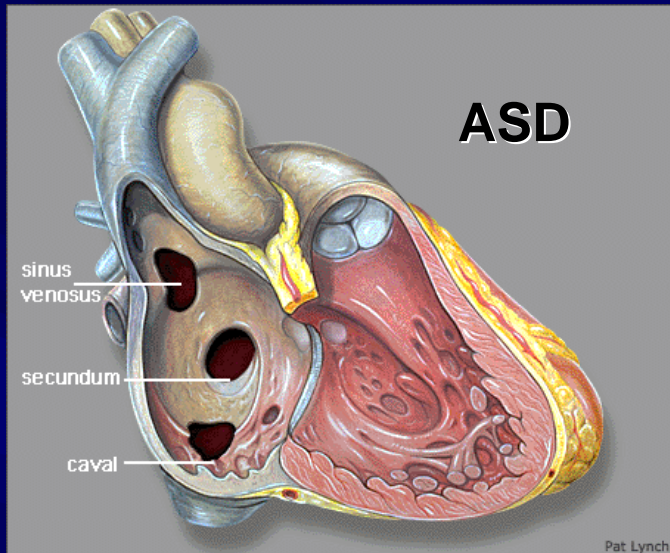
➡ Normal EKG

V tach ➡

V fib

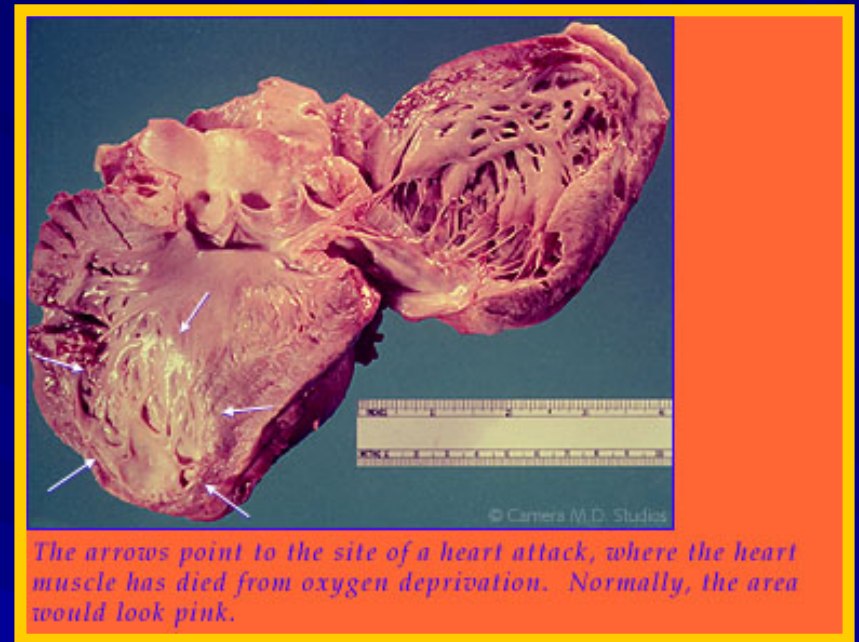


Congenital Heart Disease



Heart Attack

- Coronary heart disease or coronary artery disease is largest killer of American men *and* women.¹
- Every 26 sec, an American suffers a coronary event.
 - Every 60 sec, an American dies.
- In 2005, ~1.2 million Americans had a new or repeat coronary attack.¹
- In 2002, nearly **180,000** people died of a heart attack.¹



¹American Heart Association. *2005 Heart and Stroke Statistical Update*. 2004.

Cardiovascular Disease Clinical Outcomes

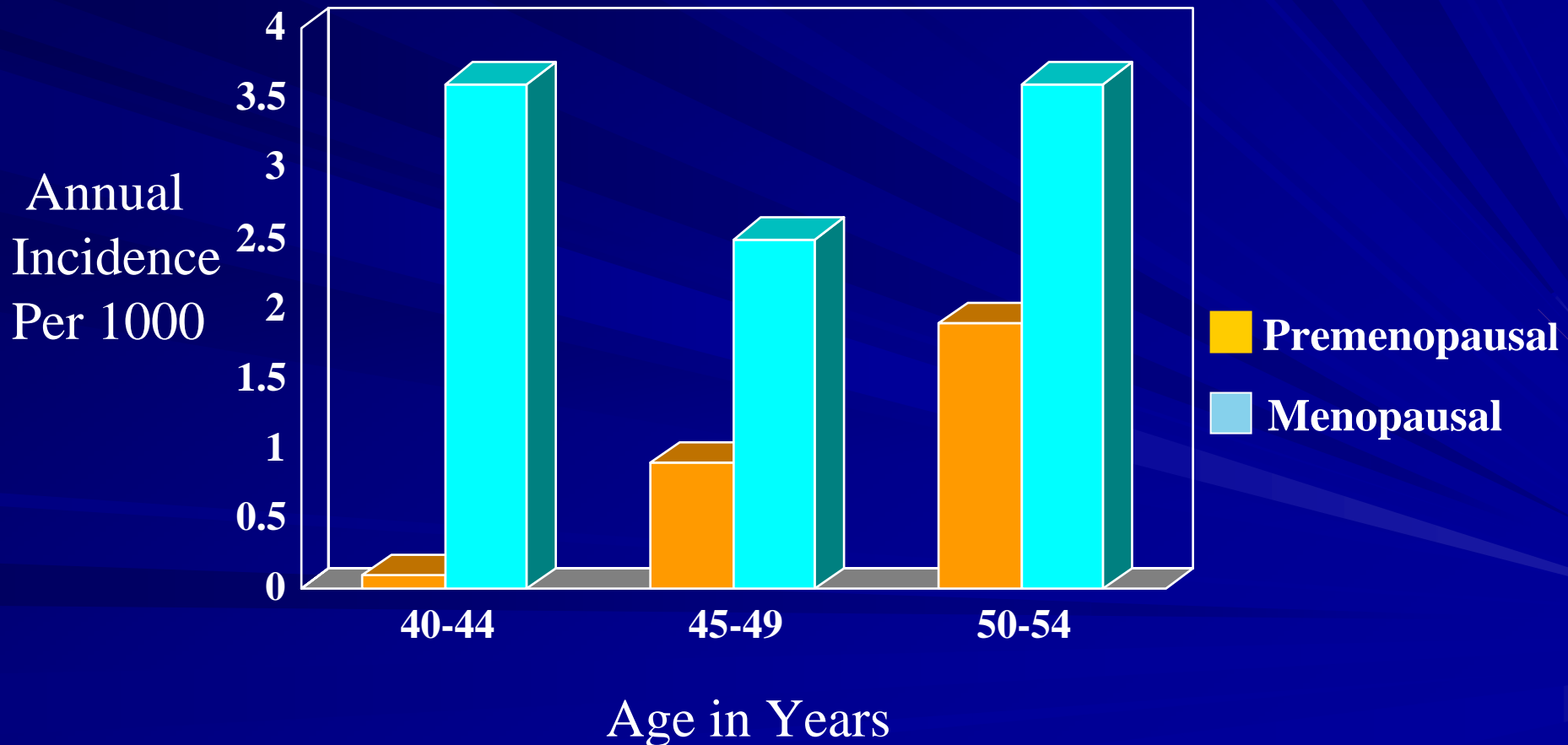
- **Within 6 years after a recognized heart attack...**
 - 18% of men and **35% of women** will have another heart attack.
 - 7% of men and 6% women will experience sudden death.
 - ~22% of men and **46% of women** will be disabled with heart failure.

Women- Ten Year Advantage

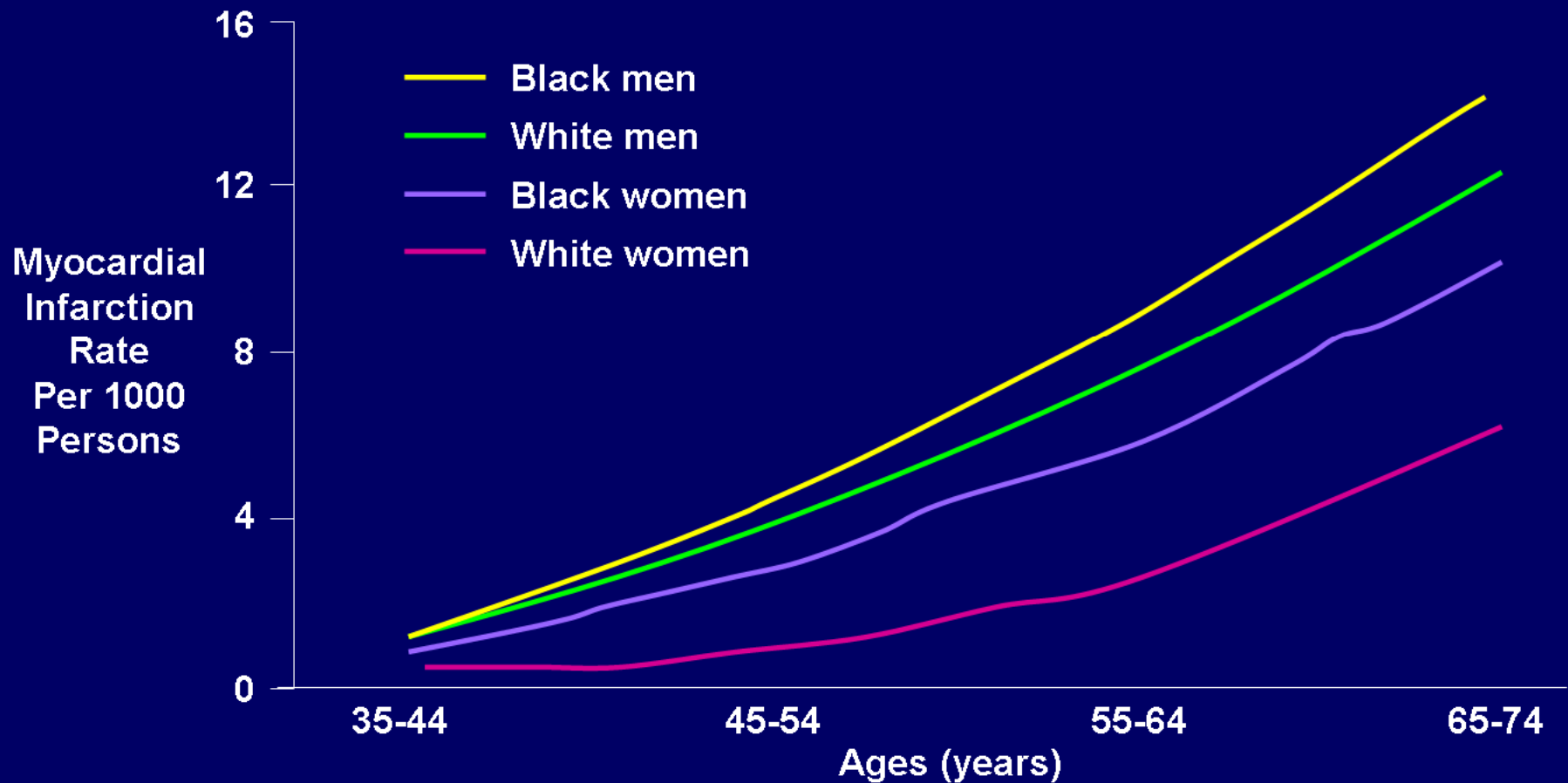
NOT if they:

- 1) smoke .
- 2) have DM.
- 3) have premature menopause.
- Same CV risk factors as men, but low HDL may be a more important predictor- women with HDL<35mg/dl have twice CHD events as men with comparable values (HDL<50mg/dl is abnormal for a women).
- Triglycerides more important risk factor in women.

Incidence of Coronary Heart Disease According to Menopausal Status



Incidence Rate of First Myocardial Infarction Increases With Age and Is Most Prevalent in Black Men*

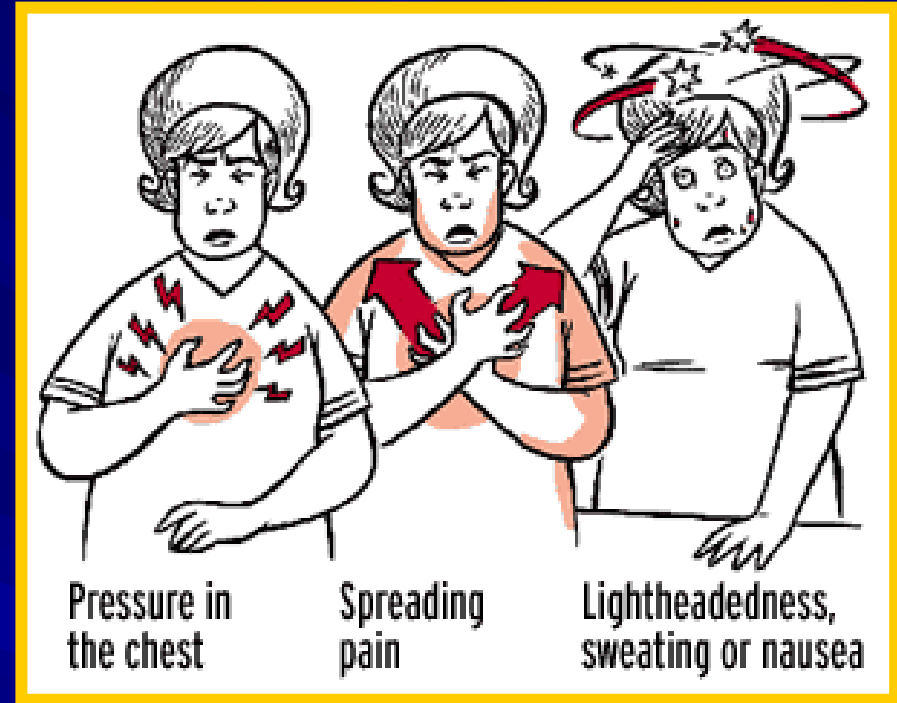


*Atherosclerosis Risk in Communities (ARIC) surveillance study, 1987-2000.
Heart Disease and Stroke Statistics – 2004 Update. American Heart Association (CDC/NCHS).

Heart Attack

■ Predominant symptom:

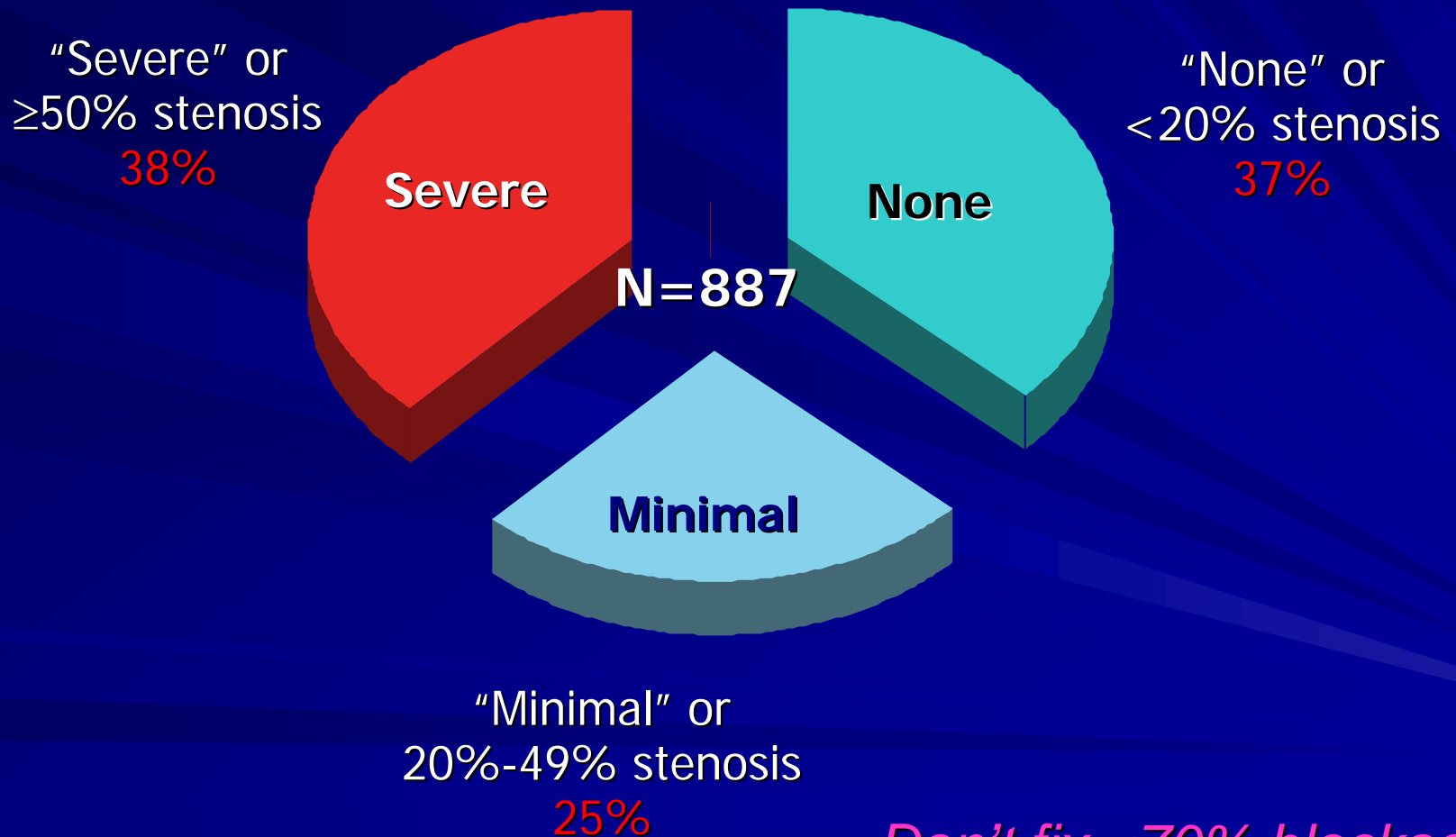
- Chest Pain
 - Women & men (70-80%).
 - Neck, shoulder, upper back or abdominal discomfort
- May contribute to early misdiagnosis.
- Women more likely to have unusual symptoms; nausea, vomiting, breathing difficulty, anxiety, dizzy.



■ Women characteristics:

- Older.
- More: High blood pressure, diabetes & heart failure.
- Although: Better heart function & less severe CAD (blockages).

62% of Women Have No or Minimal Blockage



Don't fix <70% blockages

Factors Leading to Worse Outcomes in Women with Heart Attack

- More co-morbidities (other diseases).
- Difference of symptoms.
- Women:
 - Arrive later after symptom start.
 - Treated later after arrival.
 - Smaller coronary blood vessels.
 - More bleeding complications.
 - More mechanical complications:



Women receive less aggressive treatment

- Less likely to be scheduled for stress testing or angiogram after initial exercise stress testing.
- Less likely to be prescribed aspirin and beta blockers after a heart attack.
- Less likely to receive clot busting medicine after a heart attack.

“Differences in Specialist Consultations for Cardiovascular Disease by Race, Ethnicity, Gender, Insurance Status, and Site of Primary Care”

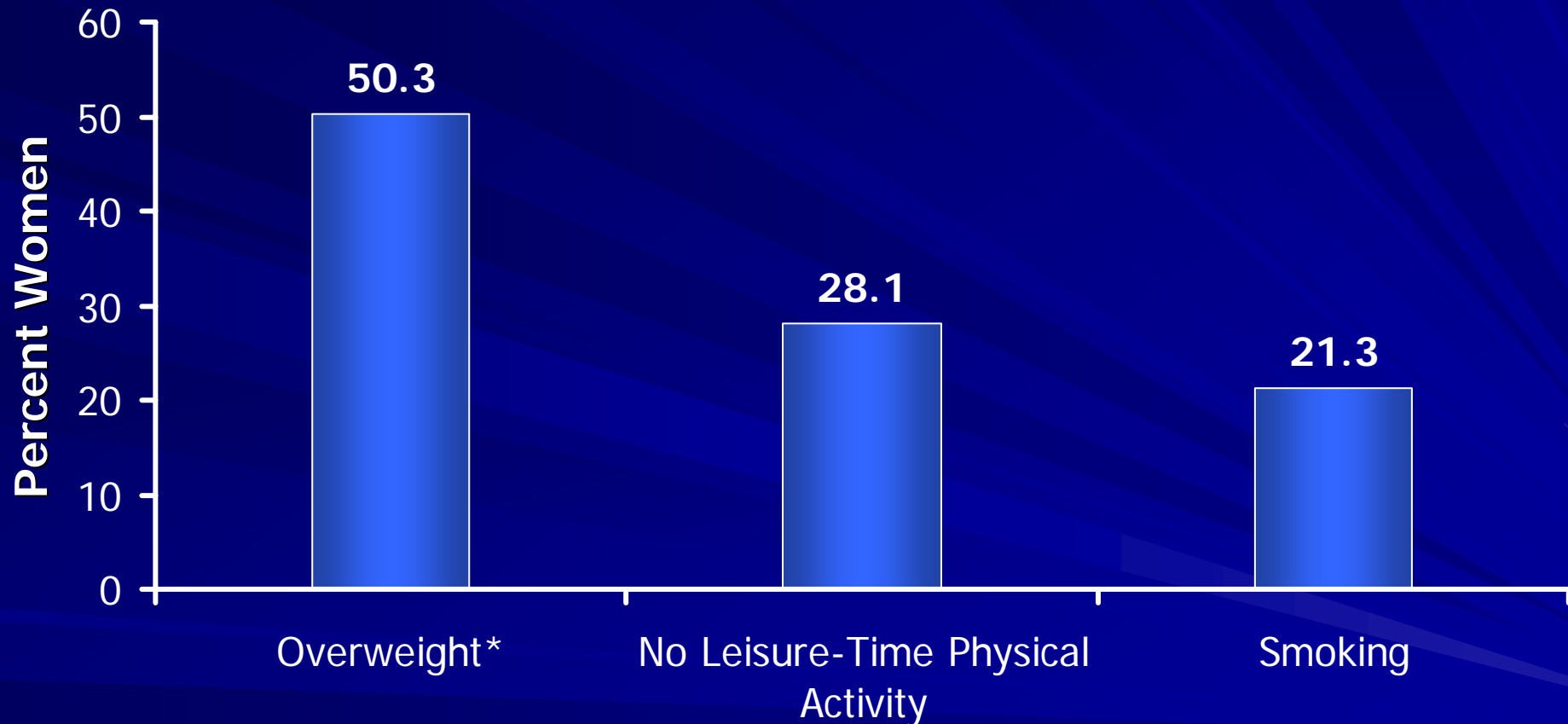
- 9761 adults with coronary artery disease or heart failure receiving primary care at practices affiliated with 2 academic medical centers in 2000- 2005.
- 79.6% with CAD and 90.3% of patients with CHF had a cardiology consultation.
- Women were less likely to receive a consultation than men for both conditions.
- Black and Hispanic patients with CHF had 13% fewer follow-up consultations than white patients.

Cardiovascular Disease Risk Factors

- Diabetes Mellitus*.
- Hypertension (high blood pressure).
- Cigarette smoking.
- Obesity* (BMI ≥ 30 kg/m²).
- Physical inactivity.
- Dyslipidemia* (abnormal cholesterol).
- Microalbuminuria (30 mg/gm cre) (kidney function).
- Estimated GFR < 60 mL/min (kidney function).
- Age (men > 55 , women > 65).
- Family history of early CVD (men < 55 , women < 65).

*Components of the metabolic syndrome. BMI=body mass index; GFR=glomerular filtration rate.
Chobanian AV, et al. JNC 7 Report. *JAMA*. 2003;289:2560-2572.

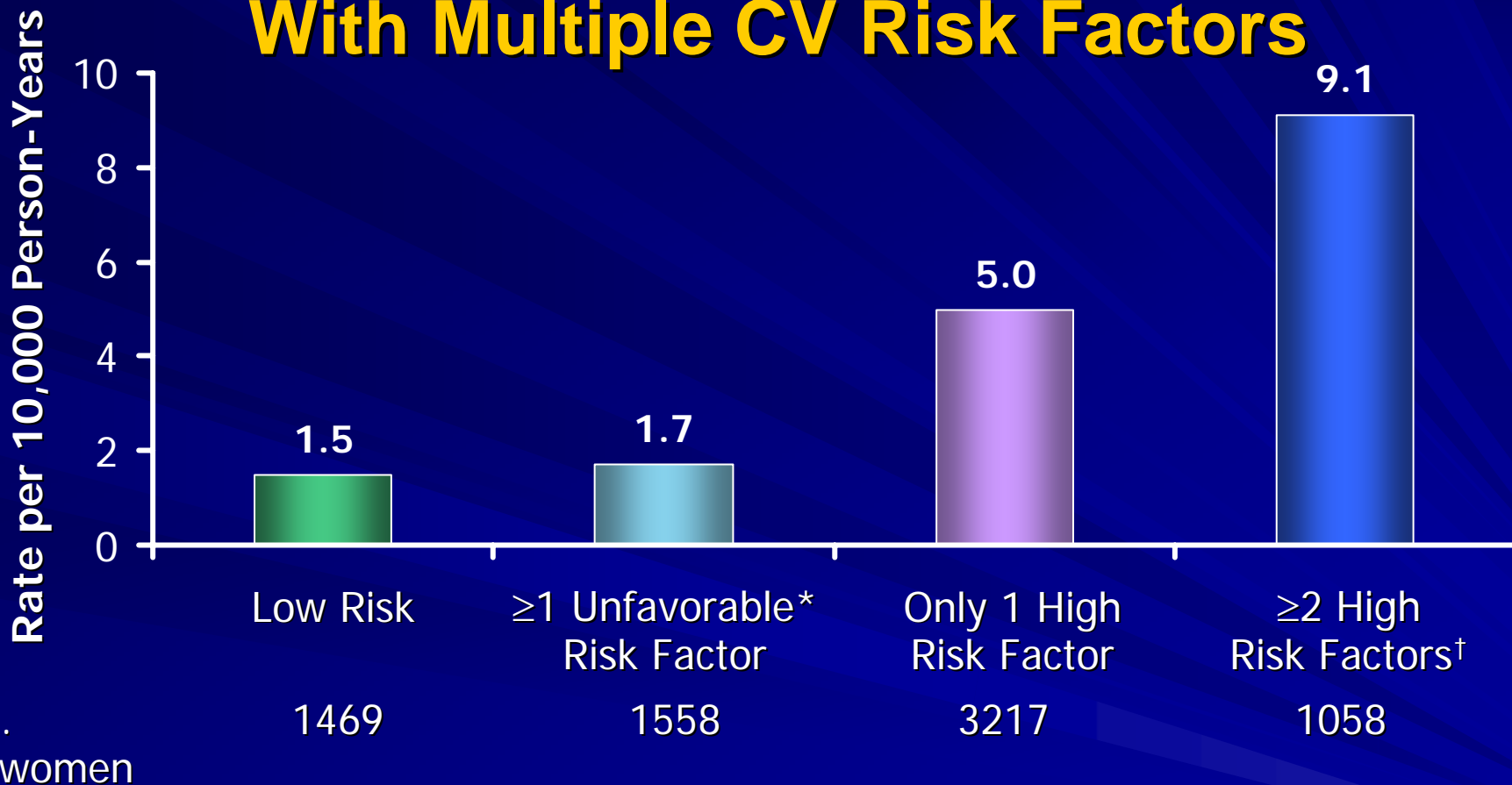
Prevalence of Modifiable Cardiac Risk Factors (Behavioral) in Women: 2001



*Index body mass index 25.0-29.9 kg/m².

Ahluwalia et al. *MMWR Morb Mortal Wkly Rep.* 2003;52(SS-8):1-84.

31-Year Mortality Rates From CVD in Women With Multiple CV Risk Factors



*Unfavorable risk factors: SBP=121-139 mm Hg, DBP=81-89 mm Hg and not on antihypertensive medication, Total-C=200-239 mg/dL and not on cholesterol-lowering medication, BMI=25.0-29.9; †High risk factors: SBP ≥140 mm Hg, DBP ≥90 mm Hg or on antihypertensive medication, Total-C ≥240 mg/dL or on cholesterol-lowering medication, BMI ≥30.0, diabetes, cigarette smoking.

Daviglus et al. *JAMA*. 2004;292:1588-1592.

AHA Guidelines for Prevention in Women

- Lifestyle changes:
 - ≥ 30 minutes moderate-intensity physical activity daily; 60 min for weight loss.
 - STOP Smoking.
 - Weight maintenance/reduction.
 - Heart-healthy diet.
- Optimal BP $< 120/80$ mm Hg with lifestyle changes.
- Treat BP $\geq 140/90$ (lower if diabetes or organ damage).
- Lifestyle changes or therapy in diabetics ($\text{HbA}_{1c} < 7\%$).
- Lifestyle approaches and, if appropriate, treat cholesterol:
 - LDL-C < 100 mg/dL (bad cholesterol).
 - TG < 150 mg/dL.
 - Non-HDL-C < 130 mg/dL.
 - HDL-C > 50 mg/dL (good cholesterol).

AHA Evidence-Based Guidelines for Women: Major Risk-Factor Interventions: Lipids and Lipoproteins

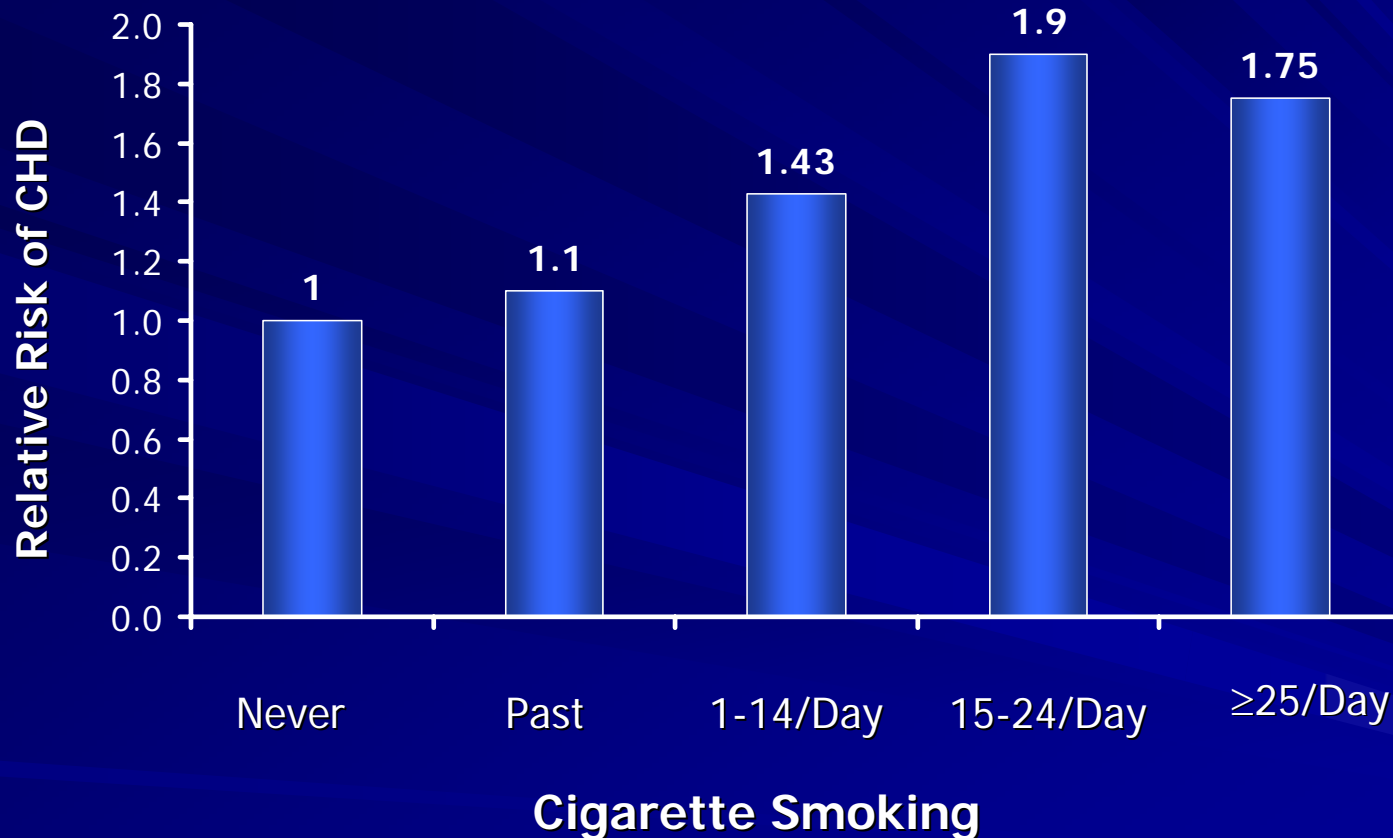
■ Heart-healthy diet:

- Consistently encourage overall healthy eating pattern
 - Fruits, vegetables, grains, low-fat or nonfat dairy products, fish, legumes, and sources of protein low in saturated fat
 - Limit saturated fat intake to <10% of calories, limit cholesterol to <300 mg/d, and limit intake of trans-fatty acids.

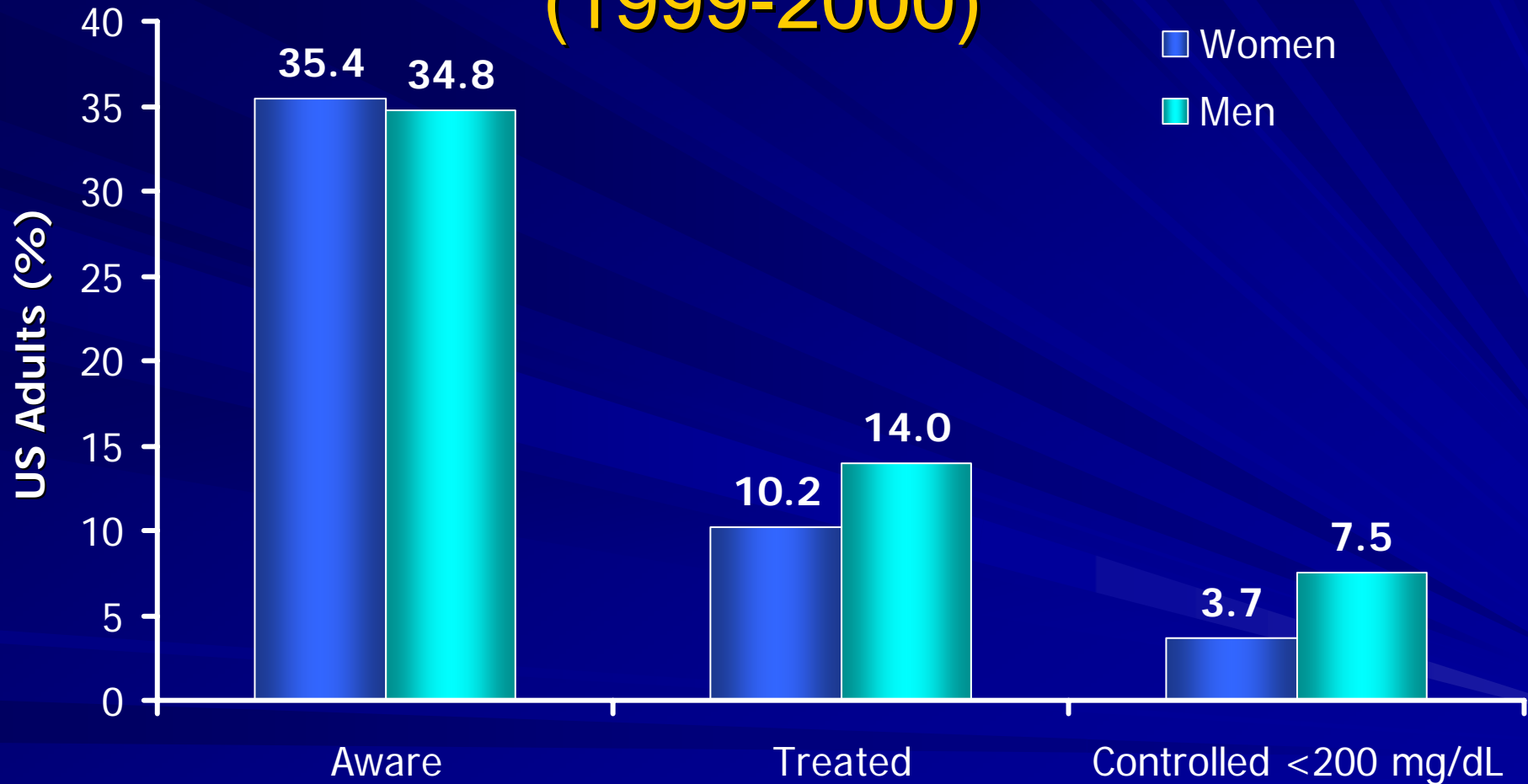
■ Diet therapy:

- In high-risk women or when LDL-C (bad) is elevated, reduce saturated fat to <7% of calories, cholesterol to <200 mg/d, and limit trans-fatty acid intake.

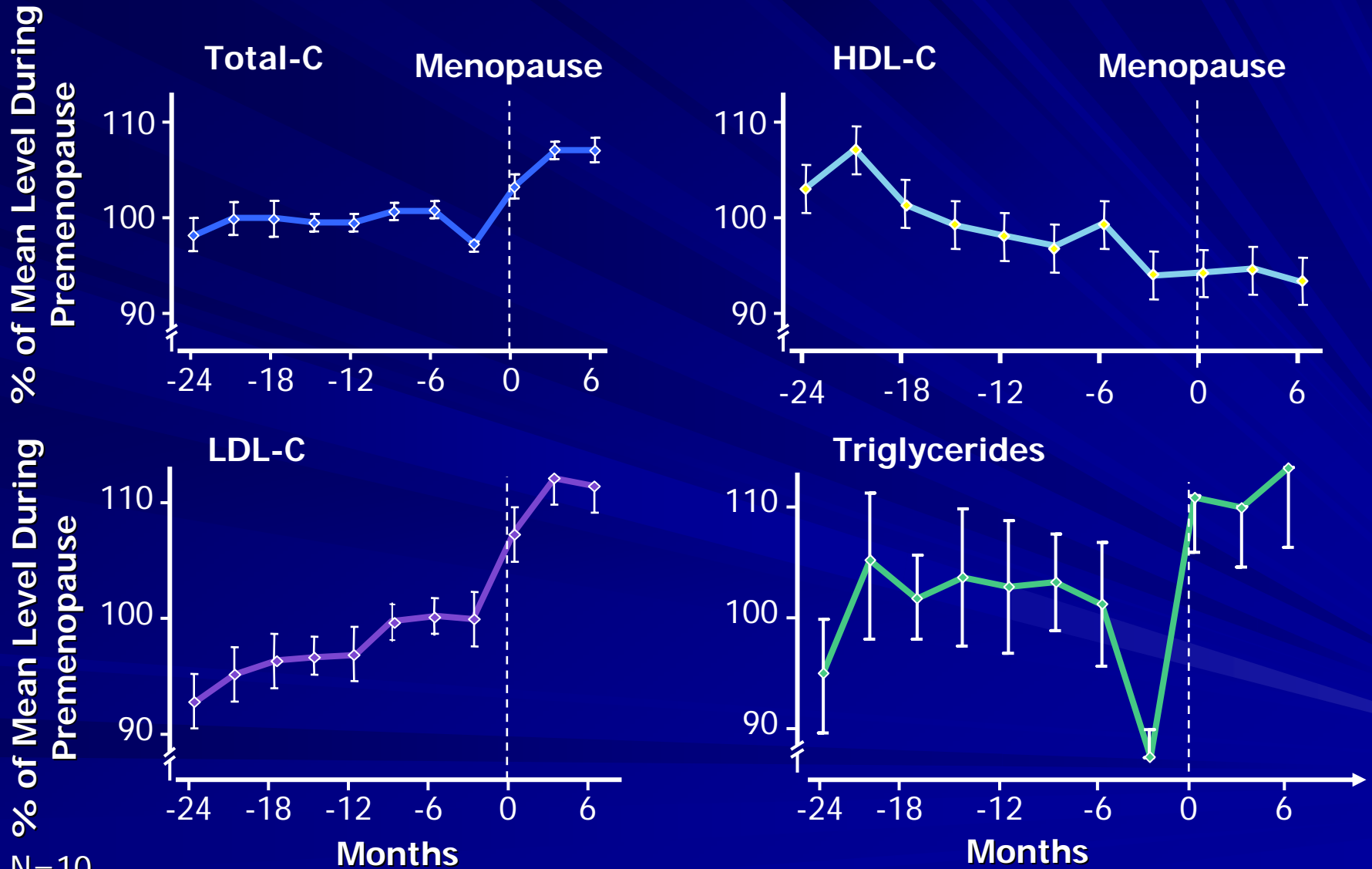
Cigarette Smoking and Risk of CHD in Women: Nurses' Health Study



Awareness, Treatment, and Control of Hypercholesterolemia: NHANES (1999-2000)



Change in Lipids After Menopause



N=10.

Jensen et al. *Maturitas*. 1990;12:321-331.

Obesity

Body mass index

$$\text{BMI} = \text{wt}(\text{kg}) / \text{height}(\text{m})^2$$

- BMI >25= “overweight”.
- BMI >30= “obese”.



O
THE OPRAH
MAGAZINE

10
WAYS TO
PROTECT
YOUR
MONEY
NOW!

It's 2009...
Do you know
where your
life is?

- Boost your health
- Look great for less
- Cool down your stress

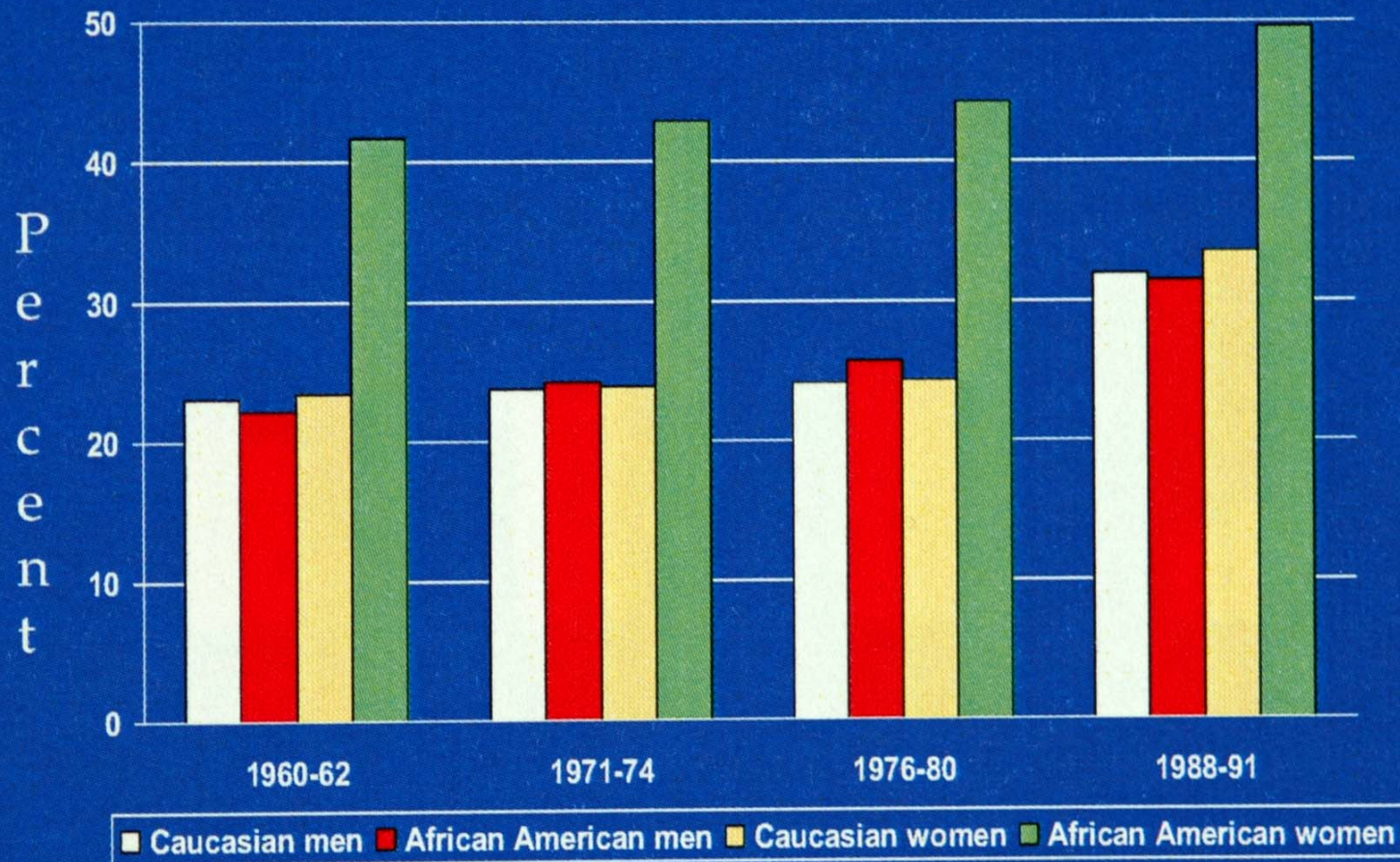
“How did I let this happen again?”
OPRAH on her battle with weight: A must read for anyone who's ever felt left out the wagon

PLUS:
**MAKING
WEIGHT
LOSS
STICK**
Bob Greene's
simple plan

The one thing
every happy
couple does
Your relationship
repair kit

2008 2009

Trend Toward Increasing Age-Adjusted Prevalence of Obesity by Race and Gender



Source: NHANES I, II, III

Hypertension



- 50 million people in the US...no symptoms.
- >50% women over 45 y/o have hypertension.
- >2/3 hypertensives are >65 years old.
- Risk *begins* at **115/75**.
- *Risk doubles for each 20/10 mm Hg.*
- BP **120-139/80-89** =prehypertension → lifestyle modification.
- **<140/90** if no kidney disease or diabetes.

Diabetes Mellitus

- By 2010, *world's* population of diabetics will double...from 110 million (1994) to 221 million.
 - *Increase parallels increase in obesity rates.*
- Diabetics are 2-3 times more likely to be admitted to the hospital.
- Hospital admissions are four times longer.

Diabetes Mellitus: U.S. Statistics

- Type 2 diabetes affects 15.7 million people, 5.4 million undiagnosed.
- Between 1990 and 1998, diabetes increased 33%.
- Cardiovascular disease accounts for 75% of ~ 200,000 diabetes-related deaths annually.

Data from: Mokdad AH, et al. *Diabetes Care*. 2000;9:1278-1283. Mokdad AH, et al. *Diabetes Care*. 2001;24:412 (letter). ADA Diabetes Facts and Figures page. American Diabetes Association Web site. Available at: <http://www.diabetes.org/main/application>. Accessed July 11, 2001. Kannel WB. *Am Heart J*. 1985;110:1100-1107. Abbott RD et al. *JAMA*. 1988;260:3456-3460.

- Diabetes eliminates protective effect of being premenopausal.
 - ***recurrent heart attack*** in diabetic women is ***three times*** nondiabetic women.
- Time to repeat heart attack or fatal event is ***5.1 yrs for diabetic*** versus 8.1 yr for nondiabetic women.
- Many diabetics are at continued risk for cardiovascular events, even though they are receiving treatment for diabetes.
- Achieving the ***blood pressure goal (< 130/80)*** ***is more important*** than diabetes control or which drug is used first.

Metabolic Syndrome

≥3 of the following:

<u>Risk Factor</u>	<u>Defining Level</u>
Abdominal obesity (waist circumference*)	
Men	>40 in
Women	>35 in
Triglycerides	≥150 mg/dL
HDL(good) cholesterol	
Men	<40 mg/dL
Women	<50 mg/dL
Blood pressure	≥130/≥85 mm Hg
Fasting blood sugar	≥110 mg/dL

*Some male patients may develop multiple metabolic risk factors when waist circumference is only marginally increased (eg, 94 to 102 cm [37 to 40 inches]).

NCEP ATP III=National Cholesterol Education Program-Adult Treatment Panel III.

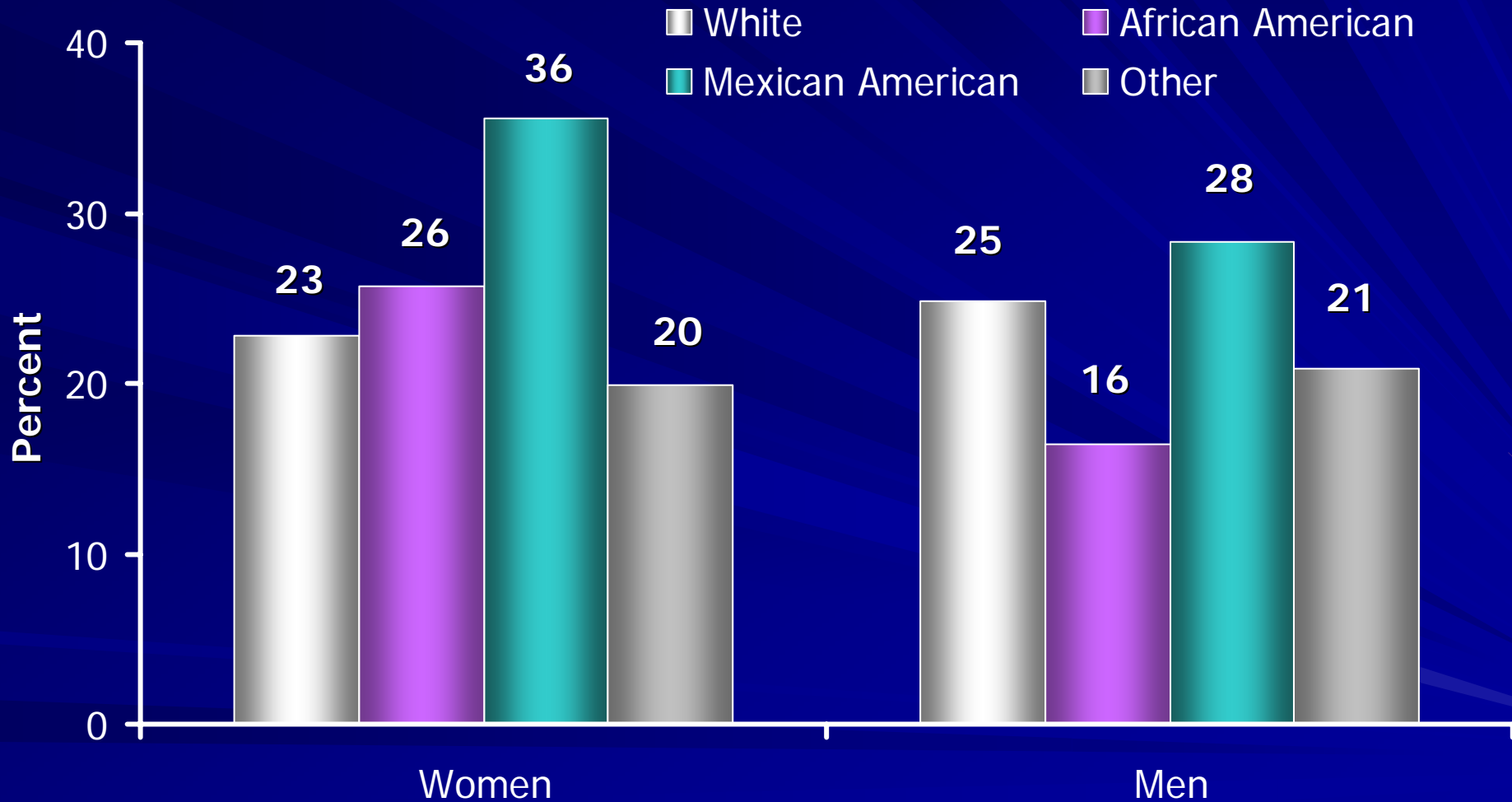
NCEP ATP III. *JAMA*. 2001;285:2486-2497. *Circulation* 2004;109:433-438.

Metabolic Syndrome



- Occurs in 1/3 of obese individuals.
- Increased risk of CVD, diabetes, polycystic ovary syndrome, fatty liver, cholesterol gall stones, sleep disturbances, asthma.
- Risk for coronary heart disease is *2-3 times normal*.
- Risk equivalent: ~1-2 packs of cigarettes.
- Treatment is weight loss and exercise (60 min/day).
- After 4 years of treatment, risk of diabetes reduced 50%.

Prevalence of NCEP Metabolic Syndrome by Sex and Race/Ethnicity: NHANES III



NCEP=National Cholesterol Education Program.

Ford et al. *JAMA*. 2002;287:356-359.

Upshot

- Information is power.
- It's your life...ask questions.
- Get a second opinion.
- Change your lifestyle...it's free and has no side effects.
- Have a positive attitude.
- Know your family history...pass on the power.
- Control your blood pressure.
- Control your diabetes.
- Seek **early** medical attention, when you have new symptoms or a change in symptoms.



HEART DISEASE *doesn't* CARE WHAT YOU WEAR
IT'S THE #1 KILLER OF WOMEN

HEART DISEASE *doesn't* CARE WHAT YOU WEAR
IT'S THE #1 KILLER OF WOMEN

NHLBI
"Heart Truth"
Campaign

www.Hearttruth.gov



womenheart

The National Coalition for
Women with Heart Disease
www.womenheart.org

Incidence of Fatal or Nonfatal Heart Attack in Patients With and Without Diabetes

