

# ***CITIES WITH THE HIGHEST IMR***

-- District of Columbia

-- Detroit

-- Atlanta

-- Newark

-- Cleveland

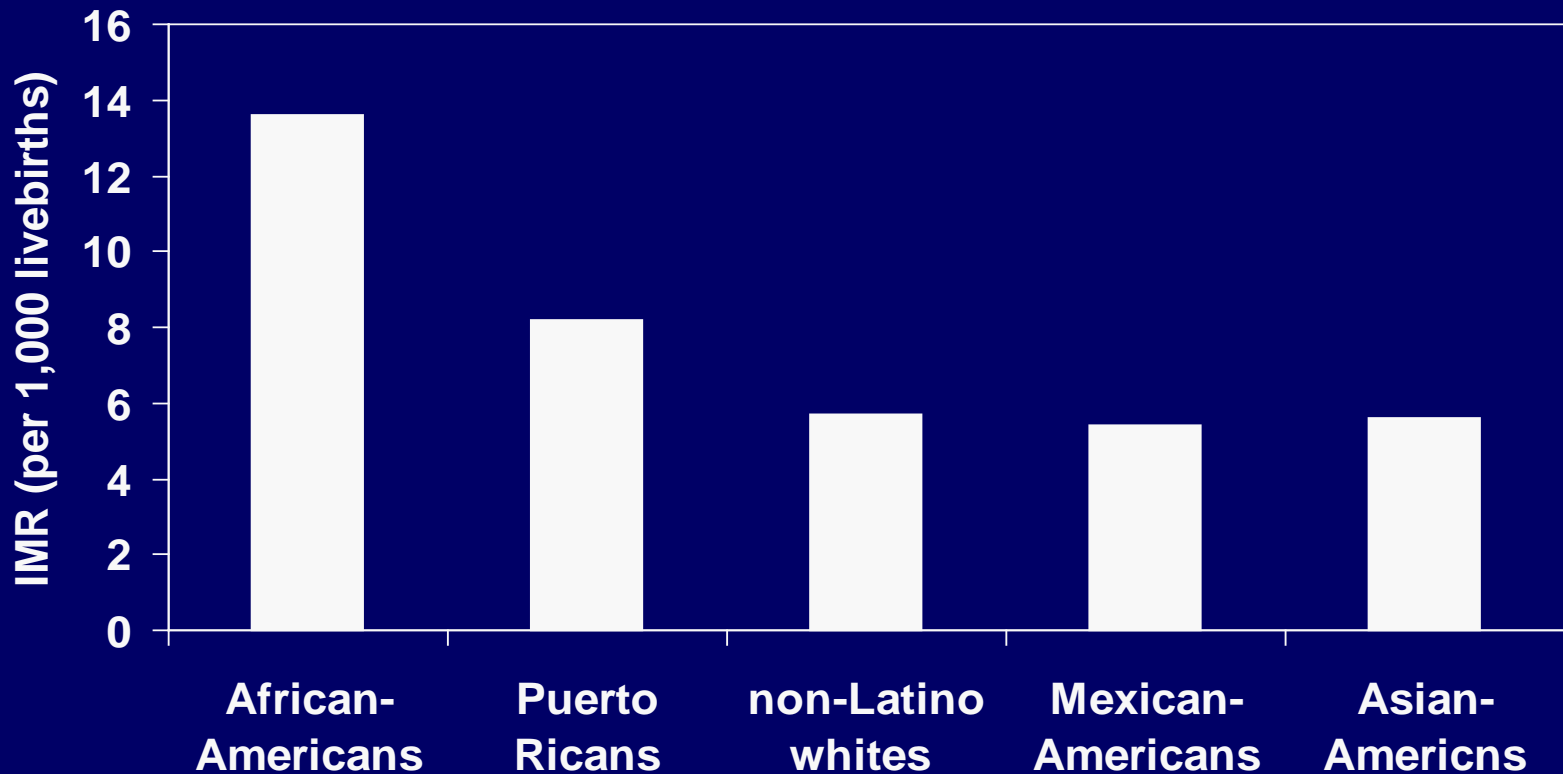
-- Norfolk

-- Baltimore

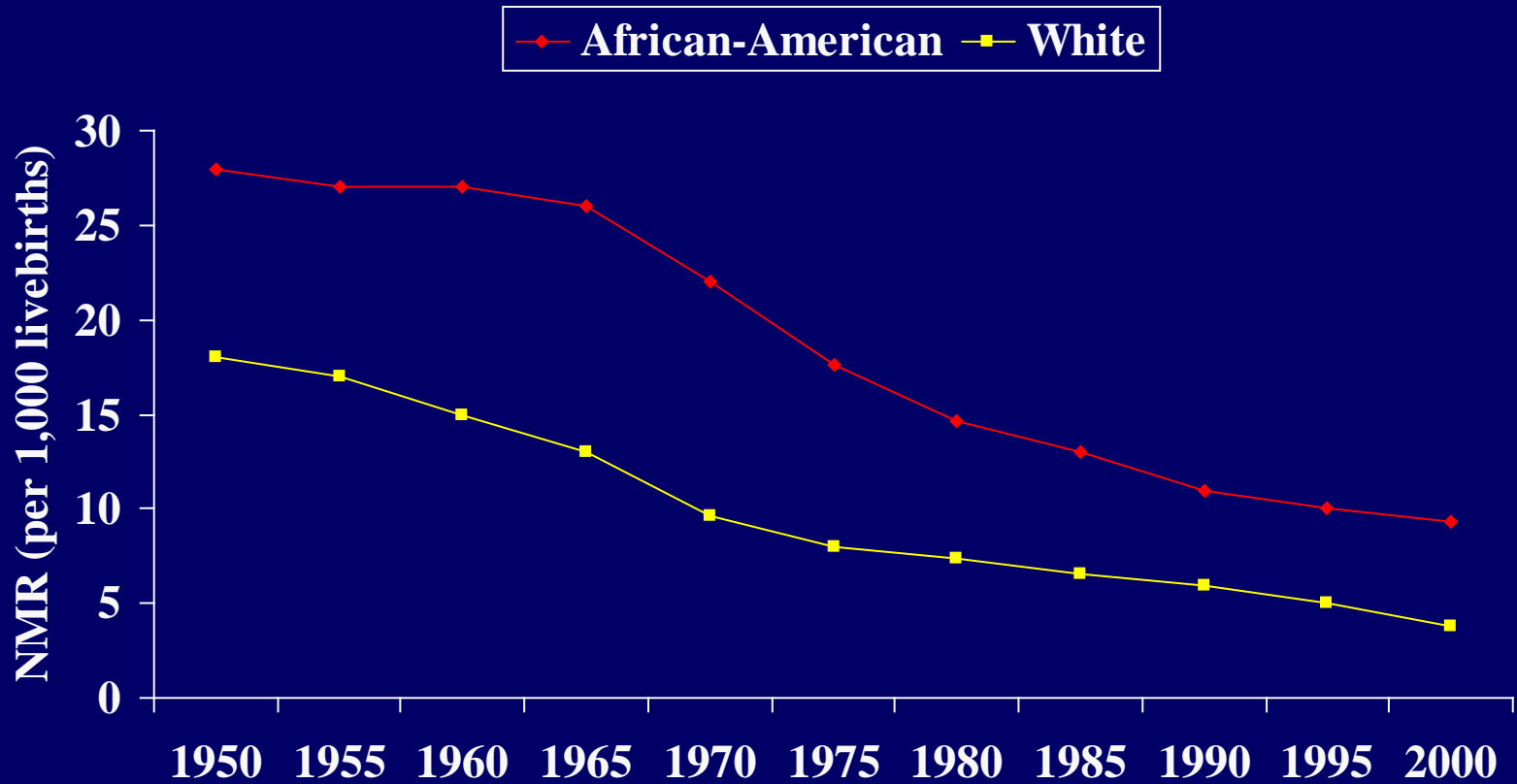
-- Chicago

-- Philadelphia

# ***INFANT MORTALITY RATES IN THE U.S. (2000)***



# *NEONATAL MORTALITY RATES*



Birth Weight-Specific Mortality

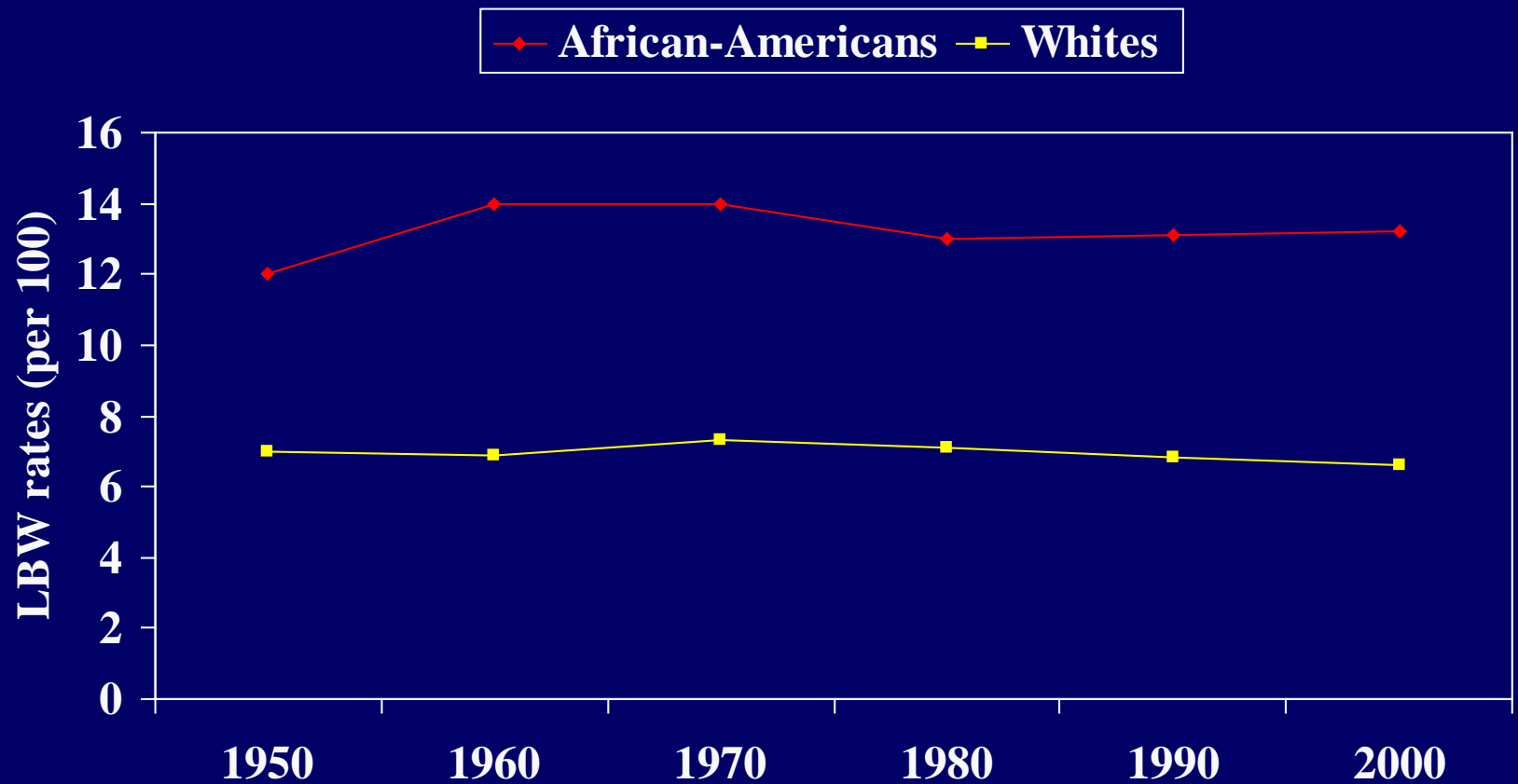
Neonatal Mortality Rate (NMR)

Birth Weight Distribution

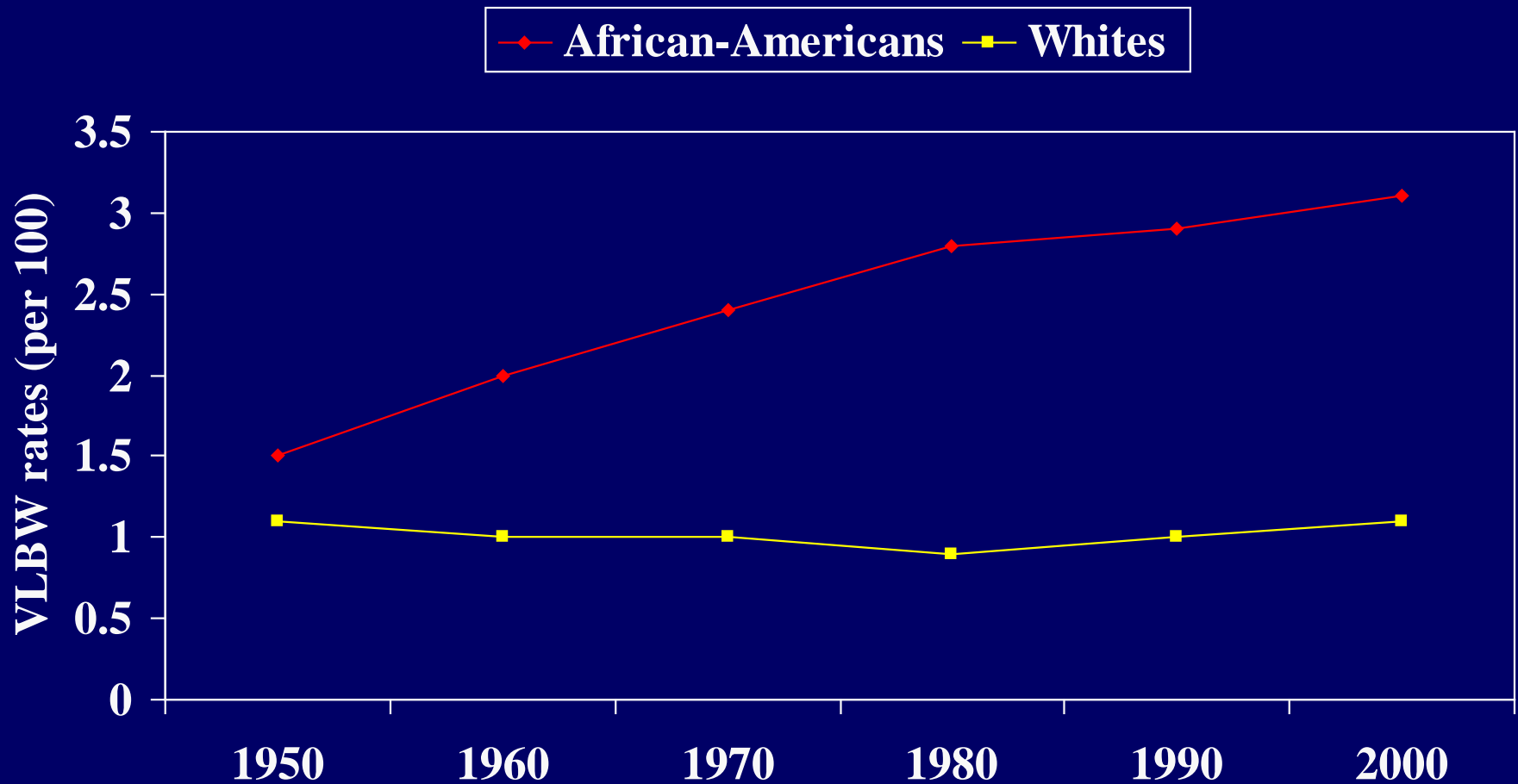


- LBW (< 2500g) infants account for 7.9% of births and 66% of deaths.
- VLBW (< 1500g) infants account for 1.5% of births and 50% of deaths.

# *Five Decade Trend in Low Birth Rates in the United States*

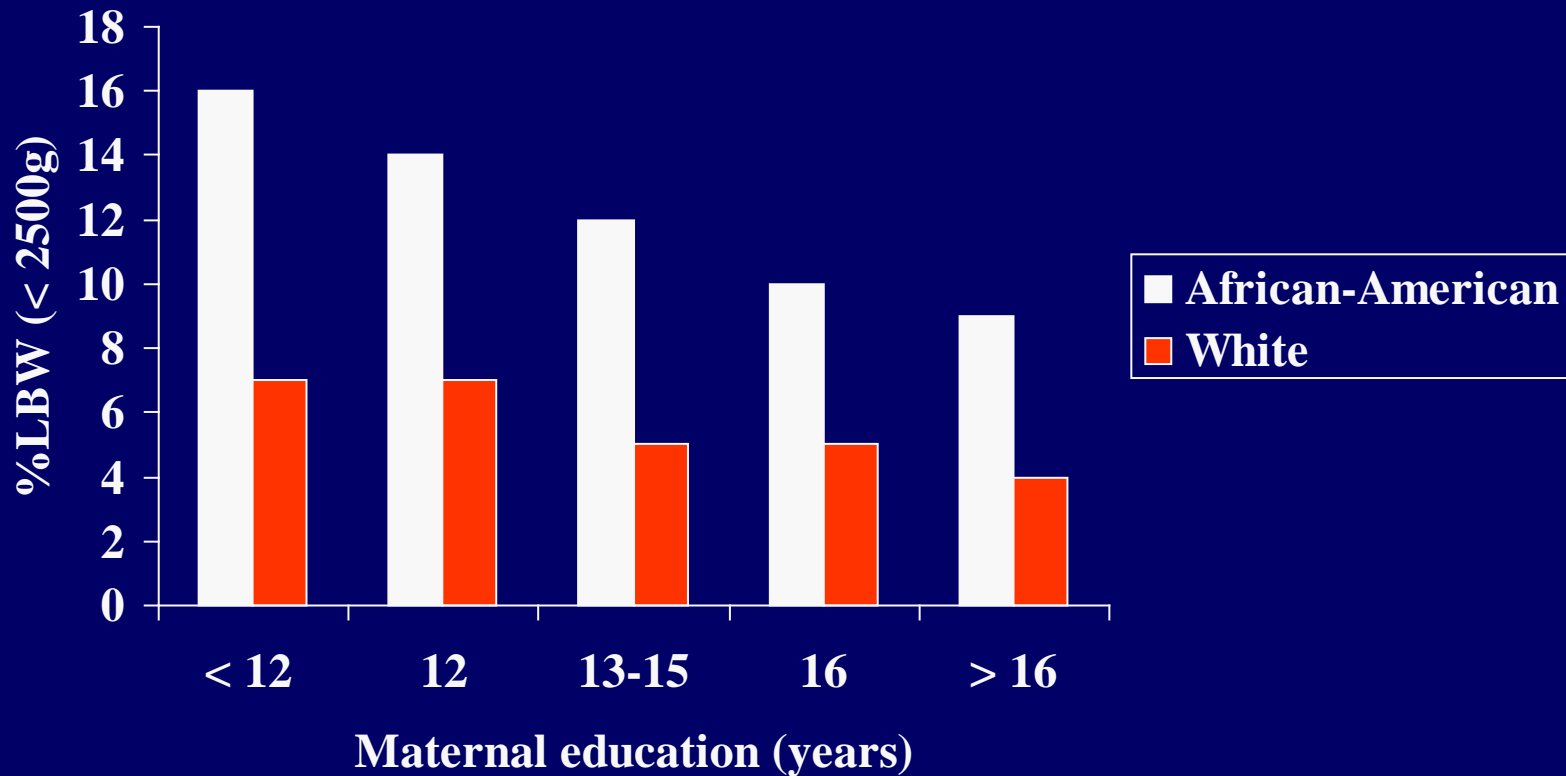


# *Five Decade Trend in Very Low Birth Rates in the United States*



# *Low Birth Weight Rates by Maternal Education and Race*

## *(Chicago, IL)*

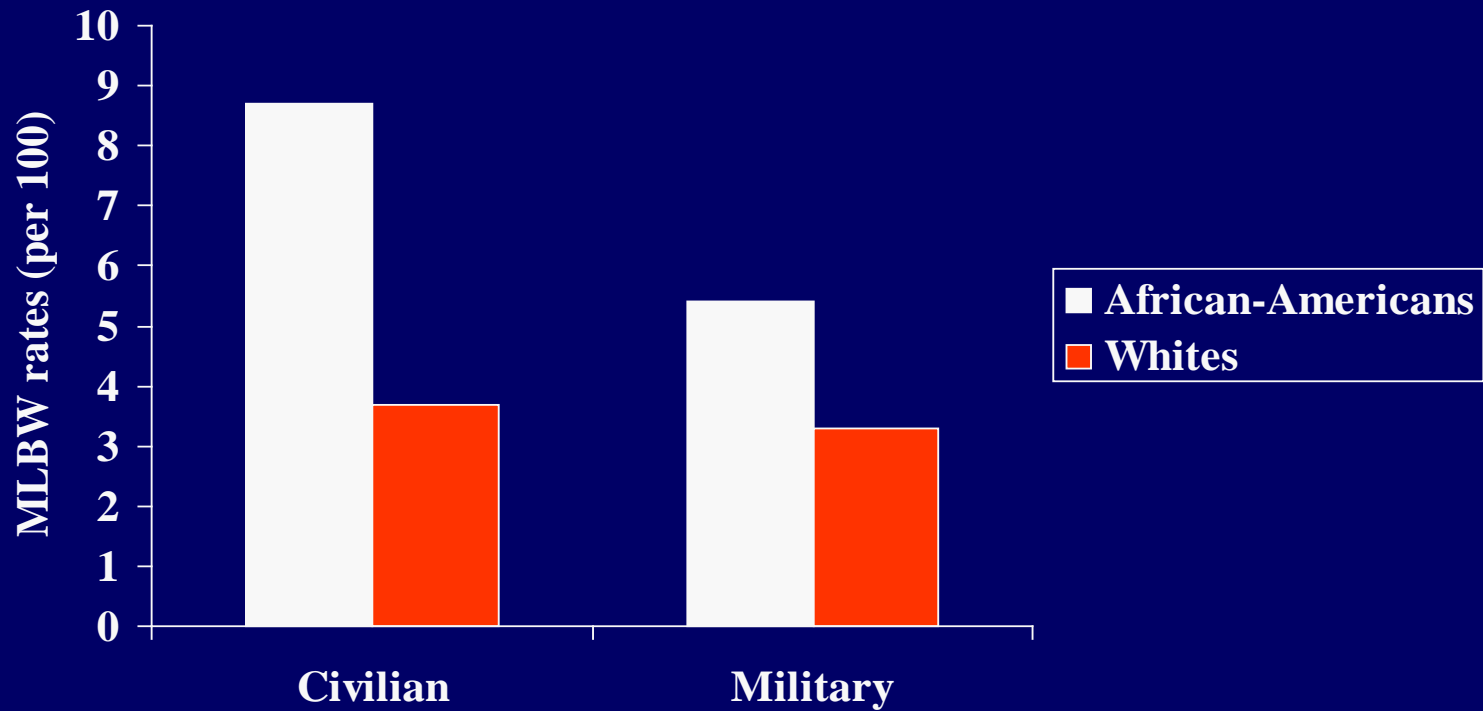




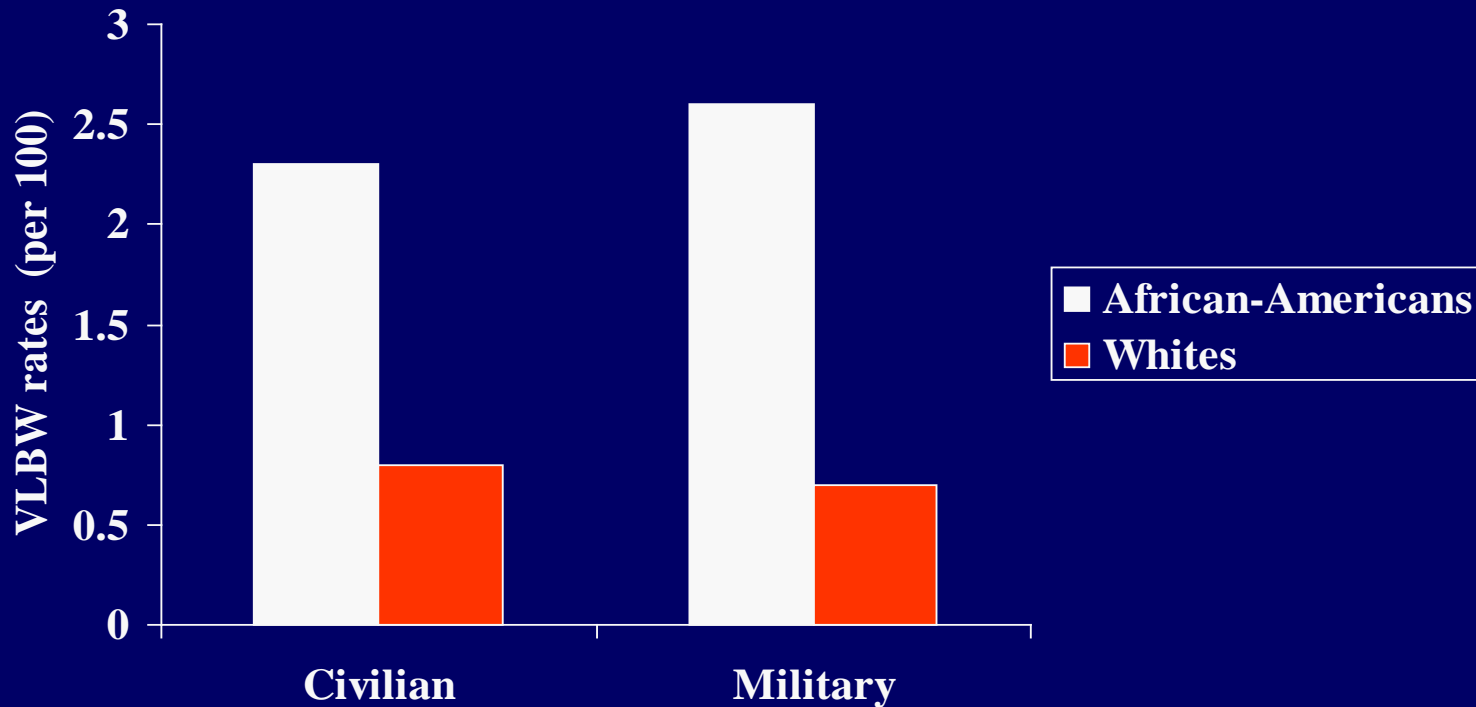
# Racial Disparities in Outcomes of Military and Civilian Births in California

*Wanda D. Barfield, MD, MPH; Paul H. Wise, MD, MPH; Frank P. Rust, PhD; Kam J. Rust, PhD; Jeffrey B. Gould, MD, MPH; Steven L. Gortmaker, PhD*

# ***RACE-SPECIFIC MLBW RATES AMONG CIVILIAN AND MILITARY BIRTHS IN CALIFORNIA***

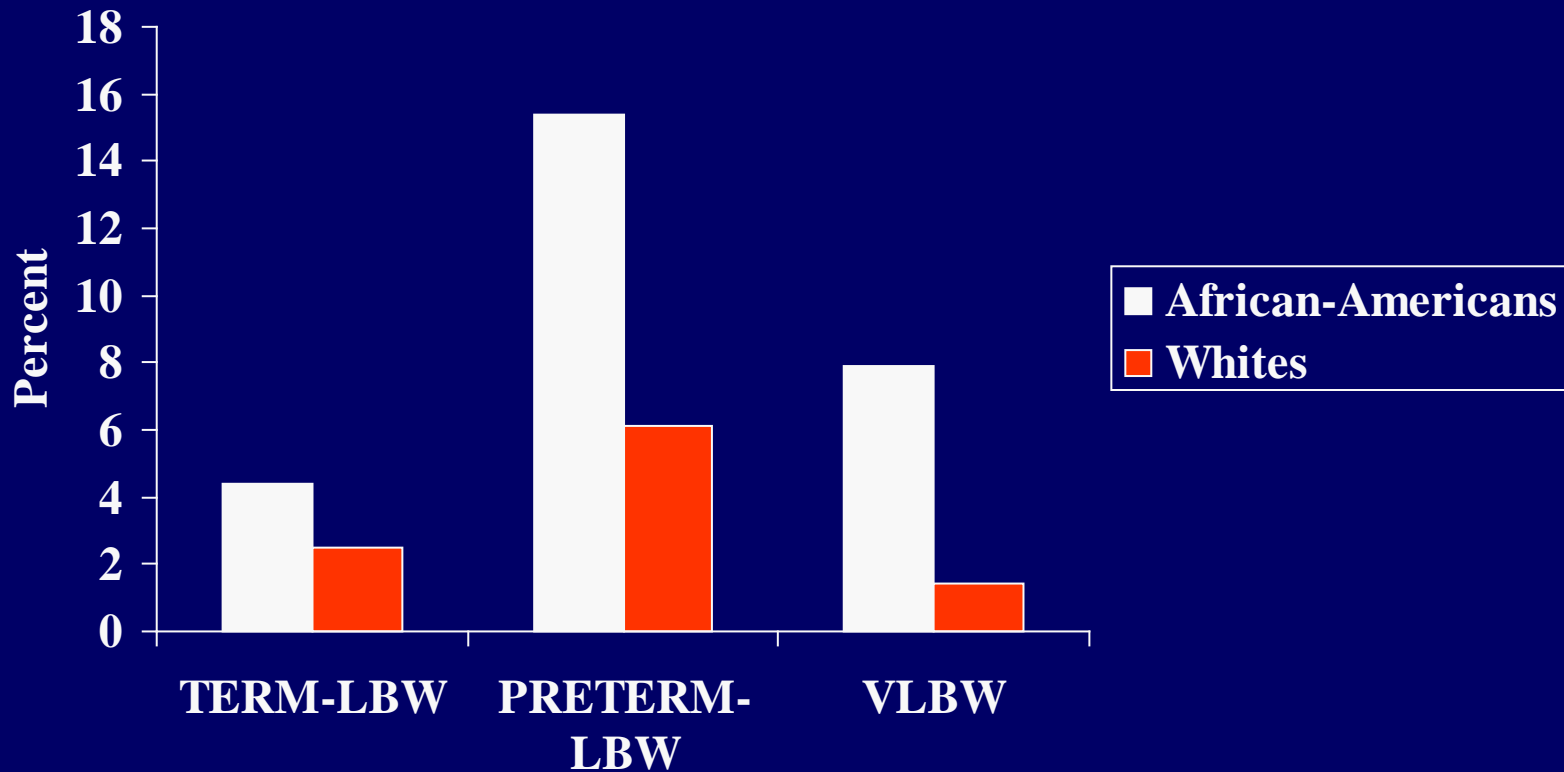


# ***RACE-SPECIFIC VLBW RATES AMONG CIVILIAN AND MILITARY BIRTHS IN CALIFORNIA***



# ***RACIAL GAP IN PERINATAL OUTCOME AMONG INFANTS CONCEIVED BY ART***

*(Schieve et al, Obstet Gynecol, 2004)*



# ***RACIAL DISPARITY IN INFANT BIRTH WEIGHT: AN EPIDEMIOLOGIC ENIGMA***

Transgenerational Factors

Racial Discrimination

Residential Environment

# *Transgenerational Factors*

Factors, conditions, and environments experienced by one generation that relate to the pregnancy outcome of the next generation

# Chicago Tribune Magazine

MARCH 4, 2001 • SECTION 10



## FINDING

AN IMMIGRANT FAMILY'S JOURNEY THROUGH THE GENERATIONS

## HOME

# In American Bondage

The European slave trade was both lucrative and brutal. Historians estimate that between 10 and 15 percent of the slaves who left Africa died along the route of the “Middle Passage.”

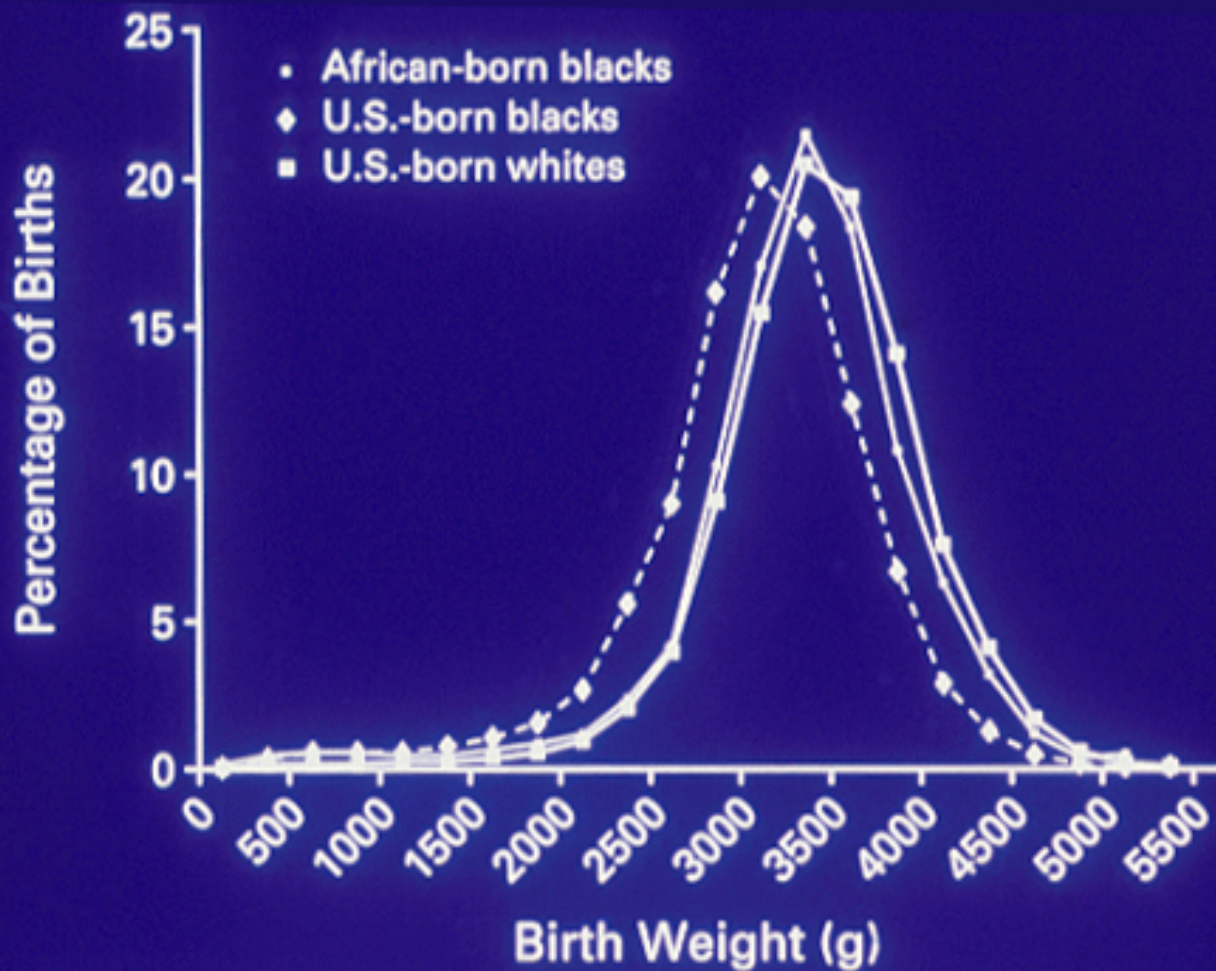




*Special Article*

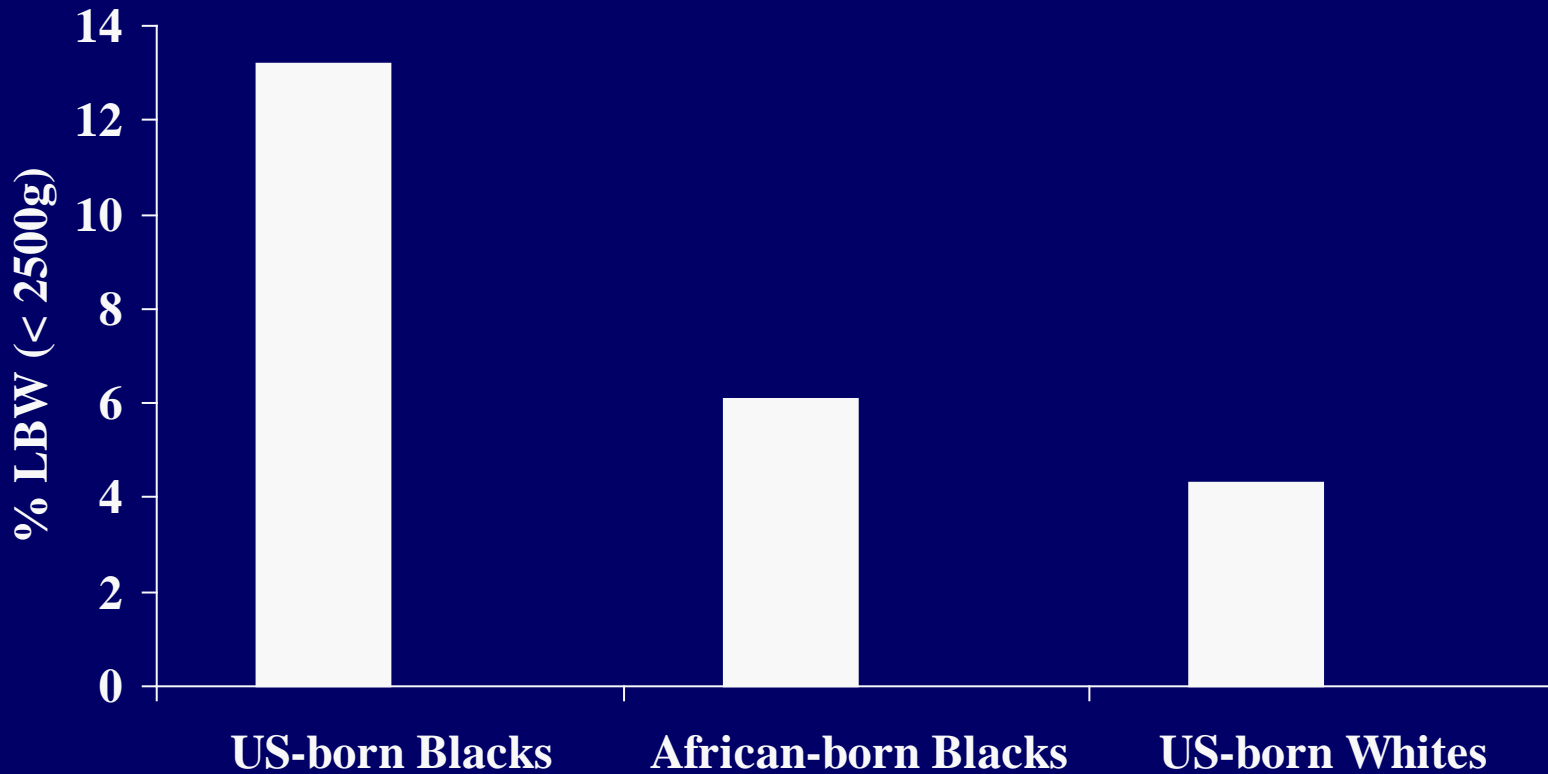
**DIFFERING BIRTH WEIGHT AMONG INFANTS OF U.S.-BORN BLACKS,  
AFRICAN-BORN BLACKS, AND U.S.-BORN WHITES**

RICHARD J. DAVID, M.D., AND JAMES W. COLLINS, JR., M.D., M.P.H.

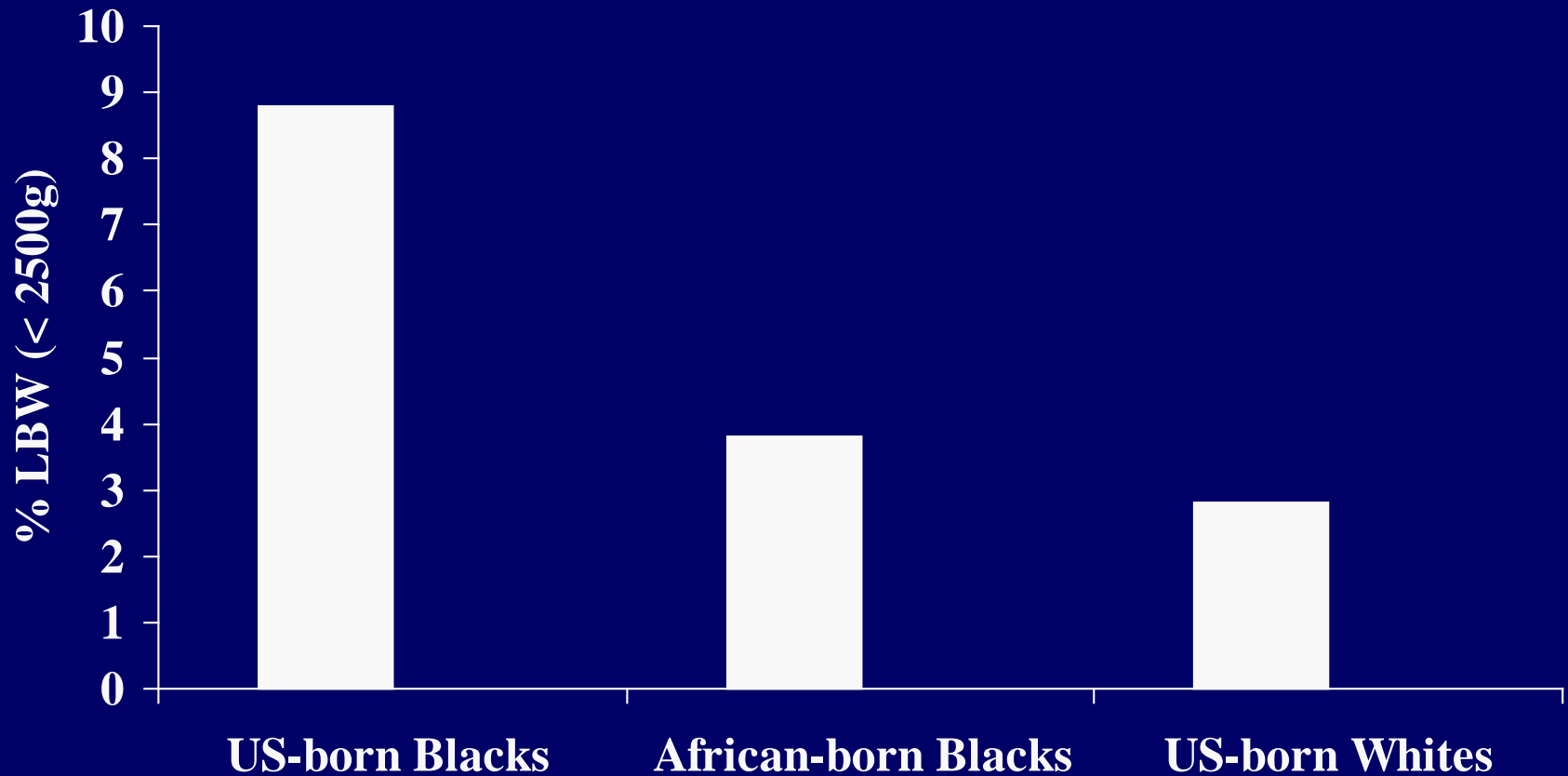


**Figure 1.** Distribution of Birth Weights among Infants of U.S.-Born White and Black Women and African-Born Black Women in Illinois, 1980-1995.

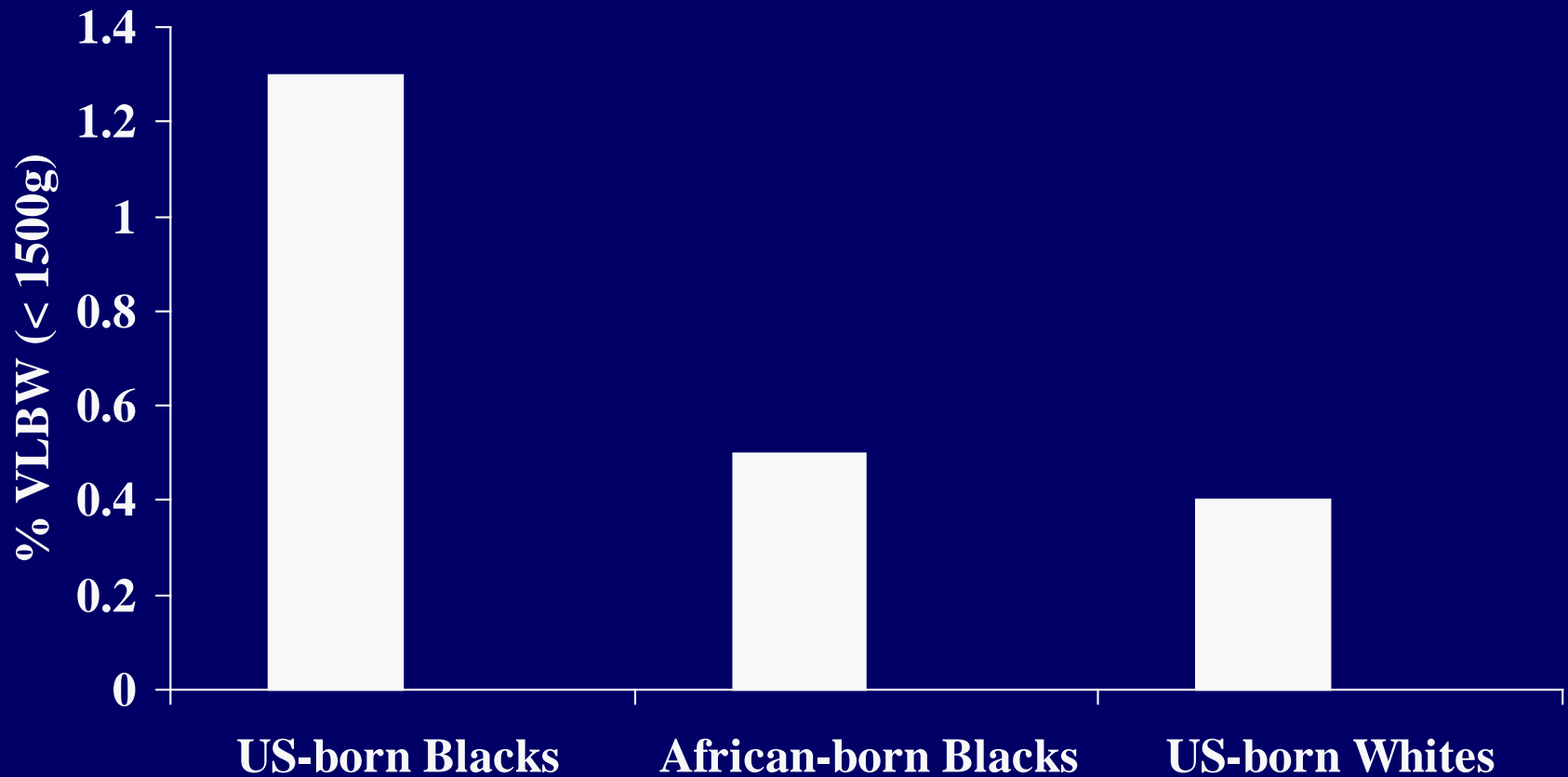
# *Differing Birth Weight in Illinois* *(David and Collins, NEJM, 1997)*



*Differing Birth Weight among Low-risk women in Illinois*  
*(David and Collins, NEJM, 1997)*



*Differing Birth Weight among Low-risk women in Illinois*  
*(David and Collins, NEJM, 1997)*





American Journal of Epidemiology

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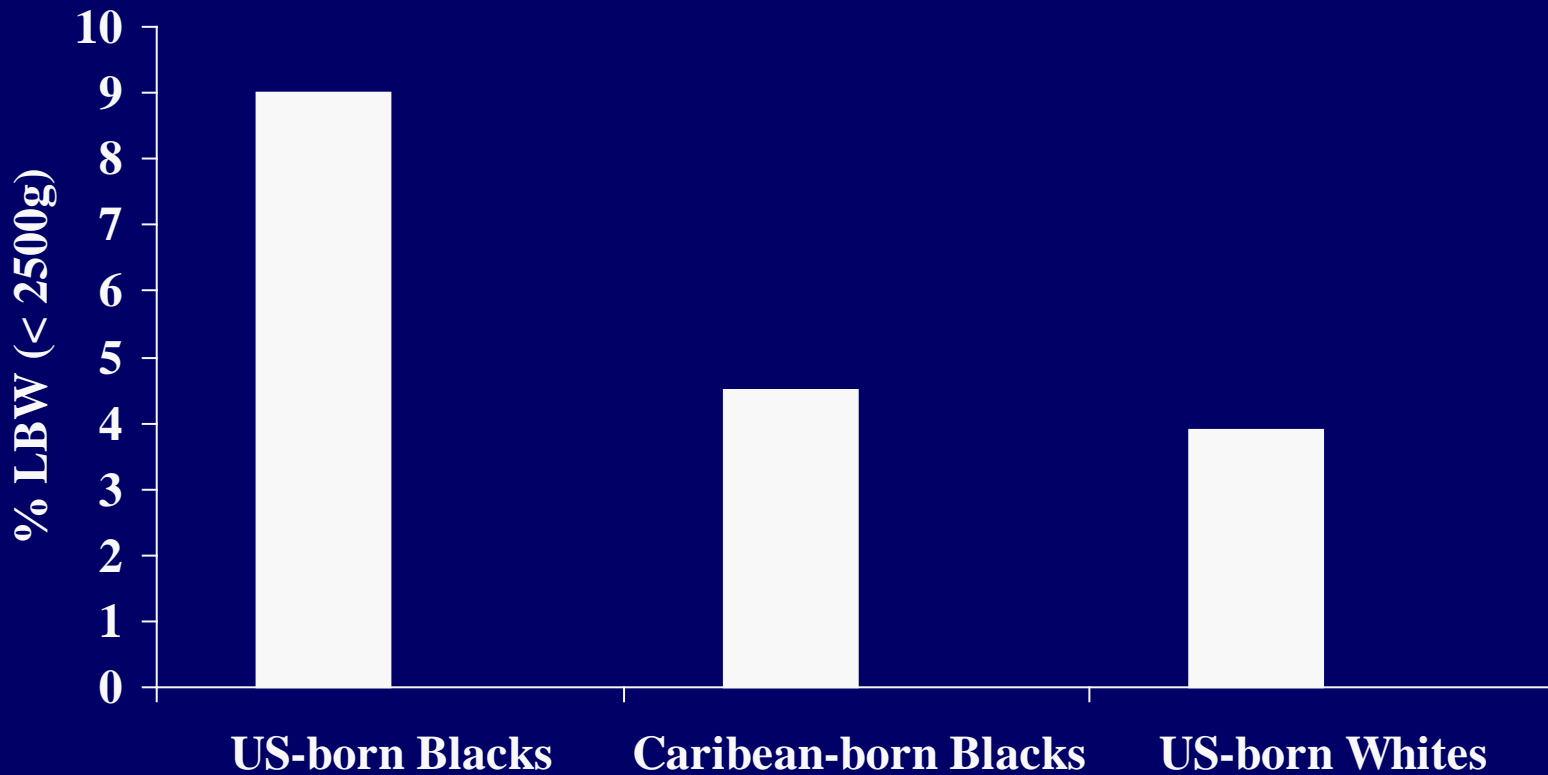
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## **Enigma of Maternal Race and Infant Birth Weight: A Population-based Study of US-born Black and Caribbean-born Black Women**

Eugenia K. Pallotto,<sup>1</sup> James W. Collins, Jr.,<sup>1</sup> and Richard J. David<sup>2</sup>

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*Maternal Race and Infant Birth Weight  
Among Low-Risk in Illinois  
(Pallotto et al, AJE, 2000)*





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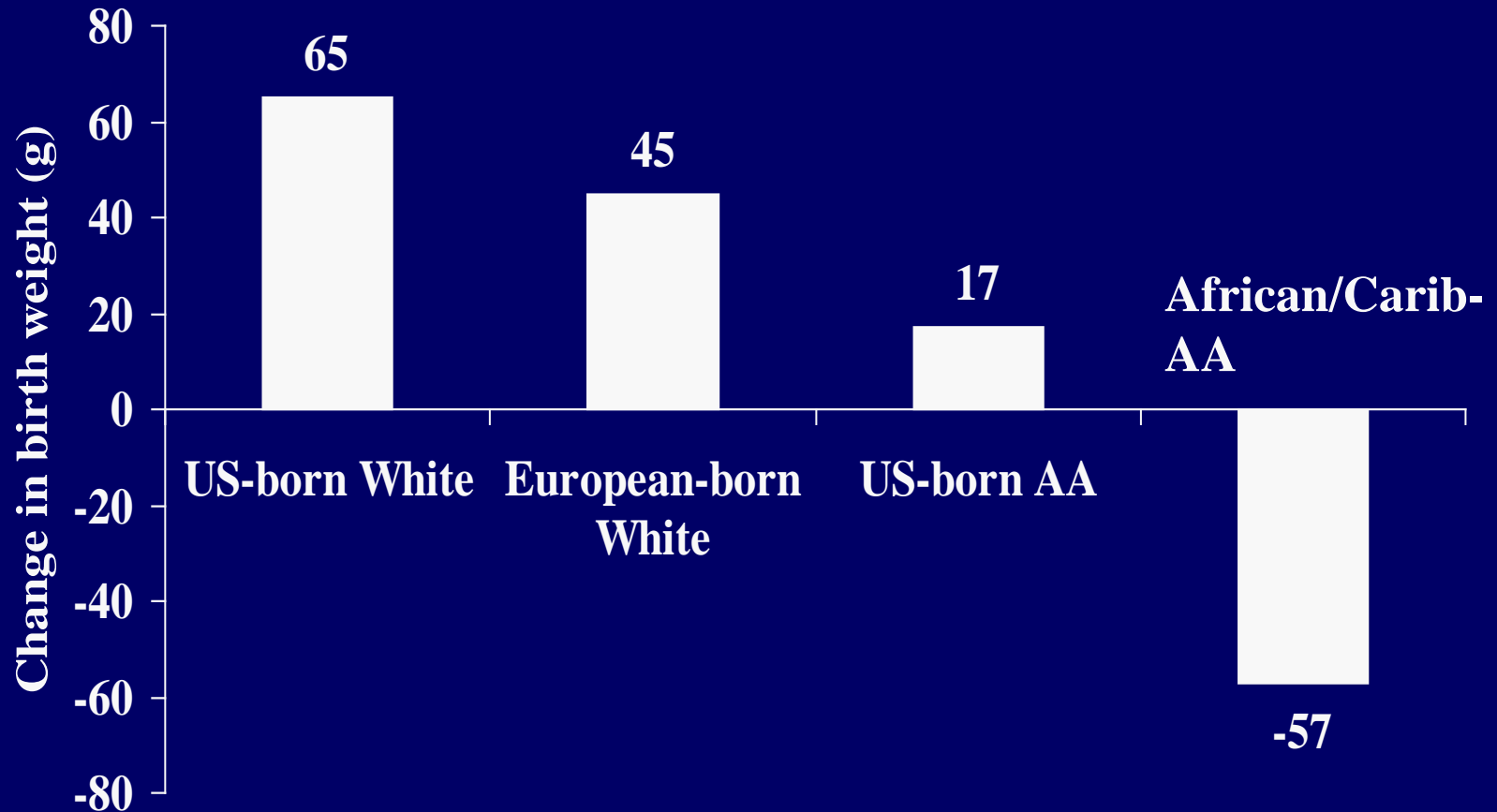
## **Differing Intergenerational Birth Weights among the Descendants of US-born and Foreign-born Whites and African Americans in Illinois**

James W. Collins, Jr.,<sup>1</sup> Shou-Yien Wu,<sup>2</sup> and Richard J. David<sup>2</sup>

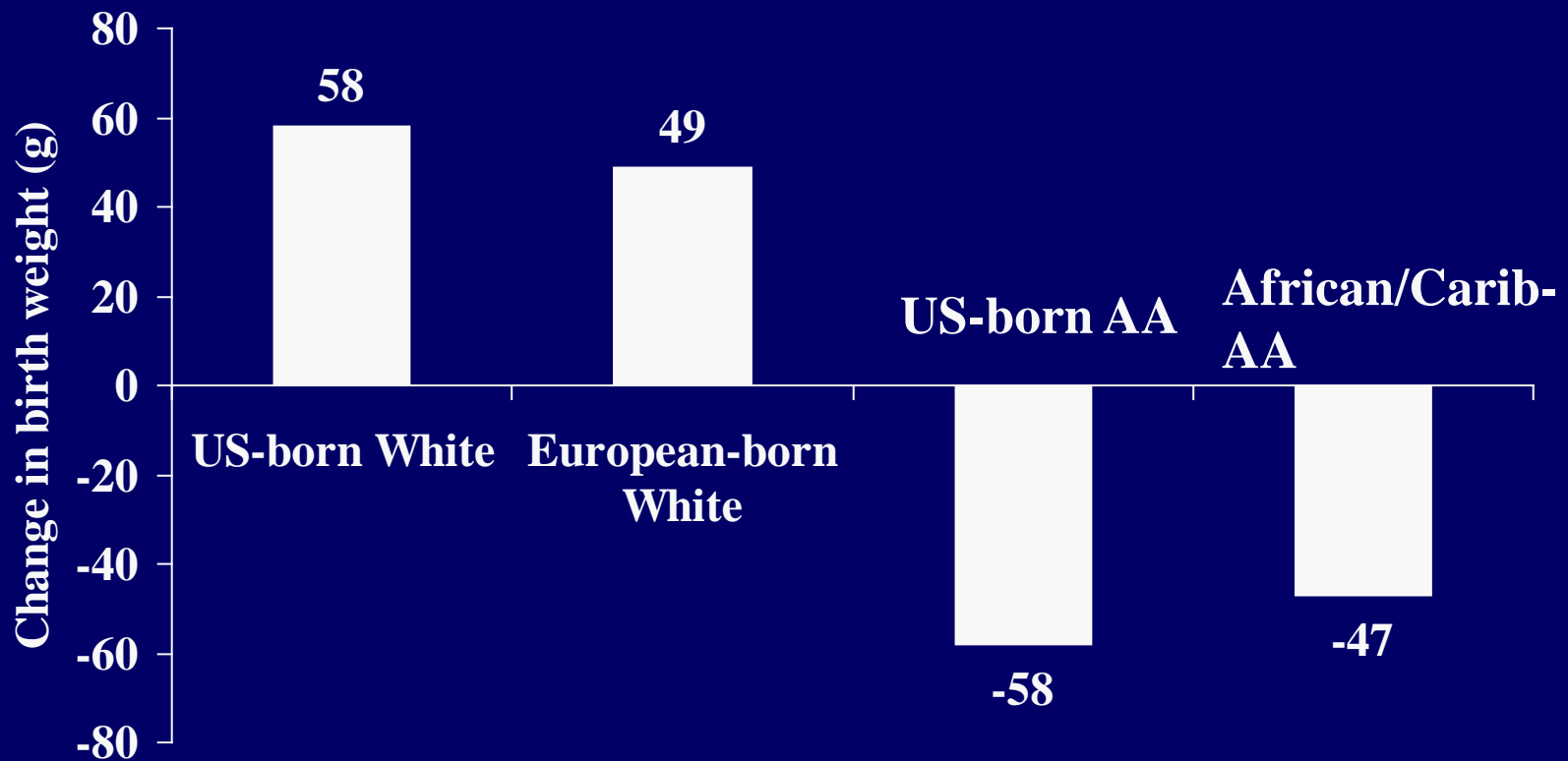
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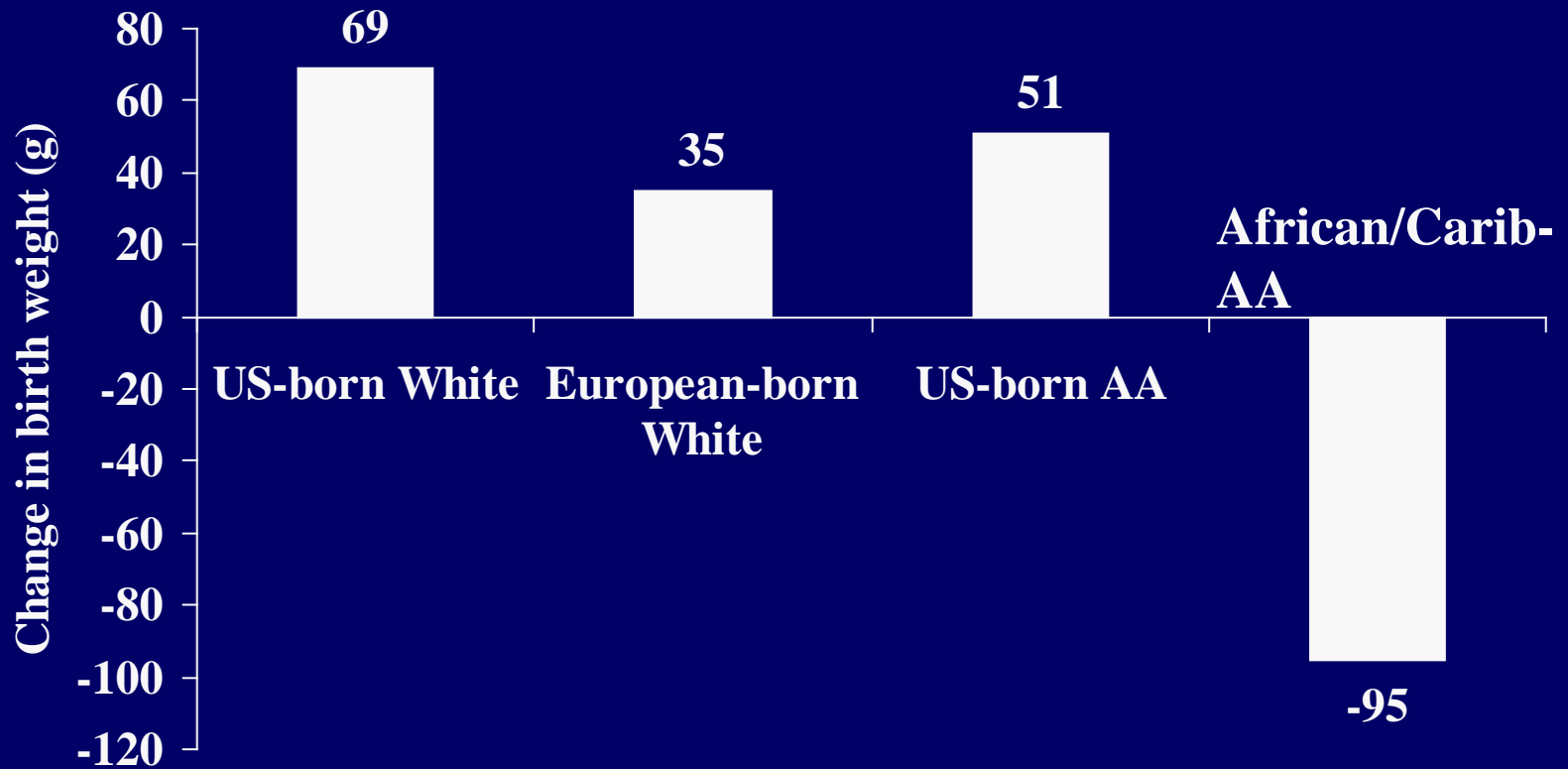
*Change in Mean Birth Weight Across a Generation  
(Collins et al, AJE, 2002)*



***Change in Mean Birth Weight Among infants of  
Non-Teenaged Women Across a Generation  
(Collins et al, AJE, 2002)***

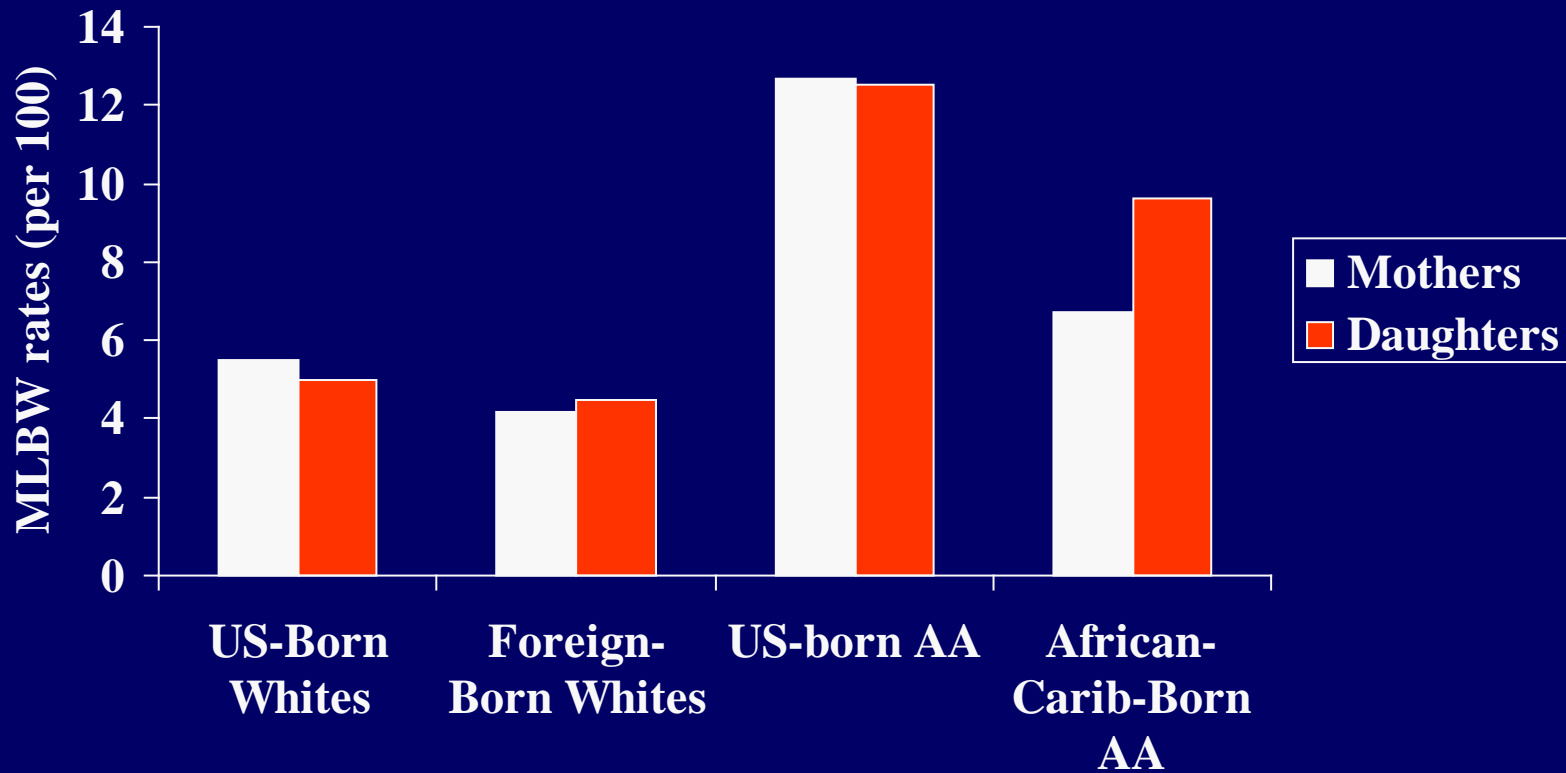


*Change in Mean Birth Weight Among  
infants of Married Women Across a  
Generation (Collins et al, AJE, 2002)*

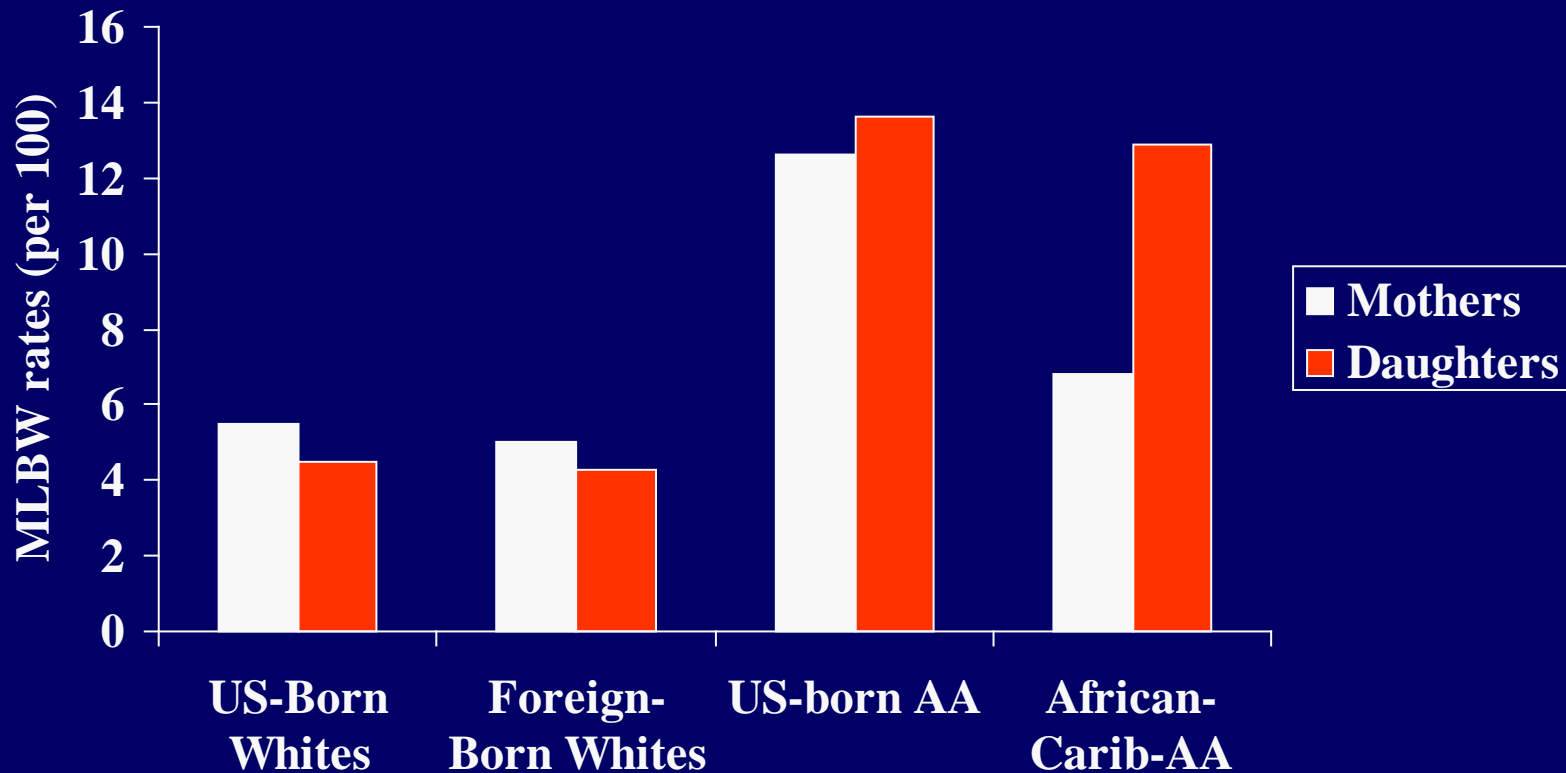


# *MLBW Rates Across a Generation*

*(Collins et al, AJE, 2002)*



# *MLBW Rates Among Infants of Married Women Across a Generation (Collins et al, AJE, 2002)*



# ***BACKGROUND***

- Outpouring of studies that describe what is programmed during fetal life with regard to the health of that fetus as an adult.
- Associations between infant birth weight, adult-coronary artery disease, adult-hypertension, and Type 2 diabetes.
- The limited available data provide evidence that a woman's aberrant *in utero* environment as measured by LBW is an important risk factor for LBW in her offspring.

***LOW BIRTH WEIGHT ACROSS  
GENERATIONS***

***(Collins et al, MCHJ, 2003)***

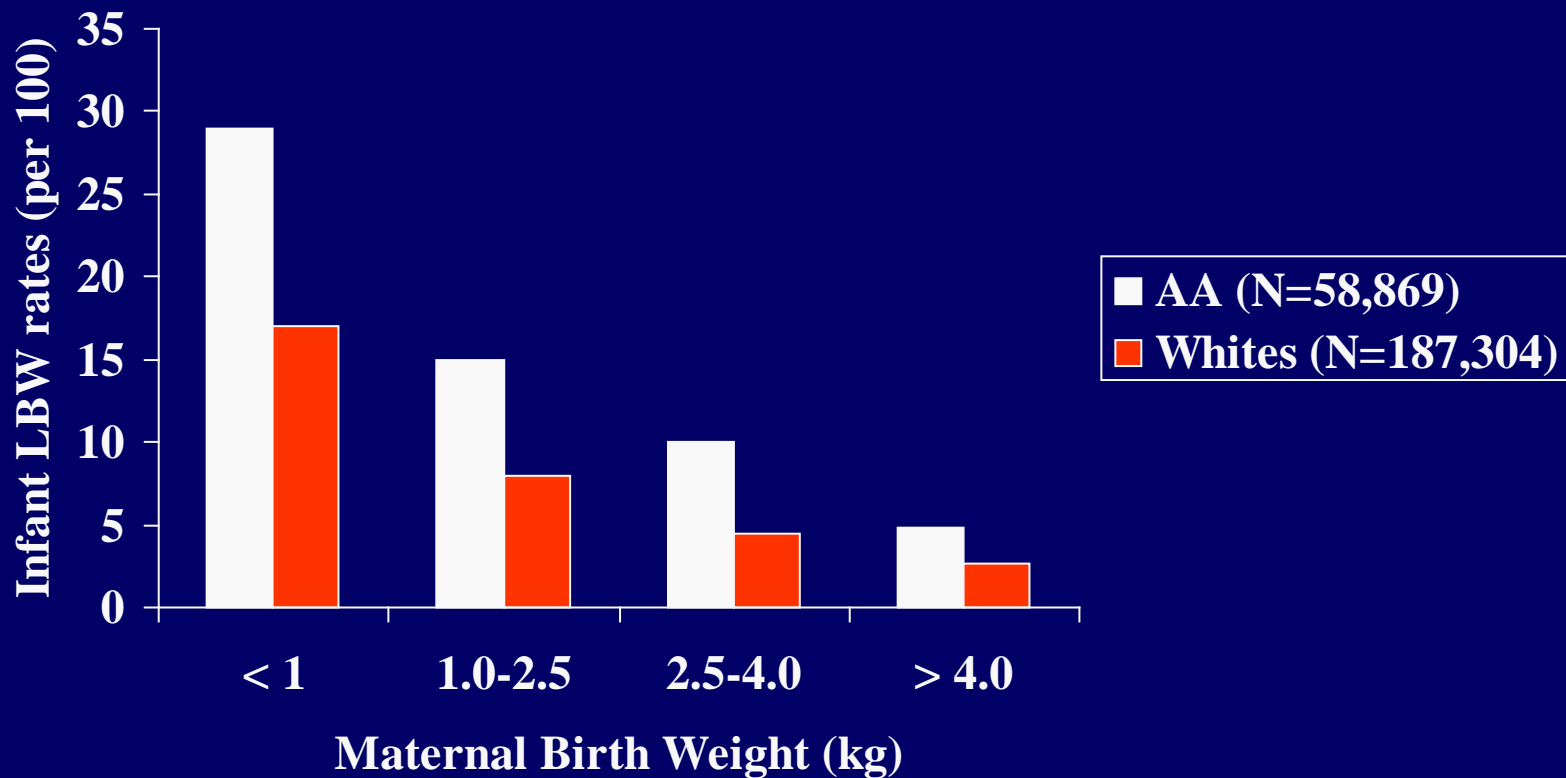
# ***METHODS***

- 1989-1991 computerized birth certificates of infants born to Illinois residents; 1956-1975 vital records for the parents of the birth cohort were linked to infants.
- 328,028 potentially matchable infants. Based on mothers full maiden name and exact date of birth, we linked 79% of maternal birth records to infant records.

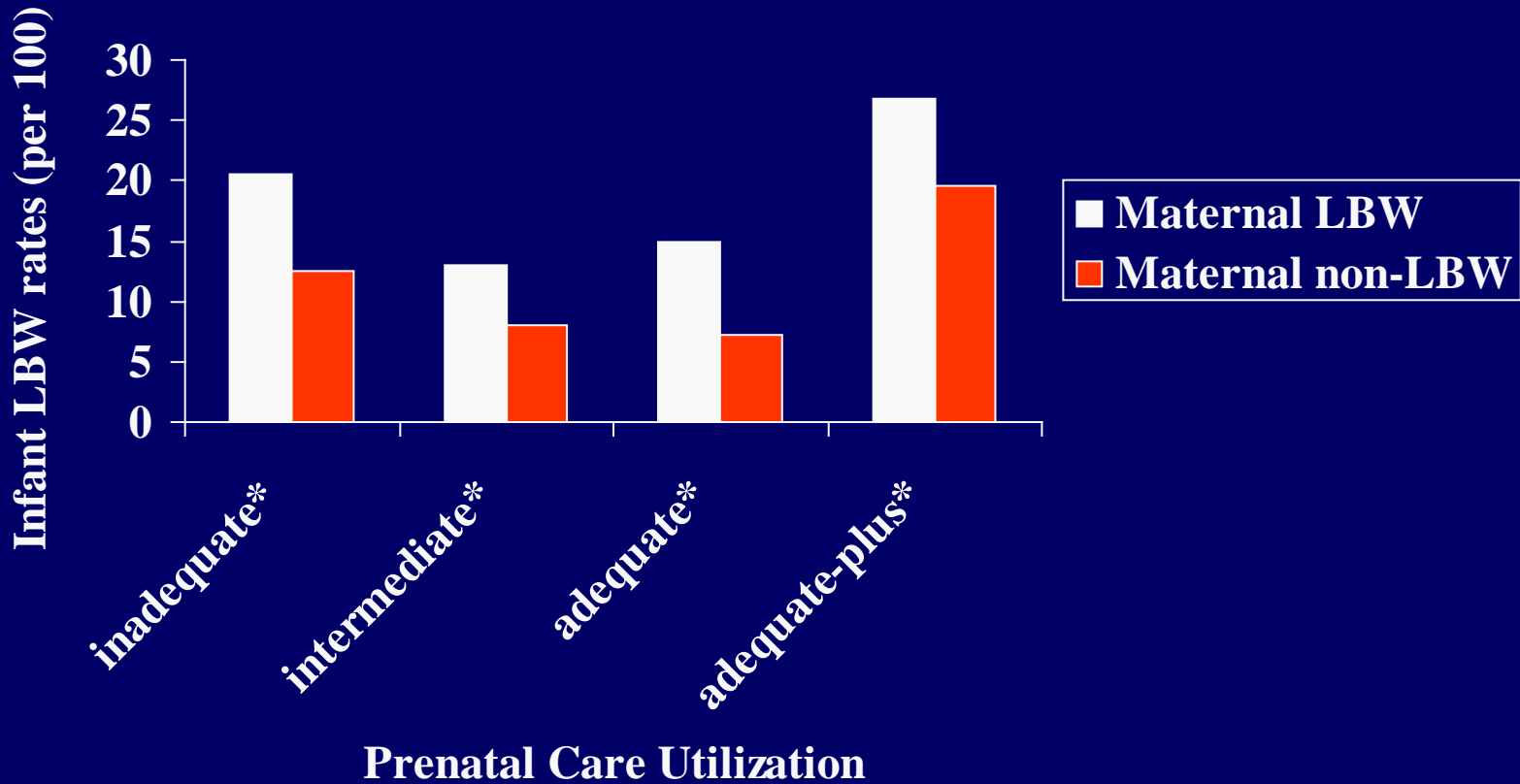


# ***INFANT LBW RATES BY MATERNAL BIRTH WEIGHT AND RACE***

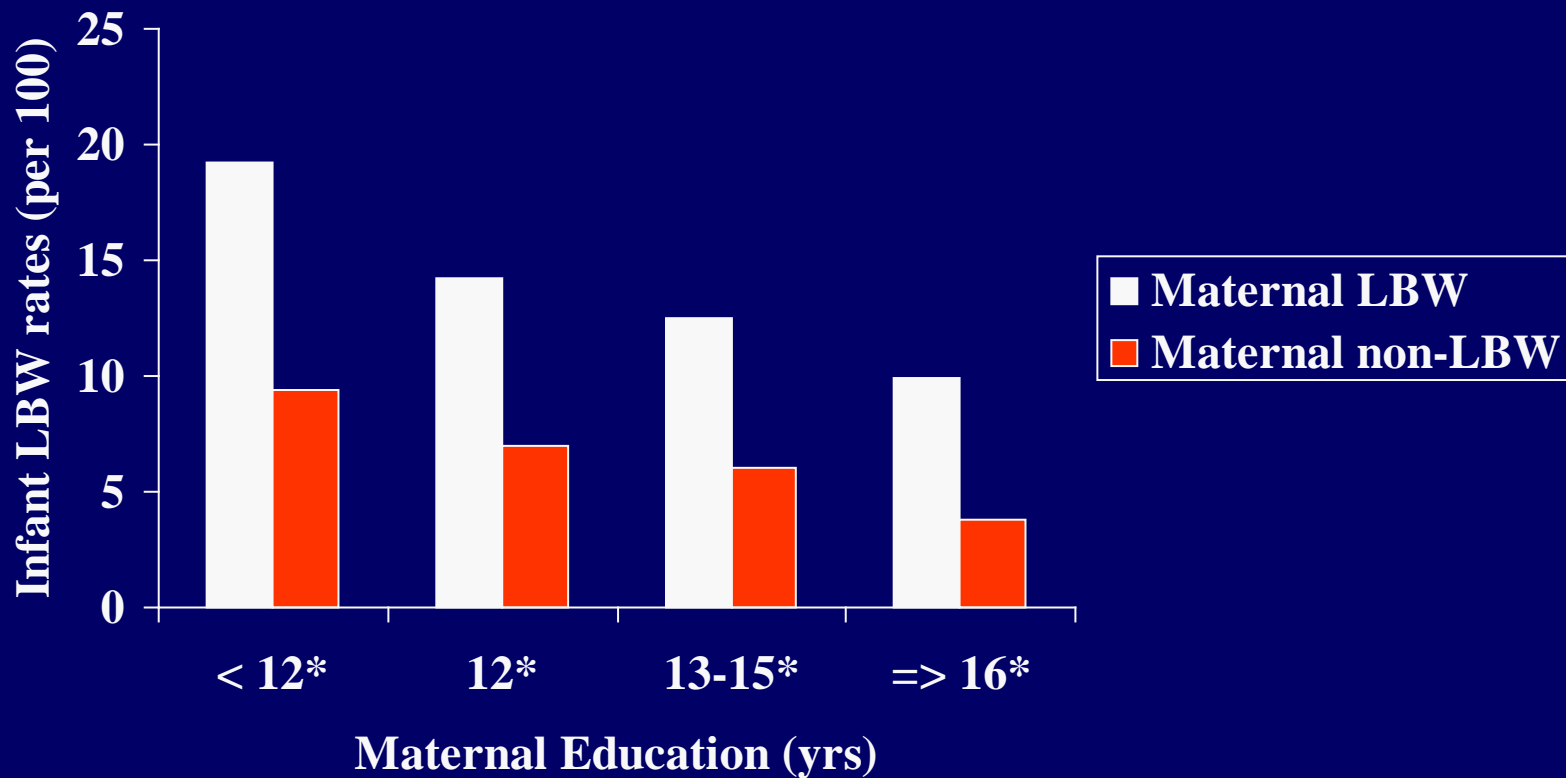
## ***(Illinois Transgenerational Dataset)***



***INFANT LBW RATES BY MATERNAL BIRTH WEIGHT AND PRENATAL CARE  
(AFRICAN-AMERICANS)  
(Collins et al, MCHJ, 2003)***



***INFANT LBW RATES BY MATERNAL BIRTH  
WEIGHT AND EDUCATION  
(AA, ADEQUATE PC)  
(Collins et al, MCHJ, 2003)***



# Race

“Race” is not a biological construct that reflects innate differences, but a social construct that precisely captures the impacts of racism.

(Jones, AJPH, 2000)

# ***RESEARCH HYPOTHESIS***

African-American women's lifetime exposure to interpersonal racial discrimination is an independent risk factor for infant VLBW.

# ***METHODS***

- Case-control study of African-American infants admitted to Children's Memorial, University of Chicago, and Cook County Hospitals 11/97-10/00.
- Cases: mothers of very low birth weight (<1500g, VLBW) infants.
- Controls: mothers of non-low birth weight (>2500g, non-LBW) infants.
- Case to control ratio of 1:2; \$10.00 participation reward offered to all eligible subjects.

# ***METHODS***

- Structured Questionnaire:
  - lifetime exposure to interpersonal racial discrimination in 5 domains: “getting work”, “at work”, “at school”, “getting service at a restaurant/ store, “getting medical care” (Krieger, 1990)
  - employed women completed 10 additional questions regarding lifetime exposure to interpersonal racial discrimination at primary place of employment (McNeilly, 1996).

# ***METHODS***

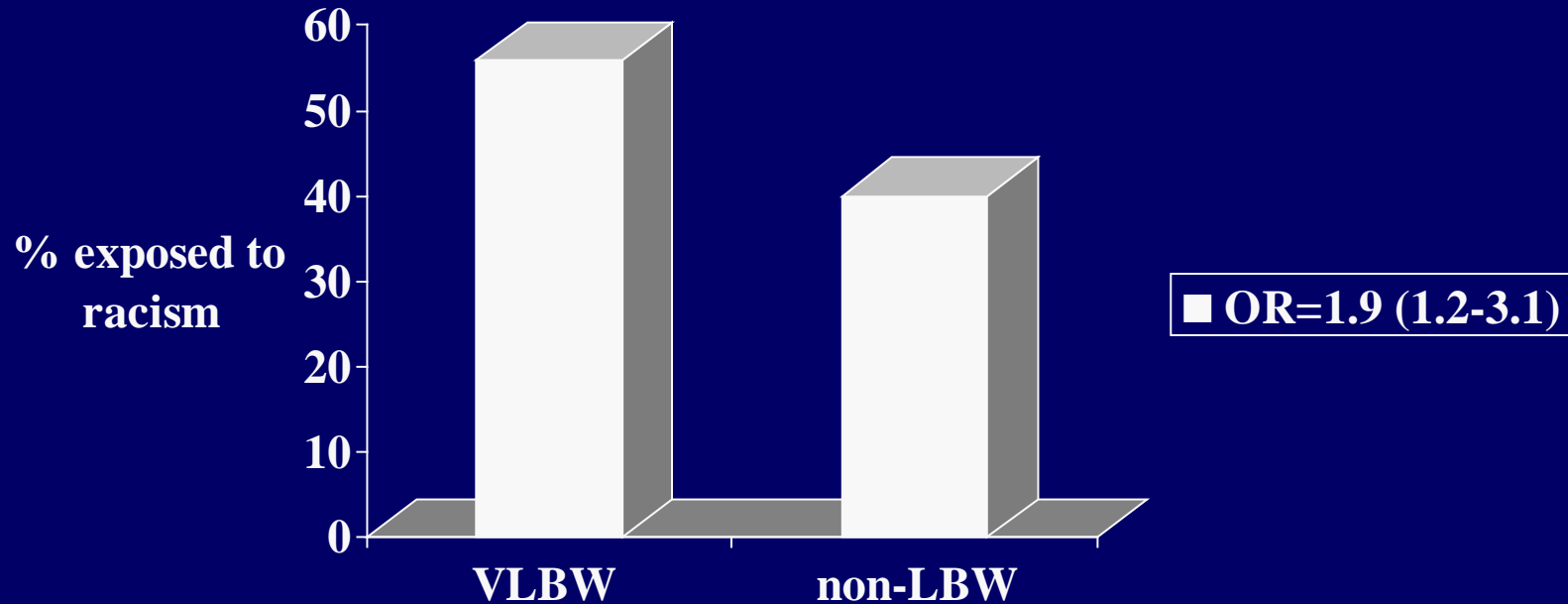
- Responses were dichotomized after data collection into none (“none” or “less than once/ year”) or regularly (“few times/year”, “few times/month”, “at least once/week”, and “nearly everyday”).
- Maternal age, education, marital status, income, prenatal care usage, parity, cigarette smoking, alcohol intake, and social support.
- Stratified and multivariate logistic regression analyses were performed.



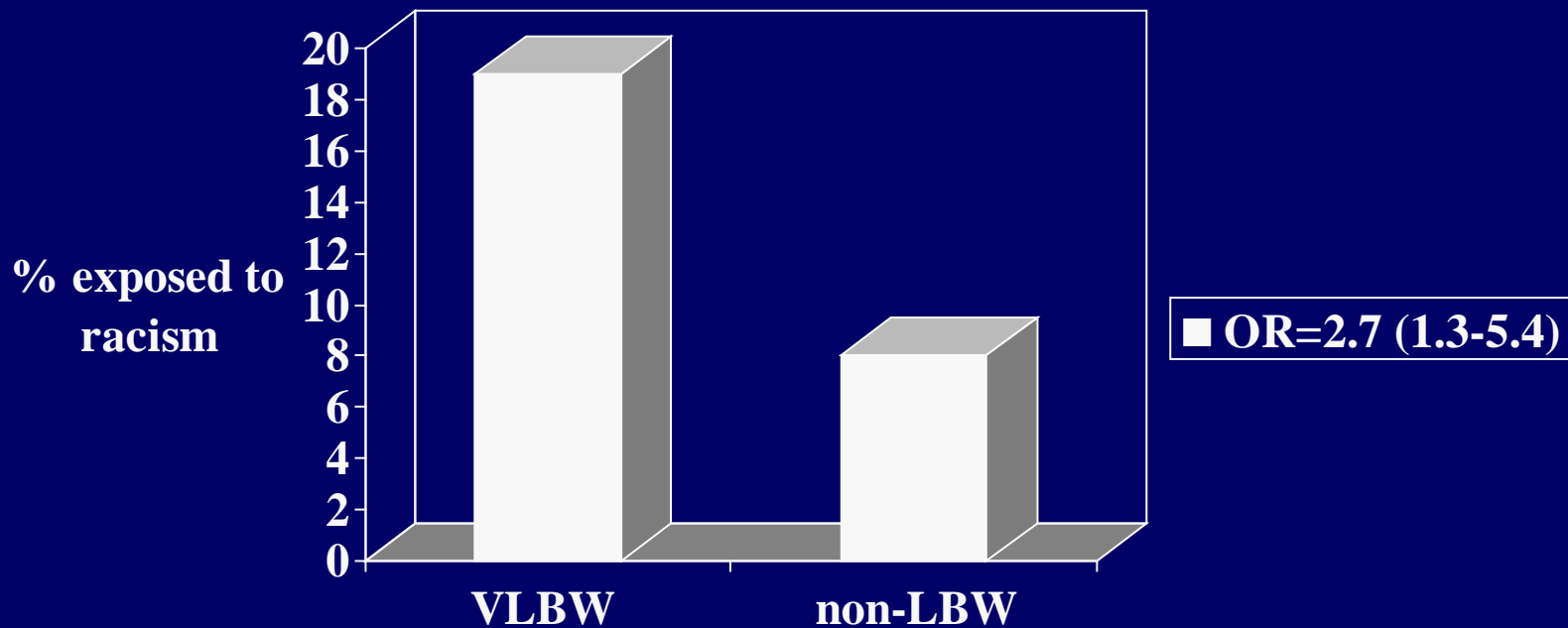
# ***DISTRIBUTION OF SOCIODEMOGRAPHIC RISK FACTORS***

variable	Cases (n=104)	Controls (n=208)
Maternal Age < 20 yrs	27%	31%
Maternal Education < 12 yrs	31%	39%
Family Income < \$10,000/yr	42%	49%
Inadequate Prenatal Care	31%	39%
High Parity	28%	29%

# ***MATERNAL LIFETIME EXPOSURE TO INTERPERSONAL RACISM IN 1 OR MORE DOMAINS AND INFANT BIRTH WEIGHT***



# ***MATERNAL LIFETIME EXPOSURE TO INTERPERSONAL RACISM IN 3 OR MORE DOMAINS AND INFANT BIRTH WEIGHT***



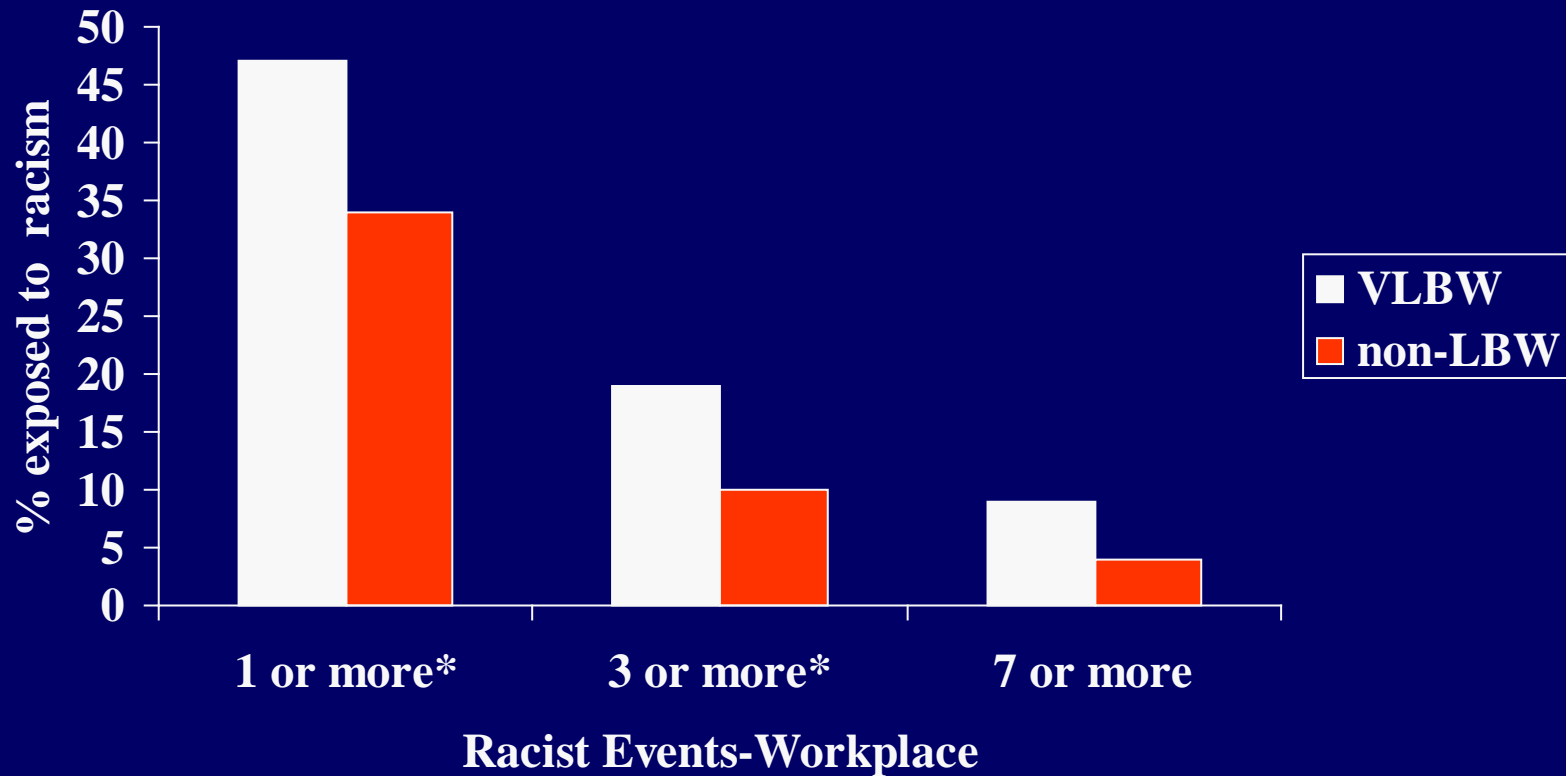
# ***LOGISTIC REGRESSION***

- Unadjusted and adjusted OR of VLBW for maternal lifetime exposure to interpersonal racial discrimination in 1 or more domains were 1.9 (1.2-3.1) and 2.3 (1.1-3.6), respectively.
- Unadjusted and adjusted OR of VLBW for maternal lifetime exposure to interpersonal racial discrimination in 3 or more domains were 2.7 (1.3-5.4) and 2.6 (1.2-5.3), respectively.

# ***MATERNAL LIFETIME EXPOSURE TO INTERPERSONAL RACISM IN THE WORKPLACE AND INFANT BIRTH WEIGHT***

- “You are watched more closely than others because of your race”. OR=2.3 (0.8-6.1)
- “Whites often assume that you work in a lower class job than you do and treat you as such”. OR=2.3 (1.0-5.1)
- “You are treated with less dignity and respect than you would be if you were white”. OR=2.0 (0.8-4.3)

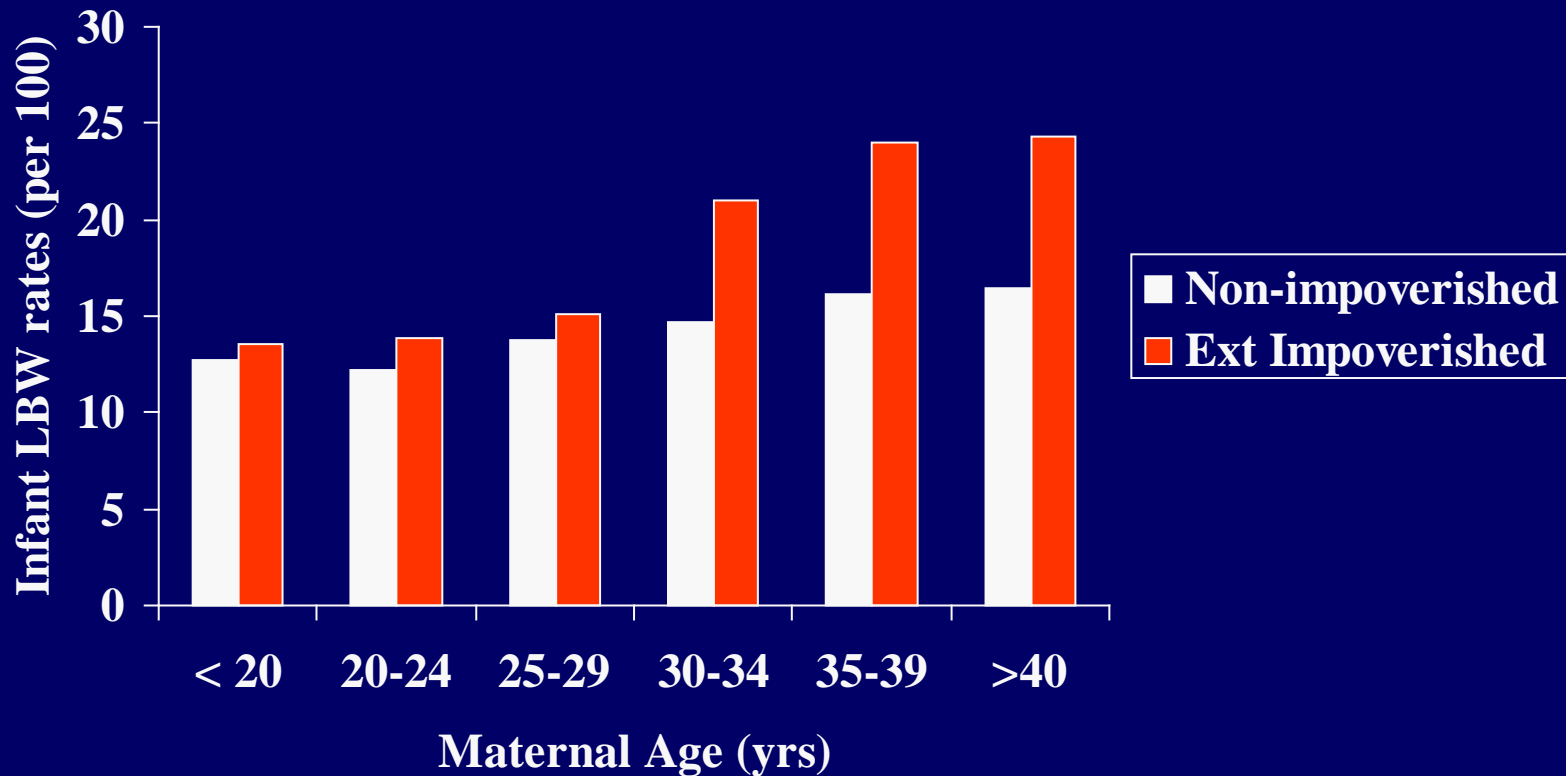
# ***MATERNAL CHRONIC EXPOSURE TO INTERPERSONAL RACISM IN THE WORKPLACE AND INFANT BIRTH WEIGHT***



# ***RESEARCH QUESTION***

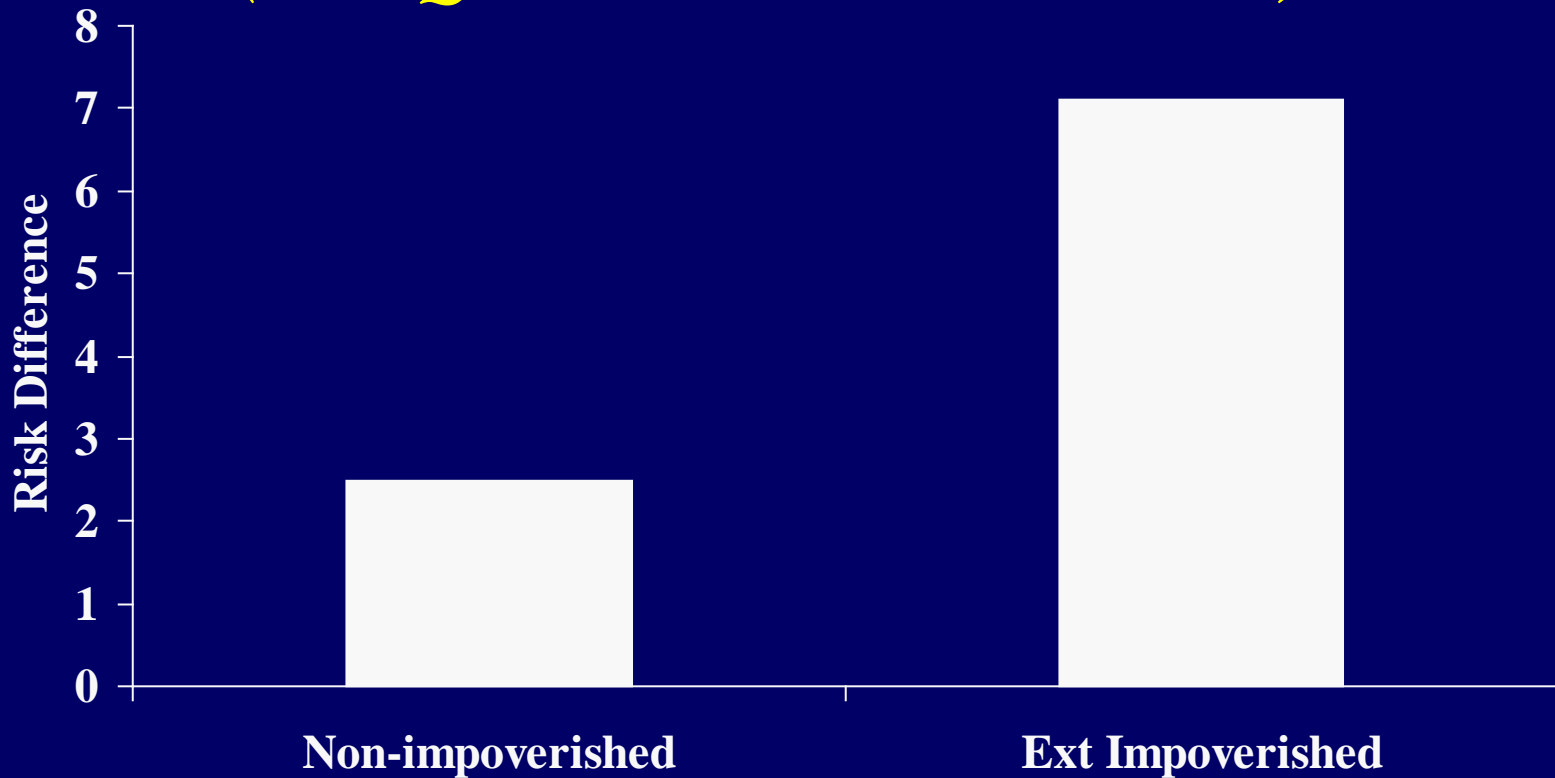
To what extent does neighborhood poverty modify the risk of infant LBW associated with advanced age among urban African-American women?

# ***LBW RATES BY MATERNAL AGE AND NEIGHBORHOOD POVERTY (ADEQUATE PRENATAL CARE)***





***LBW RISK DIFFERENCE BETWEEN  
30-34 AND 20-24 YEAR OLD WOMEN  
BY NEIGHBORHOOD POVERTY  
(ADEQUATE PRENATAL CARE)***



# ***SUMMARY***

The long-standing racial disparity in infant outcome cries out for fresh analyses that take into account the pervasive and multifaceted inequality that is bound up in the historical context of race and begin to capture its effect on human beings over time. Pregnancy, while occurring during a limited time period, should not be considered independent of prior life experiences. Our preliminary data highlight that the early-life experiences (as measured by maternal LBW), the lifelong accumulated experiences of interpersonal racial discrimination, and exposure to neighborhood poverty are risk factors for poor reproductive outcome among African-American women.