

# **RISK FACTORS FOR HEART ATTACK AND STROKE–2010.**

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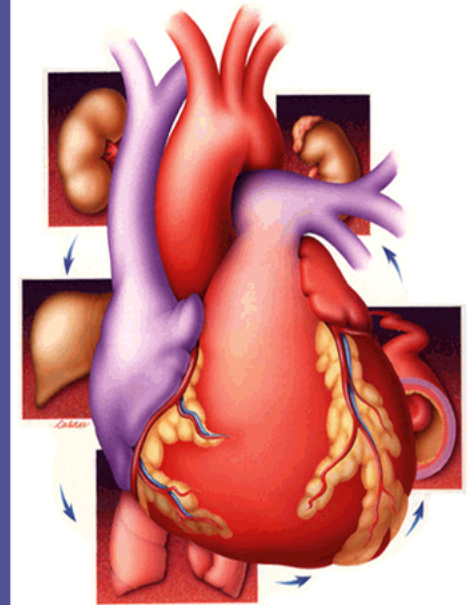
Seton Medical Center

Daly City, CA





# CV Disease and Its Prevailing Risk in the United States



## Health Status: United States vs. 29 Other OECD Countries (2)

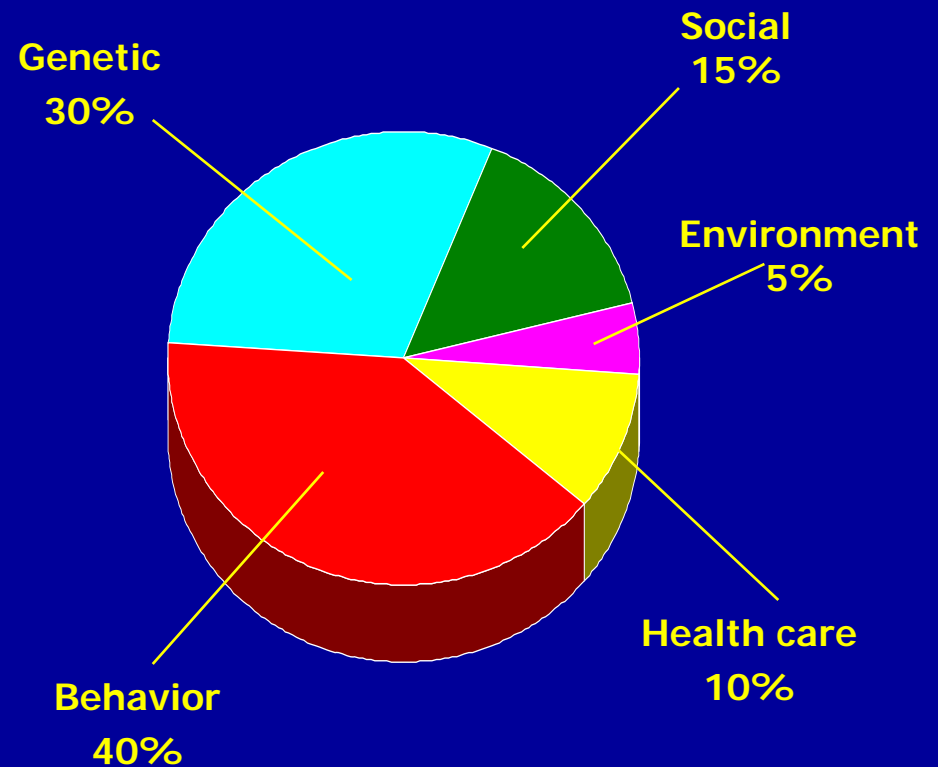
<b>Health Status Measure</b>	<b>U.S.A.</b>	<b>U.S. Rank in OECD (30)</b>	<b>Best Rank of OECD</b>
<b>Life Expectancy from birth (y)</b>			
All Women	80.1	22	Japan (85.3)
White women	80.5	19	
All men	74.8	22	Sweden (78.4)
White men	75.3	19	
<b>Life expectancy from age 65/-2004*</b>			
All women, years	19.8	10	Japan (23)
White women, years	19.8	10	
All men, years	16.8	9	Iceland (18.1)
White men, years	16.9	9	

\* Data missing for six (6) countries

# Determinants of Health

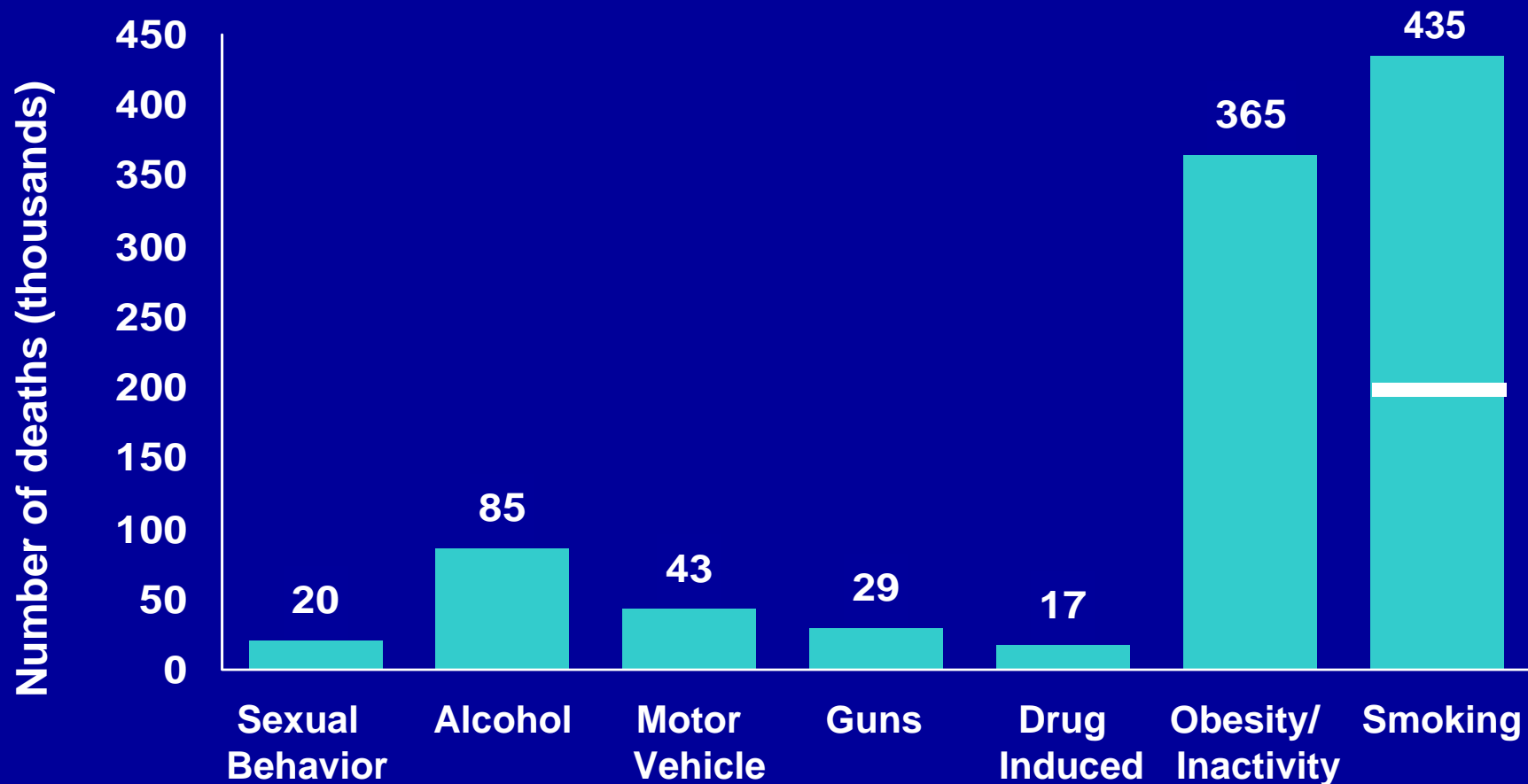
- Genetic predisposition
- Behavioral patterns
- Environmental exposures
- Social circumstances
- Health care

# Proportions (Premature Mortality)



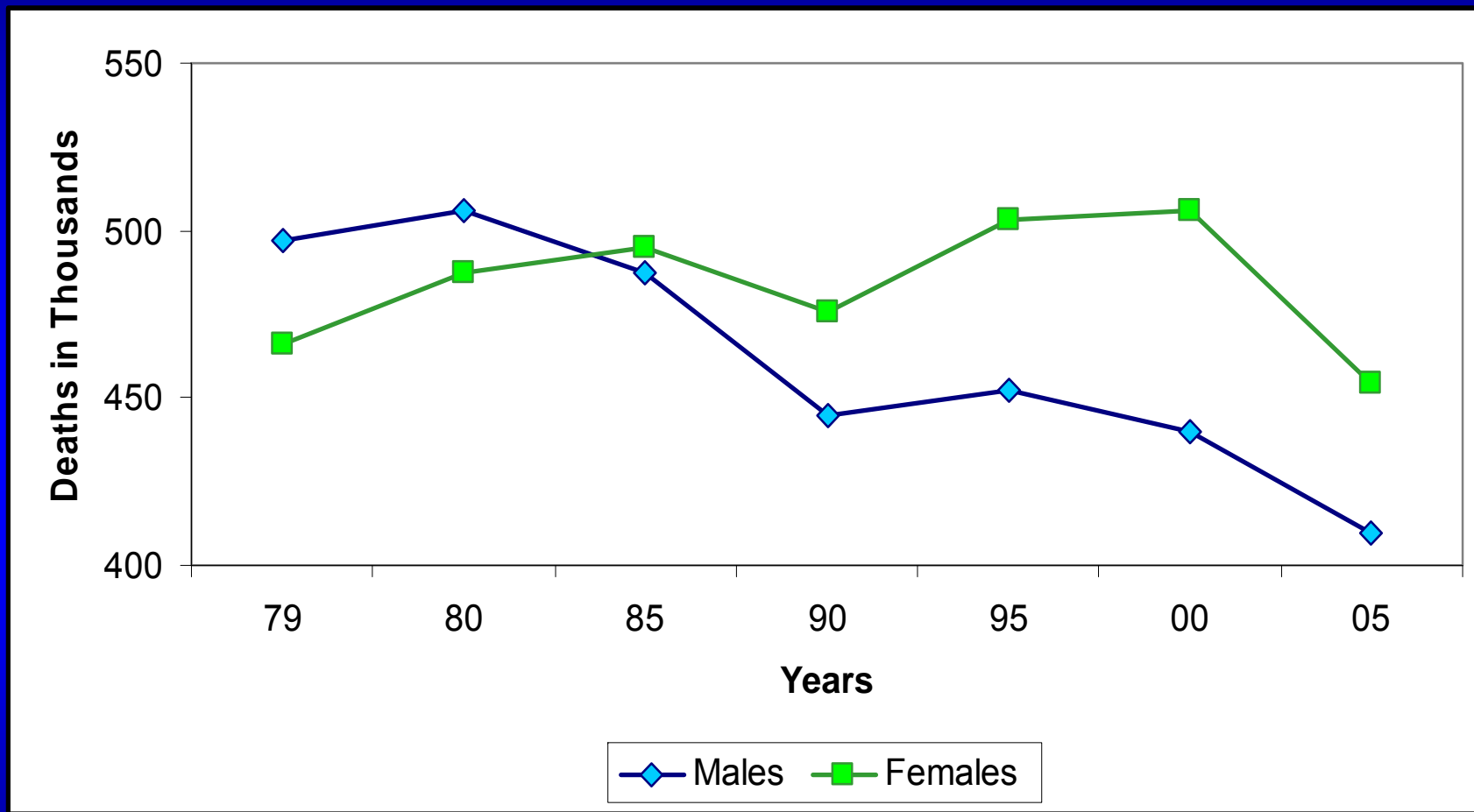
Source: McGinnis JM, Russo PG, Knickman, JR. Health Affairs, April 2002.

# Behavioral Causes of Annual Deaths in the United States, 2000



Source: Mokdad et al, JAMA 2004;291:1238-1245  
Mokdad et al; JAMA. 2005; 293:293

\* Also suffer from mental illness and/or substance abuse

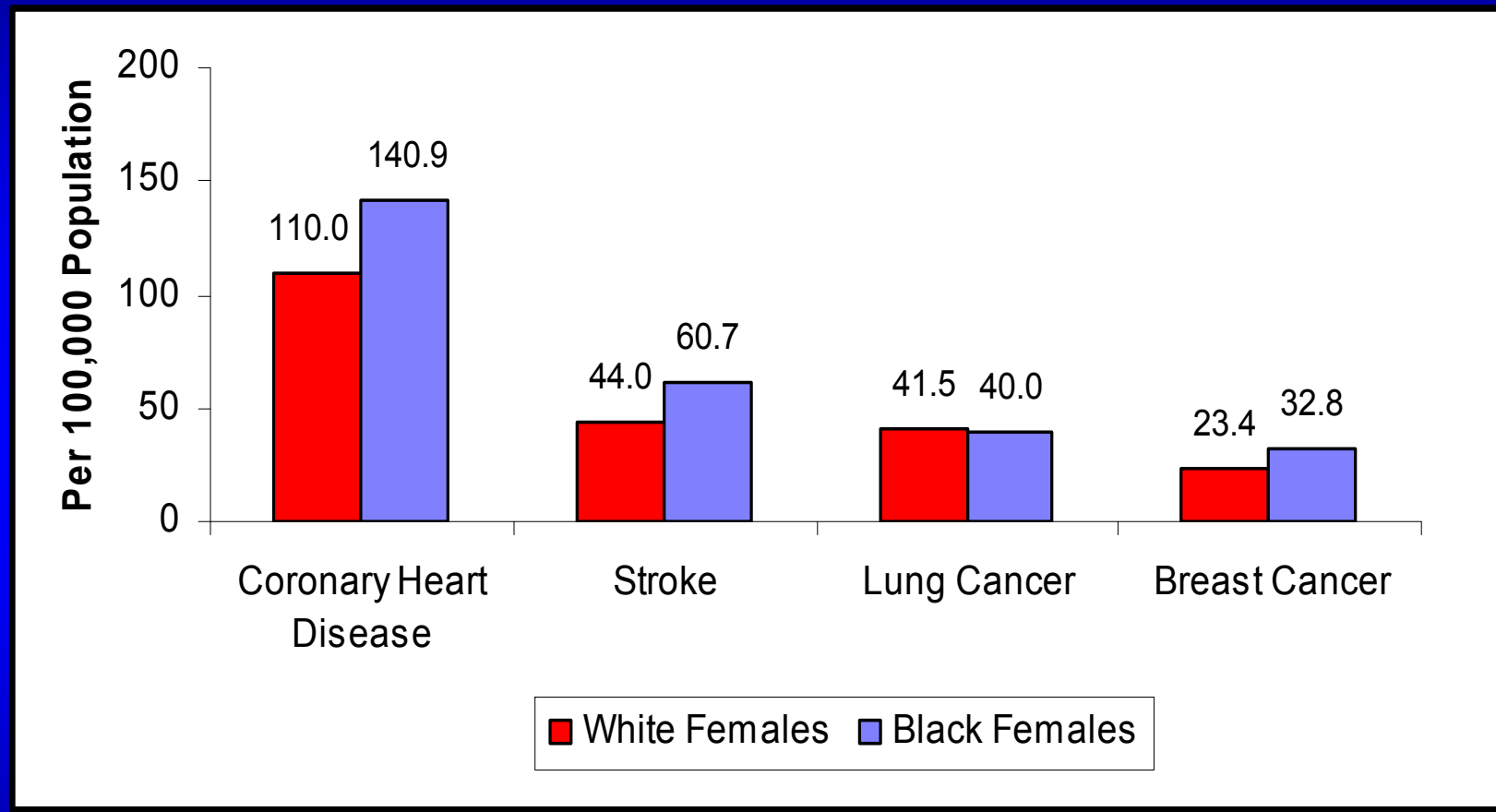


## CVD disease mortality trends for males and females

(United States: 1979-2005).

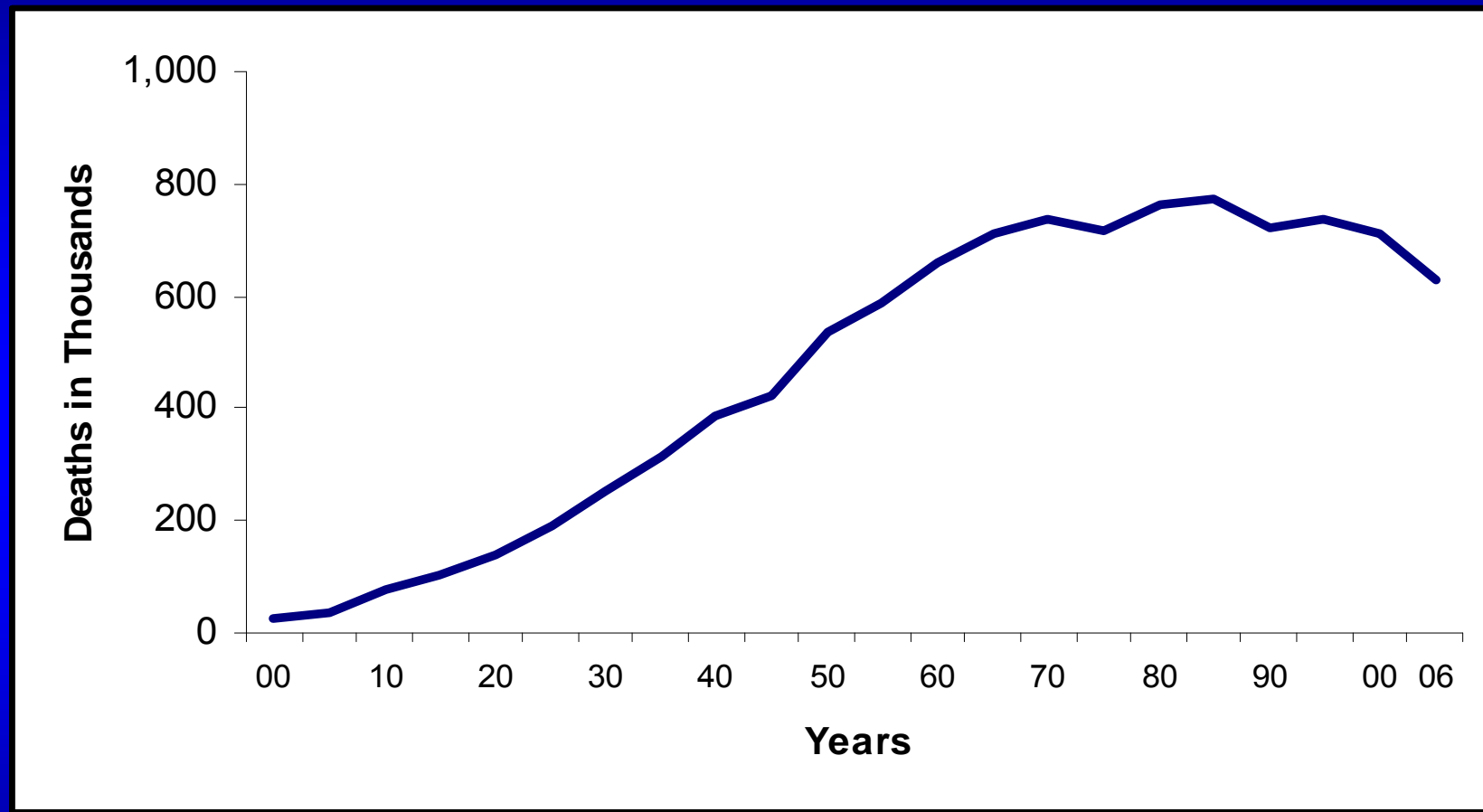
Source: NCHS and NHLBI. Note: No comparability ratios were applied





**Age-adjusted death rates for CHD, stroke, lung and breast cancer for white and black females (United States: 2005).**

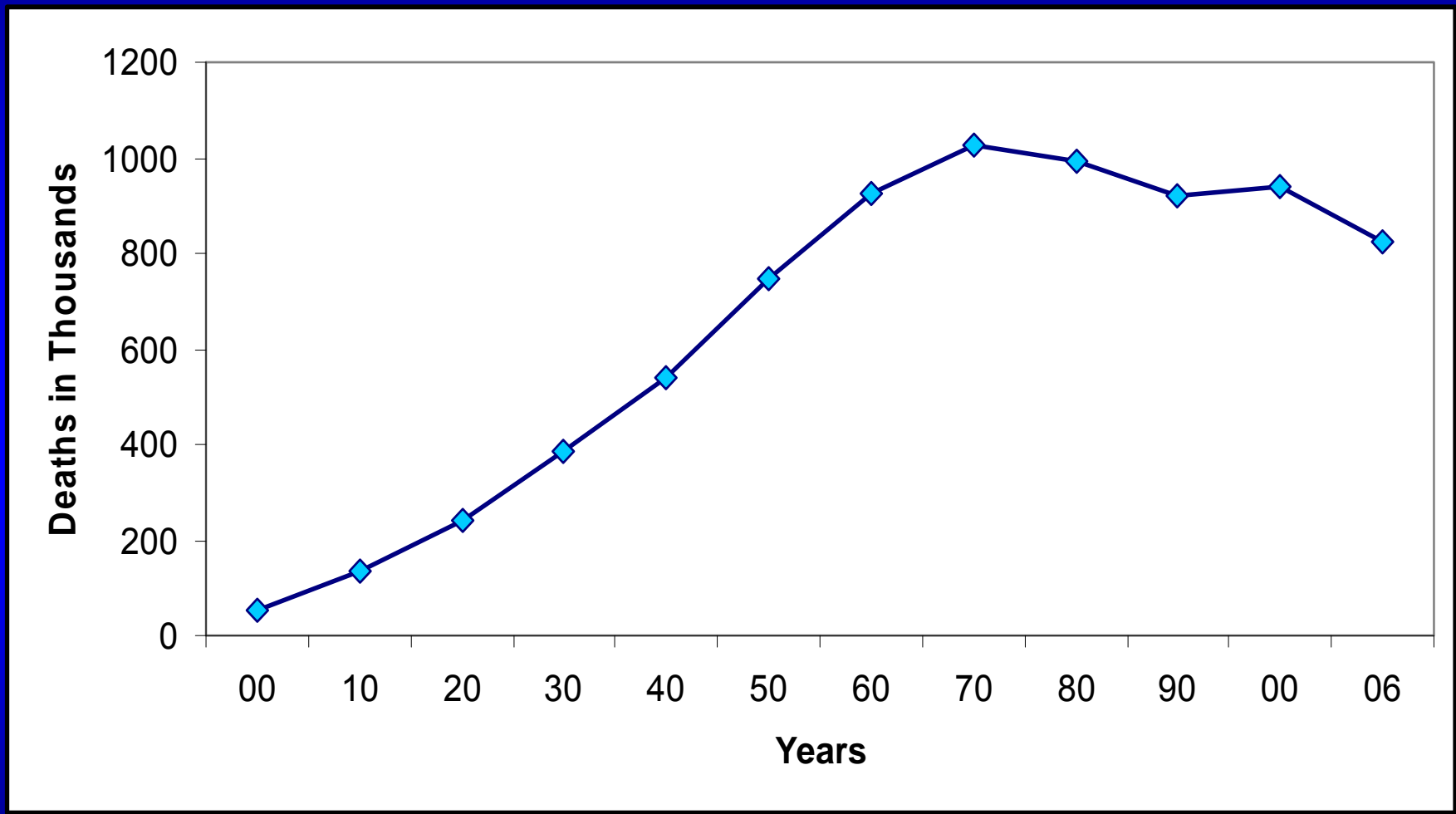
**Source: NCHS and NHLBI.**



**Deaths from diseases of the heart** (United States: 1900–2006)

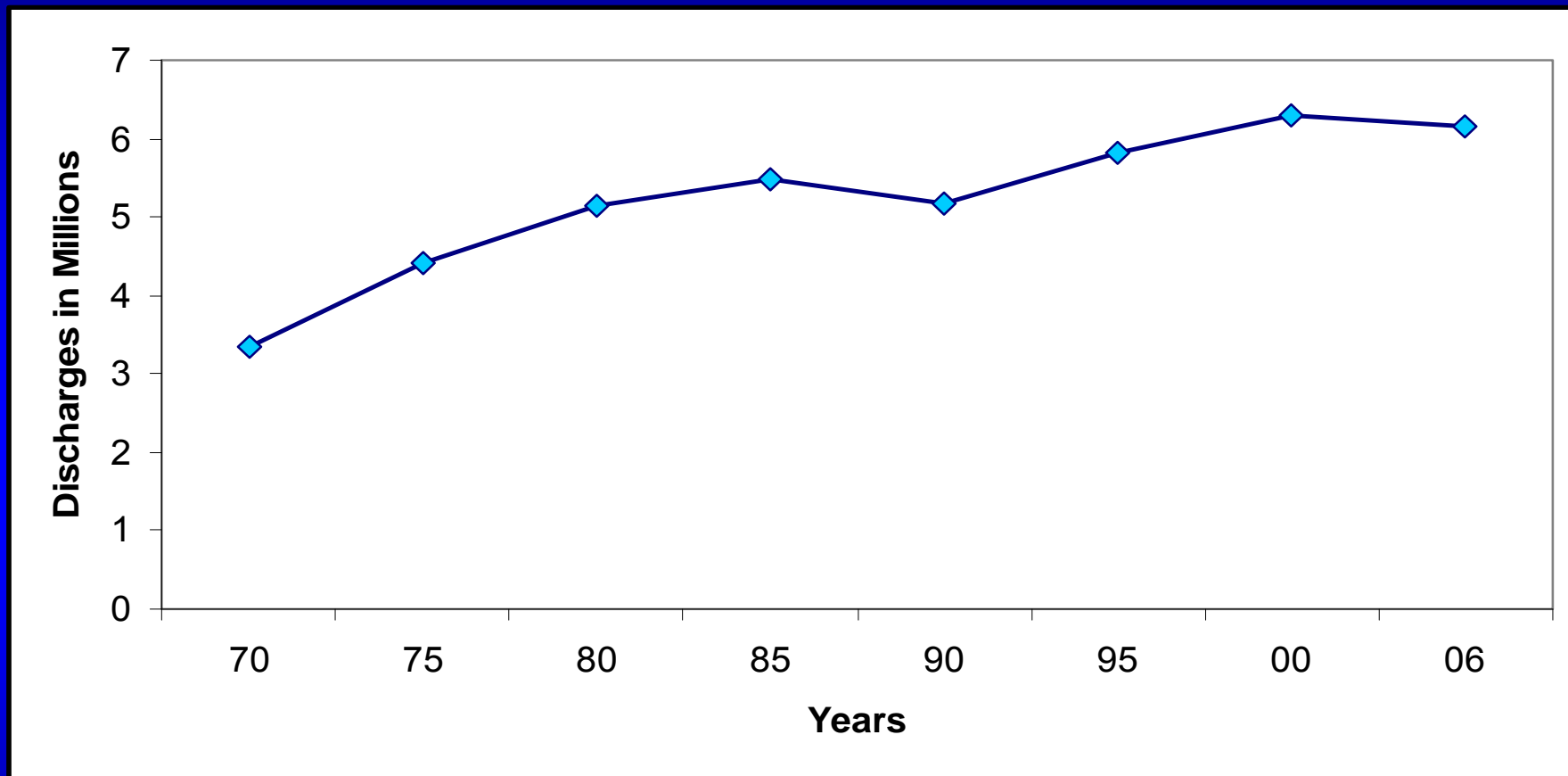
Note: See Glossary for an explanation of “Diseases of the Heart.”

Source: NCHS and NHLBI.



**Deaths from cardiovascular disease**

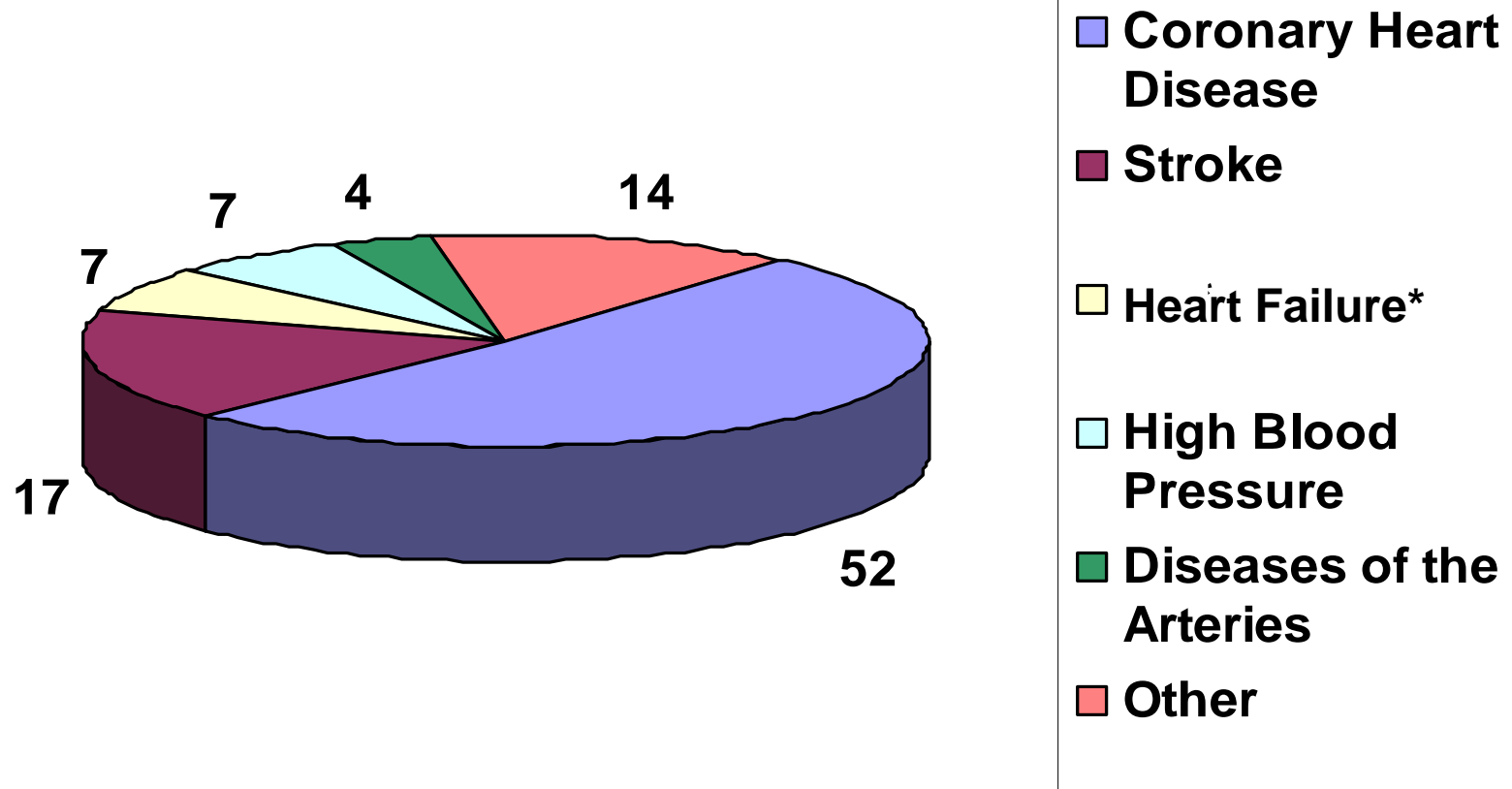
(United States: 1900–2006 preliminary). Source: NCHS and NHLBI.



## **Hospital discharges for cardiovascular diseases.**

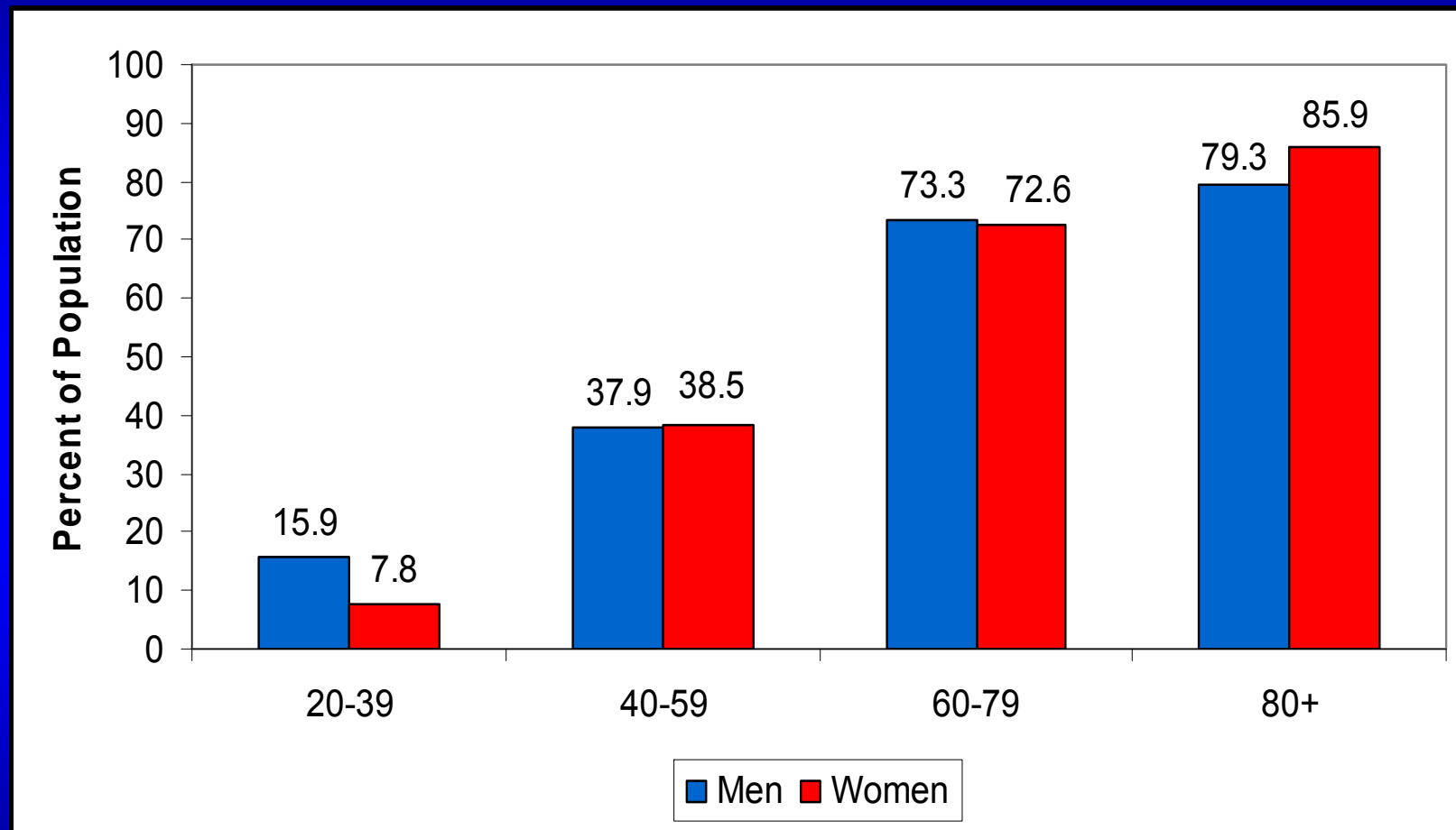
(United States: 1970-2006). Note: Hospital discharges include people discharged alive, dead and status unknown.

Source: NCHS and NHLBI.



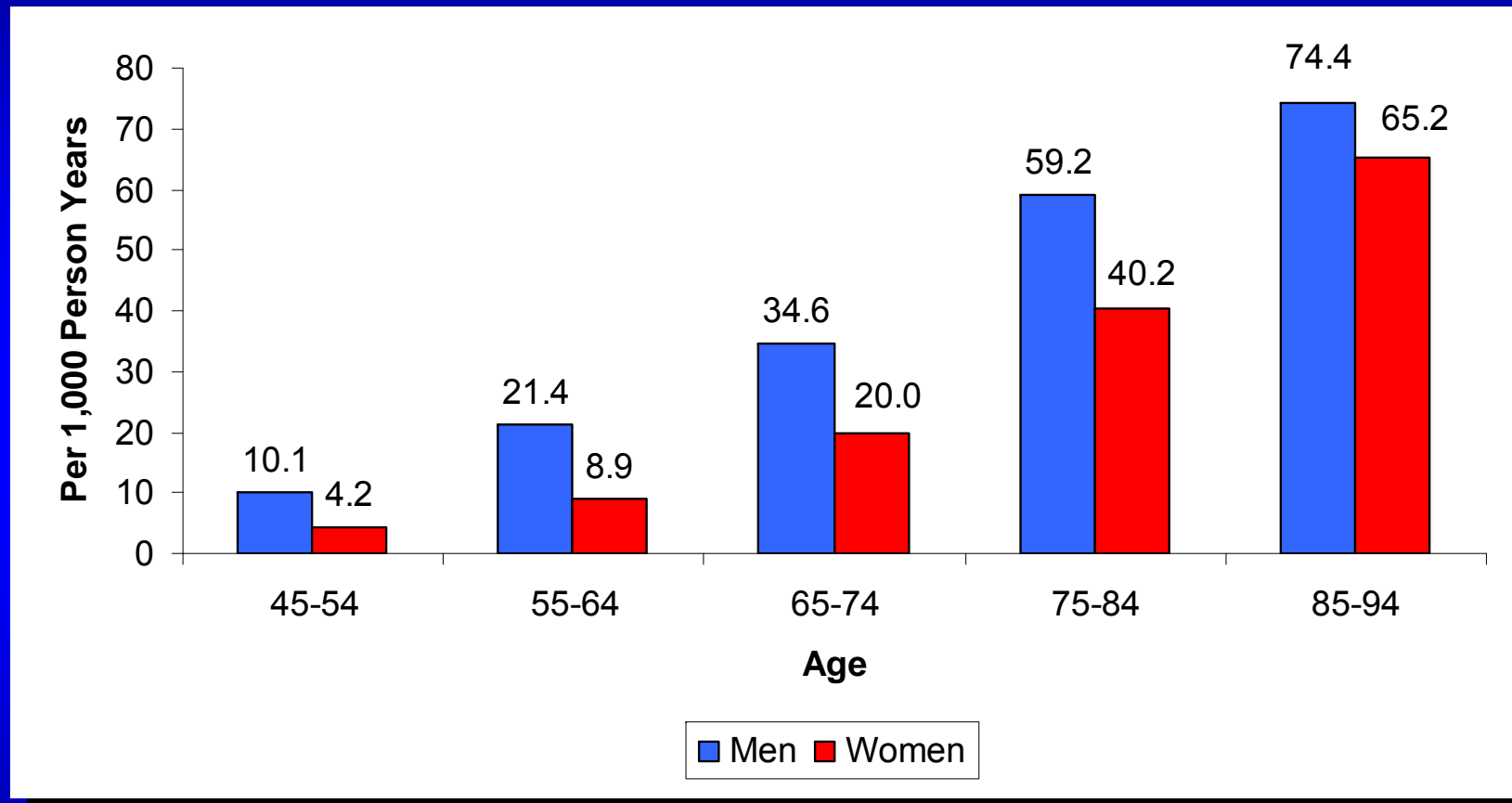
**Percentage breakdown of deaths from cardiovascular diseases**  
(United States: 2006 preliminary)

\* - Not a true underlying cause. **Source: NCHS and NHLBI.**

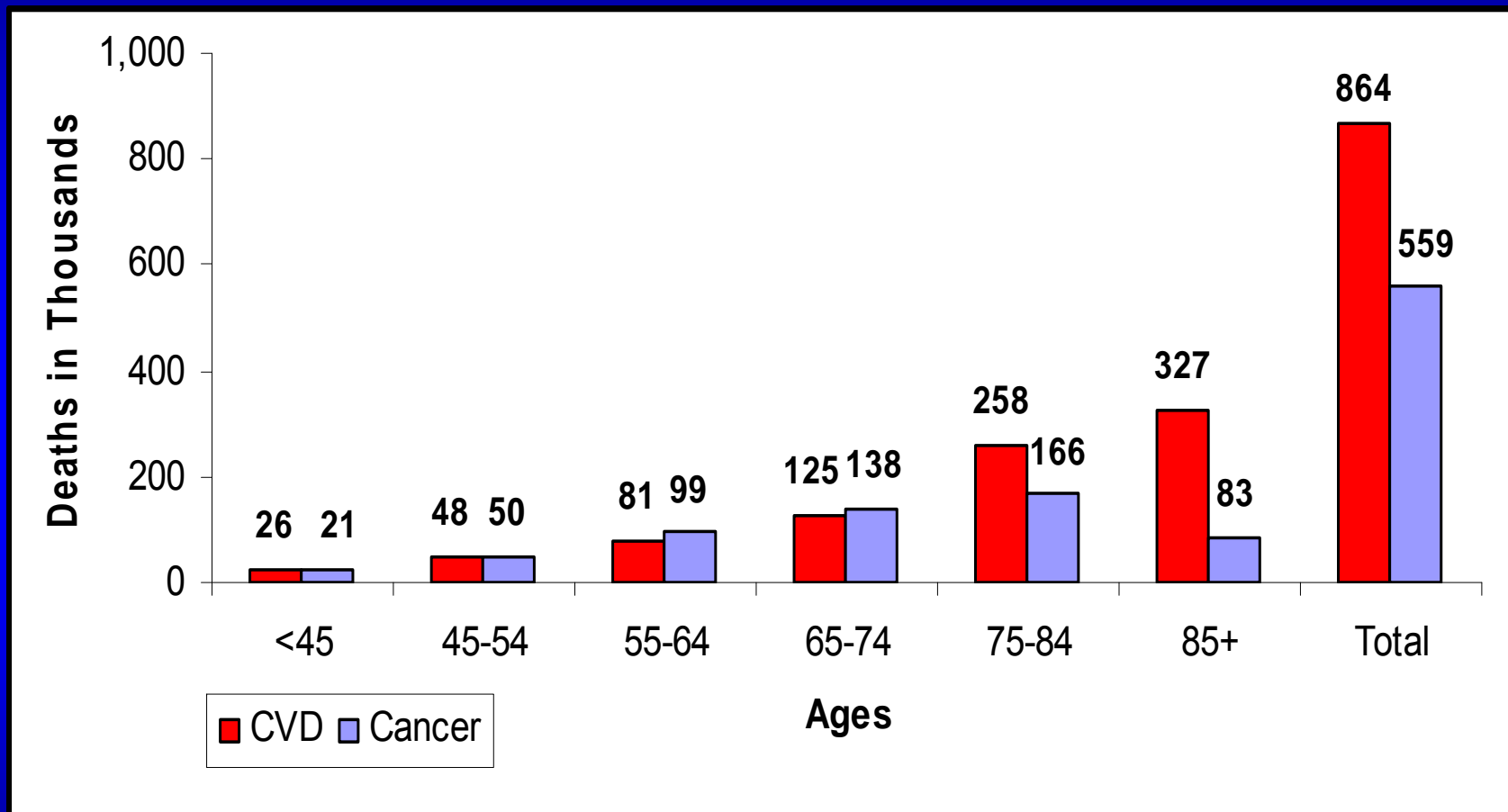


**Prevalence of CVD in adults age 20 and older by age and sex (NHANES: 2005-2006). Source: NCHS and NHLBI.**

These data include coronary heart disease, heart failure, stroke and hypertension.



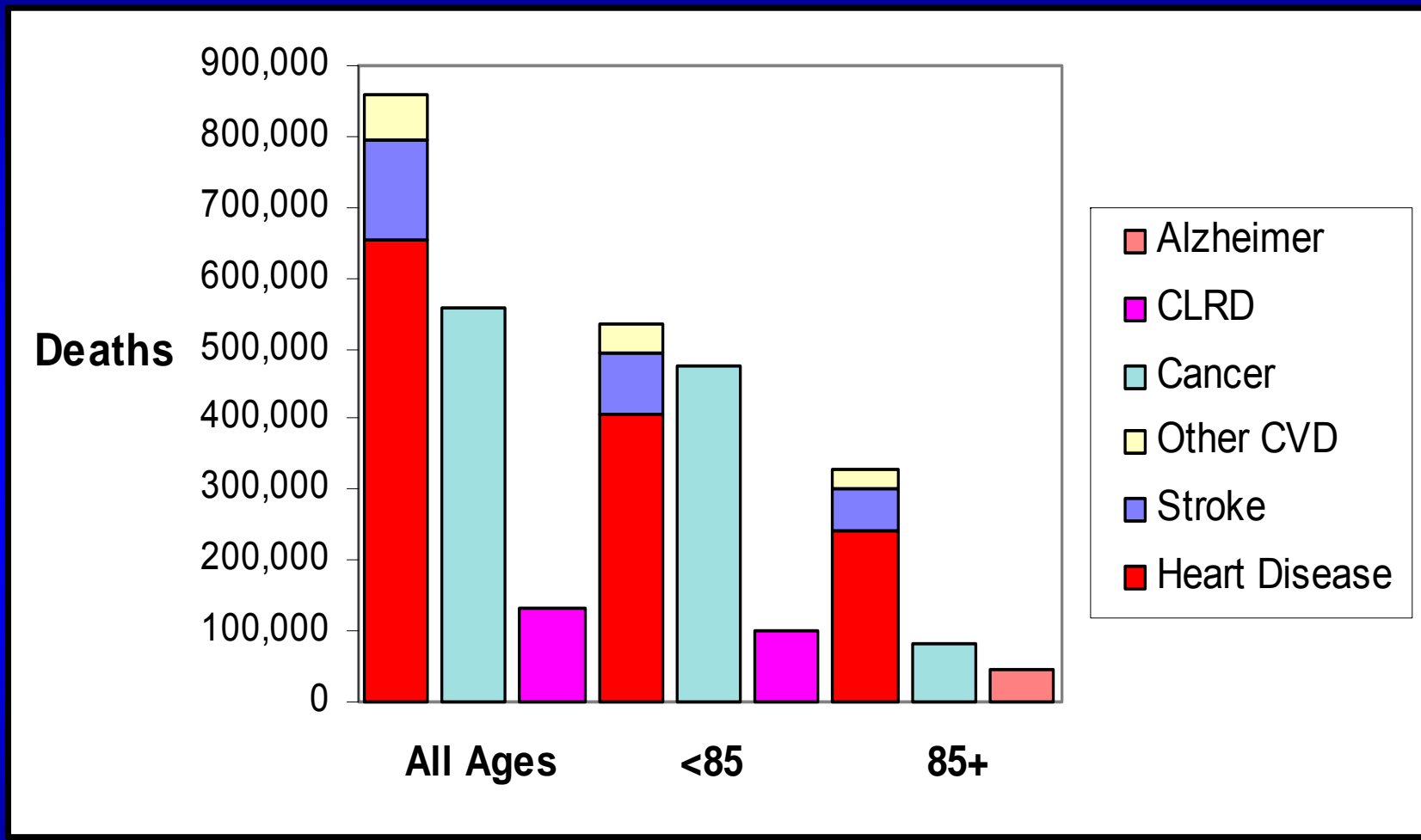
**Incidence of CVD\* by age and sex.** Framingham Heart Study, 1980-2003. **Source:NHLBI.** \* Includes CHD, HF, stroke or intracerebral hemorrhage. Does not include hypertension alone.



**CVD deaths vs. cancer deaths by age.**

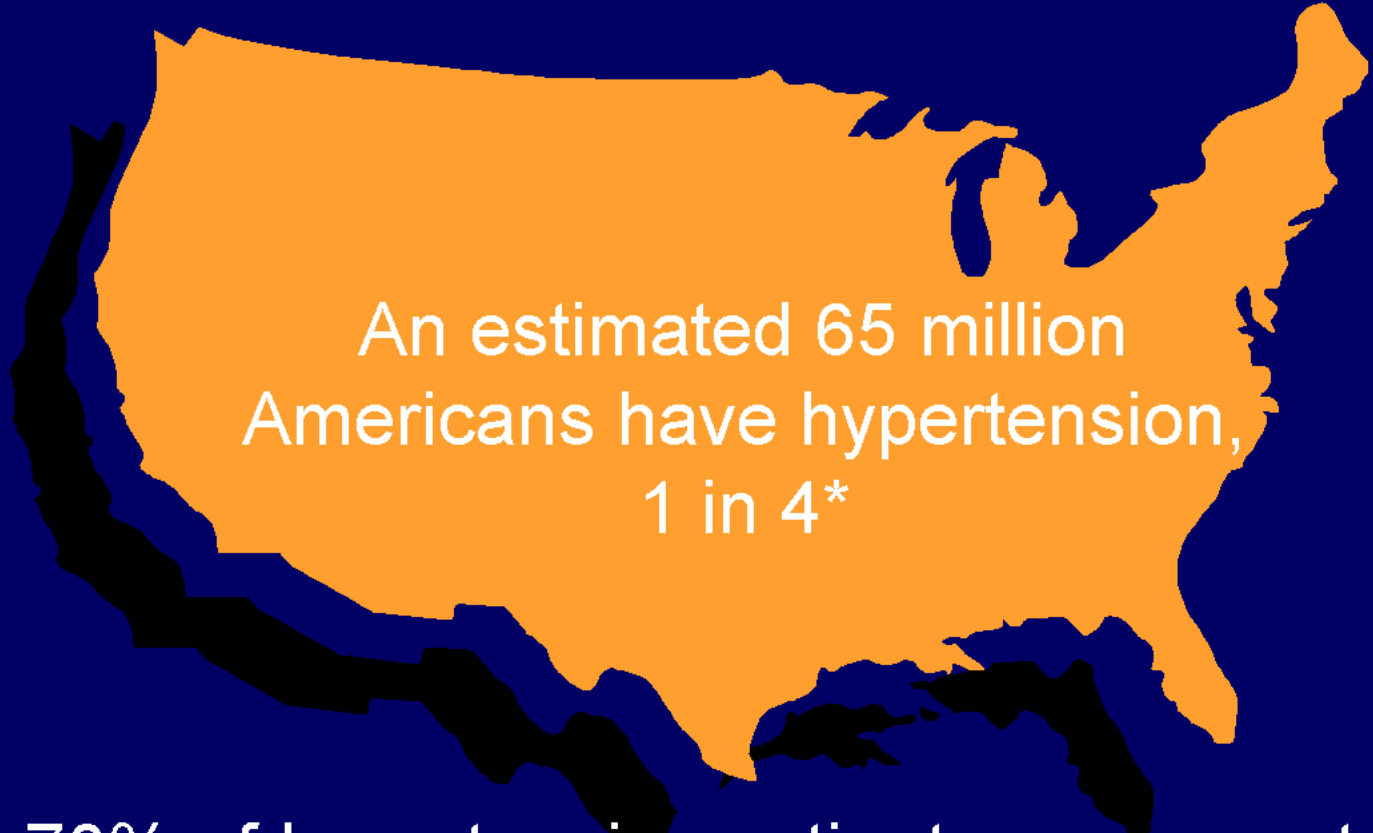
**(United States: 2005). Source: NCHS and NHLBI.**





**CVD and other major causes of death: both sexes.**  
(United States: 2005). Source: NCHS and NHLBI.

# Hypertension: A National Health Crisis



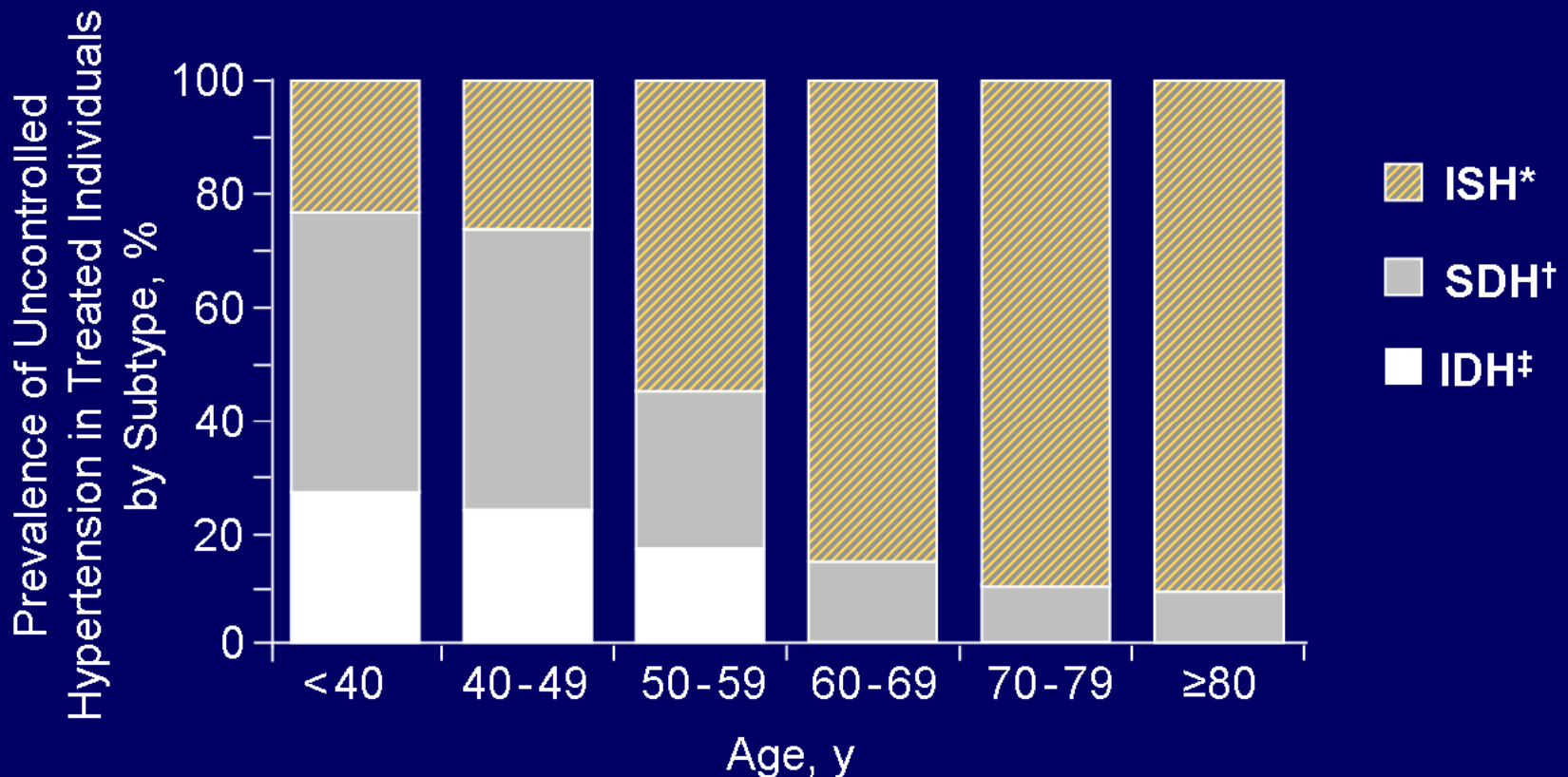
An estimated 65 million  
Americans have hypertension,  
1 in 4\*

- 70% of hypertensive patients are uncontrolled†
- 50% of treated patients are not at goal†

\*Fields LE et al. *Hypertension*. 2004;44:398-404.

†Hajjar I, Kotchen TA. *JAMA*. 2003;290:199-206.

# Incidence of Systolic Hypertension Increases With Age



\*SBP  $\geq$ 140 mm Hg and DBP <90 mm Hg.

†SBP  $\geq$ 140 mm Hg and DBP  $\geq$ 90 mm Hg.

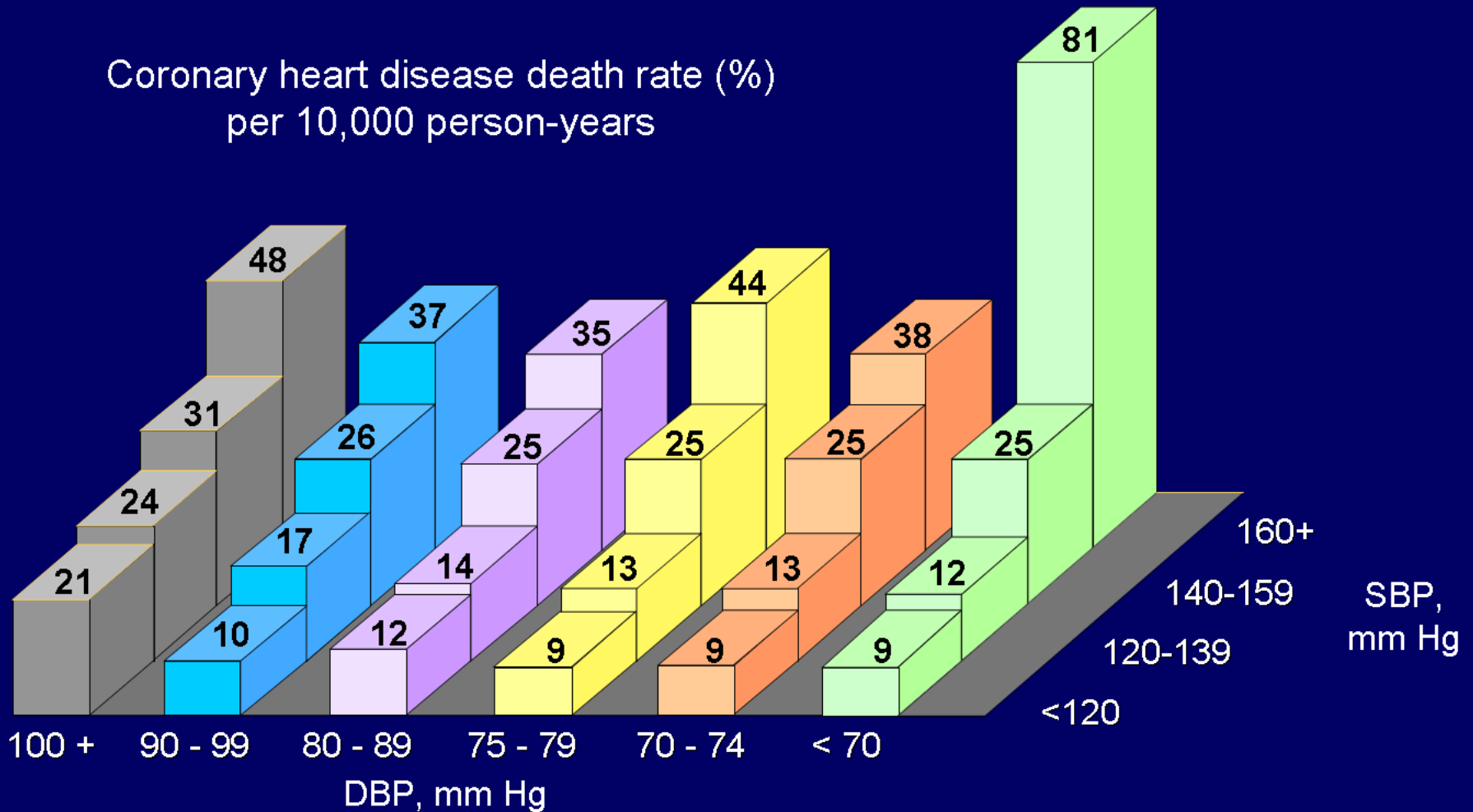
‡SBP <140 mm Hg and DBP  $\geq$ 90 mm Hg.

ISH, isolated systolic hypertension; SDH, systolic/diastolic hypertension; IDH, isolated diastolic hypertension; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Adapted from Franklin SS et al. *Hypertension*. 2001;37:869-874.

# Systolic Blood Pressure Is a More Important Cardiovascular Risk Factor Than Diastolic Blood Pressure

Coronary heart disease death rate (%)  
per 10,000 person-years

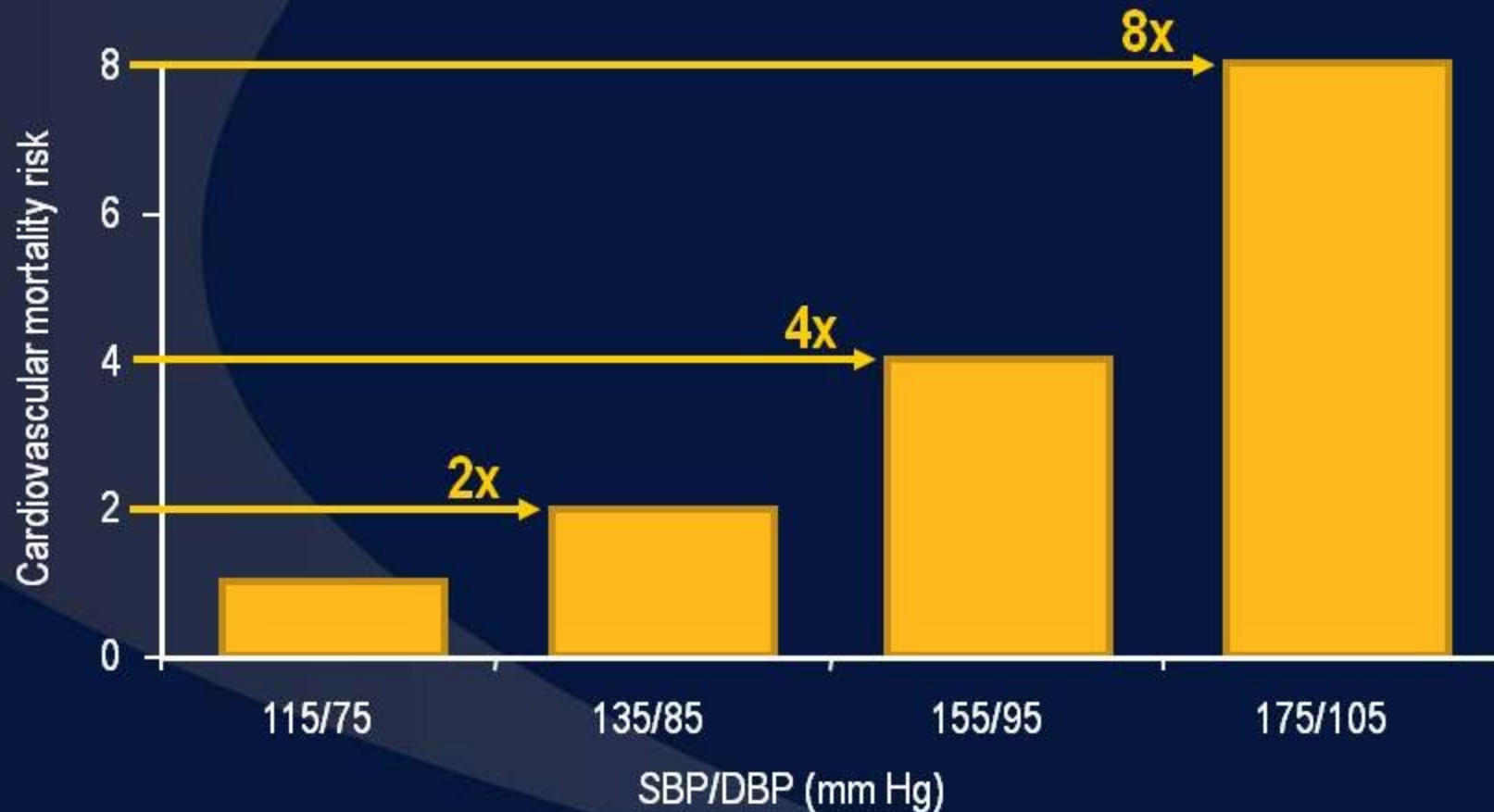


SBP, systolic blood pressure; DBP, diastolic blood pressure.

Neaton JD et al. *Arch Intern Med.* 1992;152:56-64.

# BP and Cardiovascular Mortality

*Risk Doubles With Every 20/10-mm Hg Increment\**



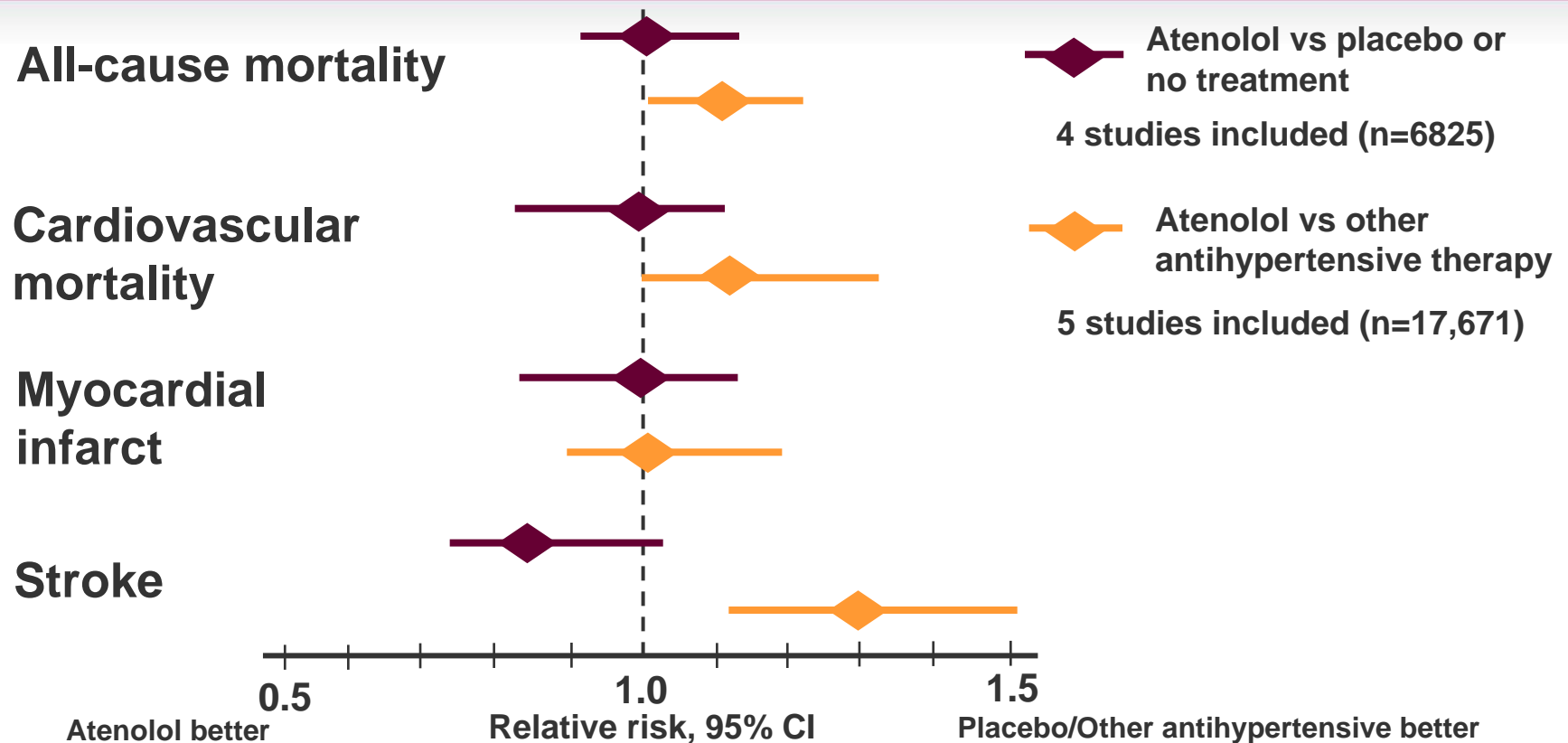
\*Individuals aged 40-69 years, starting at blood pressure 115/75 mm Hg.

BP=blood pressure; SBP=systolic BP; DBP=diastolic BP.

1. Prospective Studies Collaboration. *Lancet*. 2002;360:1903-1913.

2. Chobanian AV et al. *JAMA*. 2003;289:2560-2572.

# Use of $\beta_1$ -Selective Atenolol and Adverse Outcomes in Patients With Hypertension

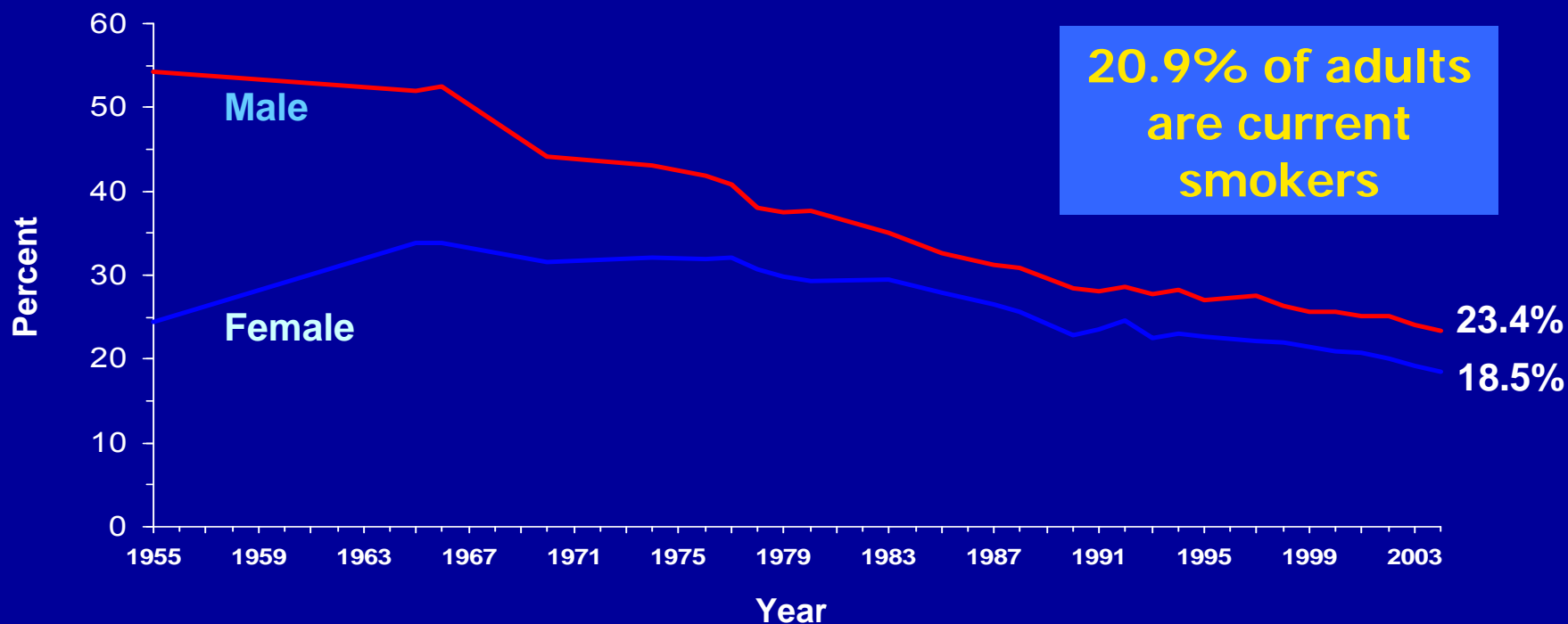


Primary outcomes studies in hypertension have not been conducted with COREG CR.

Trials included in meta-analysis vs placebo: Treatment of Hypertension in Elderly Patients in Primary Care (HEP); Dutch Transitory Ischemic Attack Trial; Tenormin After Stroke and TIA (TEST); Medical Research Council Trial of Treatment of Hypertension in Older Adults (MRC Old). Trials included in meta-analysis vs other antihypertensive agent: MRC Old; UKPDS; European Lacidipine Study of Atherosclerosis (ELSA); Heart Attack Primary Prevention in Hypertension Trial (HAPPHY); Losartan Intervention for Endpoint Reduction Study (LIFE).  
 Carlberg B, et al. *Lancet*. 2004;364:1684-1689.

# Trends in Adult Smoking, by Sex—U.S., 1955–2004

Trends in cigarette current smoking among persons aged 18 or older

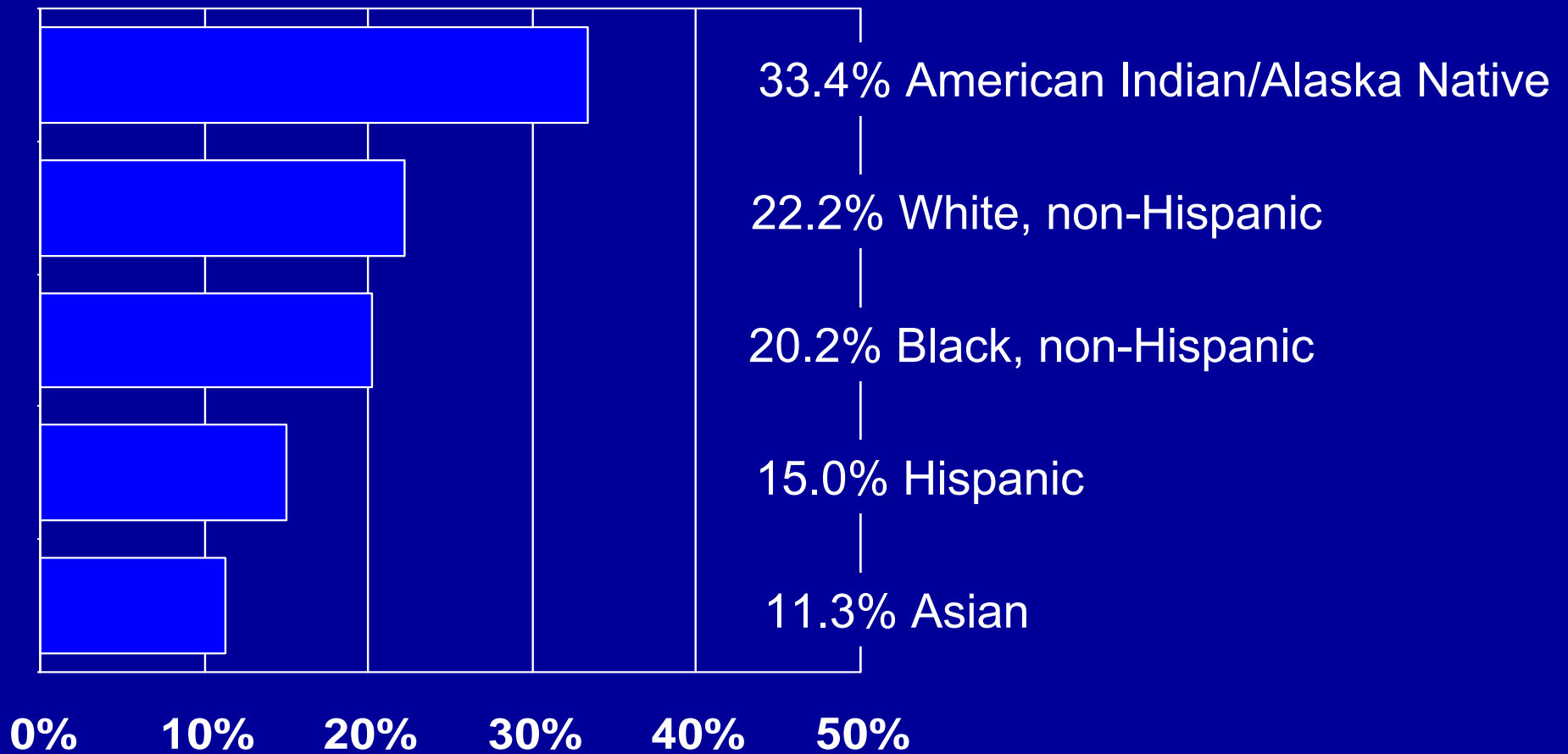


**70% want to quit**

Graph provided by the Centers for Disease Control and Prevention. 1955 Current Population Survey; 1965–2001 NHIS. Estimates since 1992 include some-day smoking.



# Prevalence of Adult Smoking, by Race/Ethnicity—U.S., 2004

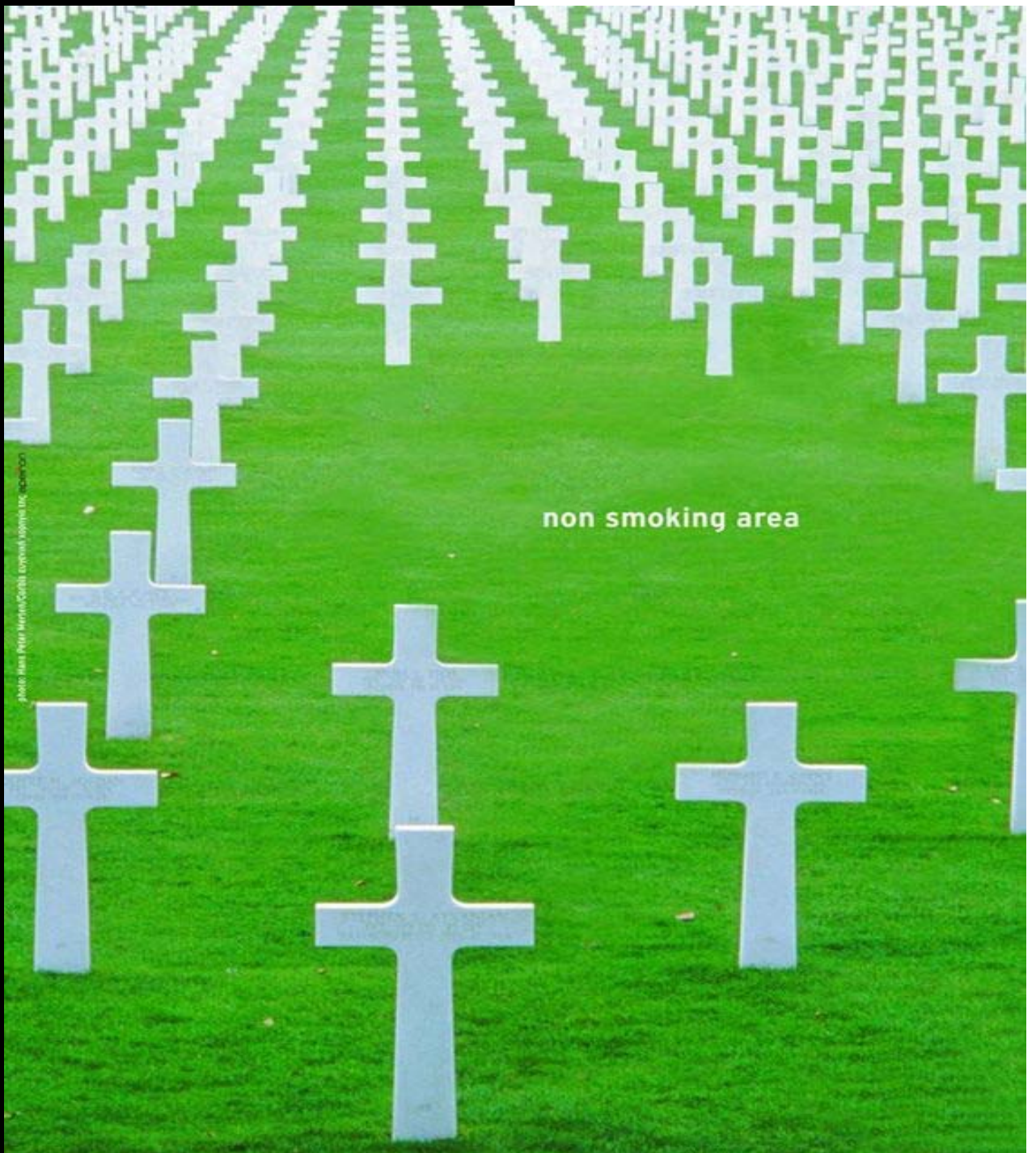


Centers for Disease Control and Prevention. (2005). *MMWR* 54:1121–1124.



# Tobacco Tipping Point?

- California 14% adult smoking prevalence
- Northern California Kaiser Permanente down to 9%
- Physicians around 2%
- Proliferation of smoke-free areas
- Increasing stigmatization of smoking

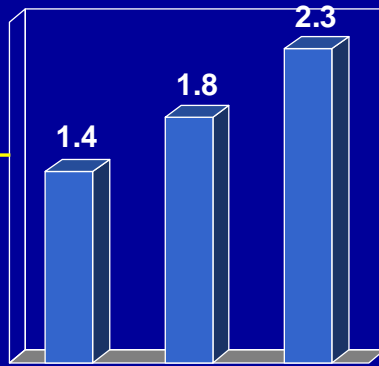


non smoking area

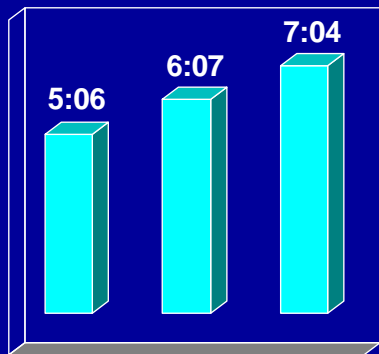
photo: Hans Peter Herten/Corbis Outlines/Corbis Inc. 2008/03

# Emergence of an Inactive Society

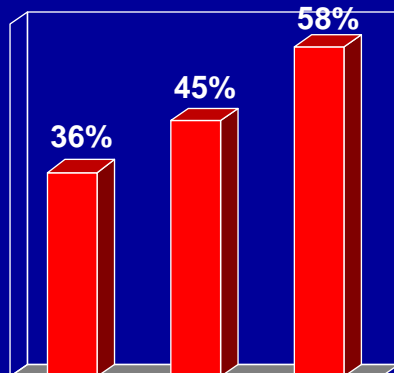
Millions of Person-Miles in Automobiles, 1970-1990



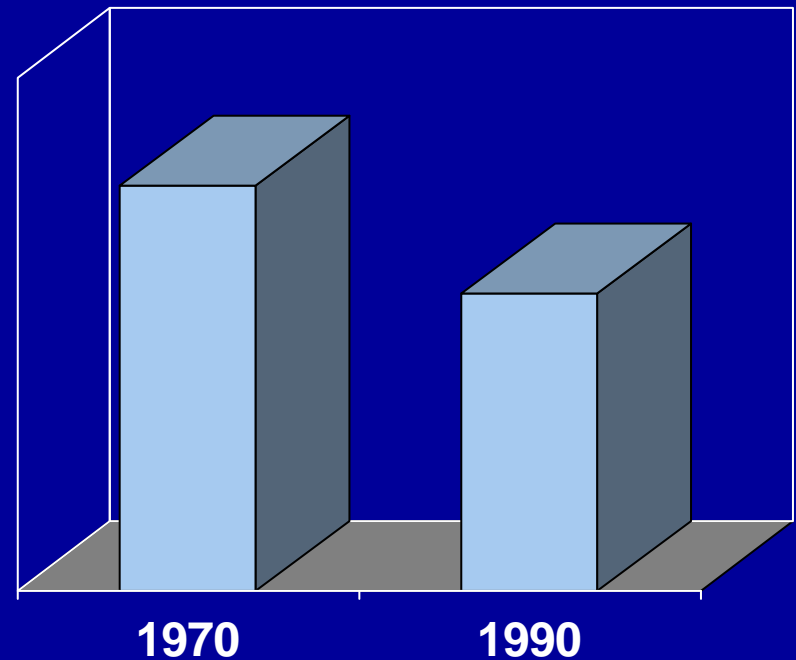
Hours of TV Viewed Daily 1960-1992



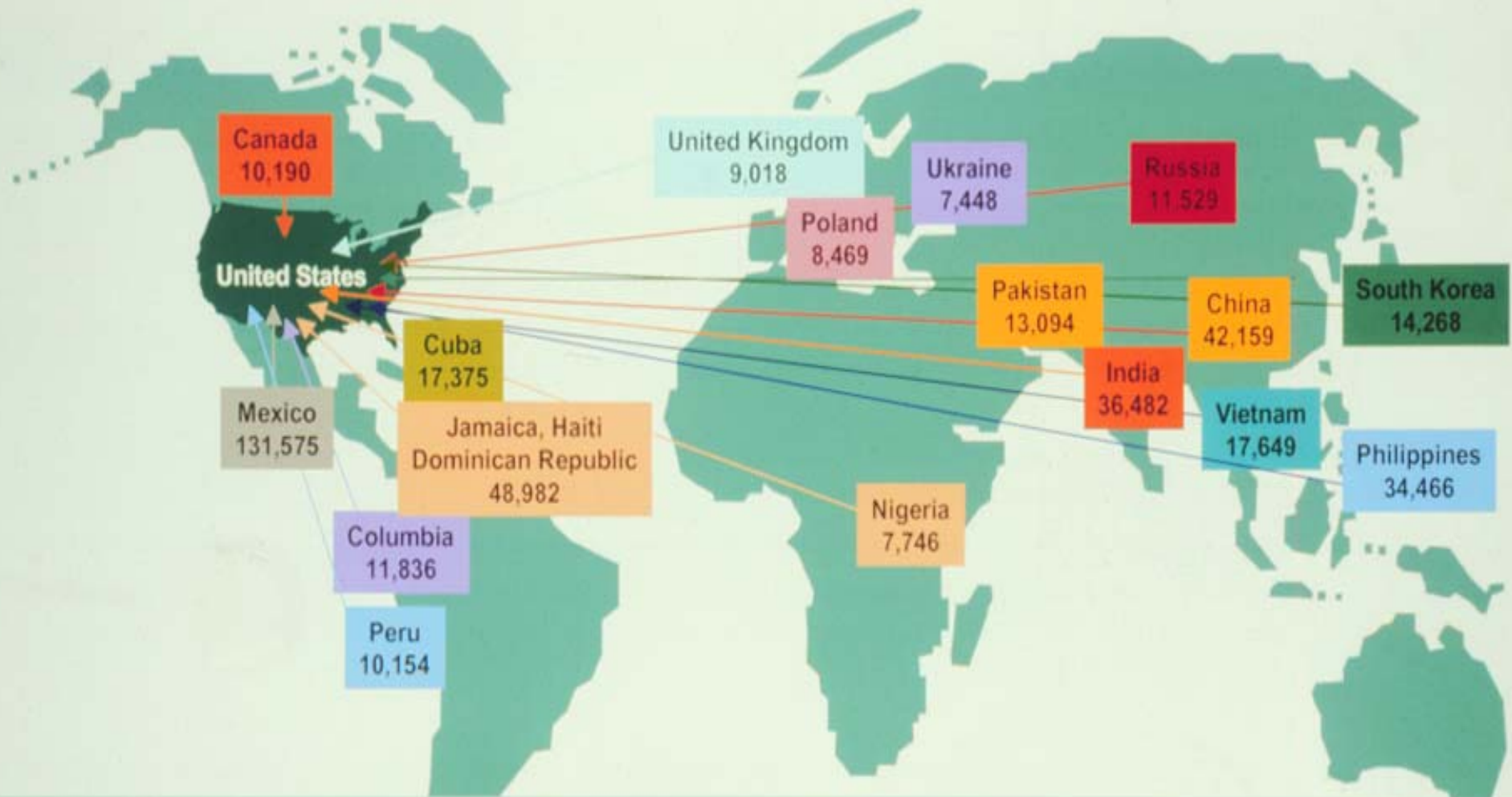
Percent of Workforce in Sedentary Occupations, 1950-1996



*800 k-calories/day decrease in 20 years*



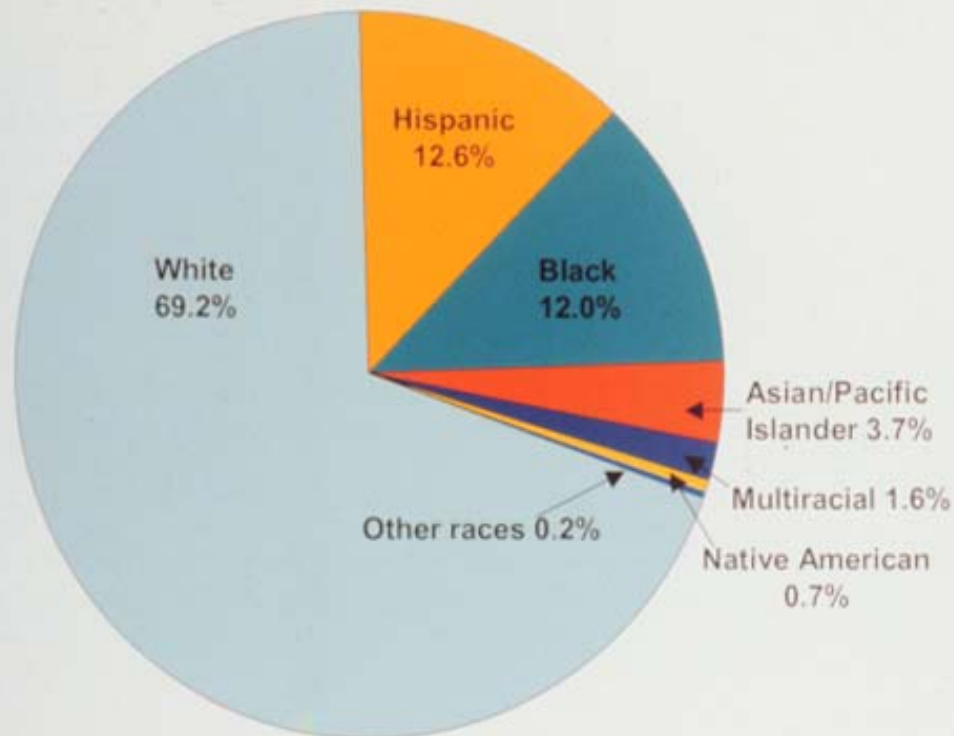
# New Americans: Their Origins, Their Destinations



In 1998, the latest year for which immigration figures are available, 660,477 non-citizens from 208 countries around the world (19 of which are noted above) were granted permanent resident status. The largest group came from Mexico, boosting the Hispanic count to record levels in the 2000 census.

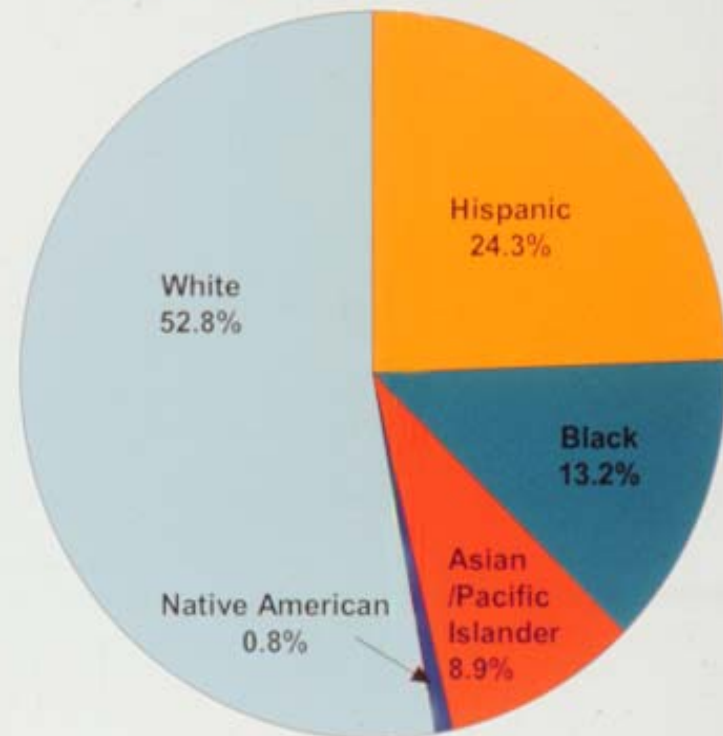
# New Americans: Their Origins, Their Destinations

## U.S. POPULATION 2000



During the 1990s the U.S. population grew by 33 million; about one-third were immigrants. Hispanics surpassed blacks to become the nation's largest minority.

## U.S. POPULATION 2050



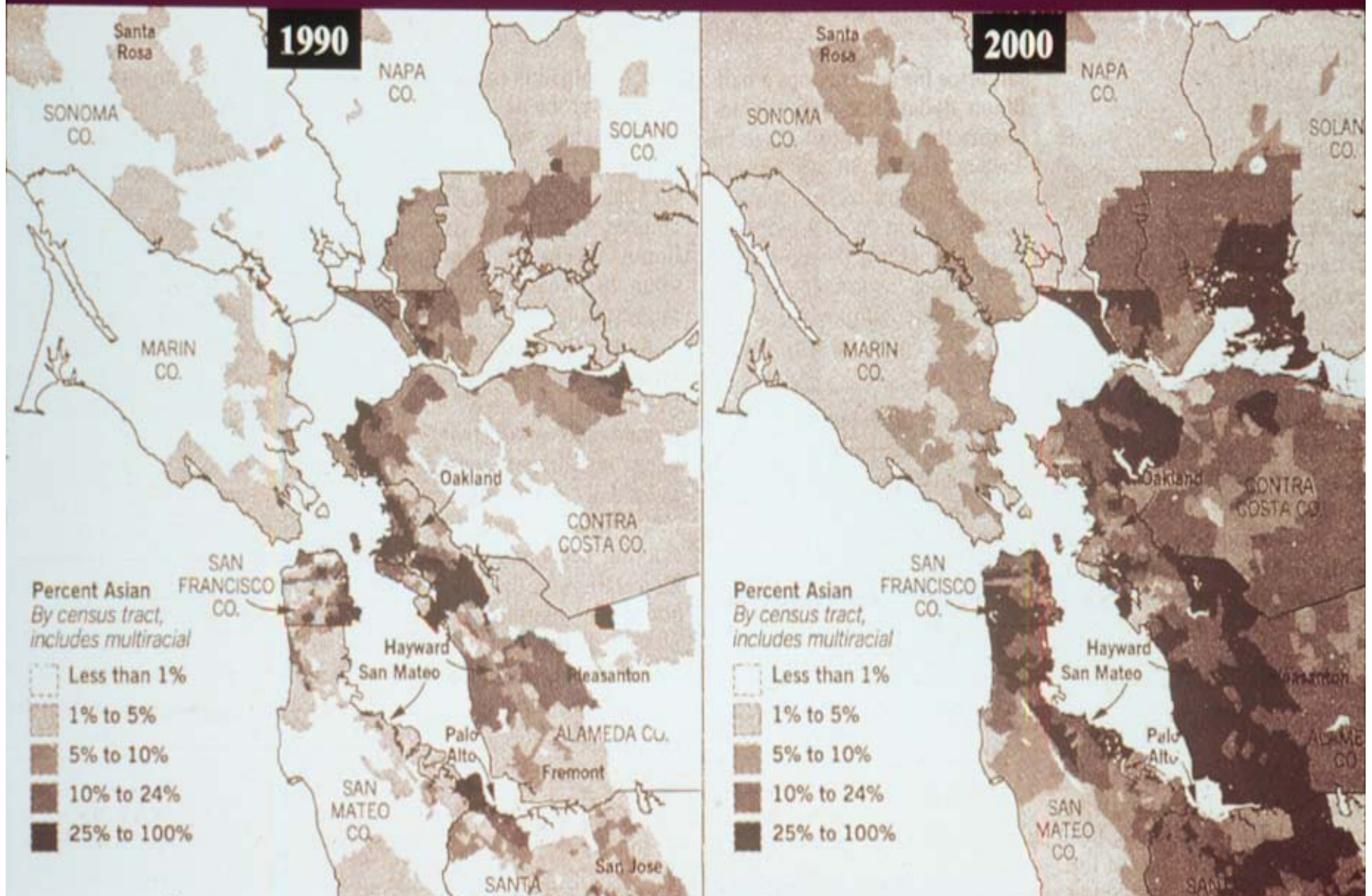
U.S. total is projected to exceed 400 million by 2050. The greatest increase will be among Hispanics, due in part to higher birthrates.

# Demographic Change, San Mateo County

*(as Indicated by 1990 & 2000 Census Data)*

Race/ Ethnicity	Population (% Total)		Total Change 1990 – 2000	(% ) Change 1990 – 2000
	1990	2000		
White	393,088 (60.5)	352,355 (49.8)	- 40,733	- 10.4
Hispanic	114,627 (17.6)	154,708 (21.9)	+ 40,081	+ 35.0
Asian/PI	105,559 (16.2)	149,425 (21.1)	+ 43,866	+ 41.6
Black	34,000 (5.2)	23,778 (3.4)	- 10,222	- 30.1
Nat. American	2,349 (0.4)	1,546 (0.2)	- 803	- 34.2
Other	NA	2,217 (0.3)	-	-
≤ 2 Races	NA	23,132 (3.3)	-	-
<b>Total</b>	<b>649,623</b>	<b>707,161</b>	<b>+ 57,538</b>	<b>+ 8.9</b>

# Asians in the San Francisco Bay Area



## 1994 - 2004

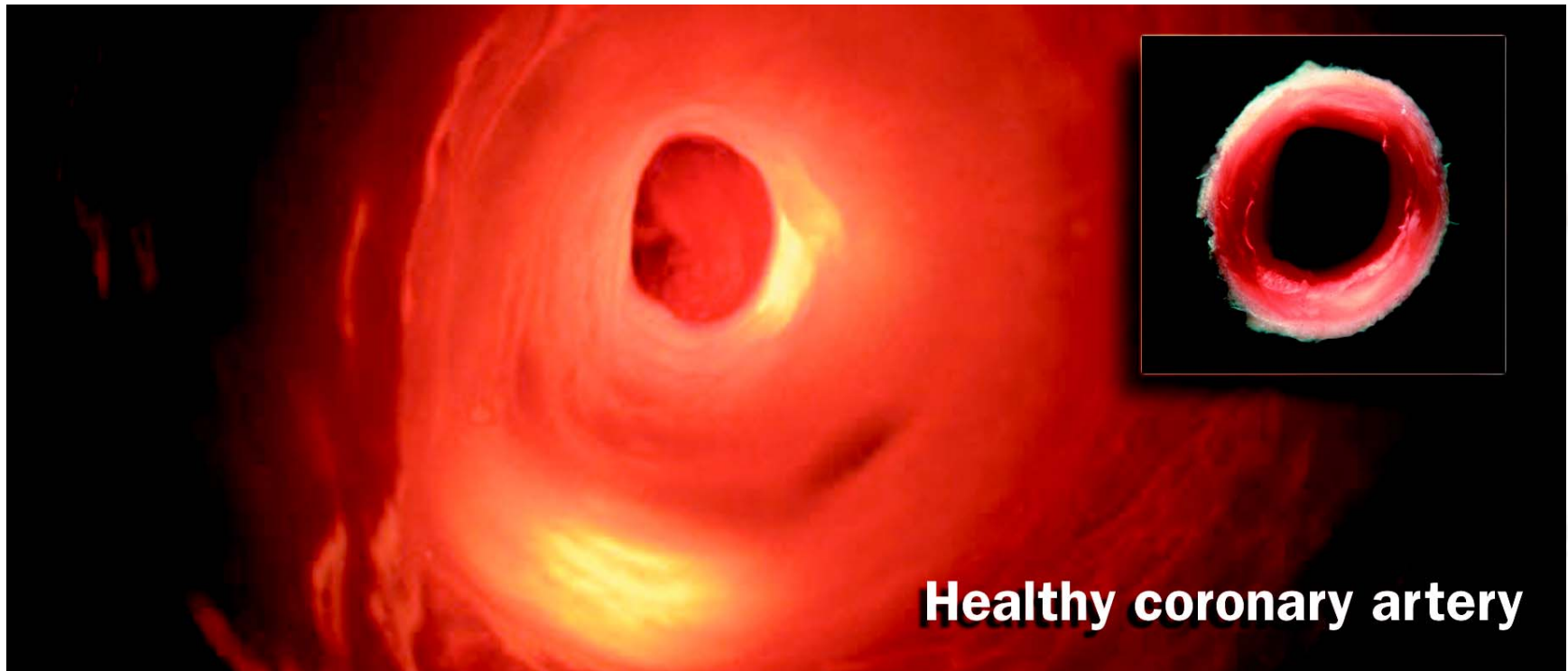
Risk Factors	Year	Filipino	Hispanic	Caucasian
Obesity	1994	6.9	29.2	21.8
	2004	34.4	42.9	38.6
Hypertension	1994	78.7	65.3	61.9
	2004	84.4	81.0	81.1
Diabetes	1994	35.9	29.6	26.9
	2004	53.1	40.2	28.0
Smoking	1994	52.3	59.6	72.4
	2004	43.8	33.3	55.8
Hyperlipidemia	1994	72.8	60.2	74.5
	2004	90.6	69.1	70.2



**Between 1994 and 2008**  
**RISK FACTORS FOR HEART ATTACK AND**  
**STROKE – FILIPINOS**  
**Colman Ryan, MD**

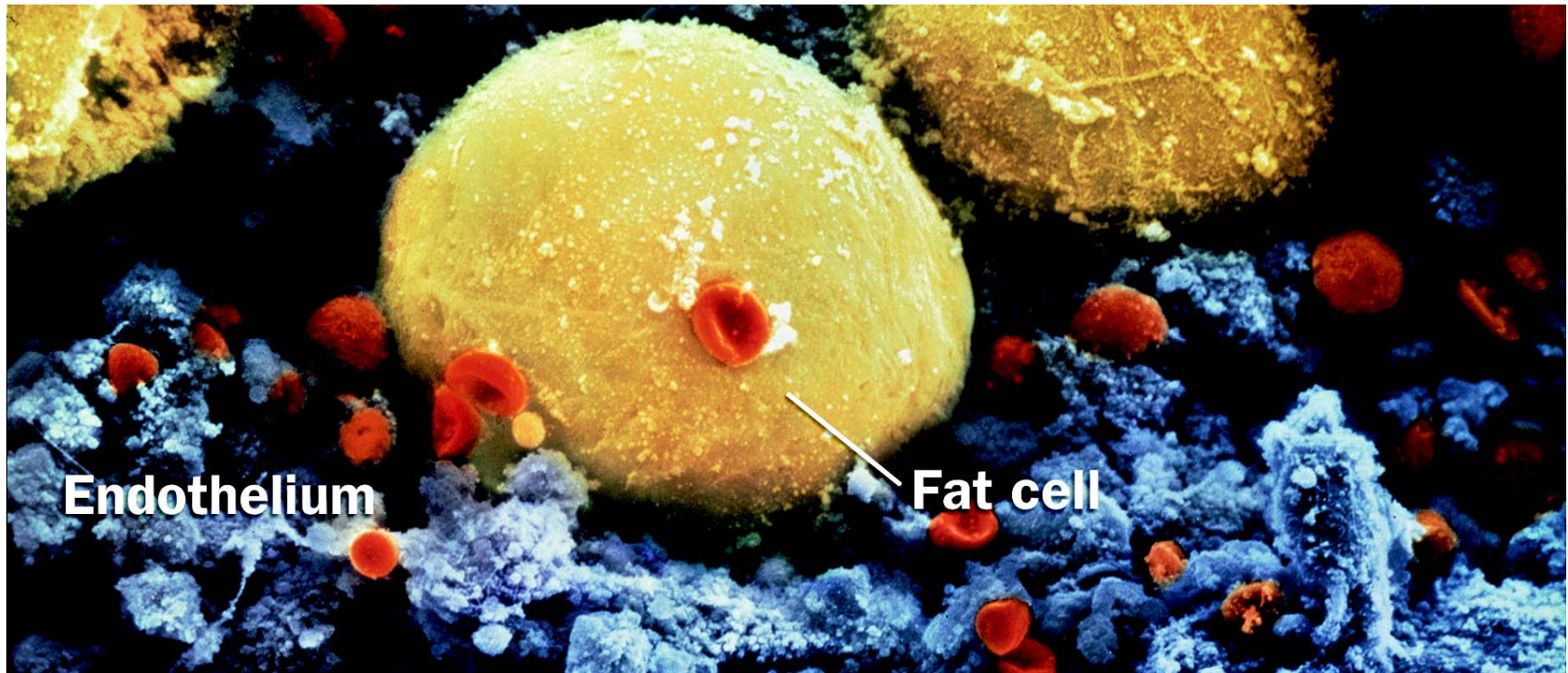
Risk Factors	Year	Filipino
Obesity	1994	6.9
	2004	18.8
	2008	31.3
Hypertension	1994	78.7
	2004	84.4
	2008	95.3
Diabetes	1994	35.9
	2004	53.1
	2008	50.0
Smoking	1994	52.3
	2004	43.8
	2008	53.1
Hyperlipidemia	1994	72.8
	2004	90.6
	2008	89.1

# Coronary Artery Disease

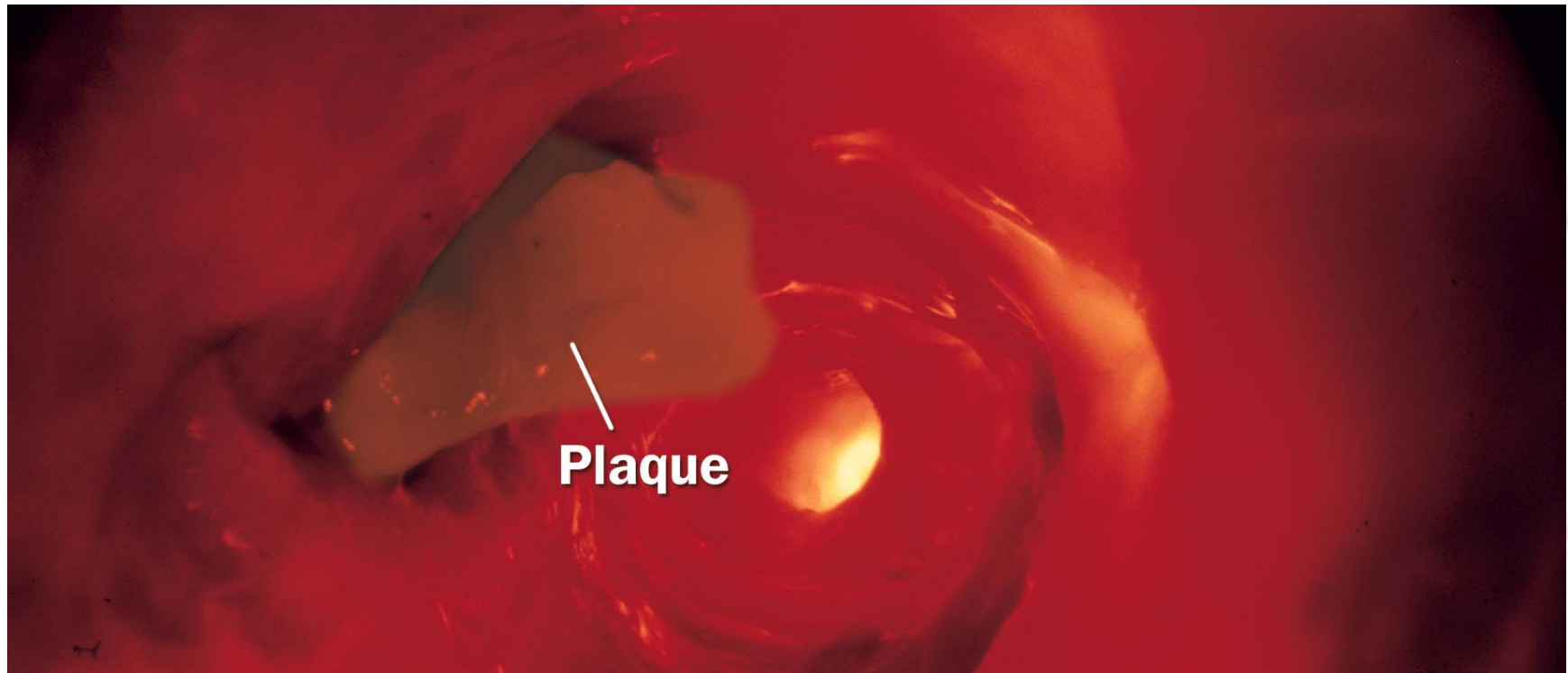


**Healthy coronary artery**

# The Beginning of Atherosclerosis

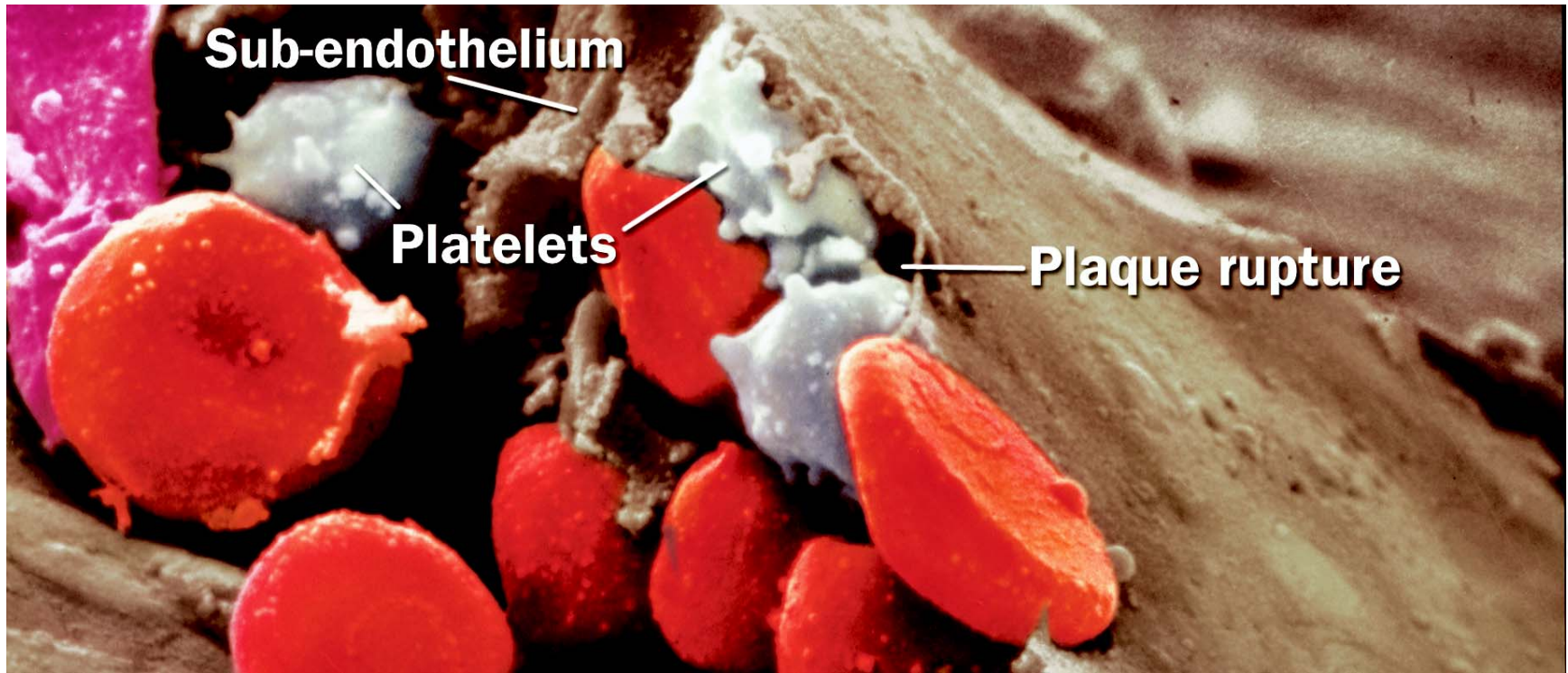


# Atherosclerotic Plaque



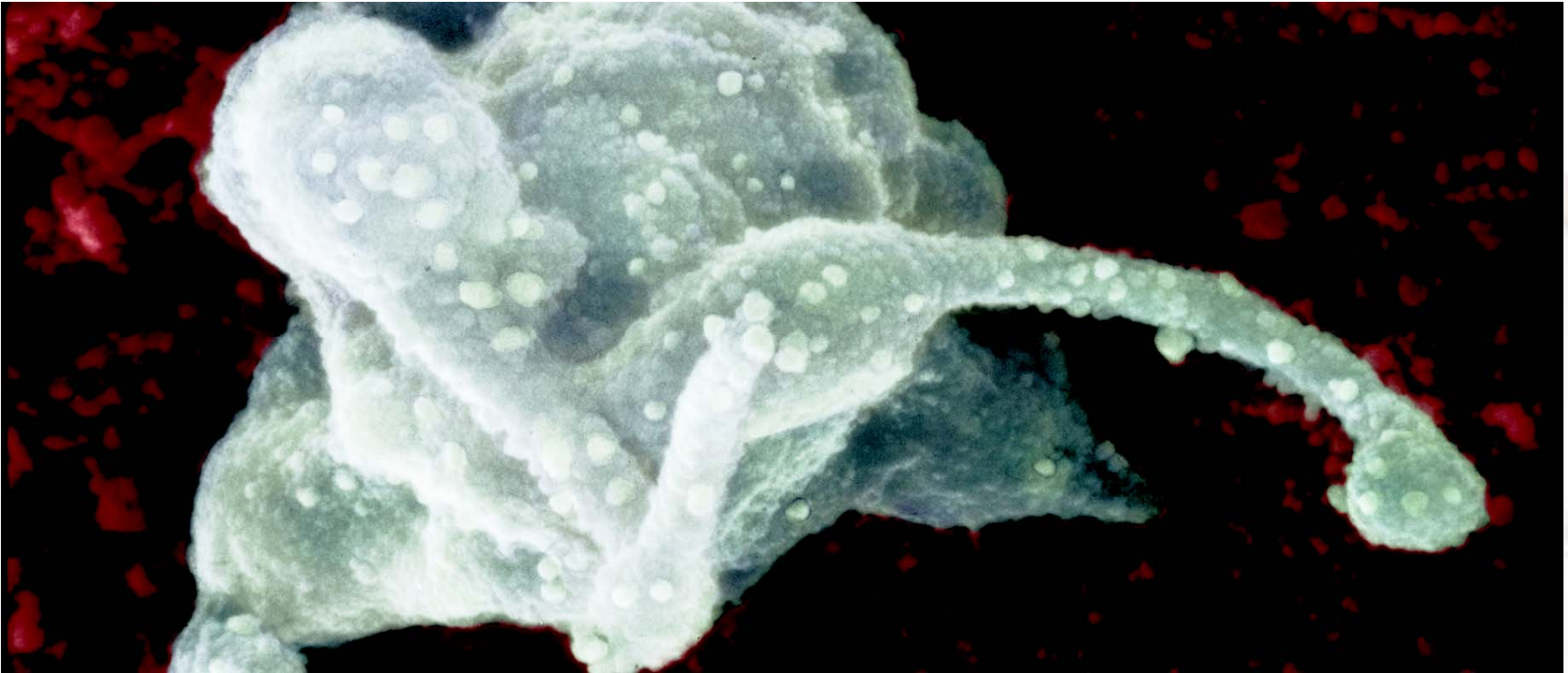
Photos courtesy of Boehringer Ingelheim International GmbH, by Lennart Nilsson.

# Plaque Rupture



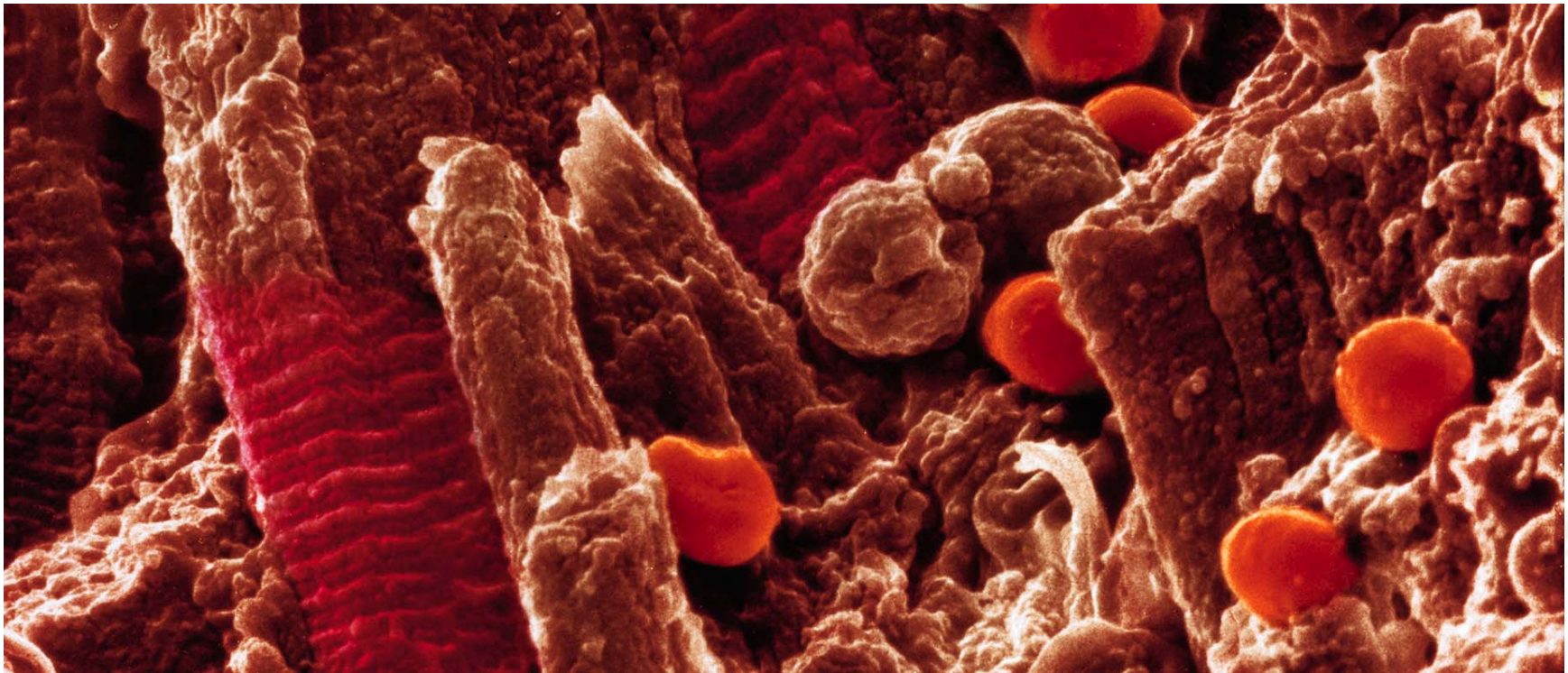
Photos courtesy of Boehringer Ingelheim International GmbH, by Lennart Nilsson.

# Platelet Activation



Photos courtesy of Boehringer Ingelheim International GmbH, by Lennart Nilsson.

# Myocardial Infarction



Photos courtesy of Boehringer Ingelheim International GmbH, by Lennart Nilsson.










WHY ARE WE SO  
**fat?**

National Geographic, August 2004

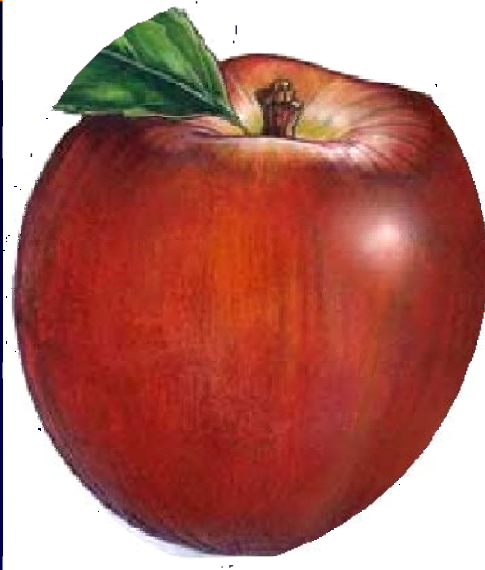
# Changing Portion Sizes

1954 Burger King	2004
	
2.8 oz 202 calories	4.3 oz 310 calories
1955 McDonald's	2004
	
2.4 oz 210 calories	7 oz 610 calories
1900 Hershey's	2004
	
2 oz 297 calories	7 oz 1,000 calories

1916 Coca-Cola	2004
	
6.5 fluid oz 79 calories	16 fluid oz 194 calories
1950s Movie popcorn	2004
	
3 cups 174 calories	21 cups (buttered) 1,700 calories

# Visceral Adiposity

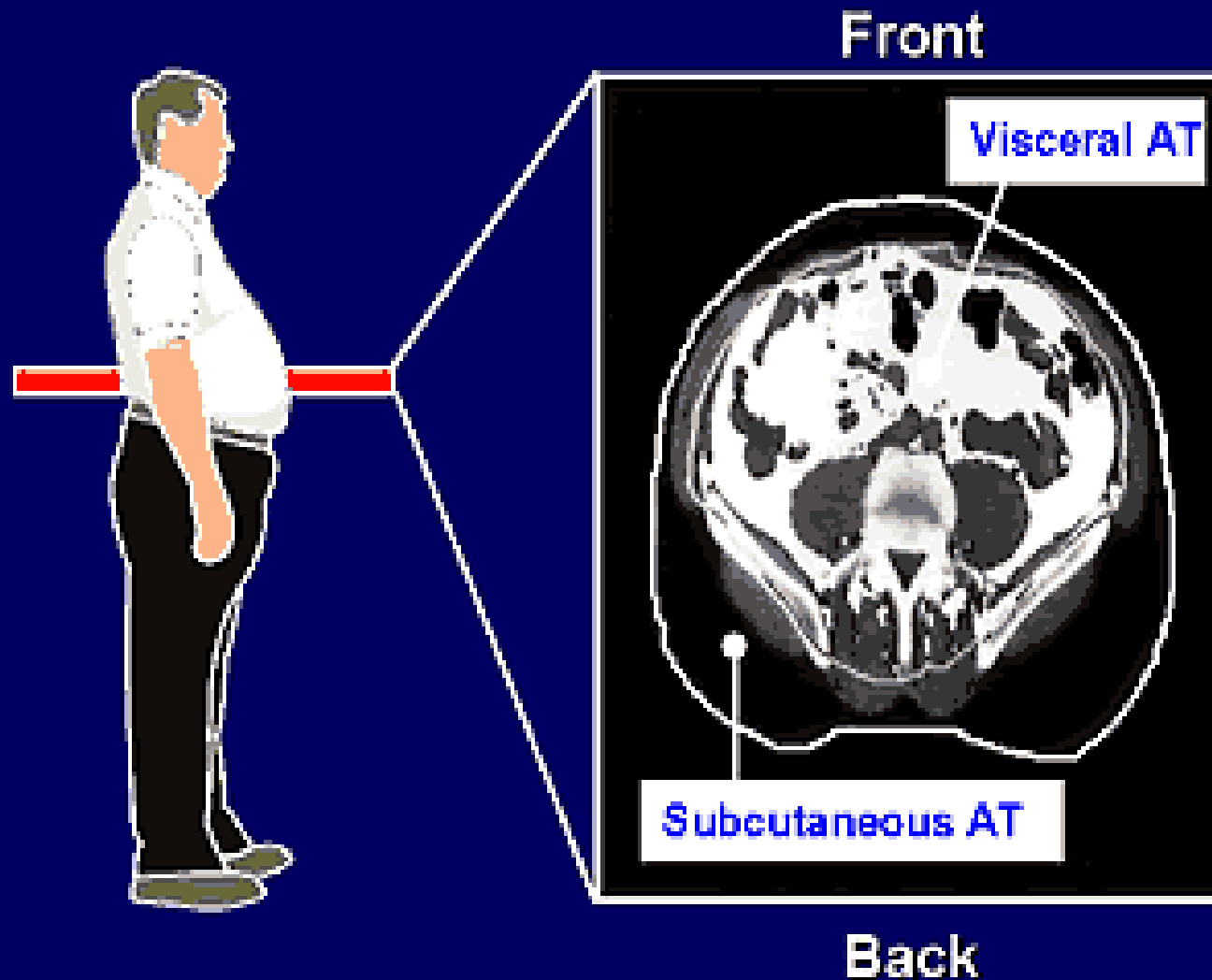
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## Fat Depots:

- ❖ Subcutaneous: 60-70%
- ❖ Intra-abdominal:
  - Visceral (or intraperitoneal)
  - Retroperitoneal (5%)
- ❖ Intramuscular: 5-10%

# Visceral Fat

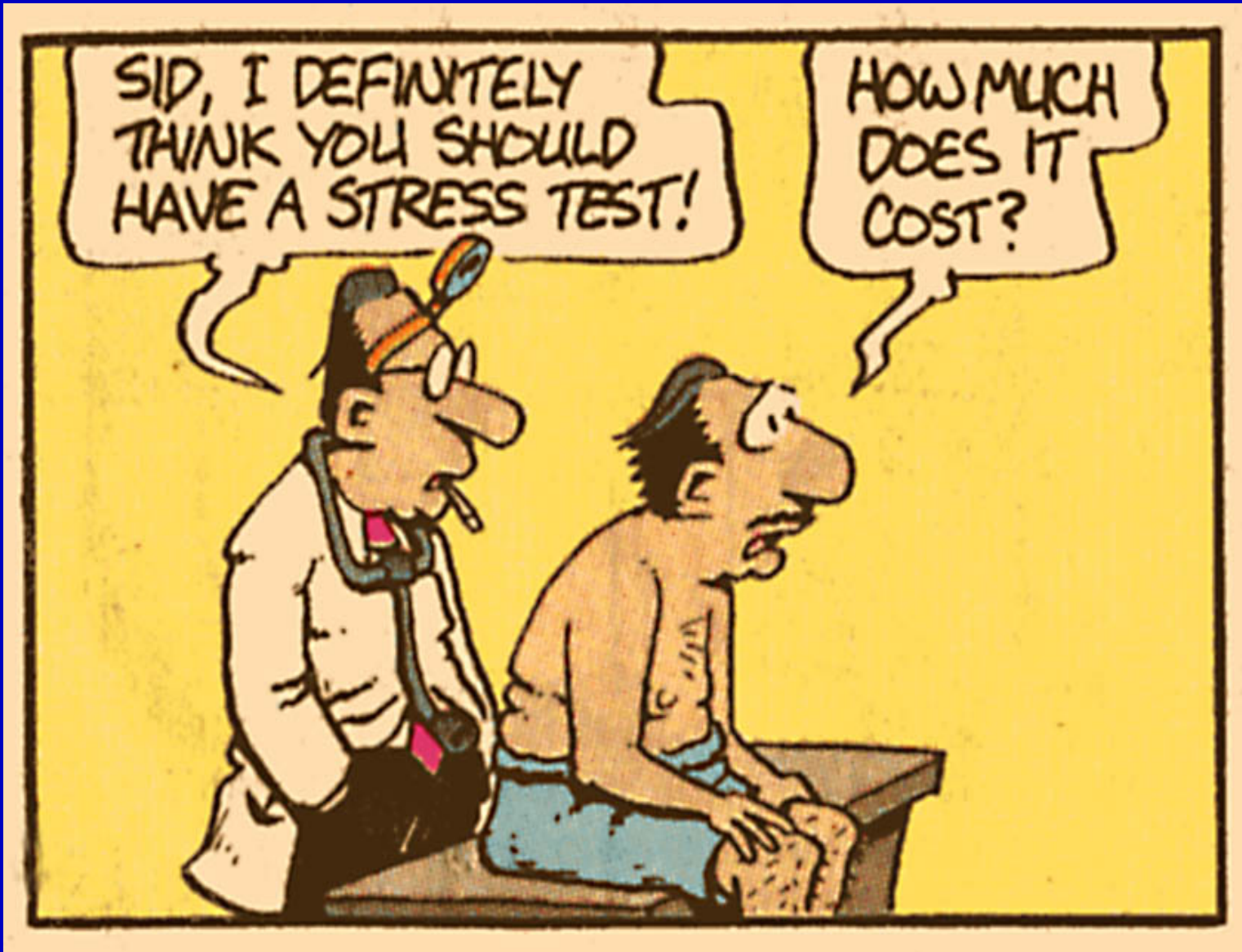




YOU'RE AT THE  
AGE WHEN PEOPLE  
START HAVING  
HEART  
ATTACKS!

A STRESS TEST WILL  
TELL US IF YOU'RE  
LIKELY TO DROP  
OVER DEAD!



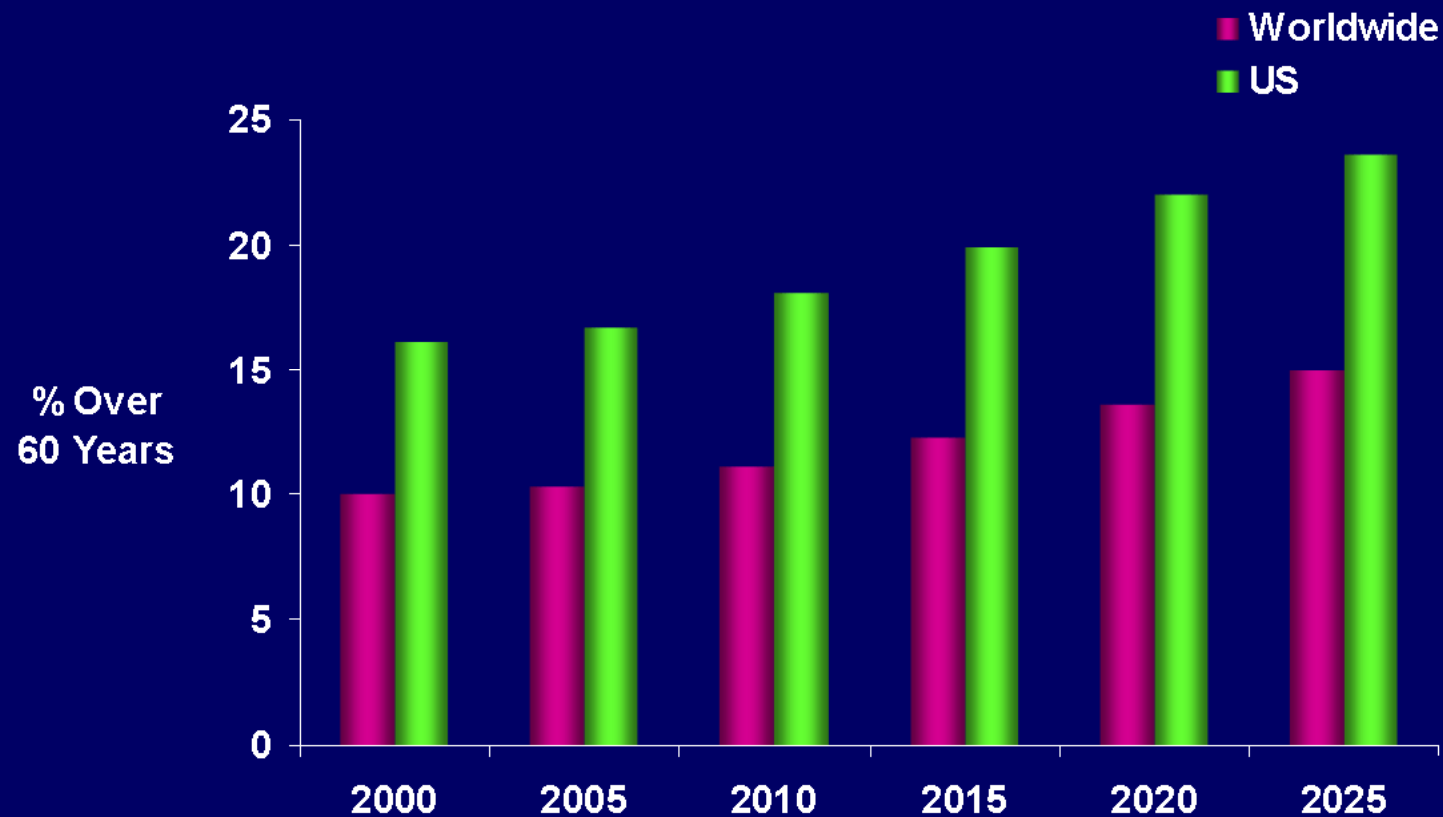








# Growing Percentage of People Over 60 Years of Age (2000-2025)



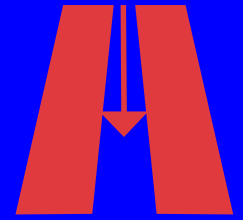
Population Division of the Department of Economic and Social Affairs of the UN Secretariat, World Population Prospects: The 2002 Revision and World Urbanization Prospects (<http://esa.un.org/unpp/>).

## Americans Complacent About CVD

- 57% do not believe they are at “much risk”
- 41% do not believe CVD is a killer
- 76% say they try to maintain healthy weight, but only 36% actually do
- 68% say they try to exercise regularly, but only 19% actually do
- 60% say they try to avoid high-fat, high-cholesterol foods, but only 10% follow national nutritional guidelines



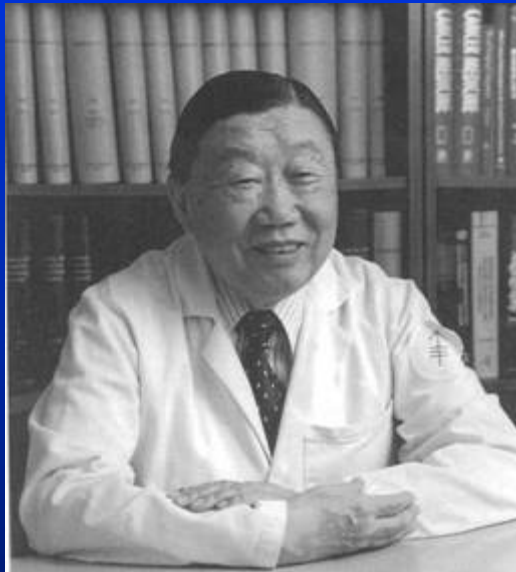
# CVD Risk Factors



- Hypertension\*
- Cigarette smoking
- Obesity\* (BMI  $\geq 30$  kg/m<sup>2</sup>)
- Physical inactivity
- Dyslipidemia\*
- Diabetes mellitus\*
- Microalbuminuria or estimated GFR <60 ml/min
- Age (older than 55 for men, 65 for women)
- Family history of premature CVD  
(men under age 55 or women under age 65)

\*Components of the metabolic syndrome.

I love this Doctor



Q: Doctor, I've heard that cardiovascular exercise can prolong life. Is this true?

A: Your heart is only good for so many beats, and that's it... don't waste them on exercise. Everything wears out eventually. Speeding up your heart will not make you live longer; that's like saying you can extend the life of your car by driving it faster. Want to live longer? Take a nap.

Q: Doctor, I've heard that cardiovascular exercise can prolong life. Is this true?

A: Your heart is only good for so many beats, and that's it... don't waste them on exercise. Everything wears out eventually. Speeding up your heart will not make you live longer; that's like saying you can extend the life of your car by driving it faster. Want to live longer? Take a nap.



Q: Should I cut down on meat and eat more fruits and vegetables?

A: You must grasp logistical efficiencies. What does a cow eat? Hay and corn. And what are these? Vegetables. So a steak is nothing more than an efficient mechanism of delivering vegetables to your system. Need grain? Eat chicken. Beef is also a good source of field grass (green leafy vegetable). And a pork chop can give you 100% of your recommended daily allowance of vegetable products.

Q: Aren't fried foods bad for you?

A: YOU'RE NOT LISTENING!!! ..... Foods are fried these days in vegetable oil. In fact, they're permeated in it. How could getting more vegetables be bad for you?

Q: Will sit-ups help prevent me from getting a little soft around the middle?

A: Definitely not! When you exercise a muscle, it gets bigger. You should only be doing sit-ups if you want a bigger stomach.

Q: Is chocolate bad for me?

A: Are you crazy? HELLO Cocoa beans !  
Another vegetable!!! It's the best feel-good food  
around!

Q: Is swimming good for your figure?

A: If swimming is good for your figure, explain  
whales to me.

Q: Is getting in-shape important for my lifestyle?

A: Hey! 'Round' is a shape!

Well, I hope this has cleared up any misconceptions you may have had about food and diets.

And remember:

'Life should NOT be a journey to the grave with the intention of arriving safely in an attractive and well preserved body, but rather to skid in sideways - Chardonnay in one hand - chocolate in the other - body thoroughly used up, totally worn out and screaming 'WOO HOO, What a Ride'

AND.....

