Securing our Future: Eliminating Disparities in Women's Health

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The Importance of Being A Woman

Women account for:

- 52% of US population
  - 108.1 million women aged 18 and older, 27.9% are from one or more racial/ethnic minority group
- Up to 90% of health care decisions
- 2 out of every 3 health care dollars spent (approximately $500 billion annually)
- 59% of all prescription drugs purchased

CareData Reports, Inc. 1999.

DEMOGRAPHICS

- Women and girls make up 50.9% of the population.
  - 108.1 million women aged 18 and older, 27.9% are from one or more racial/ethnic minority group
  - Women of color are expected to comprise half of all US women by 2050.

US Bureau of the Census, 2000

KEY INDICATORS OF HEALTH STATUS OF A POPULATION

- Self reported health status
- Morbidity and mortality rates
- Life expectancy

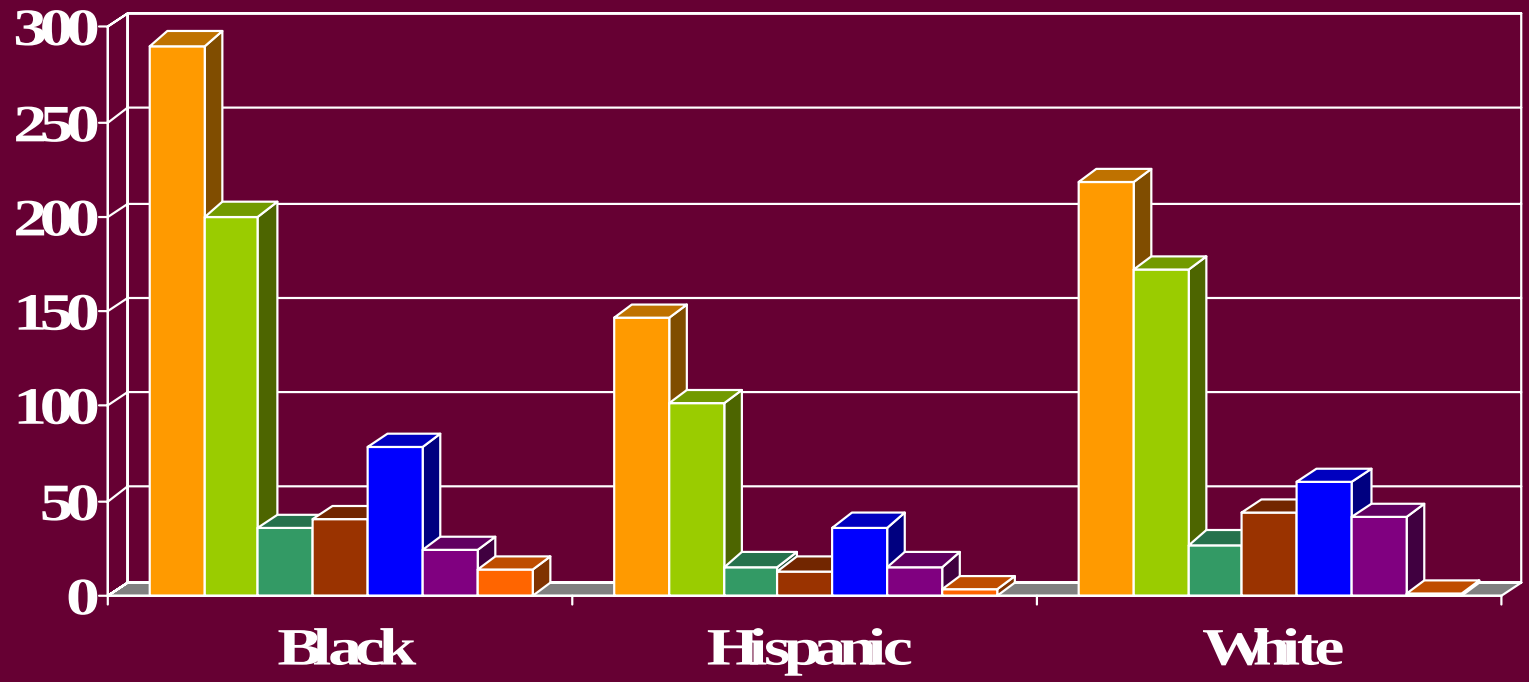
KEY INDICATORS OF HEALTH STATUS: Self report

Report being in poorer health

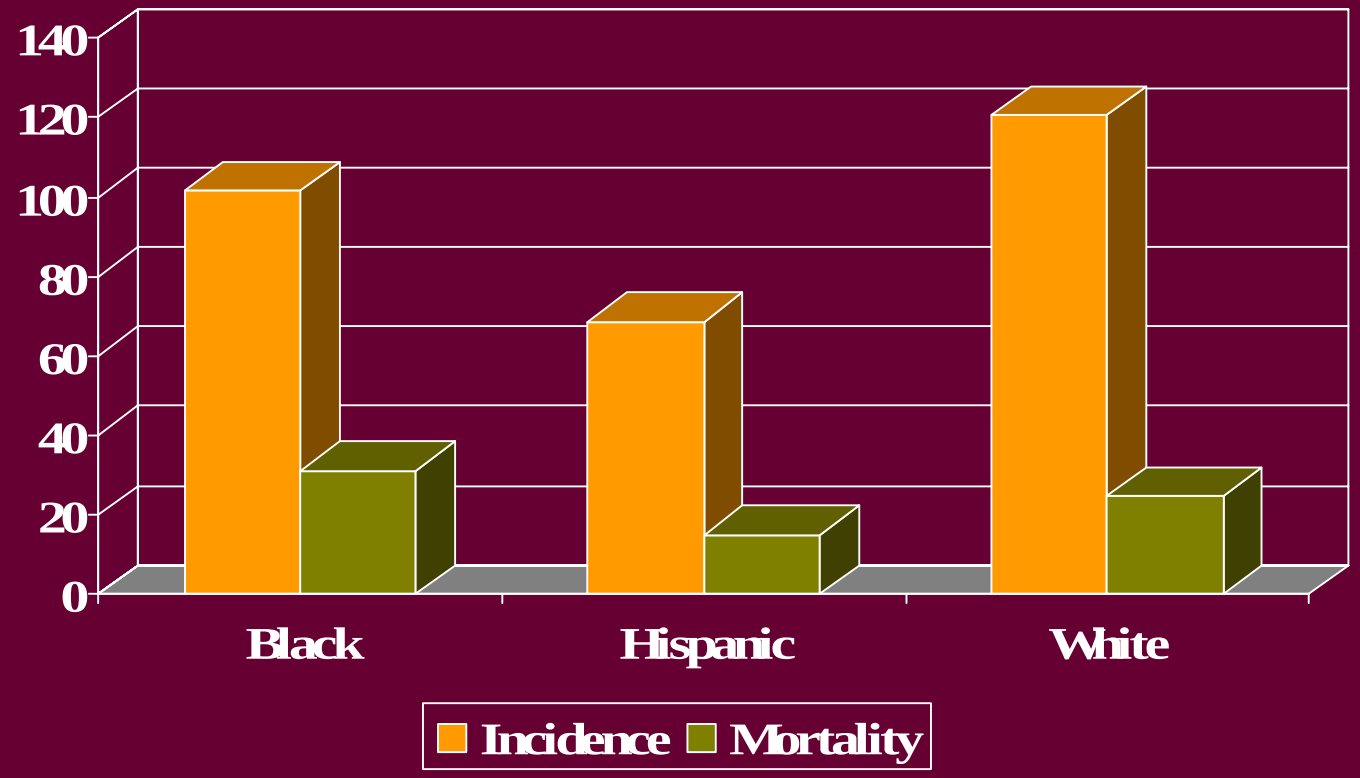
– 20.5 % of black women
– 19.6% of Hispanic women
– 13.4% of white women

N=1440
Jacobs Institute

KEY INDICATORS OF HEALTH STATUS:
AGE-ADJUSTED MORTALITY RATES** FOR SELECTED CAUSES OF DEATH FOR U.S. WOMEN BY RACE/ETHNICITY, 1999*



AGE-ADJUSTED INCIDENCE AND MORTALITY RATES FOR INVASIVE BREAST CANCER IN WOMEN BY RACE/ETHNICITY, 1992-1998*



KEY INDICATORS OF HEALTH STATUS:

LIFE EXPECTANCY IN YEARS FOR U.S. WOMEN BY RACE/ETHNICITY, 1995

Race/ethnicity	Years
Black, non-Hispanic	74.3
Hispanic*	82.2
Asian/Pacific Islander	85.0
American Indian, Eskimo, Aleut	80.2
White, non-Hispanic	80.0

*Persons of Hispanic origin may be of any race.

Source: Day, Jennifer Cheeseman. Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050, U.S. Bureau of the Census, Current Population Reports, P25-1130, U.S. Government Printing Office, Washington, DC, 1996.

Leading Causes of Death for U.S. Women by Race/Ethnicity

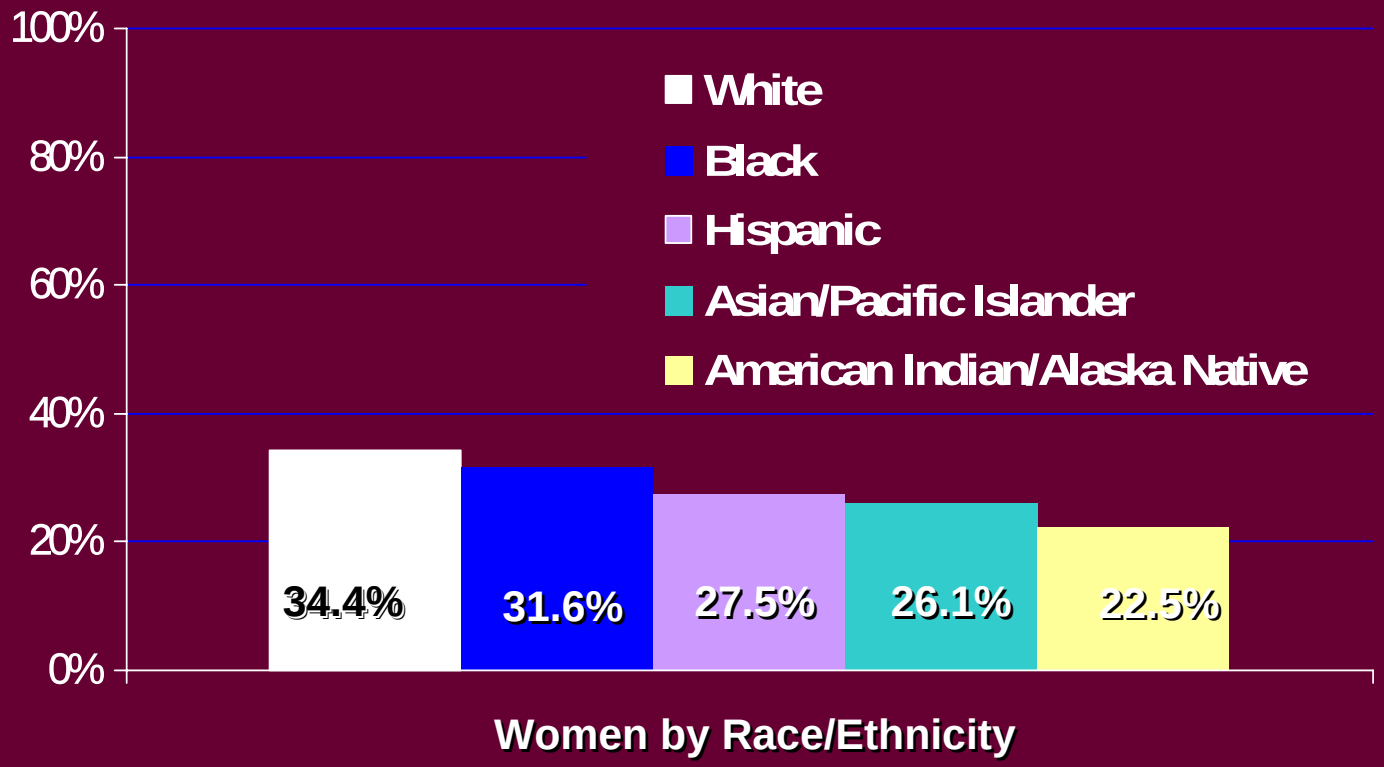
White	African American	Native American	Asian American	Hispanic
Heart disease	Heart disease	Heart disease	Cancer	Heart disease
Cancer	Cancer	Cancer	Heart disease	Cancer
Stroke	Stroke	Accidents*	Stroke	Stroke
COPD	Diabetes	Diabetes	Accidents*	Diabetes
Pneumonia/ influenza	Accidents*	Stroke	Pneumonia/ influenza	Accidents*

*Includes unintentional injury

National Center for Health Statistics, 1998.

Heart Disease Deaths Among Women by Race/Ethnicity, 1993

Percent of Deaths Due to Heart Disease



National Center for Health Statistics, Health United States, 1995, Hyattsville, MD: US Public Health Service, 1996.

Risk Factors for Cardiovascular Disease

- Positive family history of premature CHD
- Hypertension
- Diabetes mellitus
- Current cigarette smoking
- Age and gender (women ≥55, or premature menopause not on HRT)
- HDL <35 mg/dL
- LDL >160 mg/dL* OR LDL>130 mg/dL†
- Peripheral atherosclerosis or CAD

*No CHD and no more than one other risk factor; †No CHD but two or more other CHD risk factors

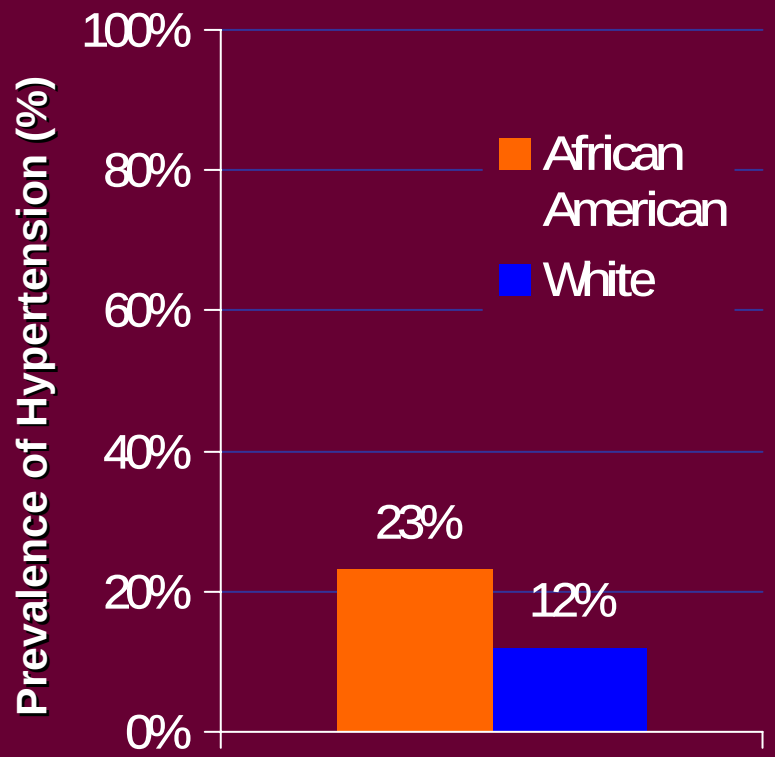
Harvard Pilgrim Health Care, 1997

Comparison of Risk Factors for Coronary Heart Disease

- African American women have a 50% higher prevalence of hypertension
  - Develops at a younger age
- Type 2 diabetes and obesity are more than twice as common in women of color women than in white women

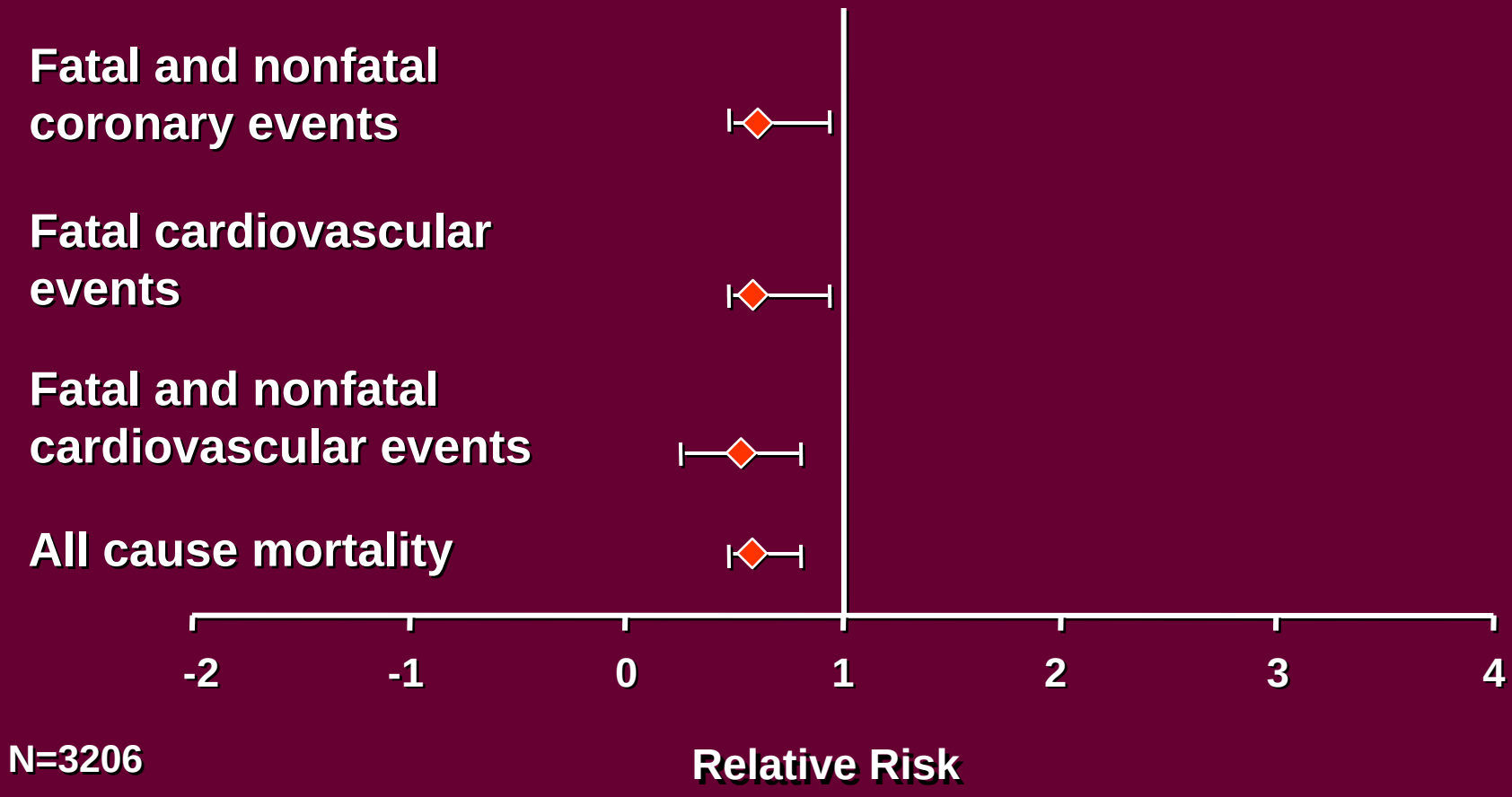
Prevalence of Hypertension in African American Women

- Higher prevalence, earlier onset of hypertension contribute to:
  - A more severe course
  - Higher incidence of cardiovascular morbidity/mortality at younger ages



Quan A, et al. *The Cochrane Library*, 2001.

Hypertension Treatment in African American Women: Risk Reduction



N=3206

Quan A, et al. *The Cochrane Library*, 2001.

Comparison of Risk Factors for Coronary Heart Disease

- African-American women smoke fewer cigarettes/day
- African-American women have similar or better lipid profiles compared with white women

Coronary Heart Disease

- Equal rates of myocardial infarction
- African-American women have
  - Greater number of readmissions to coronary care unit
  - More likely to die in the hospital

Nicholson WK et al. *Menopause.* 1999;6:147-155.

Evaluation of Coronary Heart Disease

- 30 observational studies with 148,473 participants
  - 3 European studies: no race data
  - 17 US studies: did not report race distribution
  - 6 studies reported evaluating only white women
  - Only 4 studies included nonwhite women (4083 participants; <3% of total)

Nicholson WK et al. *Menopause.* 1999;6:147-155.

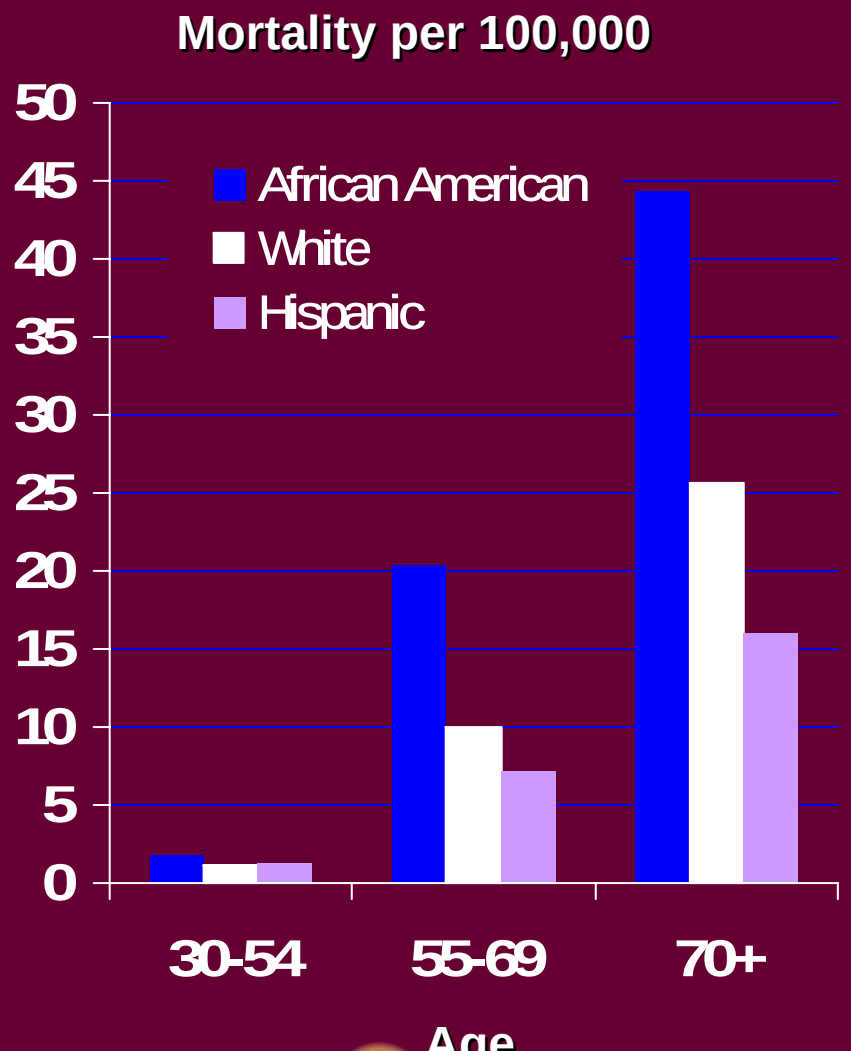
Impact of Non-Inclusion for Coronary Heart Disease

- If the lipid profile is better for African American women, why is the morbidity and mortality rate higher?
- Are obesity, type 2 diabetes or hypertension more significant risk factors for non-white women with coronary heart disease?

Endometrial Cancer Disparities

Incidence

- African American women 14.3/100,000
- White women 23.3/100,000
- Hispanic women 13.7/100,000

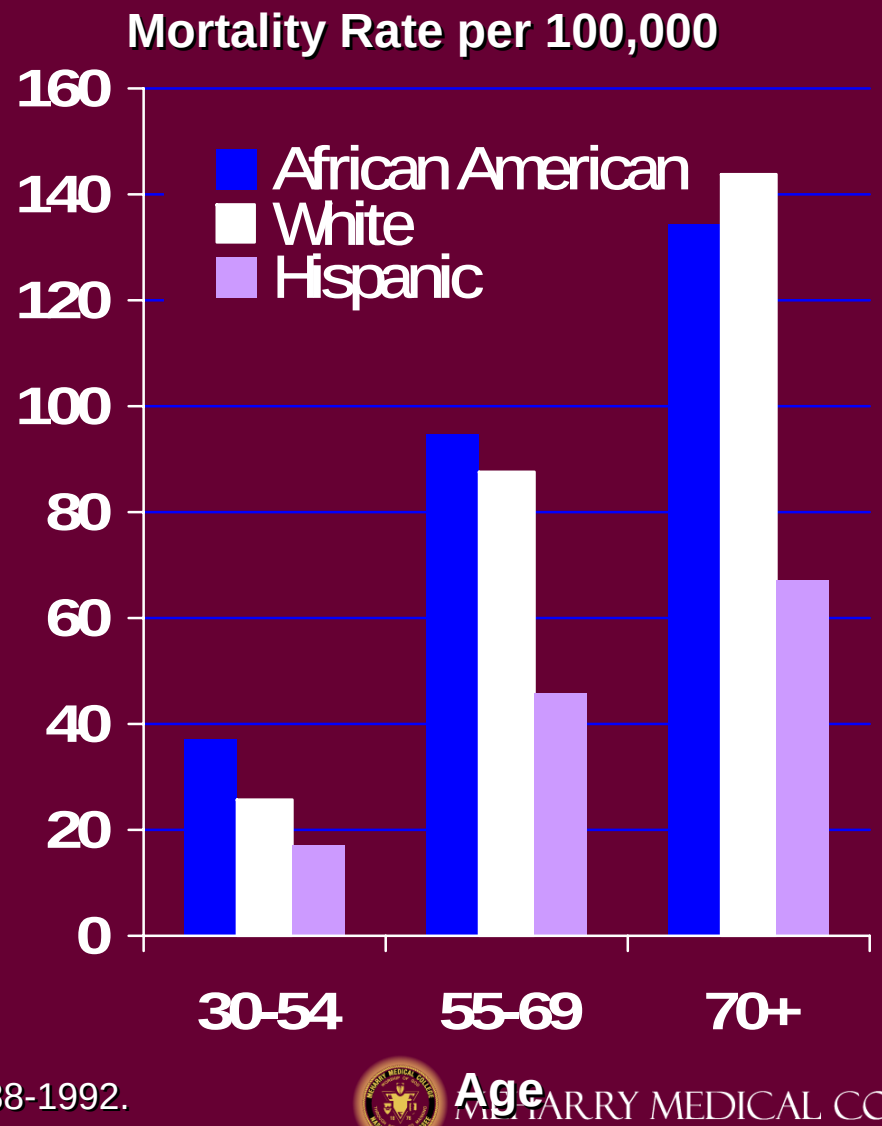


Trapido et al. 1995; SEER Cancer Statistics. 1988-1992.

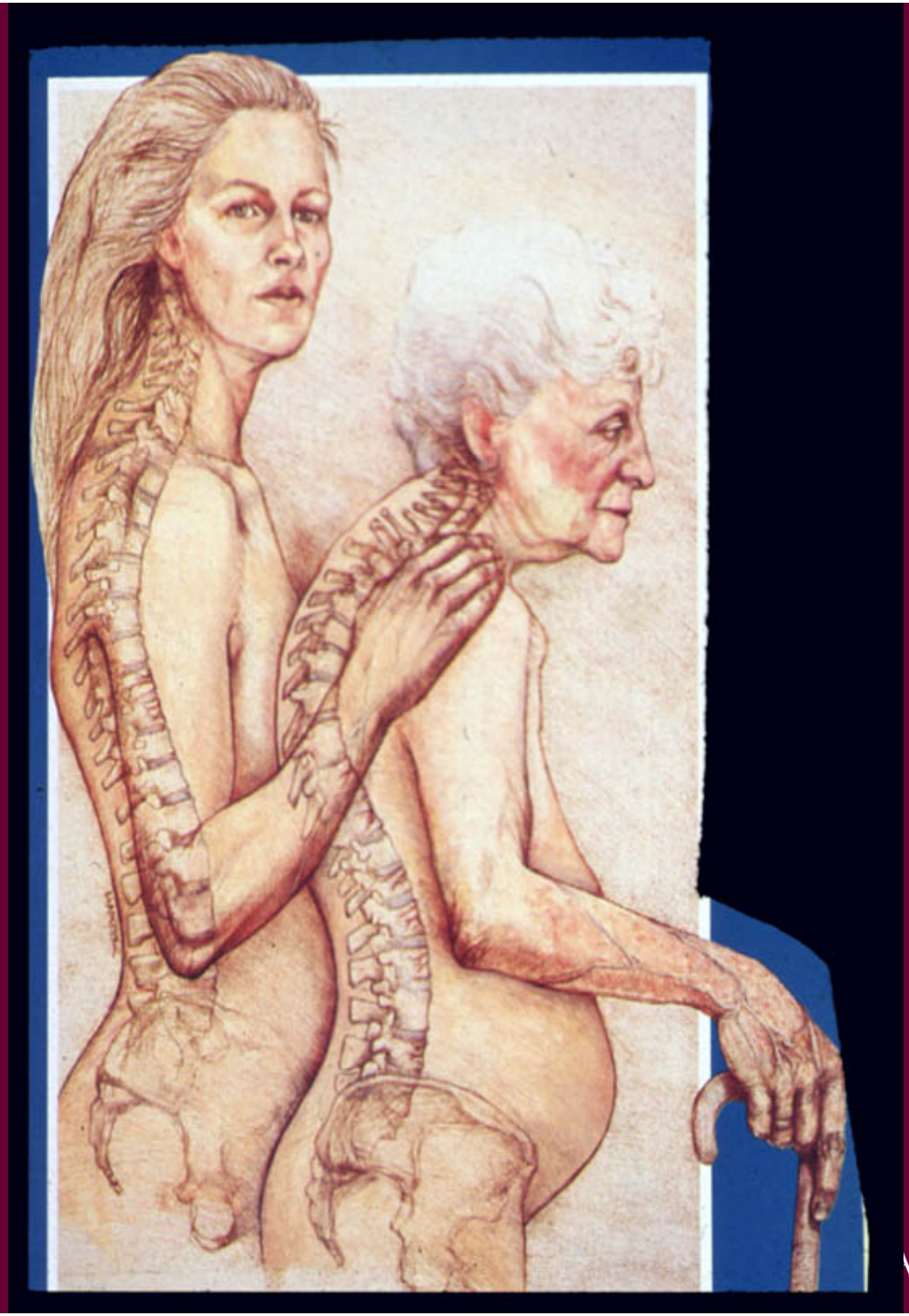
Breast Cancer Disparities

New cases/year

- African American women 95.8/100,000
- White women 112.7/100,000
- Hispanic 59.8/100,000



Trapido et al. 1995; SEER Cancer Statistics. 1988-1992.



Bone Density: Preliminary Results from SWAN

- Bone strength among women by race/ethnicity, from strongest to weakest
  - Hispanic
  - African American
  - White
  - Asian American

As reported by Avis, 11th Annual NAMS.

Osteoporotic Fractures in Women > 65 years

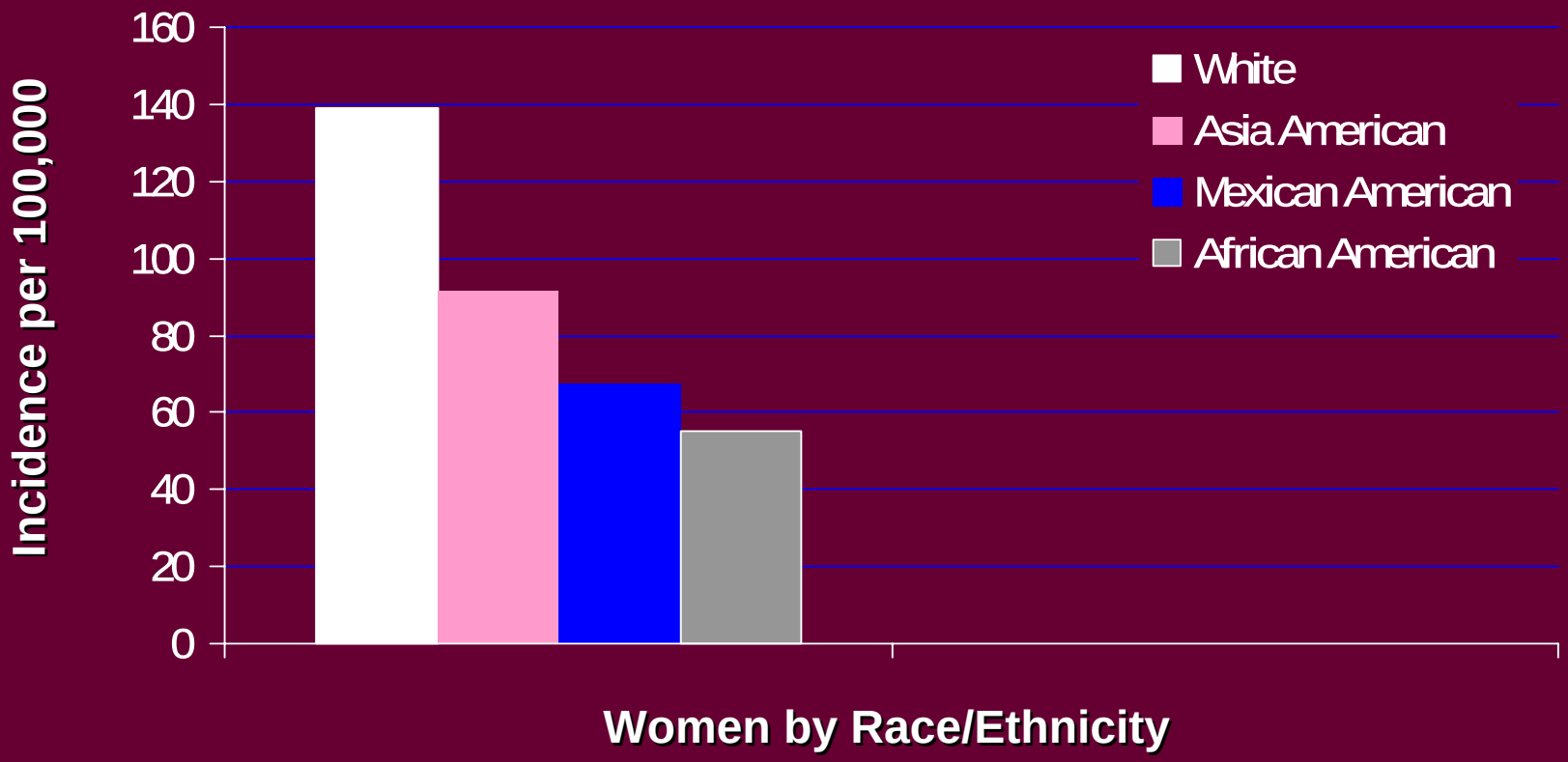
	Incidence	Mortality	Hospitalization
White women	8/1000	9.6/1000	<10 days
African American women	3/1000	13.6/1000	10-20 days

1984-1987 Medicare Hospital Discharge Data

Women of Color and Osteoporosis

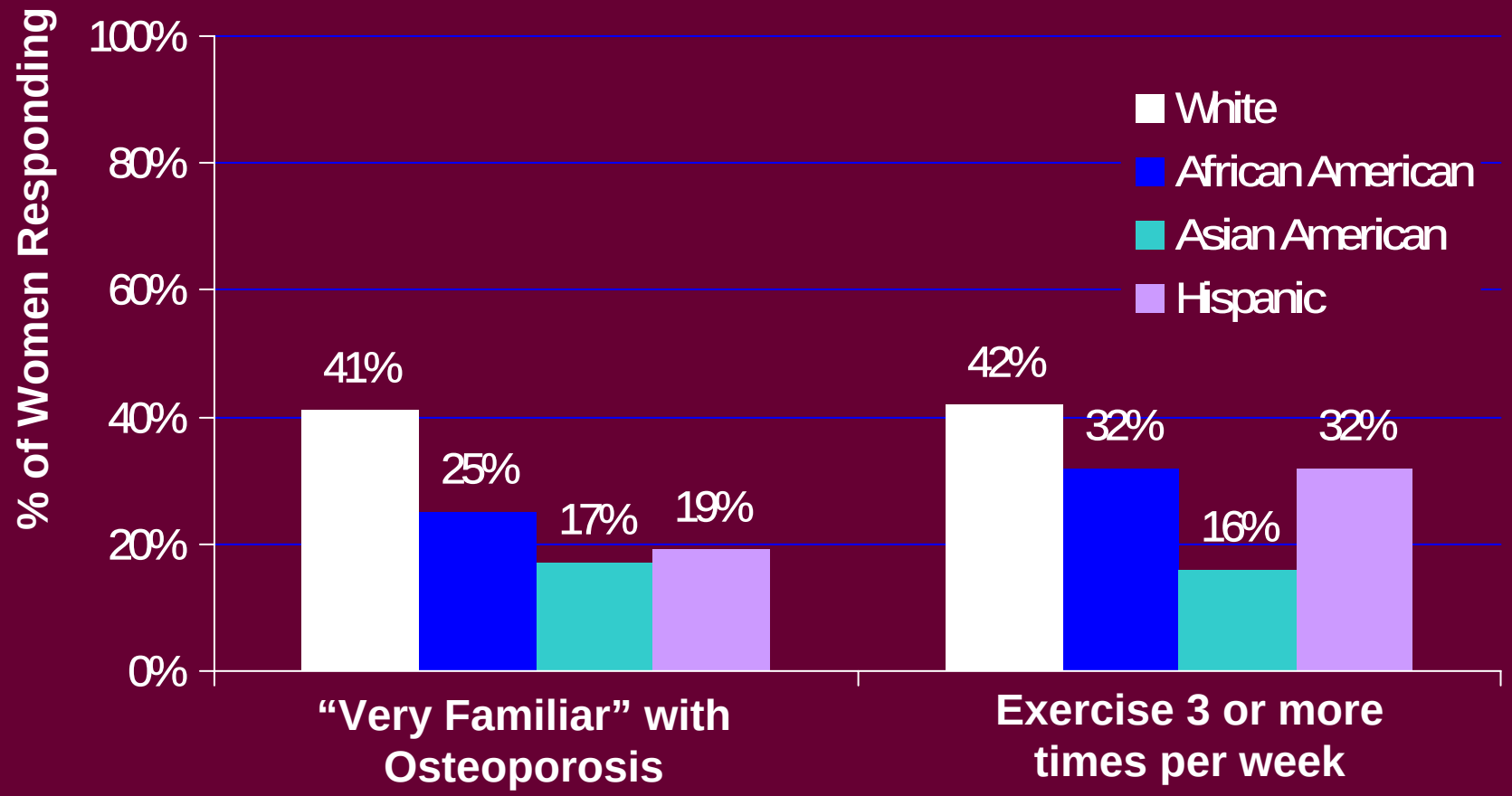
- Diseases more prevalent in the African American population, such as sickle cell anemia and systemic lupus erythematosus, are linked to osteoporosis
- Women of color consume less calcium
- Higher incidence of lactose intolerance which hinders calcium intake

Hip Fracture Rates



Bauer RL. *Am J Epidemiol*. 1988.
Silverman et al., 1988

Familiarity with Osteoporosis by Race/Ethnicity



The Commonwealth Fund 1998 Survey of Women's Health

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Evaluation of Osteoporosis by Race

- Eleven studies on the association between HRT and osteoporotic fractures
  - Four did not report the racial distribution
  - Four specified race but included only white women
  - Three studies reported including “non-white women”

Nicholson WK et al. *Menopause.* 1999;6:147-155; Bertran, et al. 1999.

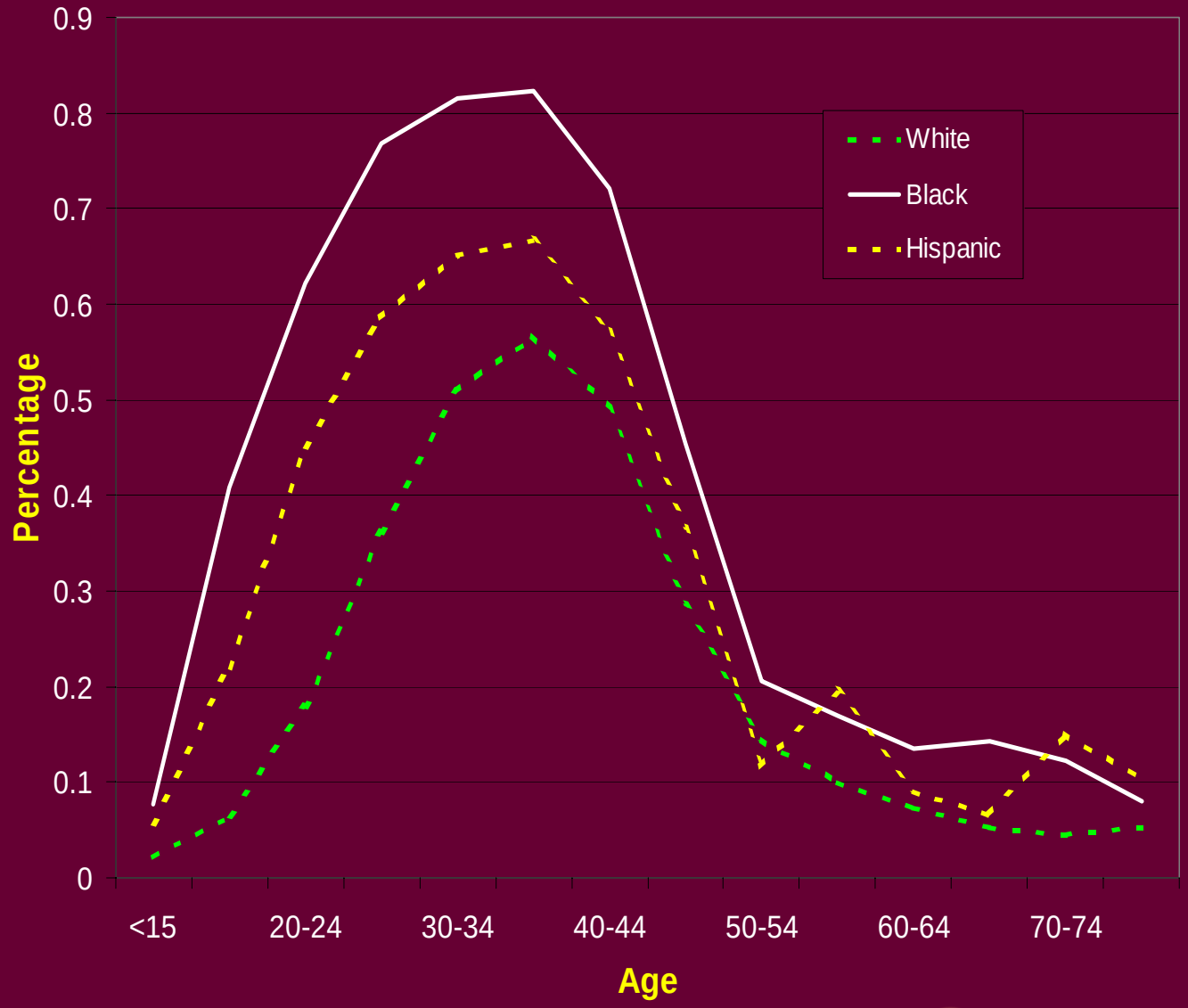
600,000 Hysterectomies Performed Annually in US

- *120,000 (20%) for bleeding*
- *240,000 (40%) for leiomyomata*
- *Estimated cost – $2 billion*

Wilcox, et al. Obstet and Gynecol. 1994.

Homa Keshavarz, et al..MMWR, 2002

Proportion of all hysterectomies done for fibroids by age and race



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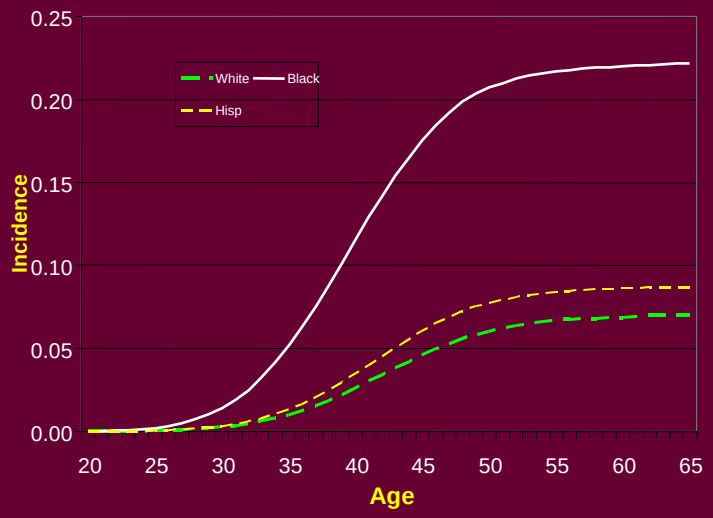
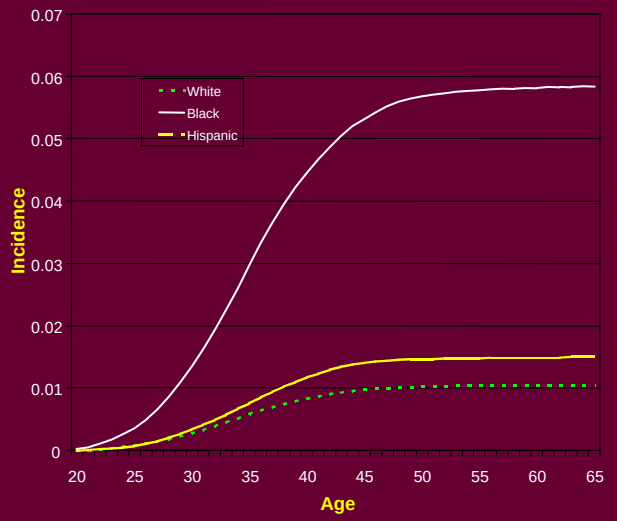
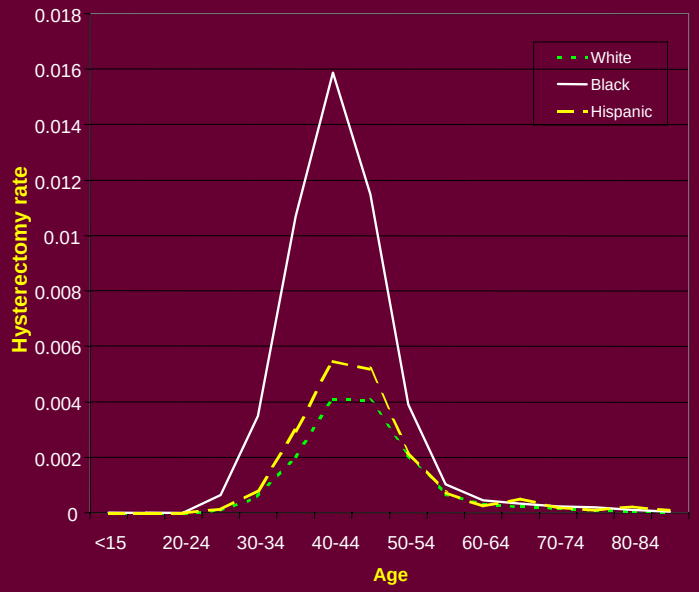
Cumulative incidence of hysterectomy for fibroids



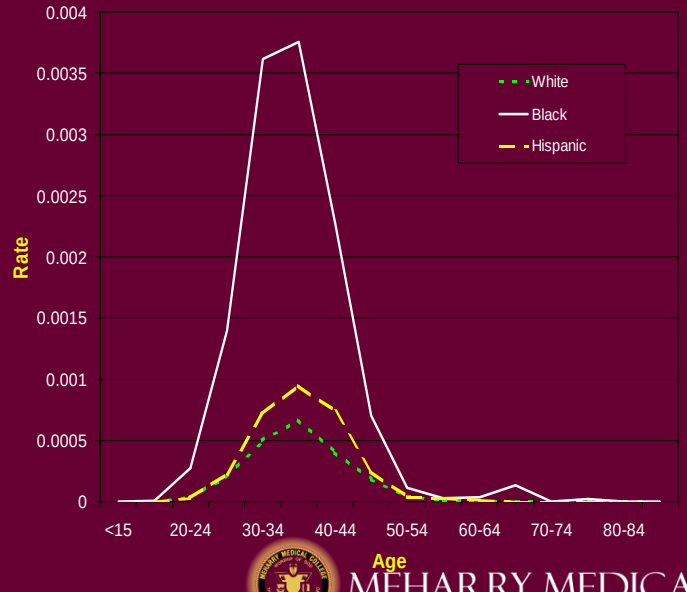
Cumulative incidence of myomectomy



Unadjusted hysterectomy rate for fibroids by age and race



Myomectomy rate by age and race



1997 Nationwide Inpatient Sample

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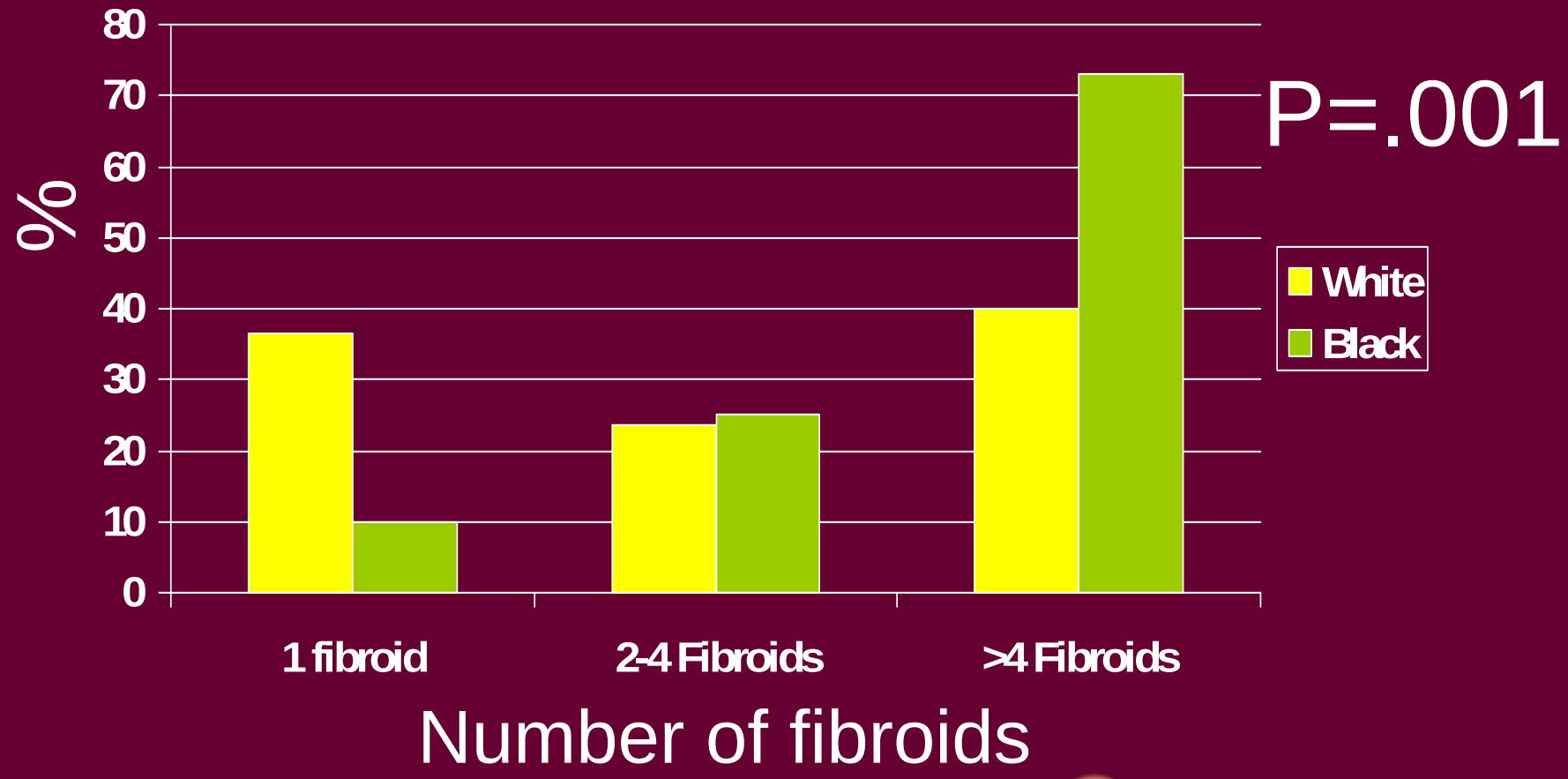
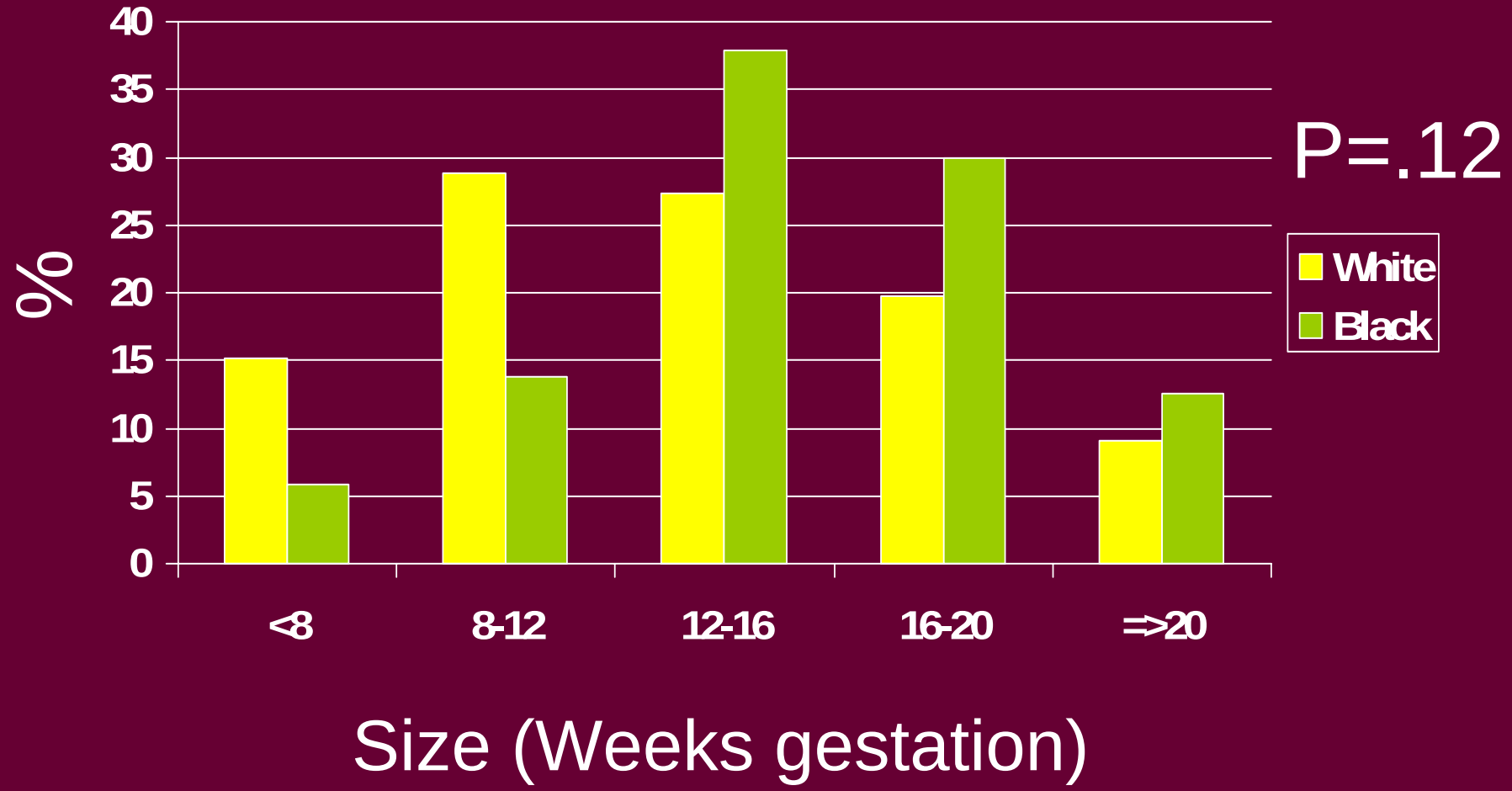
Myomectomy: Race and number of fibroids



Myomectomy: Race and Uterine size



Myomectomy: Complications by Race

(Unadjusted Risk Ratio)

Complication	White	Black	Total
No	72	70	142
Yes	17	41	58
Total	89	111	200

RR= 2.48 p< .006

Myomectomy: Adjusted Odds Ratios for Complications

Variable	OR	(CI 95%)
Race	1.36	(.56-3.15)
Uterine size	1.86	(1.3-2.67)
Number of fibroids	1.83	(1.1-3.14)
Comorbidities	2.77	(1.1-7.69)

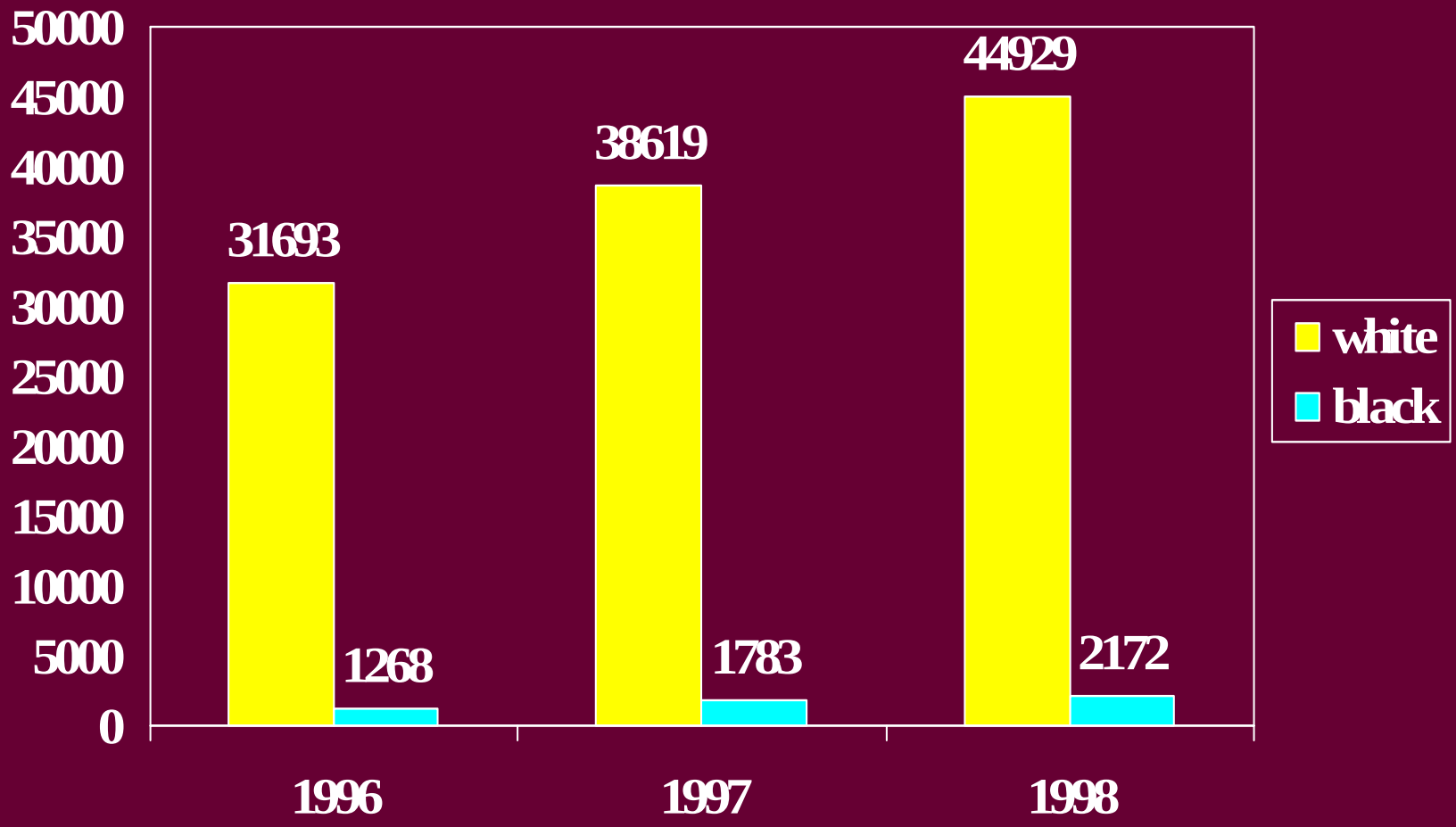
Hysterectomy Complications: Multivariate Analysis

VARIABLE	Odds Ratio	95% CI
African-American (vs white--unadjusted)	1.94	1.26, 2.99
African-American (adjusted for variables below)	1.48	0.88, 2.49
BMI >25	1.76	1.03,2.87
Uterine Size in weeks (<8,8-11, 12-15,>16)	1.16	0.97,1.38
Preoperative hematocrit < 32	3.79	2.12,6.75
Other procedures at time of hysterectomy	2.27	1.27,4.05
Oophorectomy	1.90	1.17,3.07
Adhesions	2.36	1.36,4.08

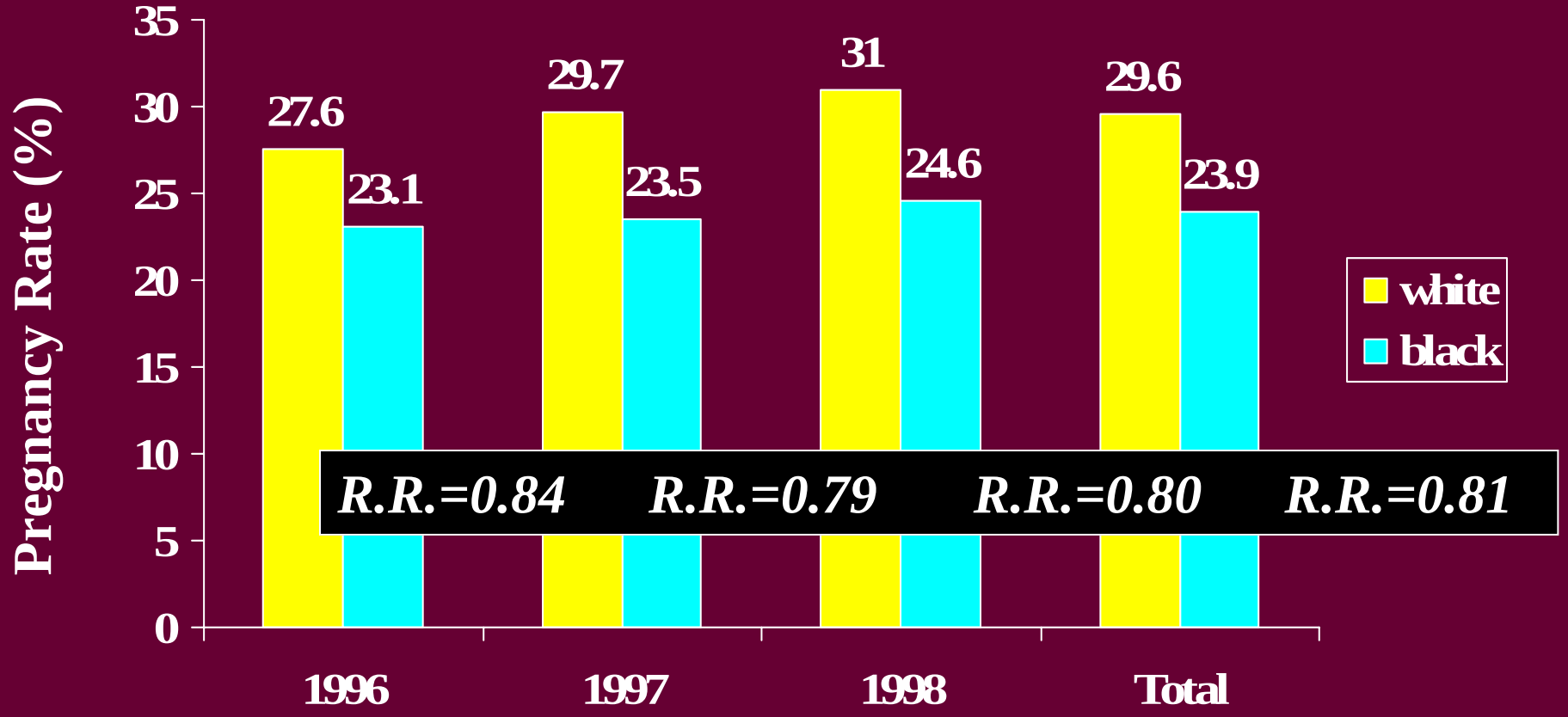
Conclusions

- Excess risk of complications in black women largely attributable to differences in
  - Severity of disease
    - Size of uterus, # of fibroids, anemia
  - Other surgical risk factors
    - Obesity, presence of adhesions
- Other causes may still contribute to some excess risk

Number of ART Procedures by Race: 1996-98



IVF Clinical Pregnancy Rates by Race, 1996 - 1998



P<0.0006

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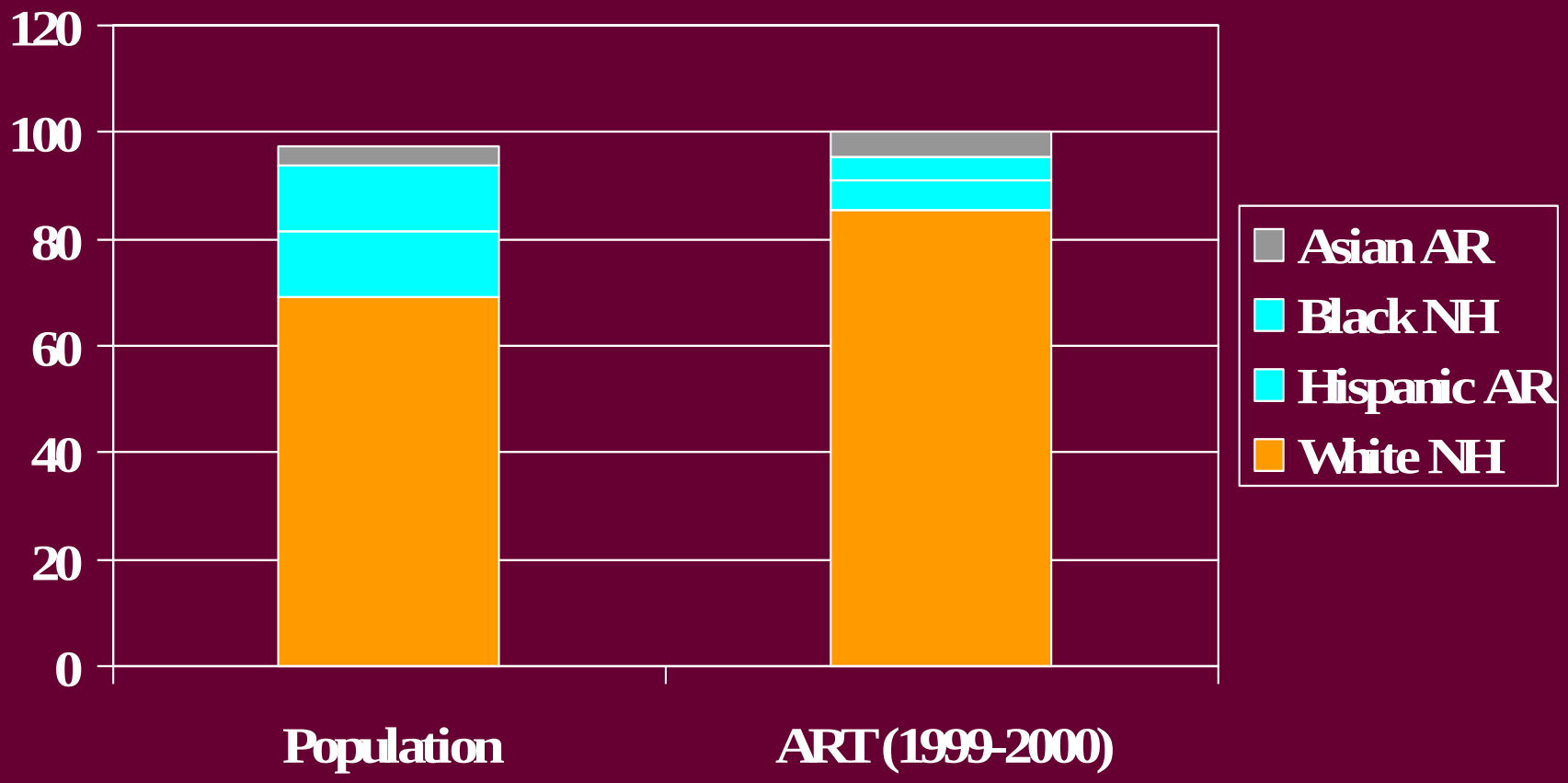
Census 2000: 281,421,906
Access to Care?



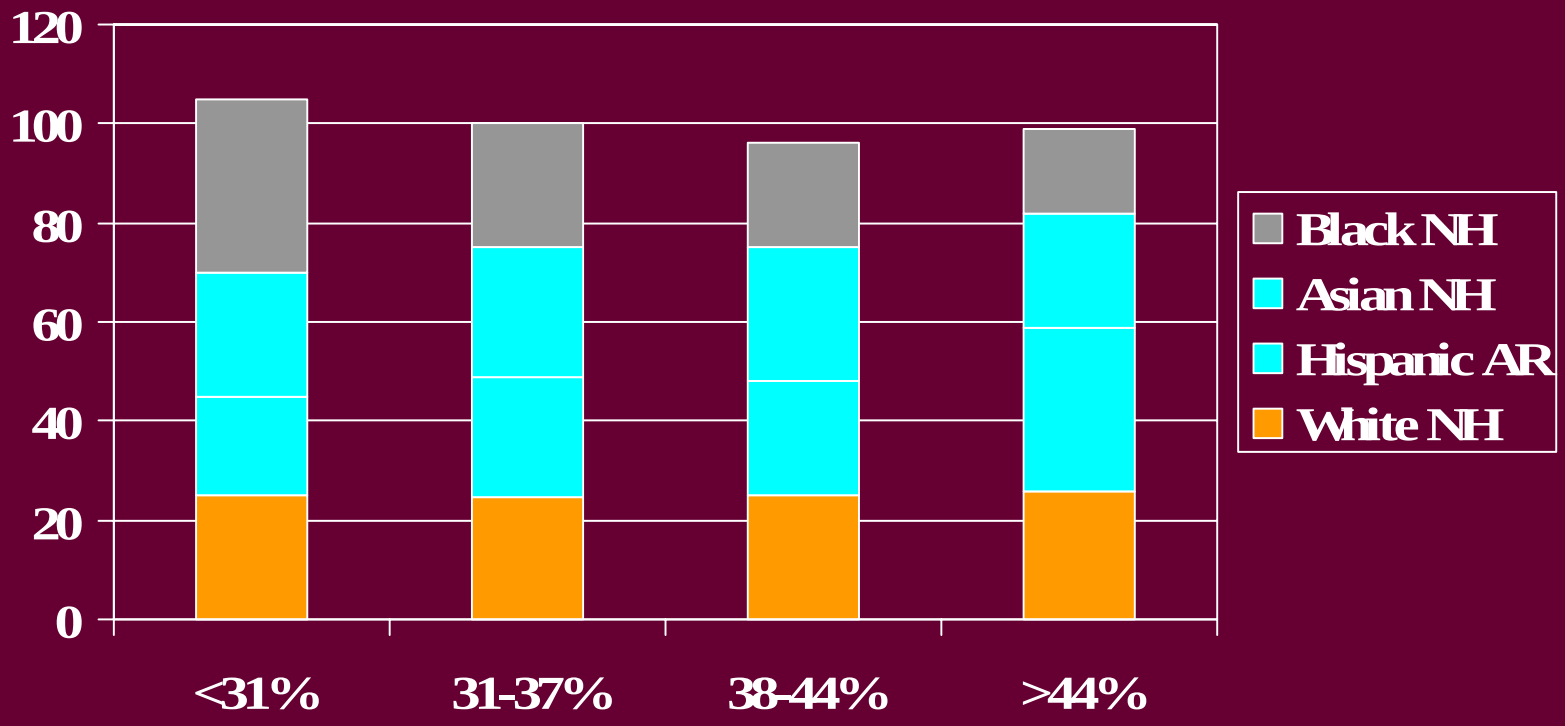
http://factfinder.census.gov/servlet/SAFFFacts?_sse=on

Racial Disparities: Utilization of Care

- Logistics – is clinic close enough for access?
  - Can I get time off of work for required visits?
- Aware of technologies? Referred for ART?
  - Prior ART less frequent among Black NH
  - Is care ethically acceptable? Issues of spirituality, fatalism?
- If care is accessible, can I afford it?
  - Insurance, out of pocket charges?

Distribution of Cycles by Clinic Success Rate (CIG/cycle – quartiles)

Access or Quality of Care?



Biological Differences

- Uterine factor
- Tubal factor
- Multiple diagnoses
- Disparate response to stimulation? Oocyte quality? Embryo quality?
- BMI?

Number of Diagnoses

(All differences significant, P < 0.001)

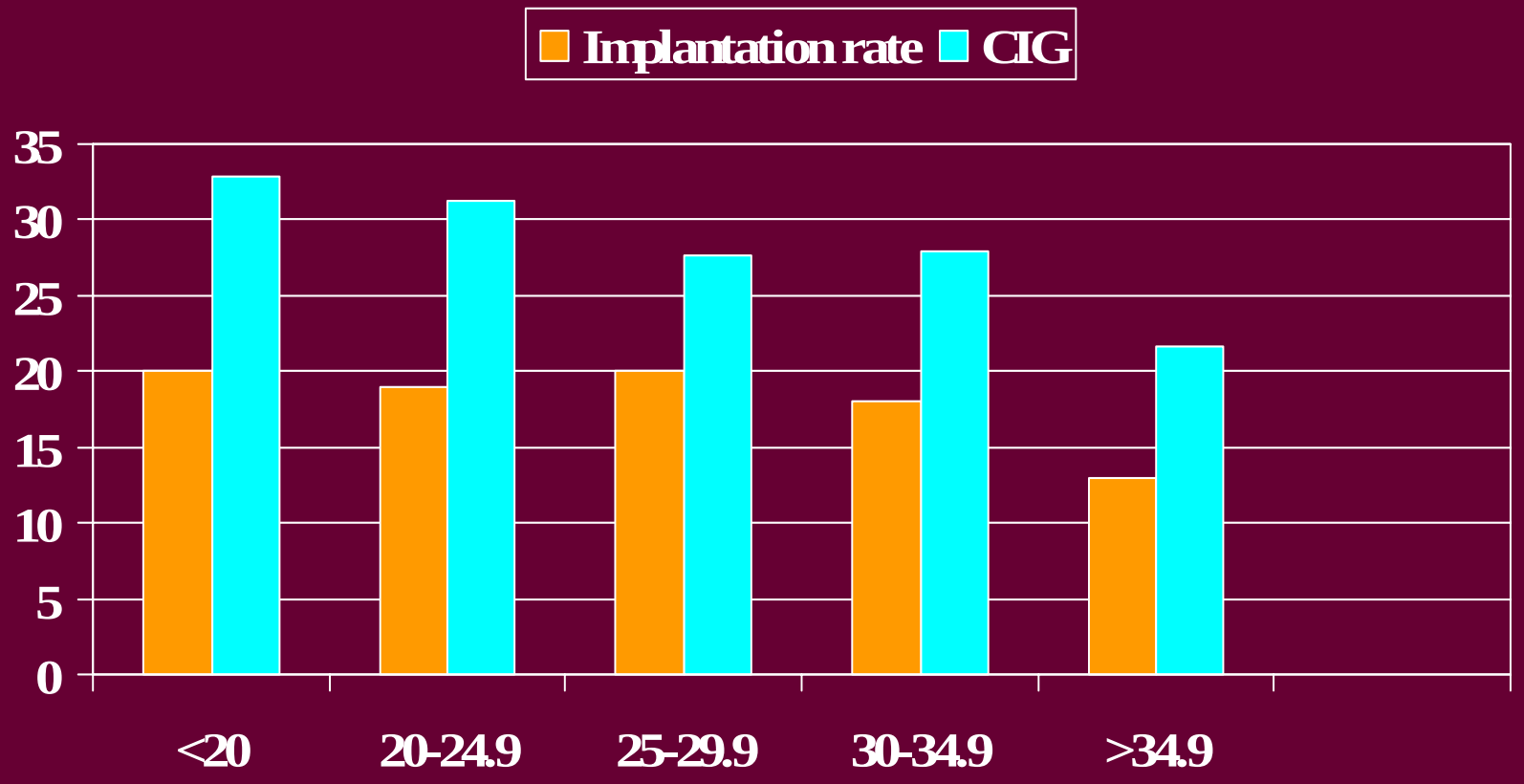
Race / Ethnicity	Mean	One	Two or More
White NH	1.41	65.9	34.1
Black NH	1.50	60.8	39.2
Asian NH	1.44	64.2	35.8
Hispanic	1.46	62.9	37.1

Effects of BMI?

Race	Obesity	Diabetes
White	19.6	7.2
Black	31.1	11.2
Hispanic	23.7	9.0
Other	15.7	8.2

Mokdad AH, Bowman BA, Ford ES, et al. Prevalence of obesity, diabetes, and obesity related health risk factors, 2001. *JAMA* 2003:289;76–79.

Influence of BMI on ART Outcome: 6,827 Cycles



DA Ryley et al; O-95, ASRM 2004

Conclusions

- Racial disparities appear to exist when examining outcomes using ART
  - RR for LB is 0.79 for Black NH, 0.89 for Asian NH
- Spontaneous abortion increased in Black NH in fresh non-donor cycles
- All differences disappear when examining cryo cycles
- Appear to be issues related to access, but difficult to ascertain with the current dataset
- ***BMI and number of diagnoses impact success in Black patients***

HIV Disparities

- Black women account for 63% of all new cases AIDS in 1999
- As of 2000, non Hispanic Black women and Hispanic women represent 77.5 % of all AIDS cases in the US
  - AIDS cases rate (new cases /100,000)
    - 45.9-Black women
    - 13.8 Hispanic women
    - 2.2 White women

Henry J. Kaiser Family Foundation. Key Facts: Women and HIV/AIDS. Washington: The Foundation, 2001.
[1] Anderson RN. Deaths: leading causes for 1999. Natl Vital Stat Rep. 2001;49:1-88.
[1] Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report, 2000;12(No. 2):1-48.

Female AIDS Cases, Aged 13 and Older, by Exposure Category* and Race/Ethnicity,** 2003

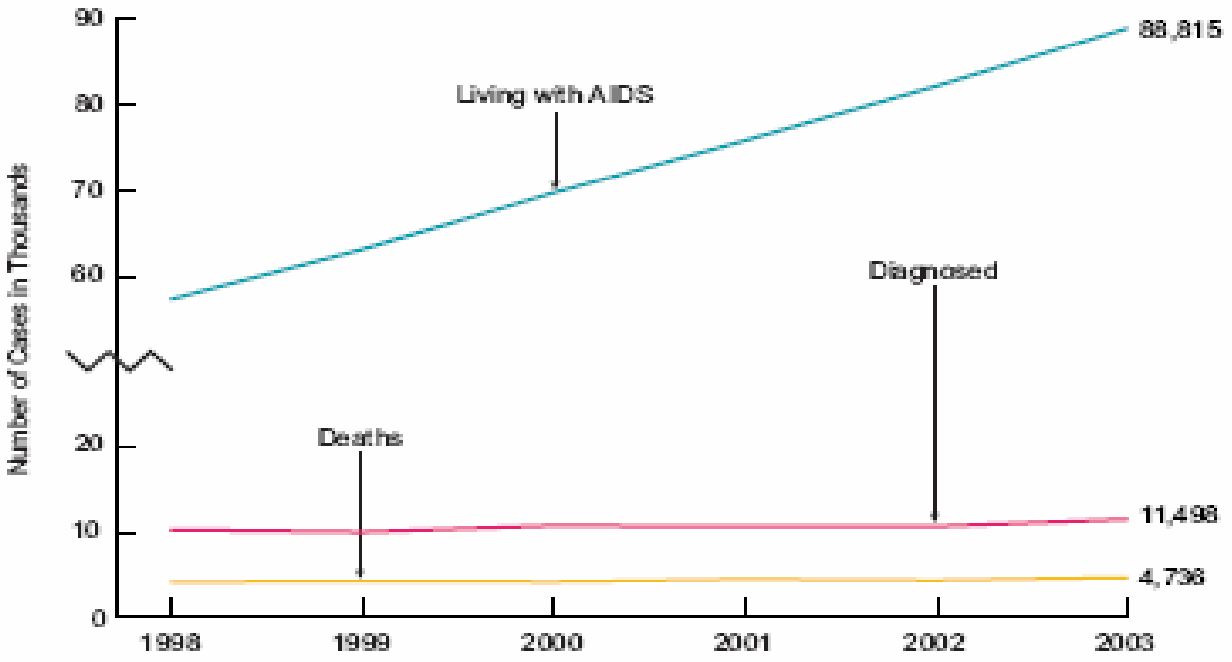
Source (II.6): Centers for Disease Control and Prevention, HIV/AIDS Surveillance Report

*Each reported case of AIDS is assigned to one exposure category, even if more than one risk factor is present, according to the probability of acquiring the infection from each risk behavior.

**Numbers for Asian/Pacific Islanders and American Indian/Alaska Natives are too small to illustrate on graph.

Estimated Number of Diagnoses of AIDS, Women Living with AIDS, and Deaths Among Women with AIDS,* 1998-2003

Source (II.6): Centers for Disease Control and Prevention, HIV/AIDS Surveillance Report



*Among women ages 13 and older

Based on published data in the US, accounting for the first three major cost items, in 2002 an HIV-infected worker would cost an employer in the US an estimated 37,320 US dollars for asymptomatic individuals and 50,374 US dollars for symptomatic individuals per person-year.

Barriers Limiting Access to Health Care for Minority Women

- Income levels/unemployment
- Health insurance status
- Social and cultural barriers
  - Social disadvantages
  - Cultural values
  - Discrimination
  - Lack of culturally appropriate services
  - Transportation

Department of Health and Human Services. Office on Women's Health. May 2000

Possible Solutions

- Patient education
- Physician education
- Increase minority participation in clinical trials
- Create research environments that are community and culturally sensitive and focused

Nurses' Health Study: Decline in CHD Incidence, 1980-1994

From 1980 to 1994, CHD incidence decreased by 31%. Dietary improvements, smoking reduction, and increases in HRT use accounted for much of this decline; however, an increase in the prevalence of BMI >25 kg/m^2 attenuated some of the benefit of these changes.

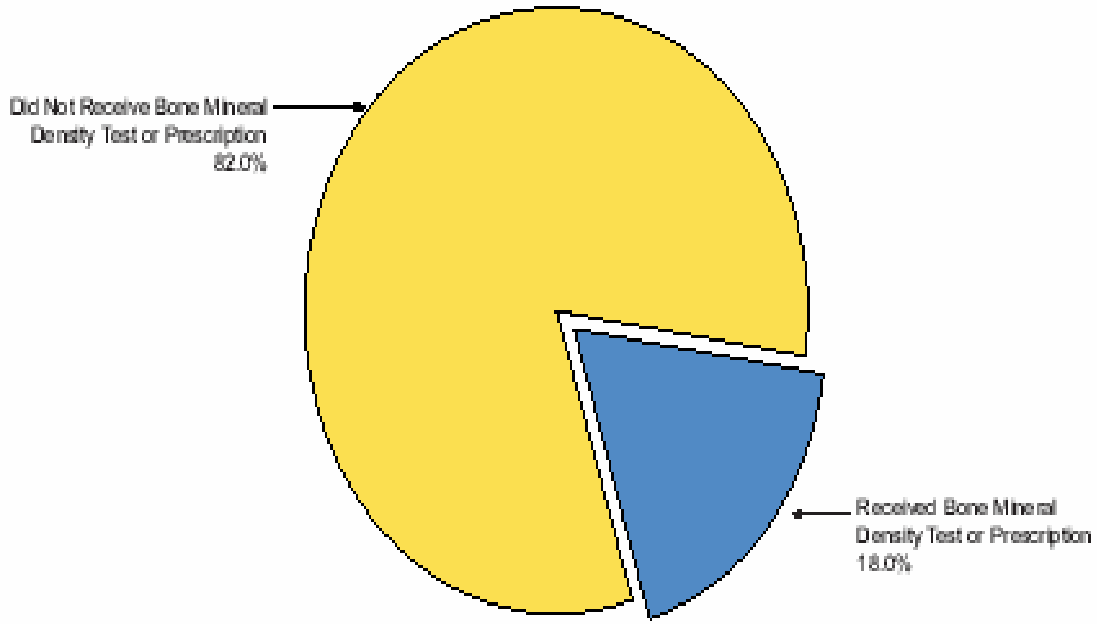
Risk Factor Adjustment	Change in CHD Incidence*	Relative Risk†	*P* value
Dietary Improvements	-16%	0.85	0.11
Smoking Reduction	-13%	0.82	0.04
HRT Use	-9%	0.78	0.02
BMI >25	+8%	0.61	<0.001

Numbers do not add up to 31% because of rounding.
†Relative risk values are for 1992-1994 as compared with 1980-1982.

Hu FB et al. *N Engl J Med*. 2000;343:530-537.

HEDIS®* Measure of Osteoporosis Management in Women Aged 67 and Older Who Had a Fracture, Medicare Plans, 2003**

Source (II.13): National Committee for Quality Assurance



*HEDIS (Health Plan Employer Data and Information Set) is a registered trademark of NCQA.

**The HEDIS Osteoporosis Management in Women Who Had a Fracture measure estimates the percentage of women 67 years of age and older who suffered a fracture, and who had either a bone mineral density test or a prescription for a drug to treat or prevent osteoporosis in the six months after the date of fracture. This measure was reported for the first time in 2004, and only applies to Medicare plans.

Changes in Health-Related Behaviors After BMD Testing

Variable	*Normal BMD (n = 407)*	*Moderate Low BMD (n = 169)*	*Severe Low BMD (n = 125)*	*P-value*
Started HT	13%	33%	47%	<.001
Increased calcium supplements	67%	81%	90%	<.001
Increased dietary calcium	60%	71%	82%	<.001
Decreased caffeine intake	34%	44%	60%	<.001
Increased exercise	52%	61%	76%	<.001
Stopped smoking	11%	22%	24%	.004

[1]Marci CD et al. *Calcif Tissue Int*. 2000;66:113-118.

Barriers to Recruitment and Retention of Minority Women in Clinical Trials

- Lack of knowledge and awareness about the trial
- Lack of transportation
- Interference with family/work responsibilities
- Financial costs
- Negative side effects
- Burdensome procedures

Brown DR et al. *Ann Epidemiol.* 2000; 10:S13-S21.

Feasibility of Recruiting Minority Populations into a Primary Prevention Trial

- Goal: at each of 3 clinical centers, randomize 750 postmenopausal women within 18 months into dietary intervention or control groups to reduce dietary fat
- All centers achieved goals for ethnicity
- Greatest source of participants was mass mailings, followed by items in the media, referrals, and community outreach
- Recruitment yields were similar for ethnic groups but lower for less-educated participants
- Groups of low socioeconomic status require special outreach and assistance to participate in clinical trials

Lewis CE et al. *Control Clin Trials*. 1998;19:461-476.

Strategies Effective in Recruitment of Minority Women in Clinical Trials

- Culturally targeted mass mailings
- Media presentations
- Personal contacts
- Financial incentives
- Future studies need to consider circumstances that may differentially impact various racial/ethnic groups such as health status, comorbidities, language and cultural beliefs, and socioeconomic status

Brown DR et al. *Ann Epidemiol.* 2000;10:S13-S21.

To the Infinite Power of Healing

Center for Women's Health Research

at Meharry

MEHARRY MEDICAL COLLEGE

Rationale for Center For Women's Health Research

- Traditionally addressed from an access and outcomes perspective
- Need exist to understand
  - Etiology from a disease perspective
  - Hormonal influences
  - Cellular and genetic differences
  - The influence of obesity and behavior
  - How to expand our translational model from the communities' perspective

Research Focus Areas

- Reproductive Health (fibroid, osteoporosis, PCOS”)
- Cancer (ovarian and breast)
- Molecular and Behavioral Science
- HIV/AIDS

Goals for CWHR

- To pursue the eradication of disparities in women's health
- To serve as a focal point for collaboration and interaction among basic and clinical researchers in women's health
- Augment and strengthen the translational research capabilities in women's health through specific cores within a multidisciplinary arena.
  - **Exercise /Nutrition core**
  - **Radiology Core**
  - **Endocrine Core**
  - **Behavioral Core**

Thank you

- "Statistics are people with the tears wiped off"

  » Kerr White, MD

MEHARRY MEDICAL COLLEGE

PROJECT I:

Racial Differences in Circulating Sex Steroids and their Effect on Bone and Ovarian Function

Principal Investigators:

Valerie Montgomery Rice, M.D.
Me`harry Medical College

Tom Lloyd, M.D.
Co-Investigator,
Pennsylvania State University

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Improving
The Diagnostic Accuracy for Gynecologic Pathology: The Use of 3-D Ultrasound and Serum Proteomics/DNA markers for Determining Gynecologic Pathology

A Prospective Study of the Sensitivity and Specificity of 3-D Ultrasound in Women Undergoing Hysterectomy

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