

The Long-Run Consequences of Low Birth Weight

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Background & Objective

- **Background**

- Long reach of early-life events

- Fetal origins hypothesis; “programming”

- Large body of empirical evidence

- Early-life health shocks persist

- future health status more sensitive to assaults

- **Objective:** Investigate linkages between

- health & economic status in early life

and

- health, education, & income in adulthood

Unique Aspects of Study

- Nationally representative data of the U.S. (1968-2005)
- Extensive socio-economic measures in child- & adulthood
- Data spanning substantial share of life course: **37 yrs**
- Sufficient sample of low-income and minority
- Geneological design: comparison among siblings

*First evidence of link between birth outcomes & adult health
for a nationally representative U.S. sample*

Primary Research Questions

- What is effect of poor infant health and child poverty on later outcomes:

Cognition

Education

Earnings

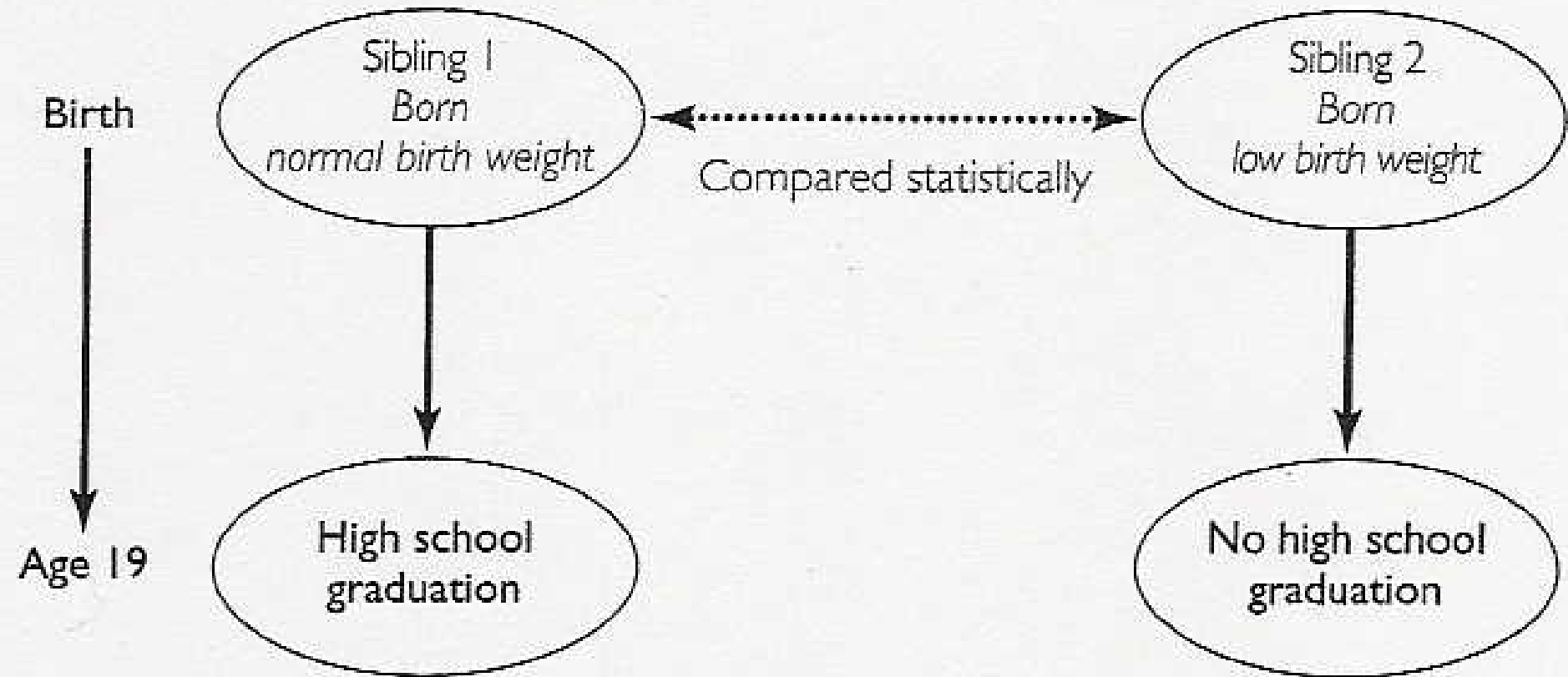
Adult Health

- Difficult to answer:
 - Low birth weight more likely in low-income HH (due to maternal smoking, etc.)
 - Hard to distinguish effect of birth weight, effect of family resources, and other factors

What We Do

- Use rich longitudinal dataset of birth cohort in U.S. followed thru adulthood
- Examine short- and long-run effects of birth weight and parental SES
- Use sibling comparisons

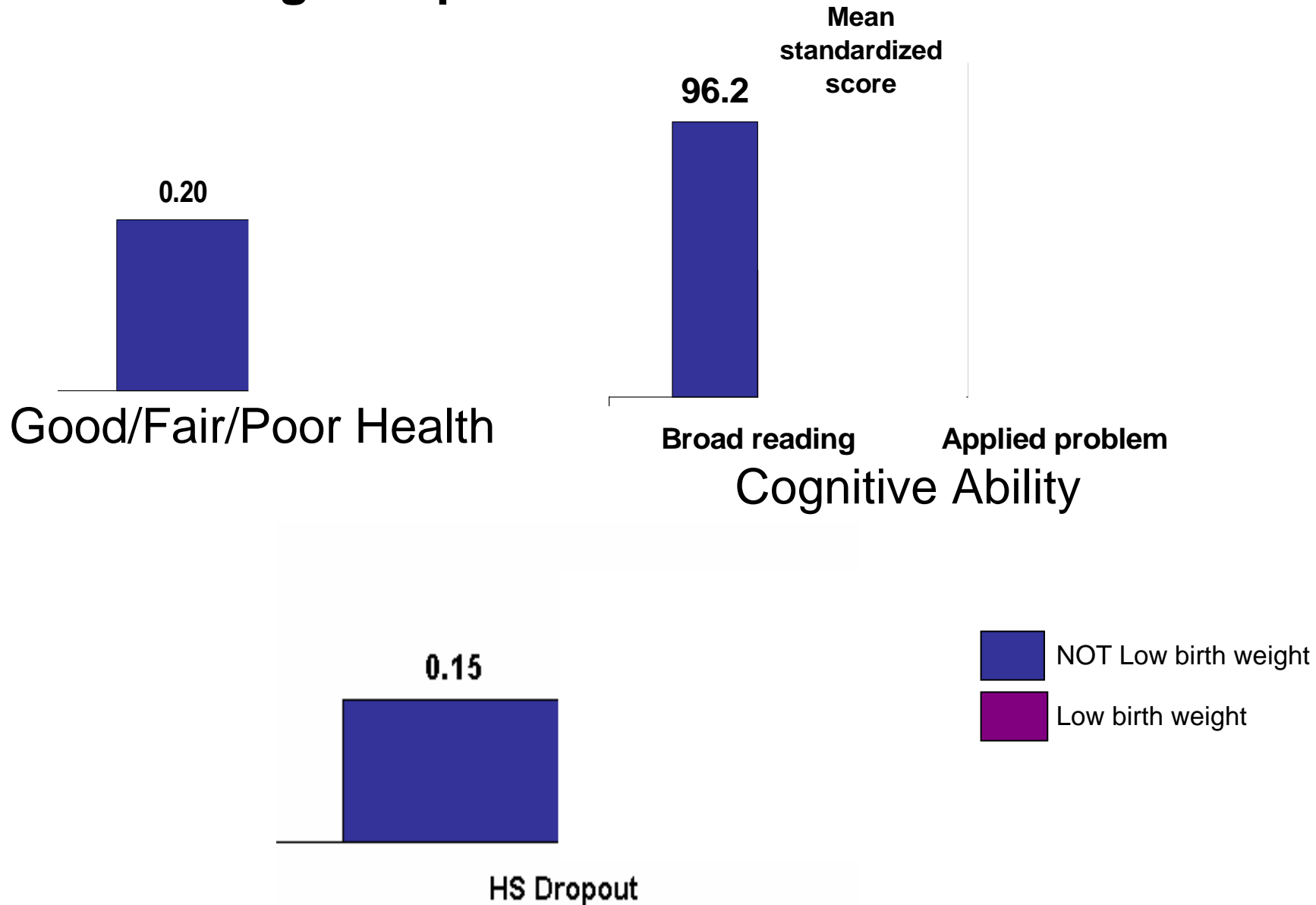
What We Do



What We Find

- Significant & substantive relationship between low birth weight & cognition, education, adult health, & labor market outcomes
- Effect of low birth weight on adult health...
 - smaller for **families with health insurance** at birth
 - **increases** with age
- **Racial gaps in health *completely explained***
 - by a few early life factors

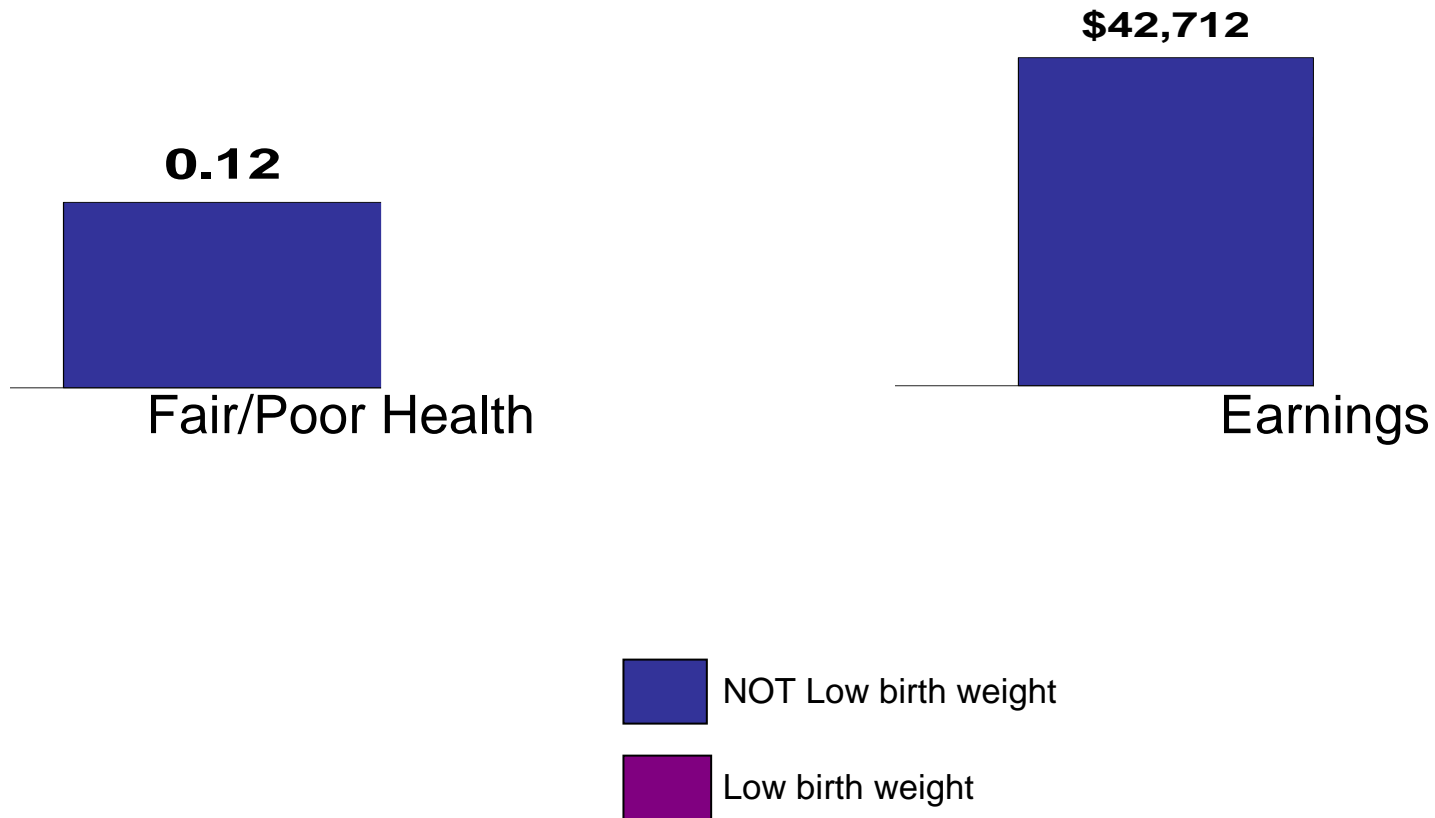
Sibling Comparisons - Child Outcomes



Restricted to siblings with at least one sib with divergent birth outcomes.

Brother Comparisons - Adult Outcomes

Age: 37-52

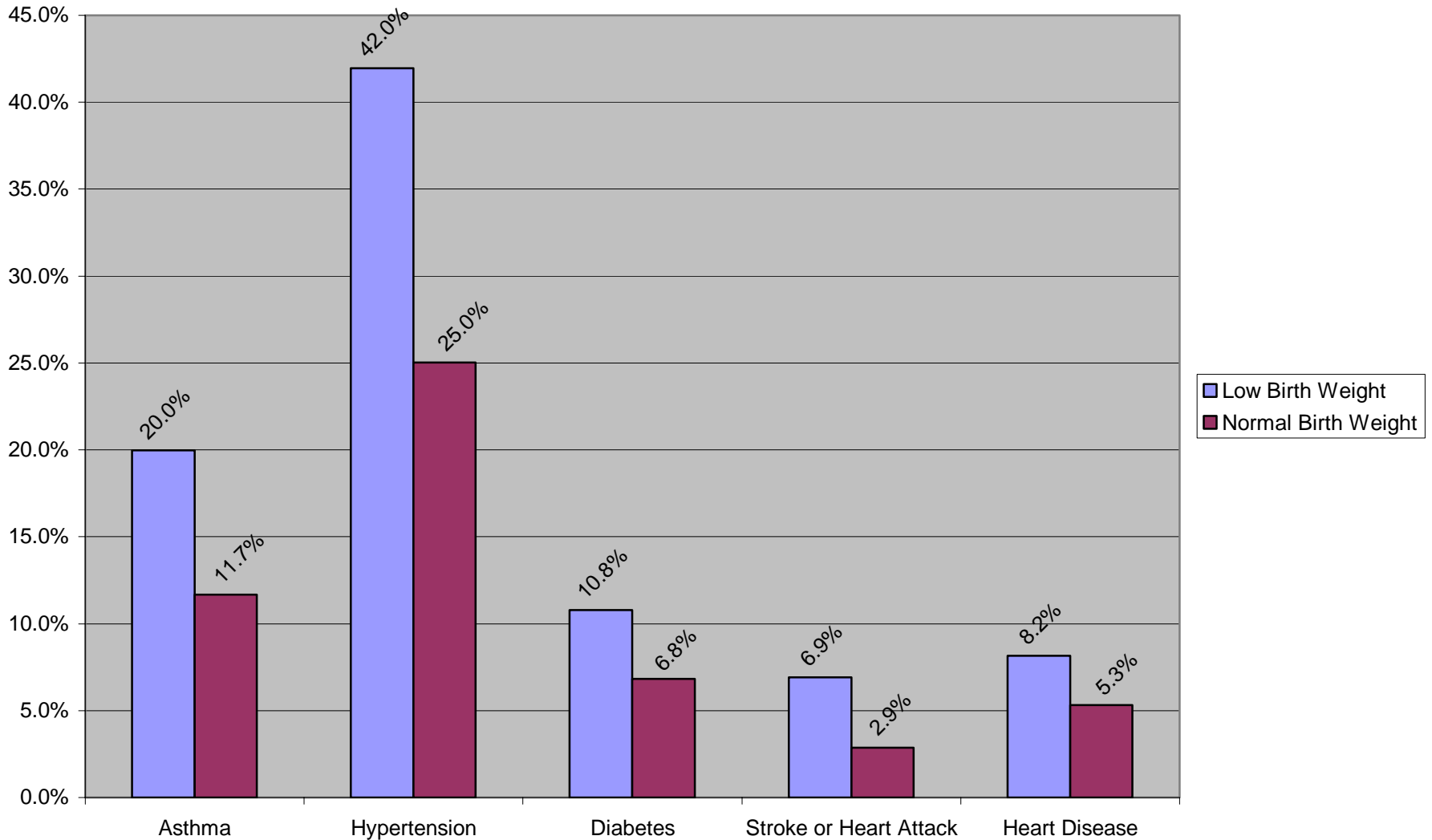


Restricted to boys with at least one brother with divergent birth weight.

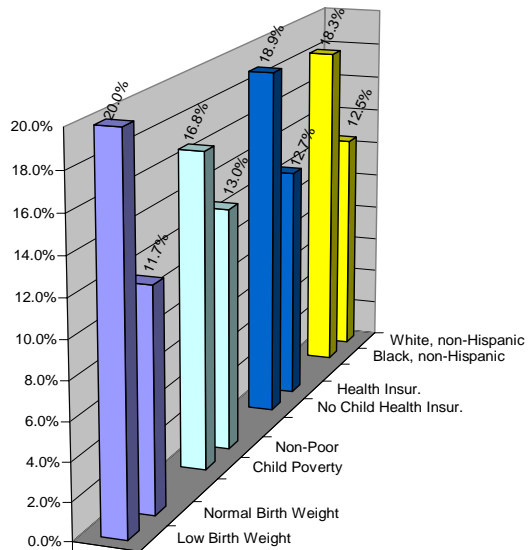
6 Specific Health Conditions:

- Asthma
- Hypertension
- Diabetes
- Heart Attack
- Stroke
- Heart Disease

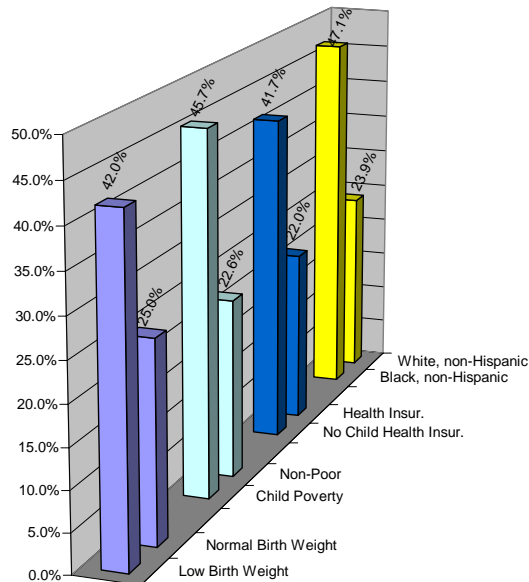
Percent with Specific Health Condition by Age 45, by Birth Weight



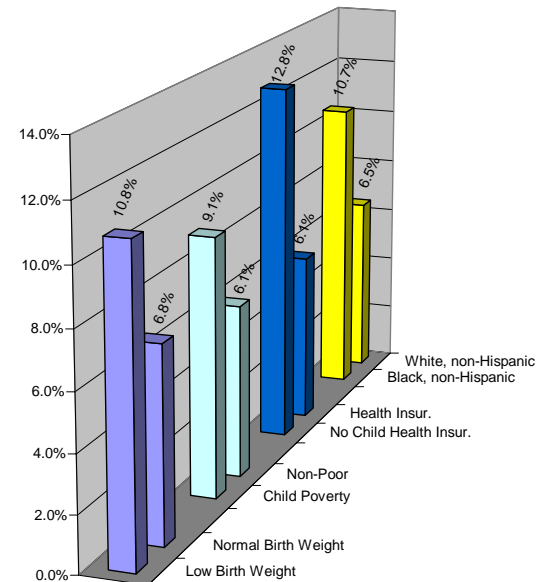
Percent with Asthma by Age 45



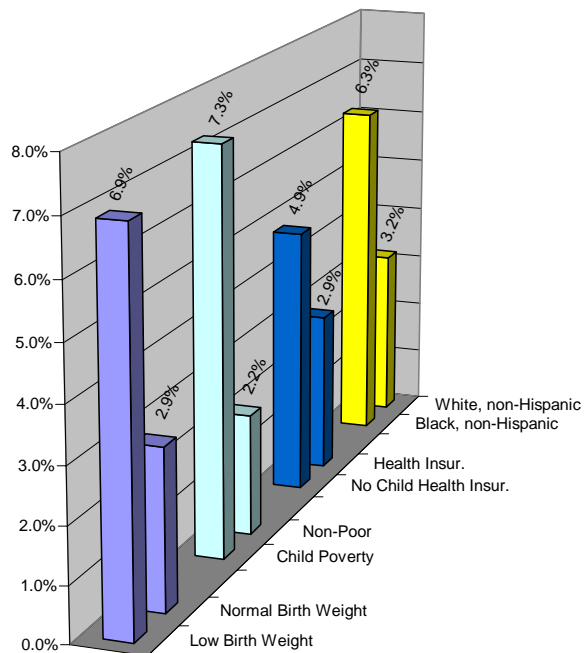
Percent with Hypertension by Age 45



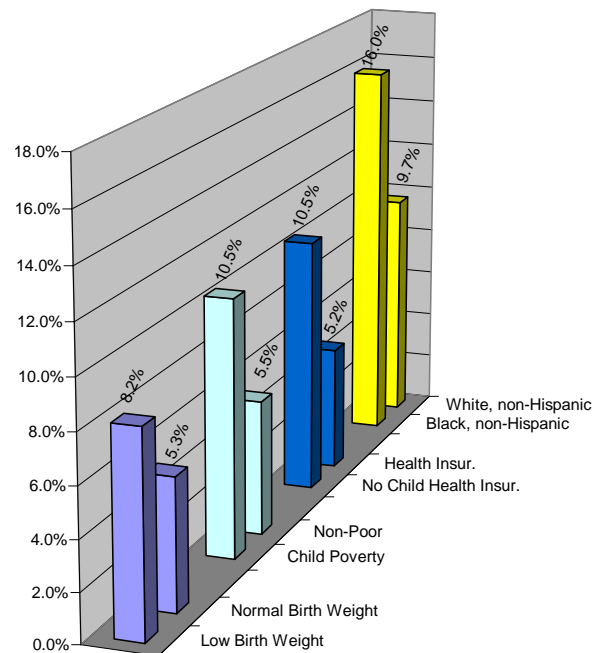
Percent with Diabetes by Age 45



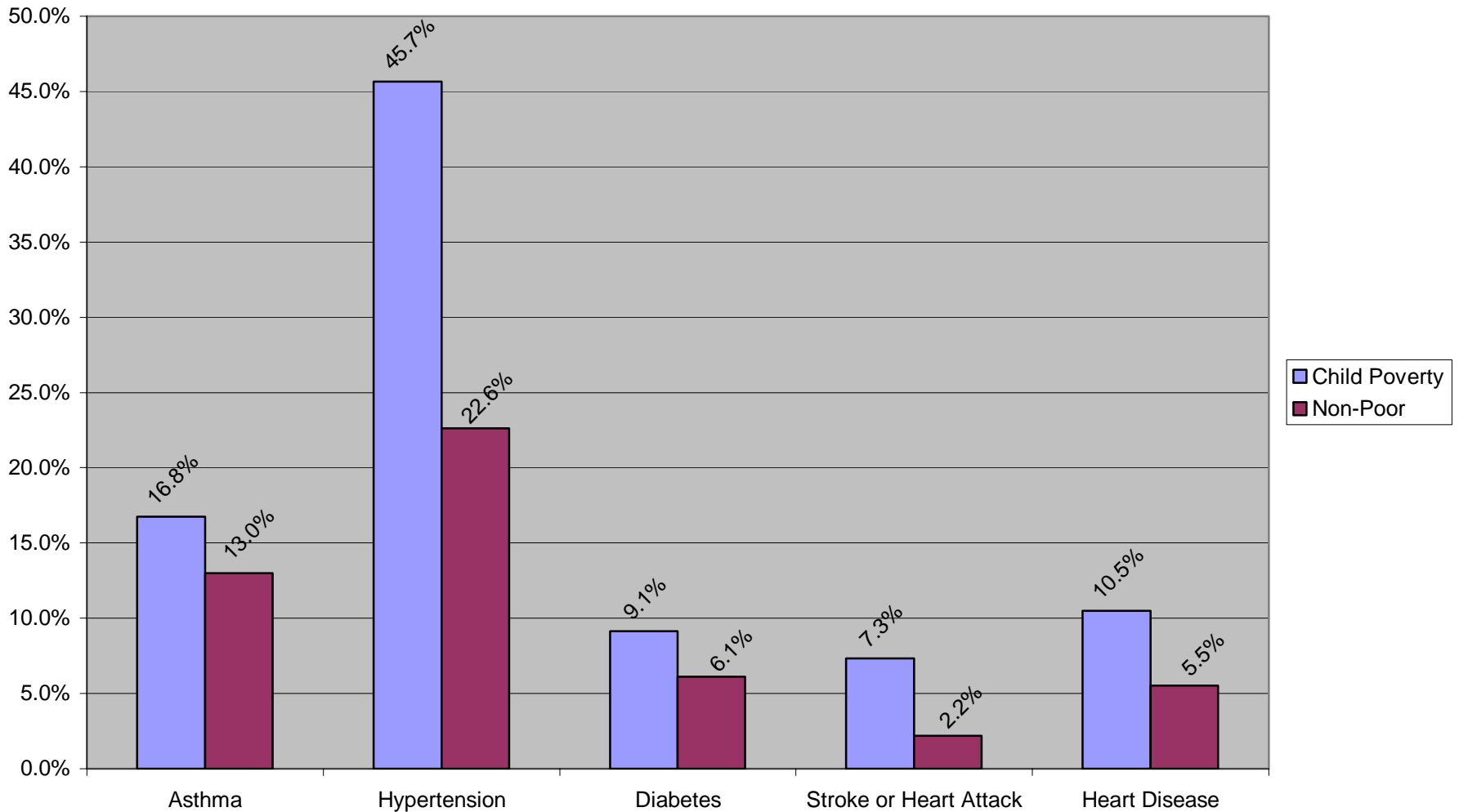
Percent with Heart Attack or Stroke by Age 45



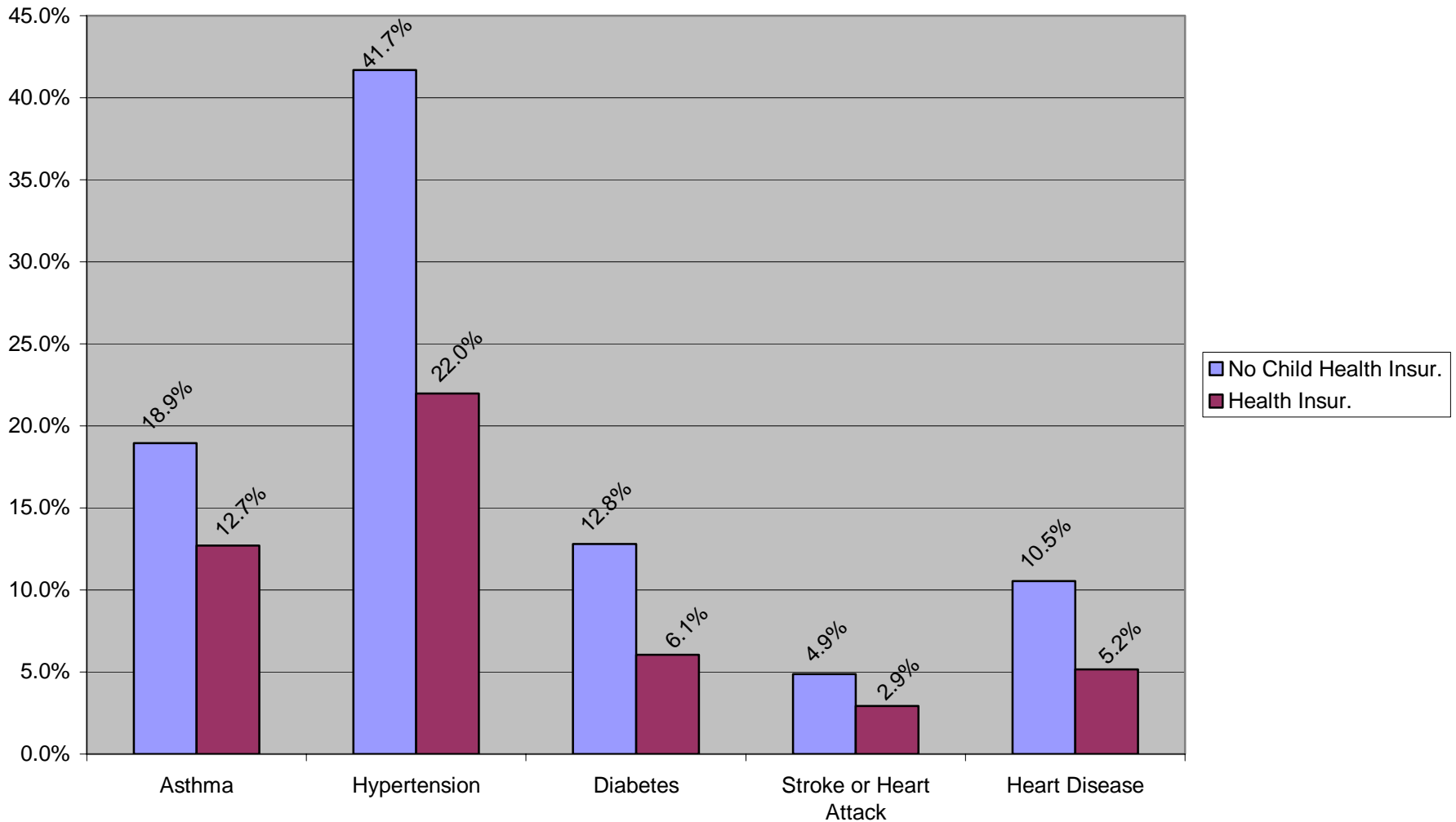
Percent with Heart Disease by Age 45



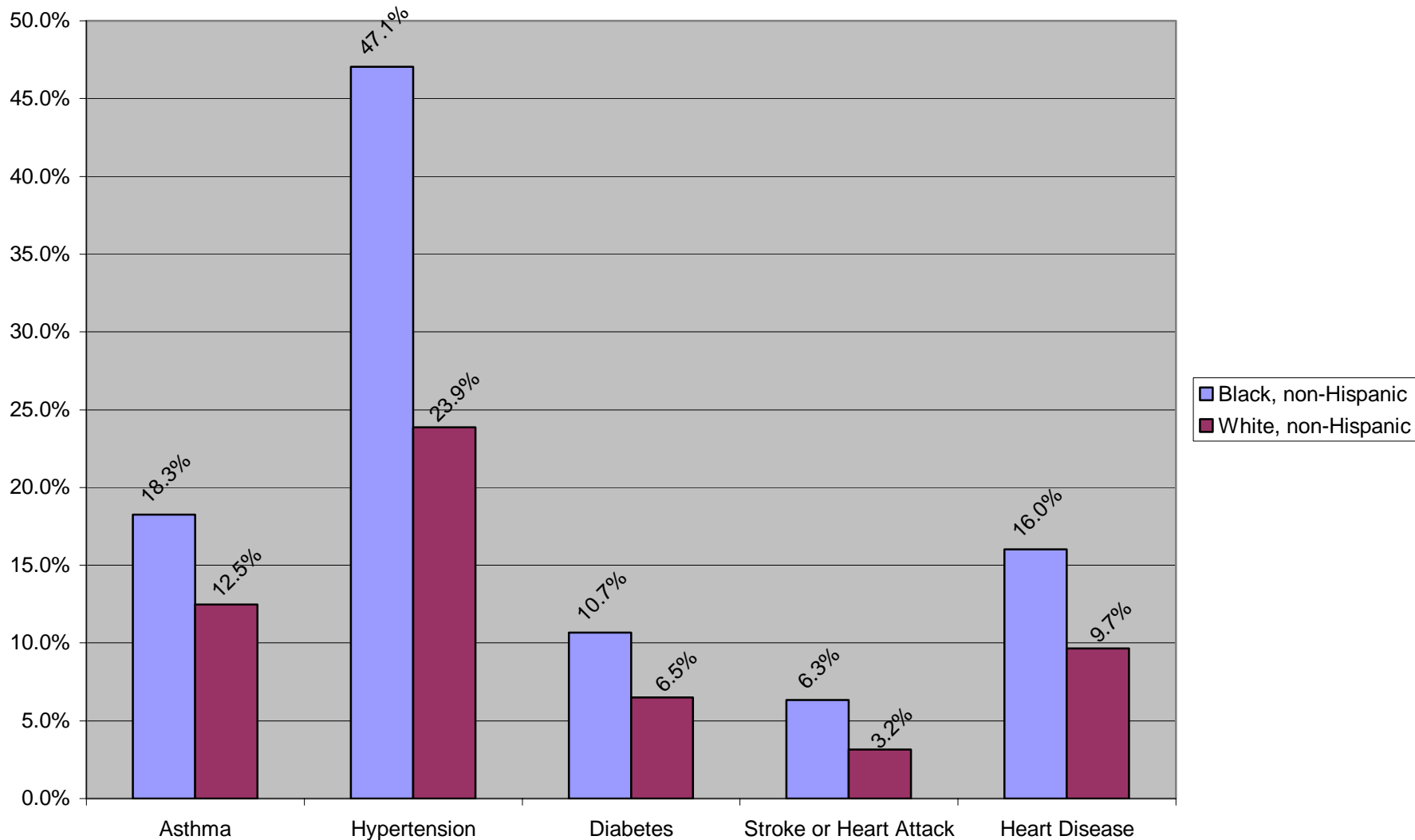
Percent with Specific Health Conditions by Age 45, by Child Poverty Status



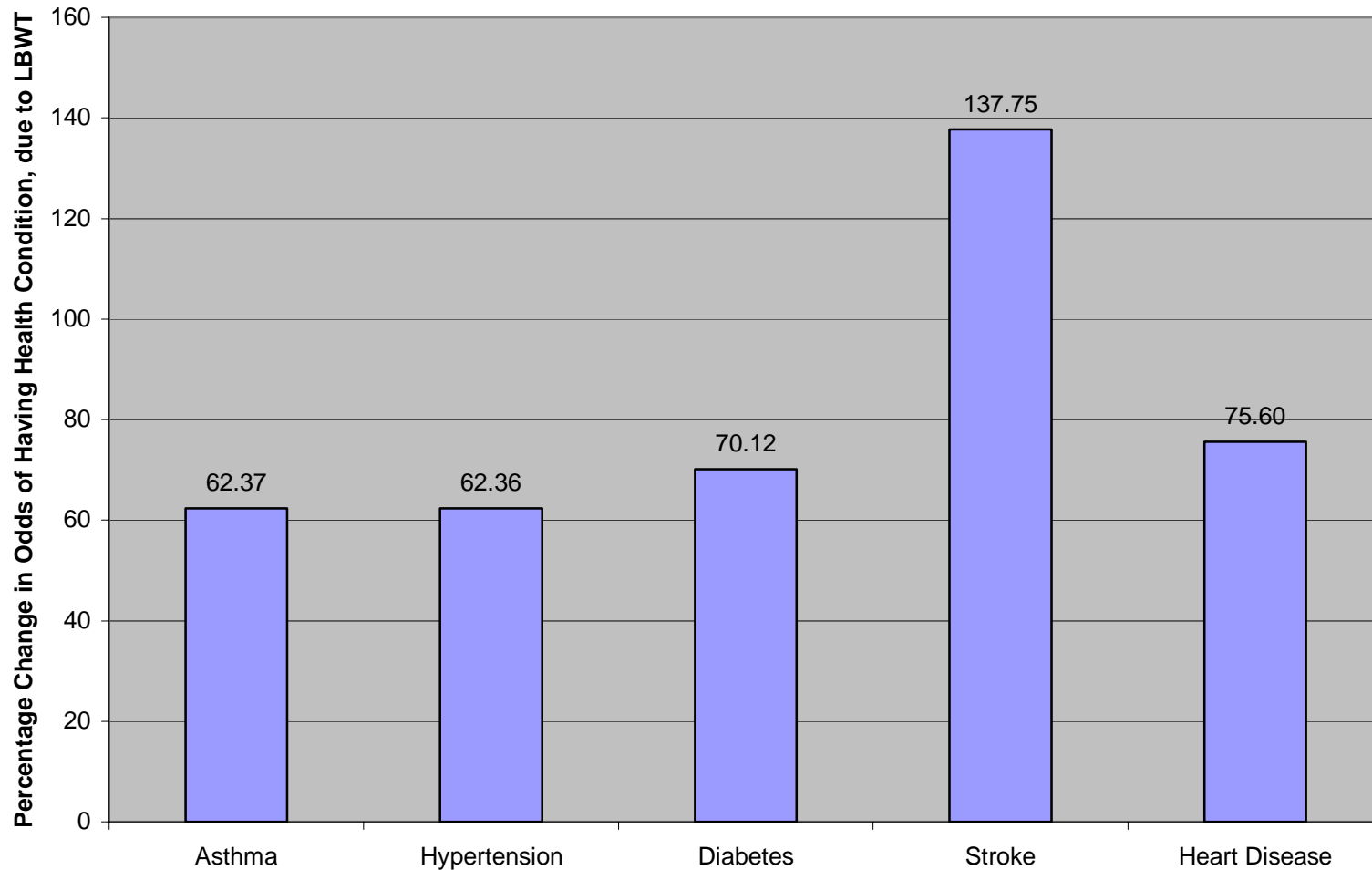
Percent with Specific Health Conditions by Age 45, by Child Health Insurance Status



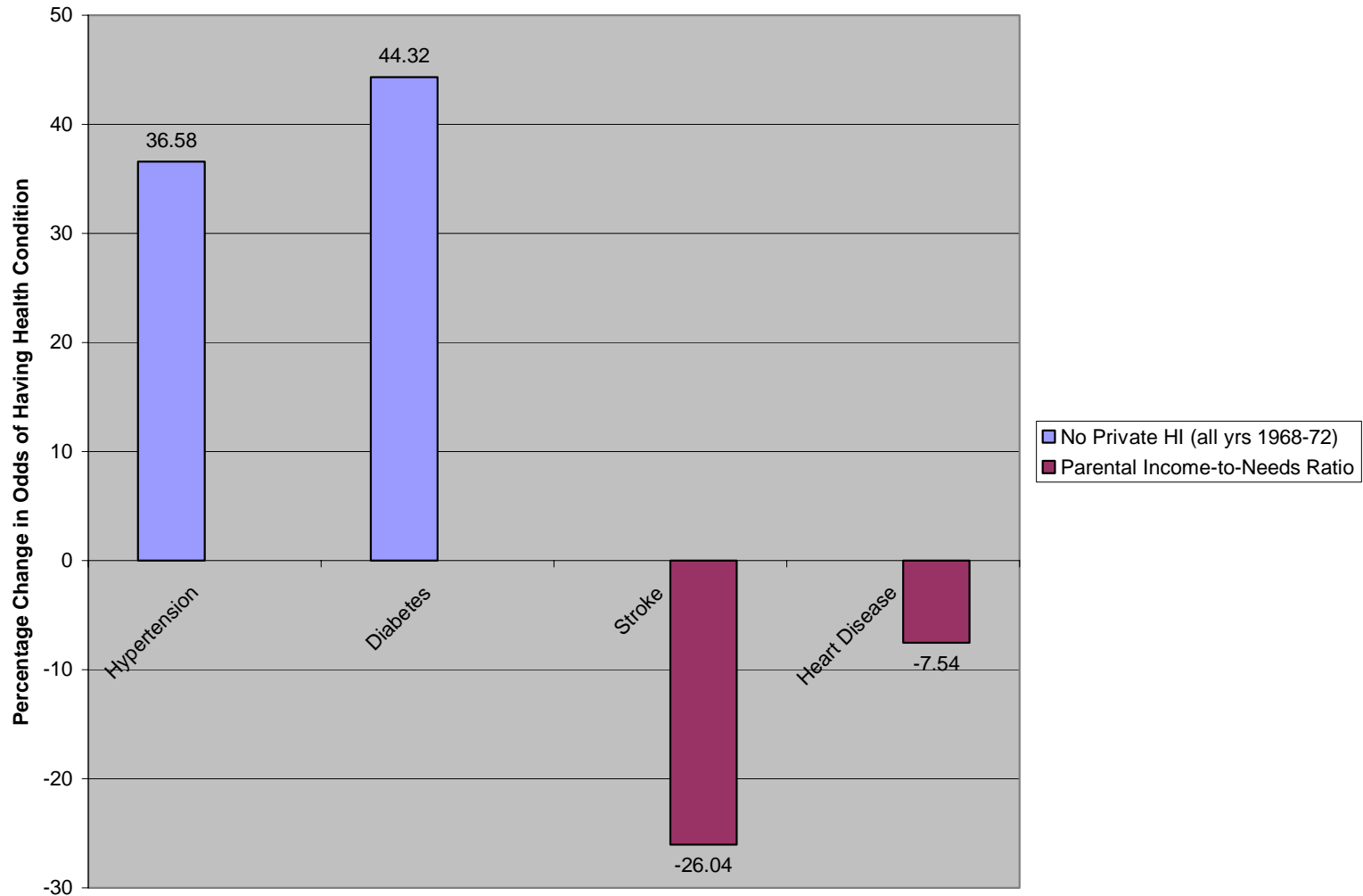
Percent with Specific Health Conditions by Age 45, by Race



Effects of Low Birth Weight on Likelihood of Having Specific Health Conditions



Effects of Child Socioeconomic Factors on the Likelihood of Specific Health Conditions



Ref Cat: Had Private HI all yrs (1968-72)

Based on 1-unit increase in income-to-needs ratio

Consistent with Large Body of Evidence from Diverse Populations

- **Animal studies**
 - Experimental manipulation of early life conditions
- **Social epidemiological evidence**
 - Most strongly for the UK
- **Very recent econ lit, typically compares sibs or twins**
 - Dutch born 1812-1912
 - Norwegians born 1967-1997
 - Canadians born in Manitoba 1978-1985
 - Brits born the week of March 3, 1958
 - Minnesotan twins
 - US women born in the 1960s
 - US children born around 1918

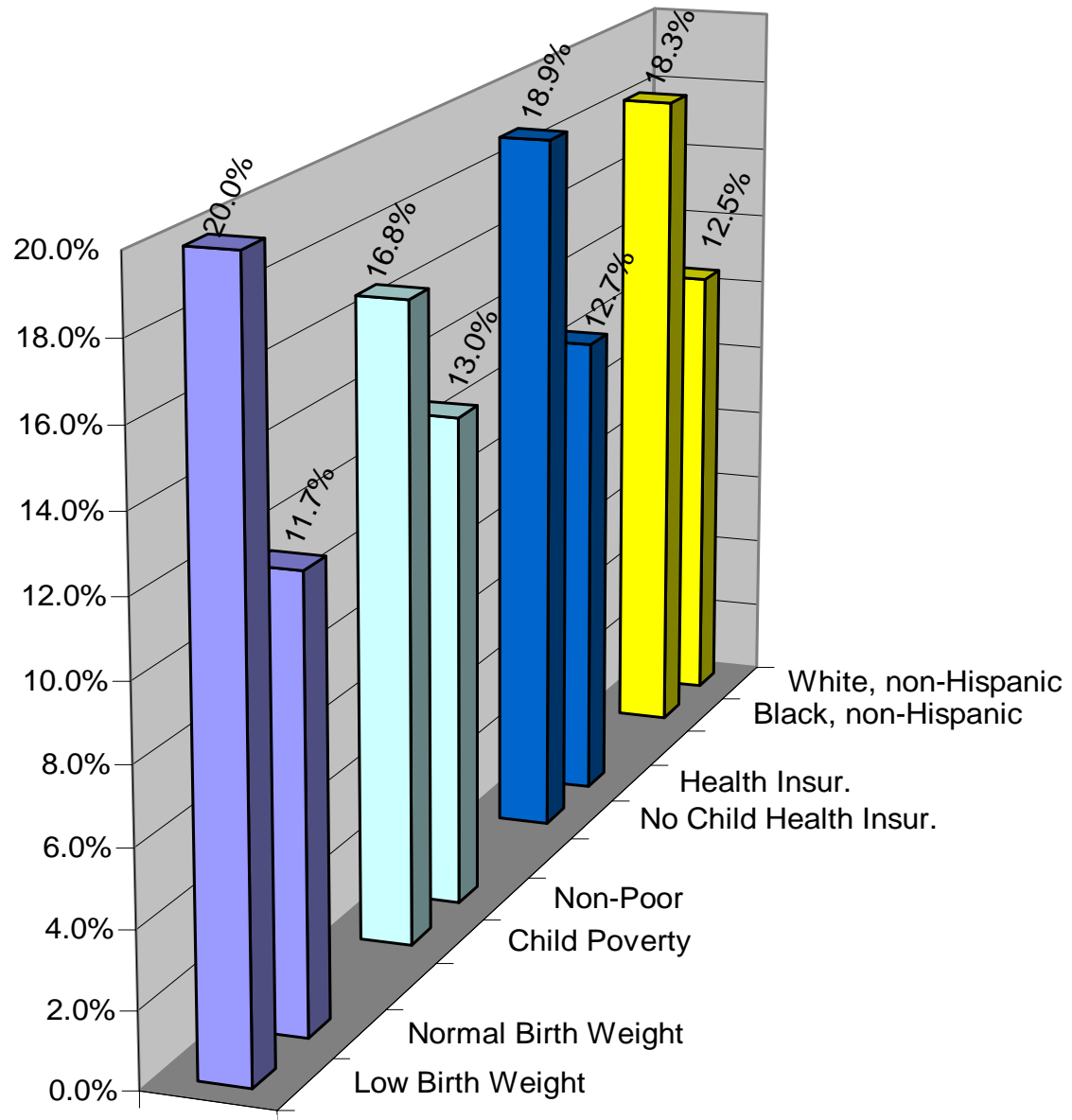
Summary

- Being born **low weight**....
 - ages you by 12 years
 - increases odds of HS drop out by 5 percentage points,
 - lowers labor force participation by 6 percentage points,
 - reduces labor market earnings by 16% (at age 35)
- **Effects on health** are mitigated by having health insurance in childhood
- **Racial gap** in adult health accounted for by disparities in early life factors

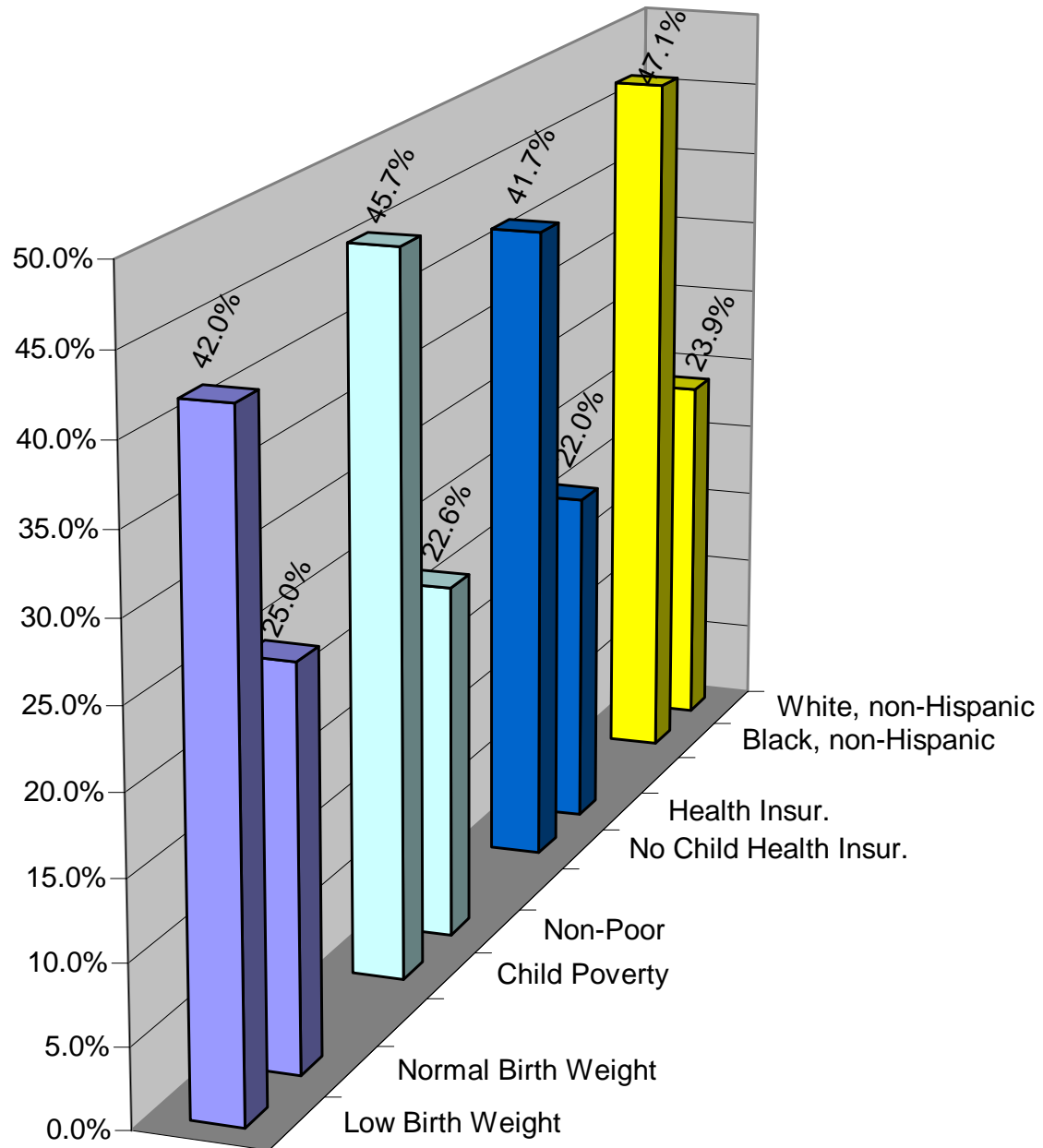
Implications

- Long reach of childhood experiences
 - Interventions in early-life may have long-run benefits
- Intergenerational transmission of health & well-being reproduces disparities across generations

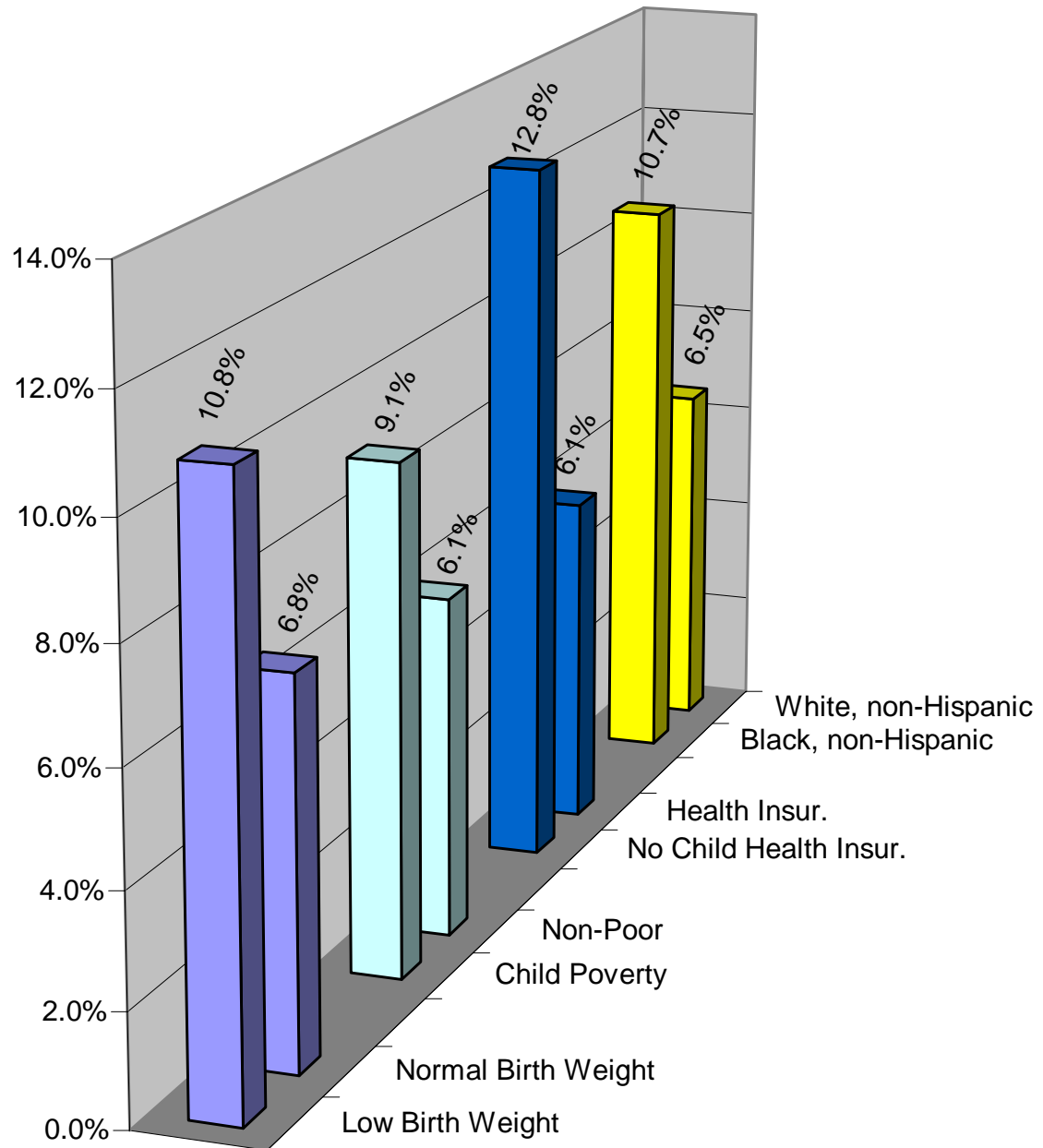
Percent with Asthma by Age 45



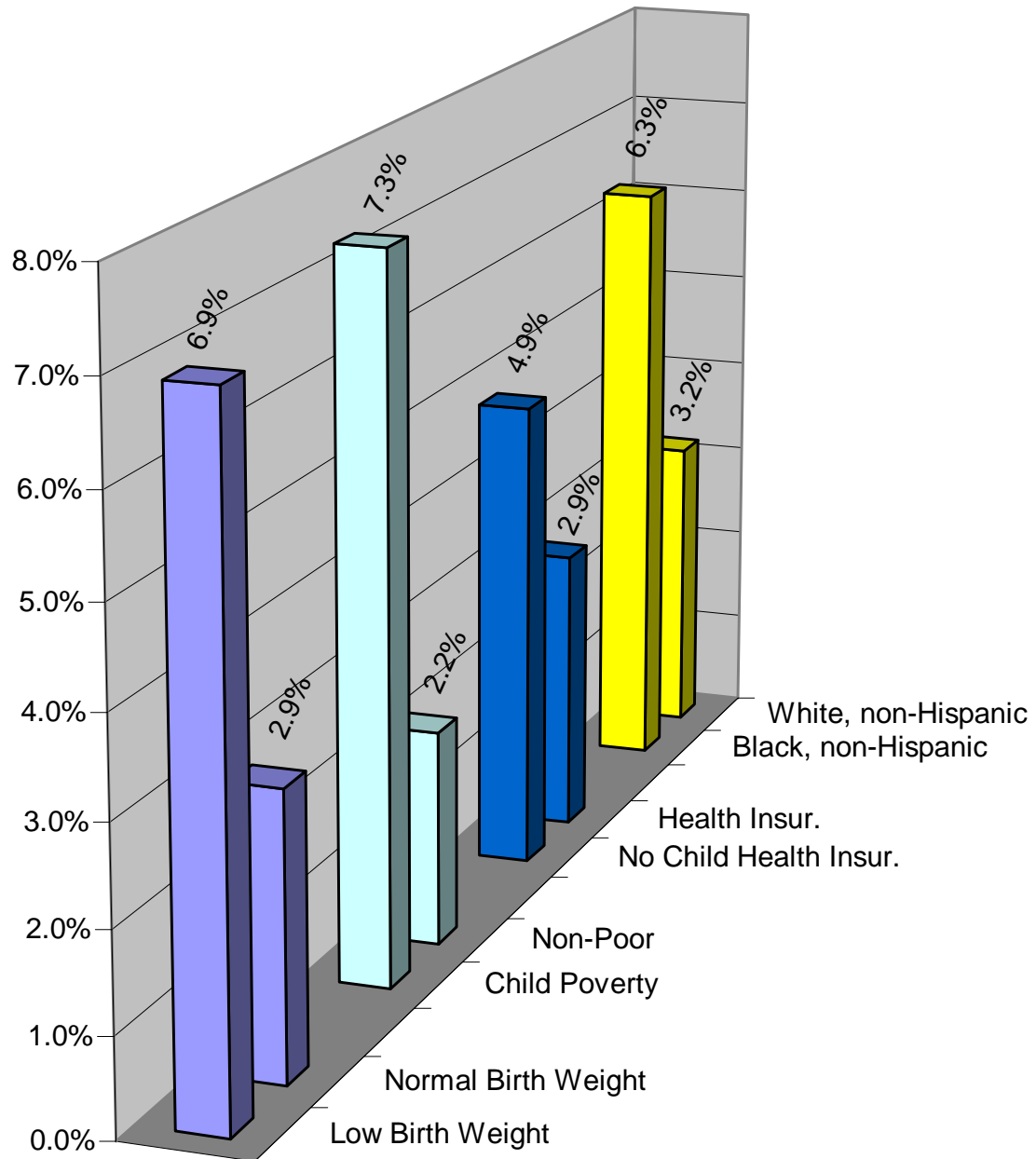
Percent with Hypertension by Age 45



Percent with Diabetes by Age 45



Percent with Heart Attack or Stroke by Age 45



Percent with Heart Disease by Age 45

