



Preterm Birth in Alabama

We Can...and We Have to...Do Better

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Scope of the problem: National

- 30% Increase in preterm birth from 1980's – 2006
- ~450,000 – 500,000 infants/yr
- Peaked in 2006
 - PTB < 37 wk 12.8 %
 - PTB < 34 wk 3.7 %
 - PTB 34-36 wk 9.2 %

Hamilton et al, NVSR, NCHS 2014

Why the increase in PTB until 2006?

- Increase utilization of ultrasound dating
 - Diminishes potential error of LMP dating
- Fertility treatment
 - Increase in multiples
- Scheduled preterm birth
 - Byproduct of improved neonatal care

Why the decrease since 2006?

- Changes in fertility treatment
 - Fewer higher order multiples
- Progesterone availability
 - Probably only a small contributor
- Efforts to reduce elective early delivery

Why does preterm birth matter?

- Major cause of neonatal death and long term morbidity
- Major societal burden
 - Increased utilization of healthcare and social service resources
 - Costs increase for each lower week of GA at birth
 - Decreases school performance and productivity

Economic costs of Preterm Birth

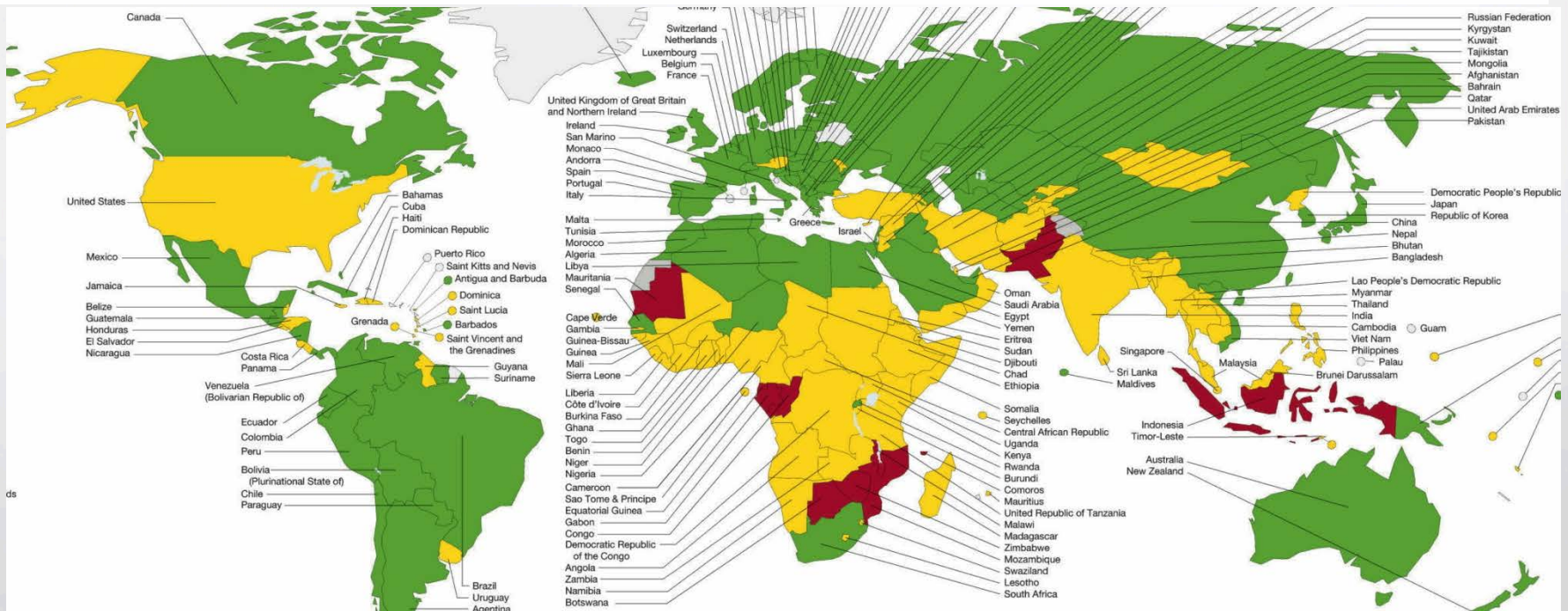
- \$26.2 billion/year
- Term infant
 - \$3,330 for first yr
 - LOS 1.3 d
- Preterm infant
 - \$32,000 for first yr
 - LOS 13 d

*IOM, Preterm Birth: Causes, Consequences
and Prevention, 2006*

WHO: Global Action Report on PTB

15 countries account for two-thirds of the world's preterm births

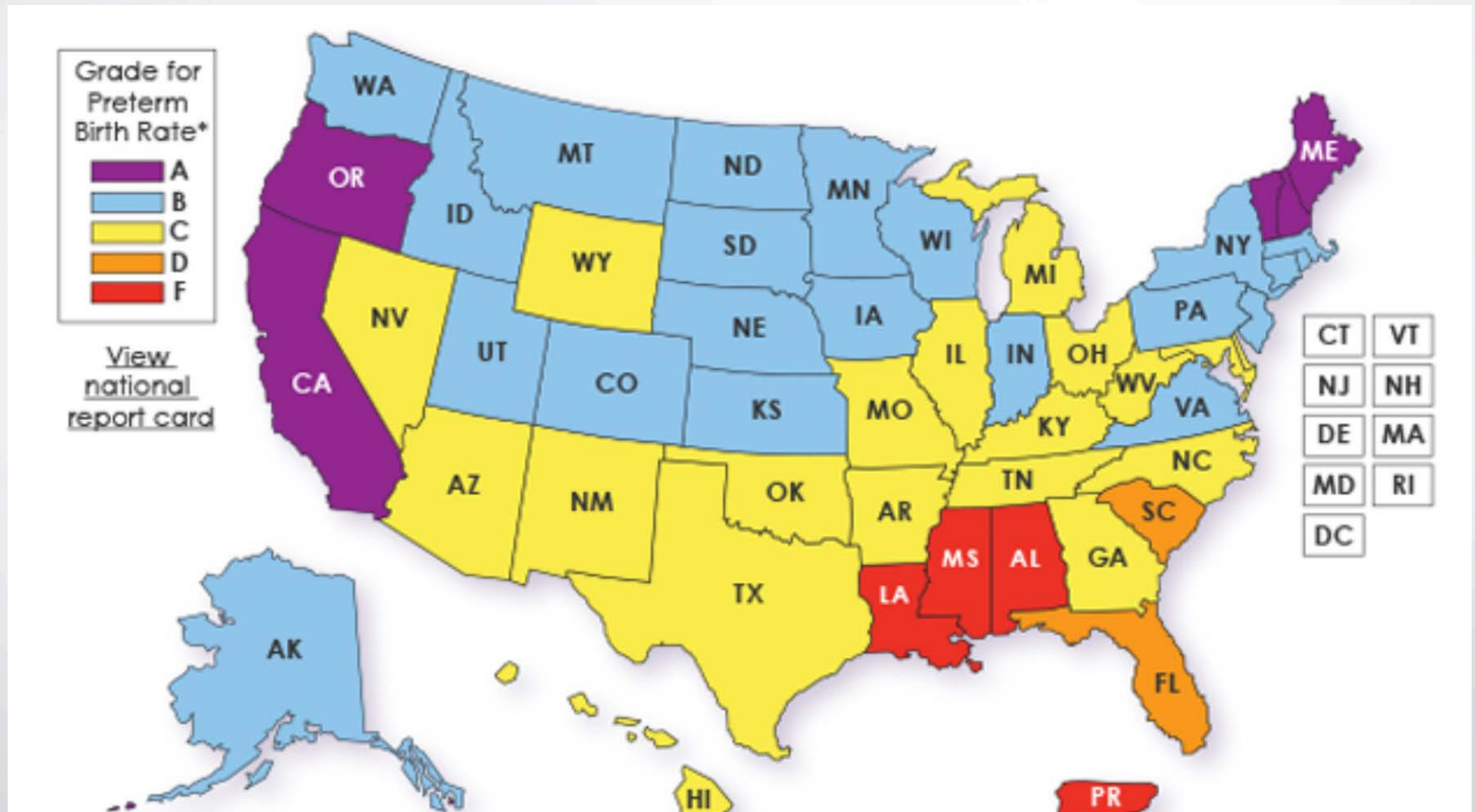
- | | | | |
|-------------|-----------------------------|---------------------------------|------------|
| 1. India | 5. Indonesia | 9. Dem. Rep. of Congo | 13. Uganda |
| 2. China | 6. United States of America | 10. Brazil | 14. Sudan |
| 3. Nigeria | 7. Bangladesh | 11. Ethiopia | 15. Kenya |
| 4. Pakistan | 8. Philippines | 12. United Republic of Tanzania | |



Why does the problem persist?

- Multiple pathways converge to cause PTB
 - Various contributors
 - Extent of contribution
 - Triggering events
- Lack of understanding interferes with:
 - Risk identification
 - Targeted intervention

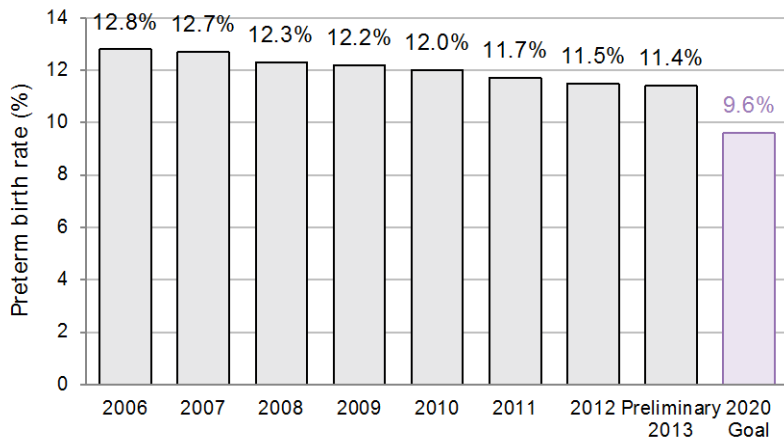
March of Dimes 2014 Premature Birth Report Card



Premature Birth Report Card for 2013

United States

Goal	Rate	Grade
9.6%	11.4%	C



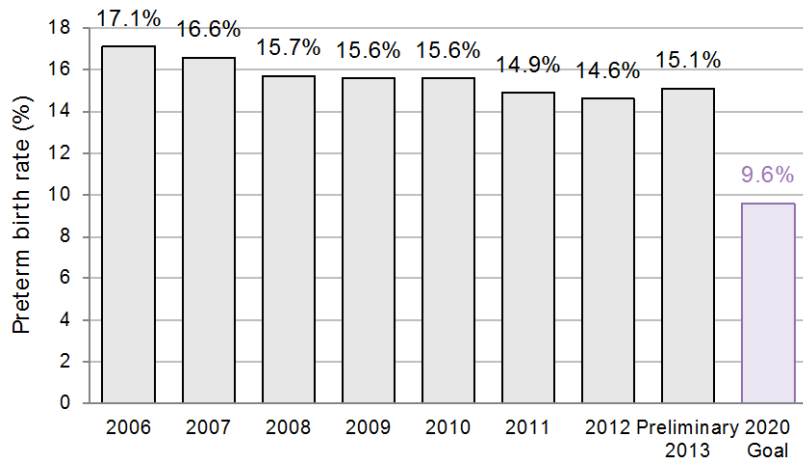
All states, the District of Columbia and Puerto Rico pledged to reduce the preterm birth rate by 8% by 2014.

- PTB < 37 wk 11.4 %
- PTB < 34 wk 3.4 %
- PTB 34-36 wk 8%

Premature Birth Report Card for 2013

Alabama

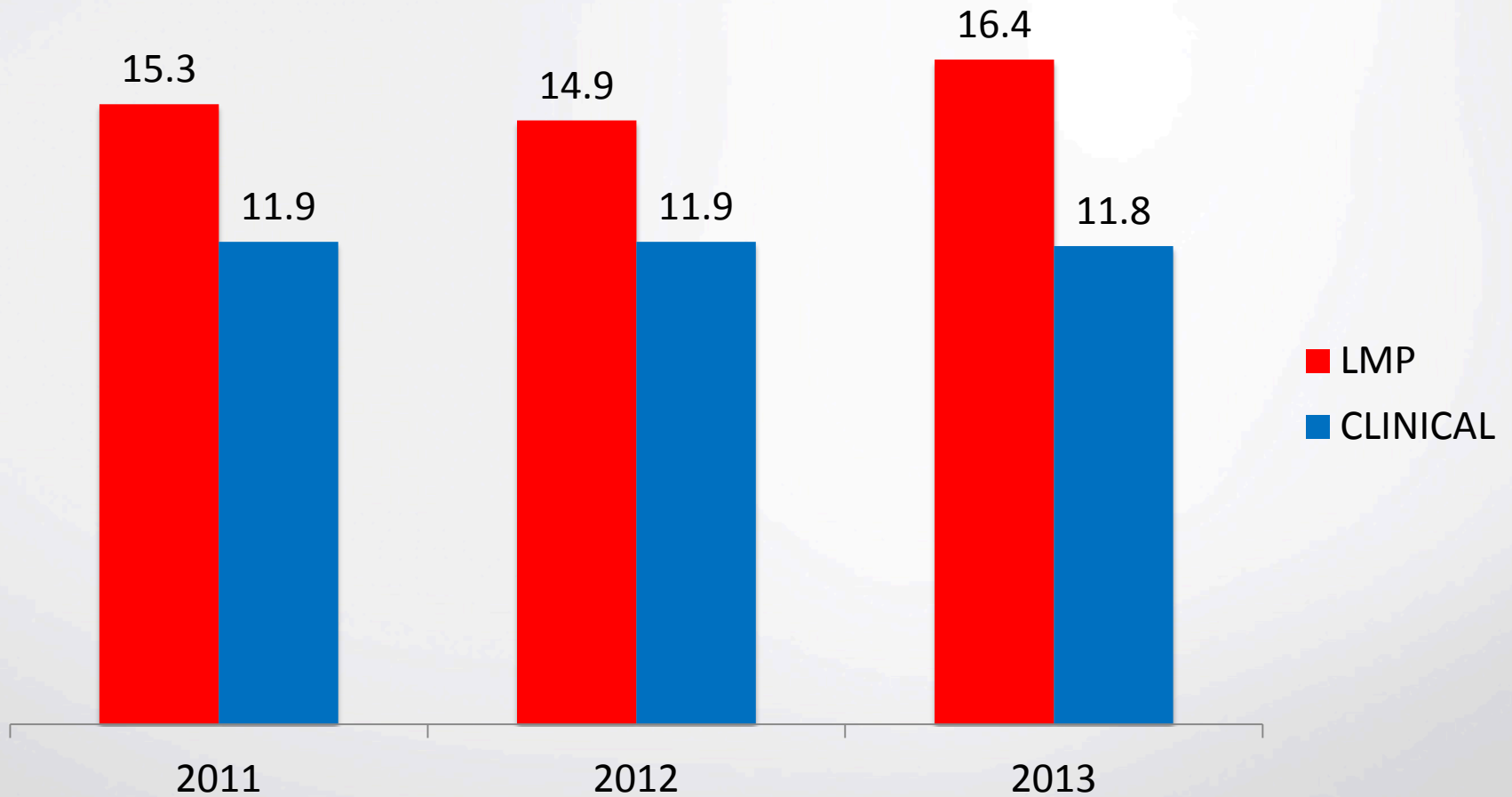
Goal	Rate	Grade
9.6%	15.1%	F



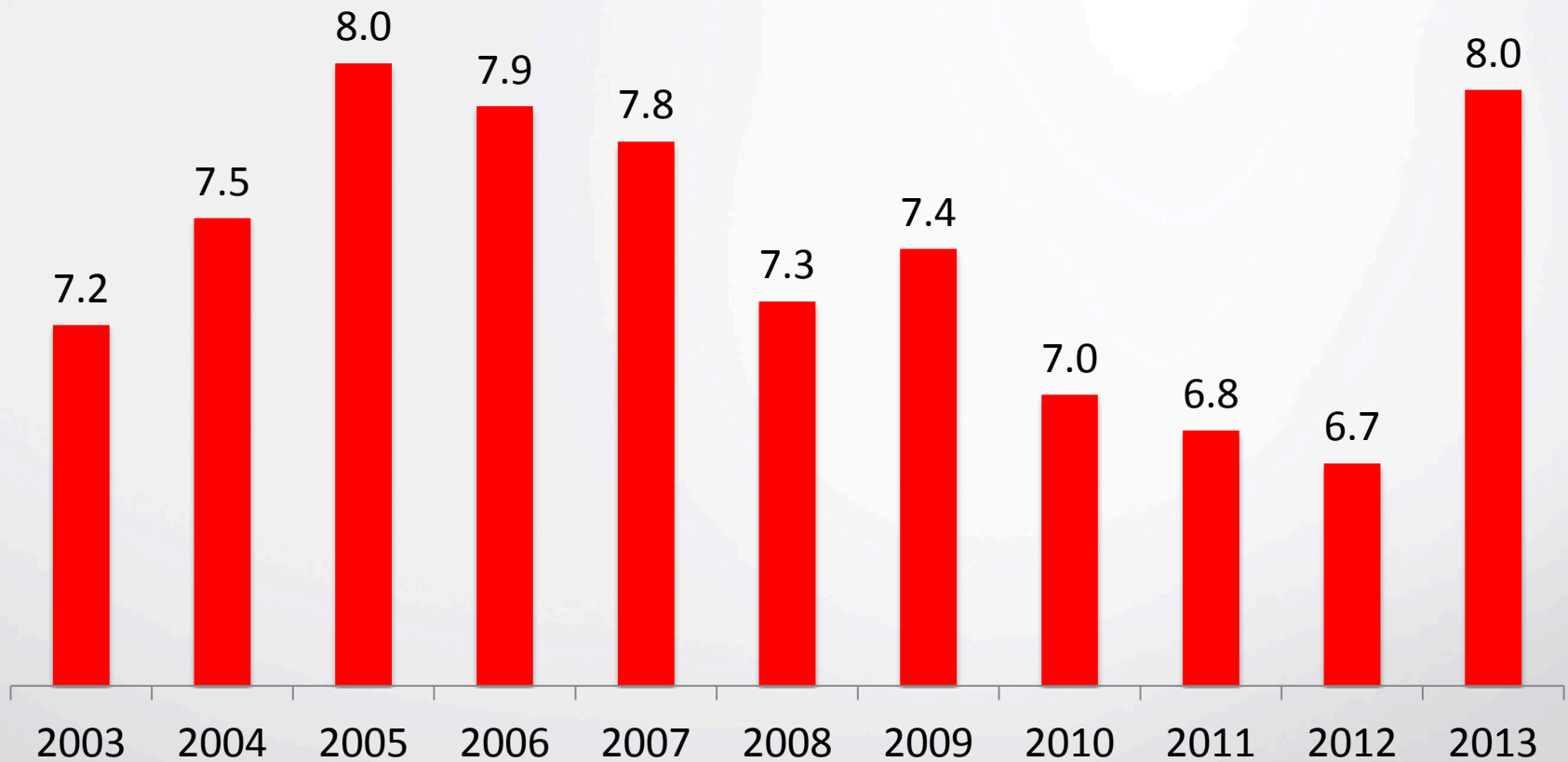
Alabama has pledged to reduce the preterm birth rate by 8% by 2014.

- PTB < 37 wk 15.1 %
- PTB 34-36 wk
 - 2012 10.0 %
 - 2013 9.7 %

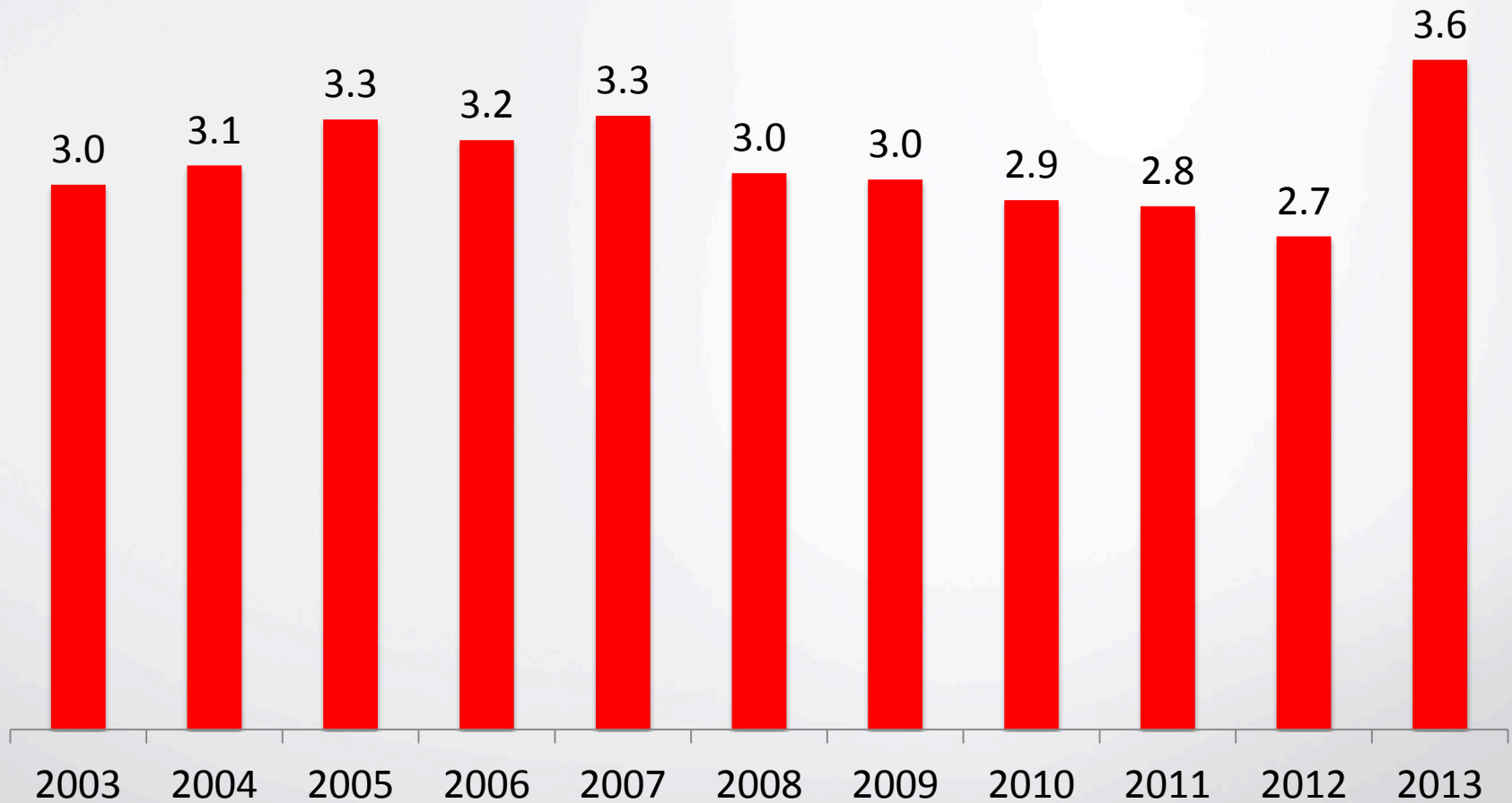
Rate of Preterm Birth in Alabama



Preterm Birth < 35 wk: Alabama



Preterm Birth < 32 weeks: Alabama



What does this translate to?

- In Alabama, on average each week:
 - 164 babies are born prior to 37 weeks
 - 28 are born prior to 32 weeks
 - 113 weigh less than 2500 gm at birth
 - 21 weigh less than 1500 gm at birth

www.marchofdimes.com/peristats

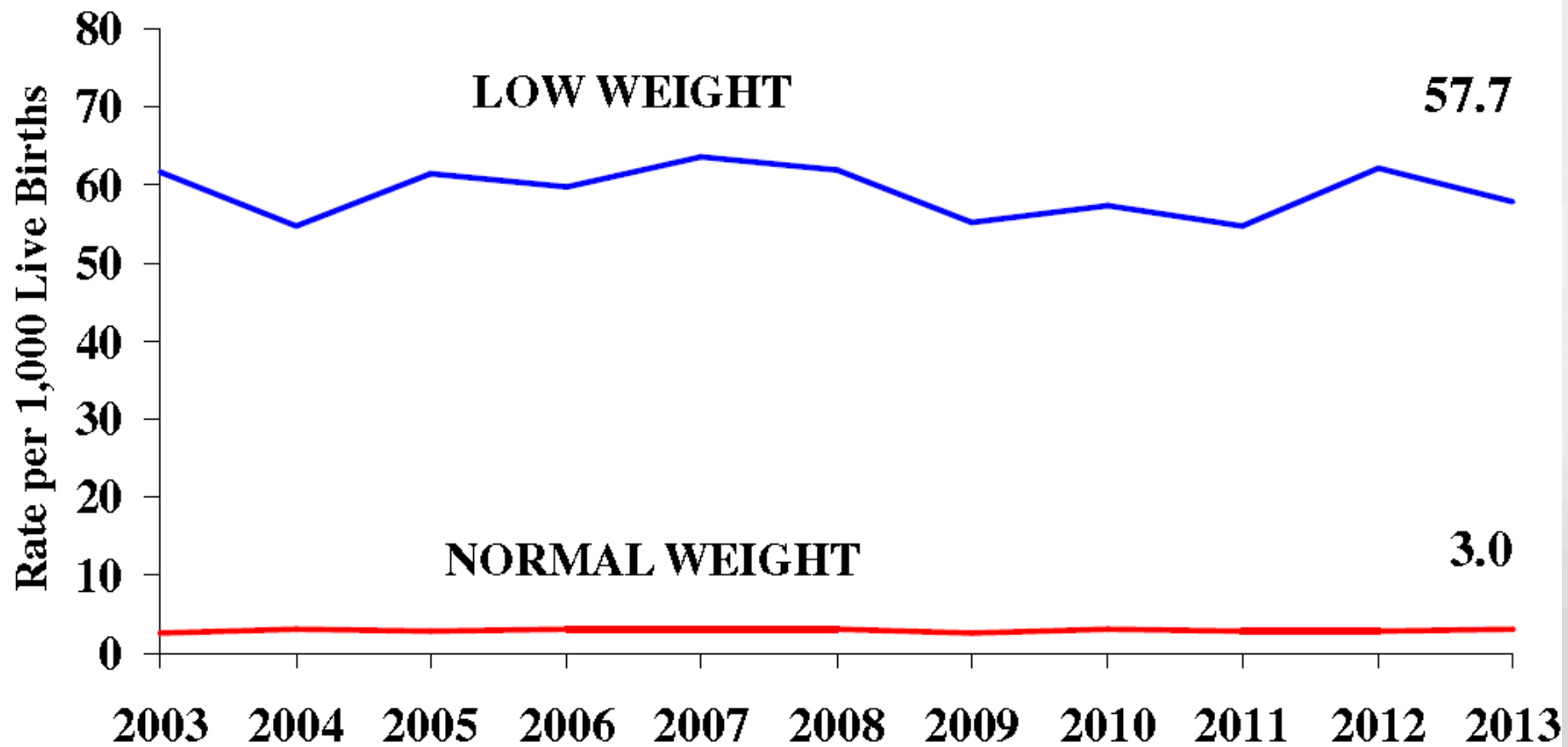
PTB and Infant Mortality in Alabama: 2013

- 500 infant deaths
 - 331 <37 wk –66% of deaths
 - 294 <35 wk—59% of deaths
 - 255 <32 wk –51% of deaths
 - 218 <28 wk –44% of deaths

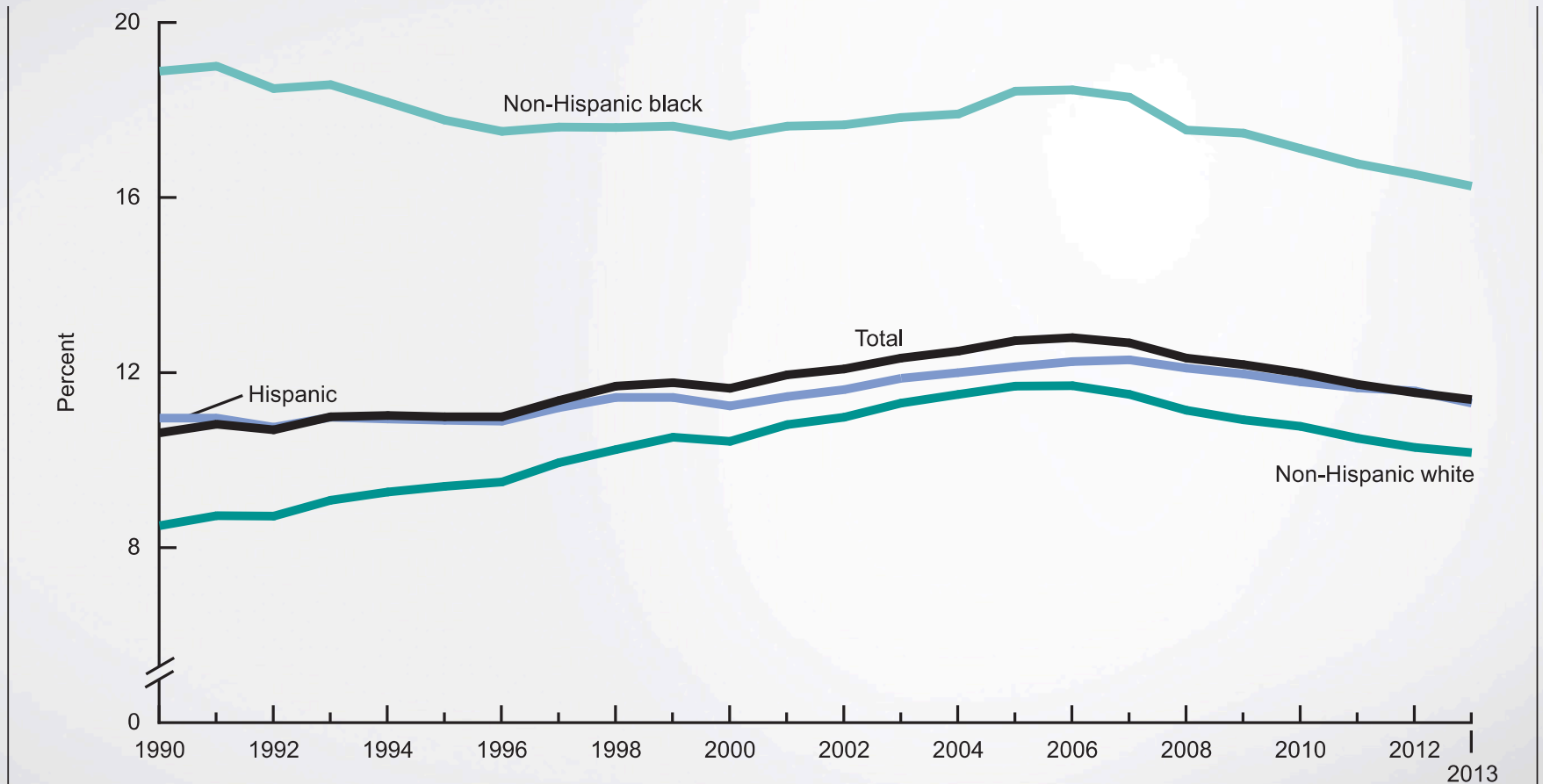
PTB related to perinatal and infant mortality

- LBW (<2500 gm)
 - US: 7.9% of births → 66% of deaths
 - Alabama 2012: 10% of births
- VLBW (<1500 gm)
 - 1.5% of births → 50% of deaths
 - Alabama 2012: 1.9%

INFANT MORTALITY RATES LOW vs. NORMAL WEIGHT BIRTHS ALABAMA, 2003-2013

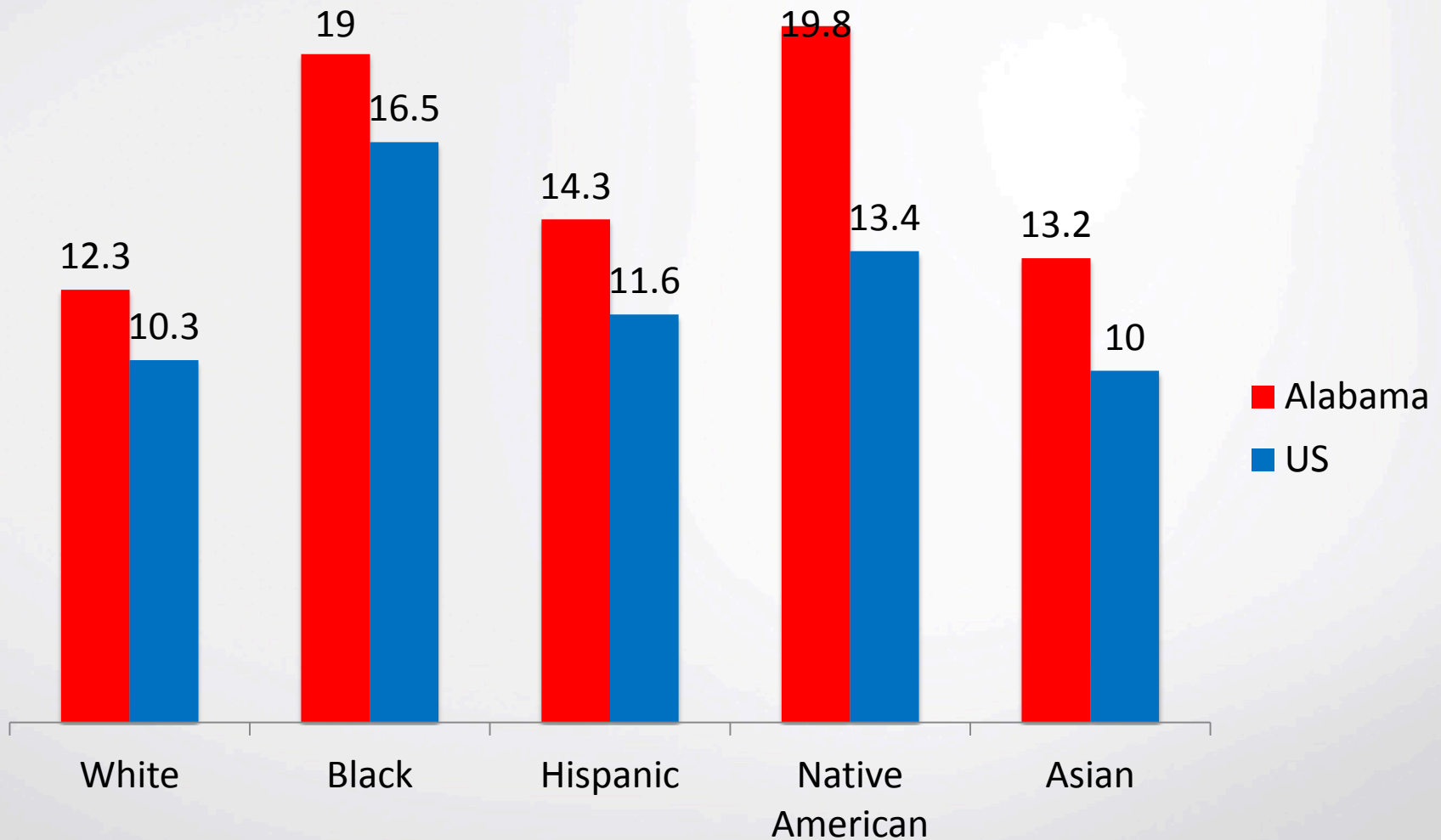


Racial Disparities in US in Preterm Birth

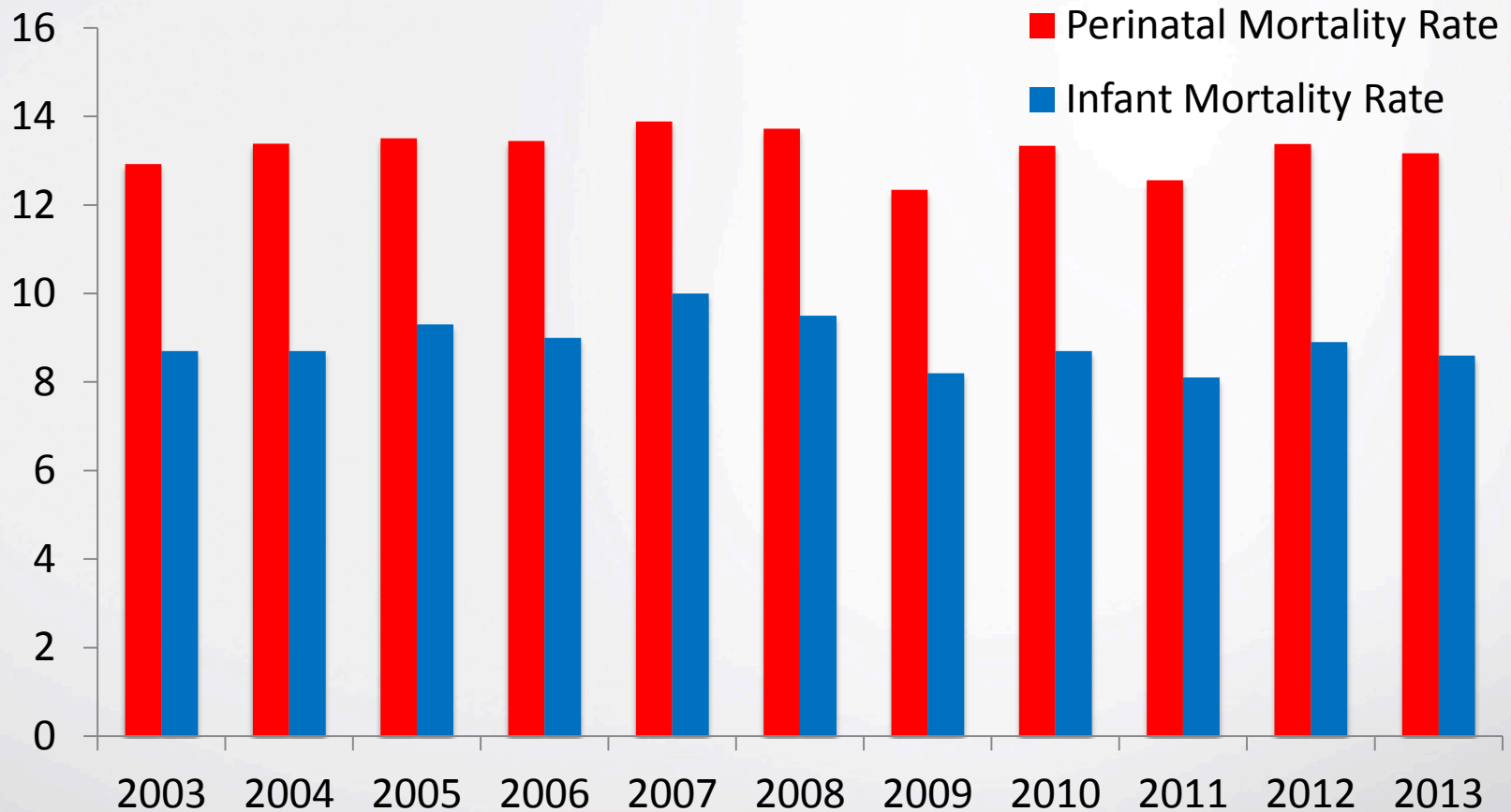


SOURCE: CDC/NCHS, National Vital Statistics System.

Racial Disparities in Preterm Birth Rate: Alabama vs US



Infant and Perinatal Mortality: Alabama



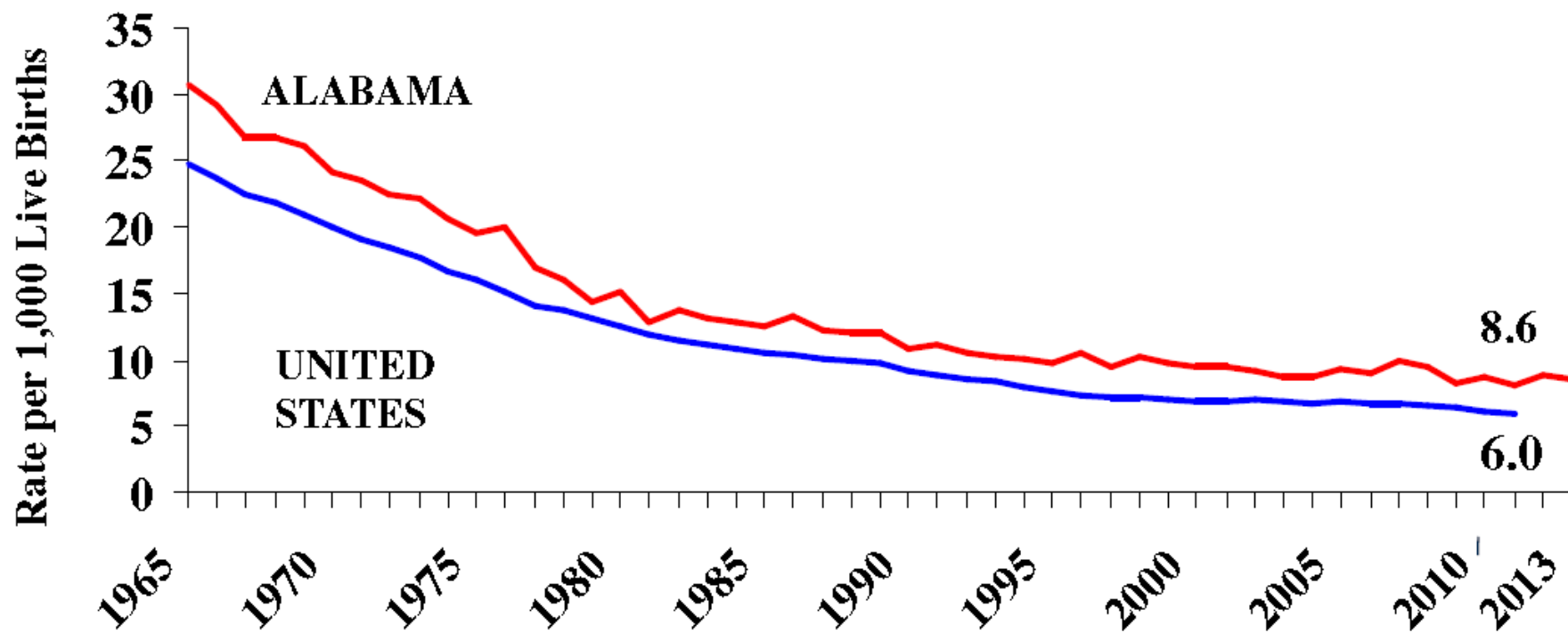
Significance of Disparity in PTB Rates

- Leading cause of infant death
 - Caucasian and Hispanic—Congenital Anomalies
 - African American—Preterm Birth

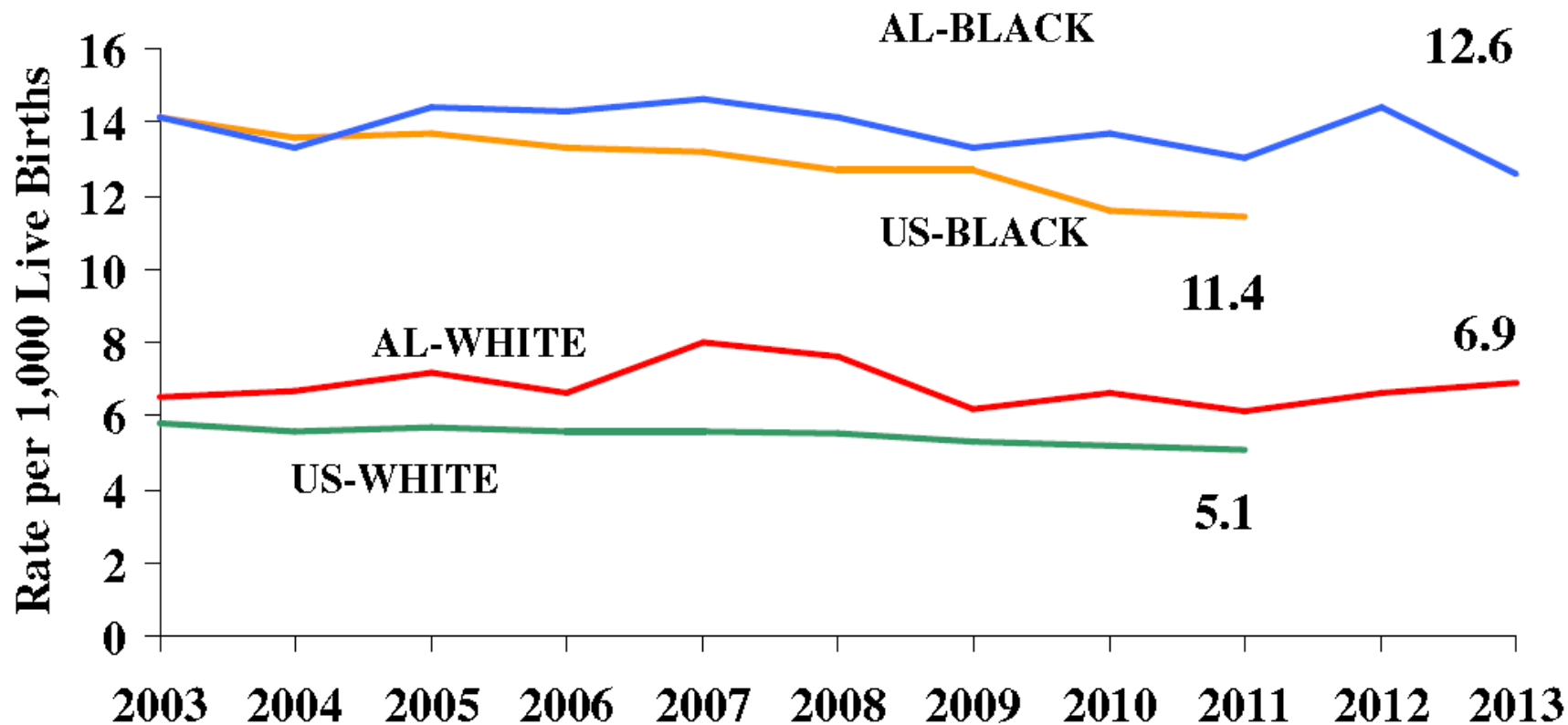
Racial Disparity: Infant Mortality in Alabama 2012

- White 7.0 per 1,000
- African American 13.1 per 1,000
- Hispanic 7.4 per 1,000

INFANT MORTALITY RATES ALABAMA AND UNITED STATES¹ 1965-2013



INFANT MORTALITY RATES ALABAMA AND UNITED STATES¹ BY RACE, 2003-2013



Preterm Birth: Causes and Contributors

Epidemiologic and Sociodemographic Risk Factors for PTB

- Maternal Stress
- Maternal Age
- Smoking
- Poverty
- Education
- Health Status
- Nutrition
- Prenatal Care
- Interpregnancy Interval

Causes and Contributors to PTB

- PROM
- Cervical Insufficiency
- Decidual Hemorrhage
- Placental Insufficiency
- Infection/ Inflammation
- Maternal co-morbidities
- Uterine Distension
- Prior PTB/Genetics

NICHD GPN for PTB Research, unpublished data

Strongest Contributors to PTB

- Infection/Inflammation
 - Especially with early Spontaneous PTB
- Decidual Hemorrhage
- Cervical Insufficiency

Racial Disparity in Contributors

- African American
 - Maternal Stress
 - Cervical Insufficiency
- Caucasian
 - Decidual hemorrhage
 - Placental dysfunction
 - Uterine distension

Preterm Birth MOD Targeted Factors: Alabama 2013

- Uninsured Women
- Late Preterm Birth
- Smoking

Prevention strategies			
Factor	Previous rate	Latest rate	Status
Uninsured women	21.1%	21.2%	✗
Late preterm birth	10.0%	9.7%	★
Women who smoke	27.3%	21.7%	★

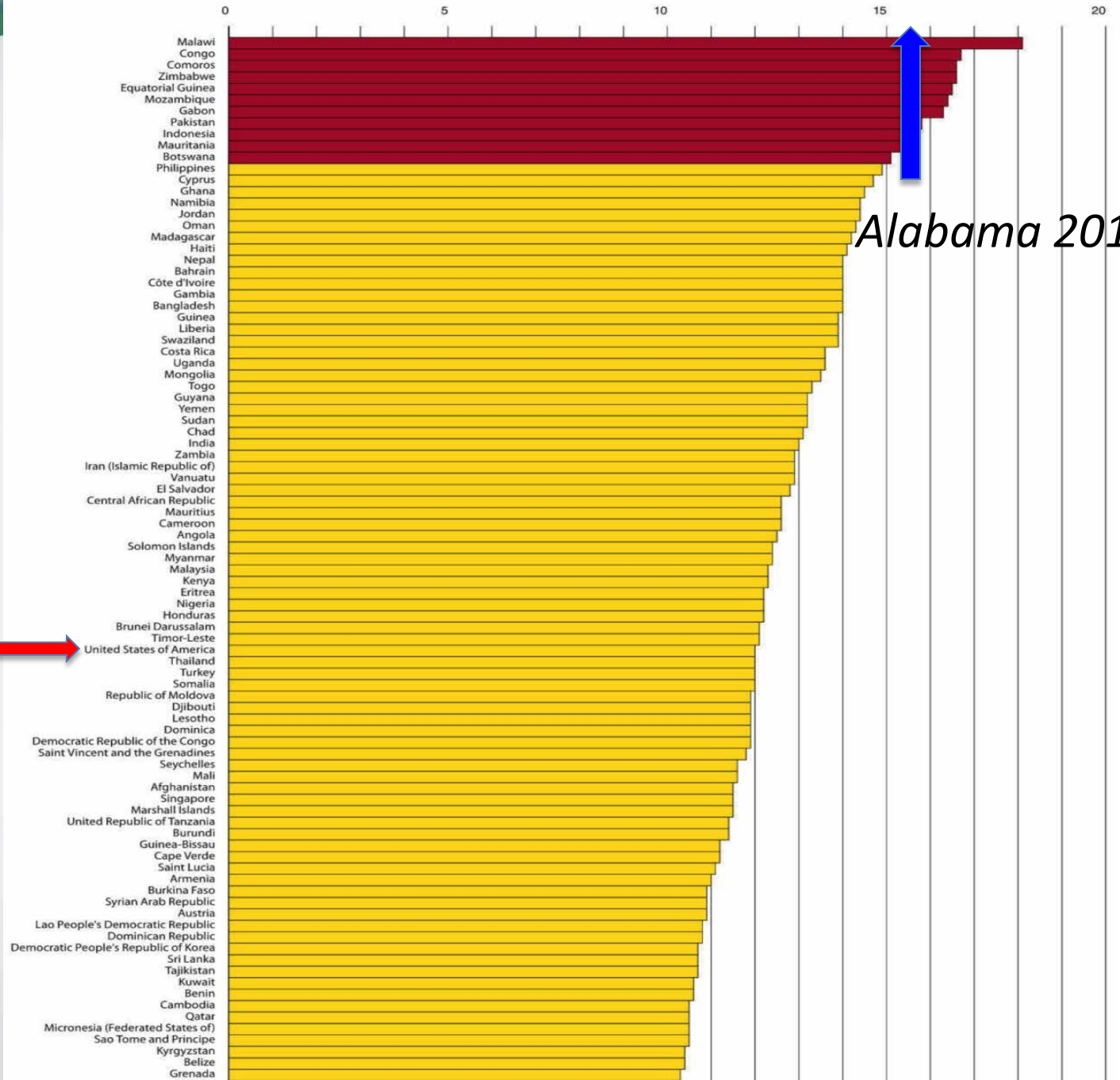
Disparity in Preterm Birth: Not just racially defined

- State and Regional Geographic Diversity
 - Poverty
 - Education
 - Employment
 - Health Status

Disparity in Preterm Birth: Not just racially defined

- Neighborhood Level
 - Housing
 - Crime
 - Access to Healthy Food
 - Social Support
 - Physical Environment
 - Exercise Capability

Estimated National Rates of Preterm Birth in 2010



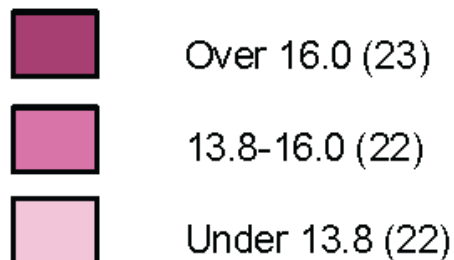
Alabama 2013

Geographic Diversity in Alabama

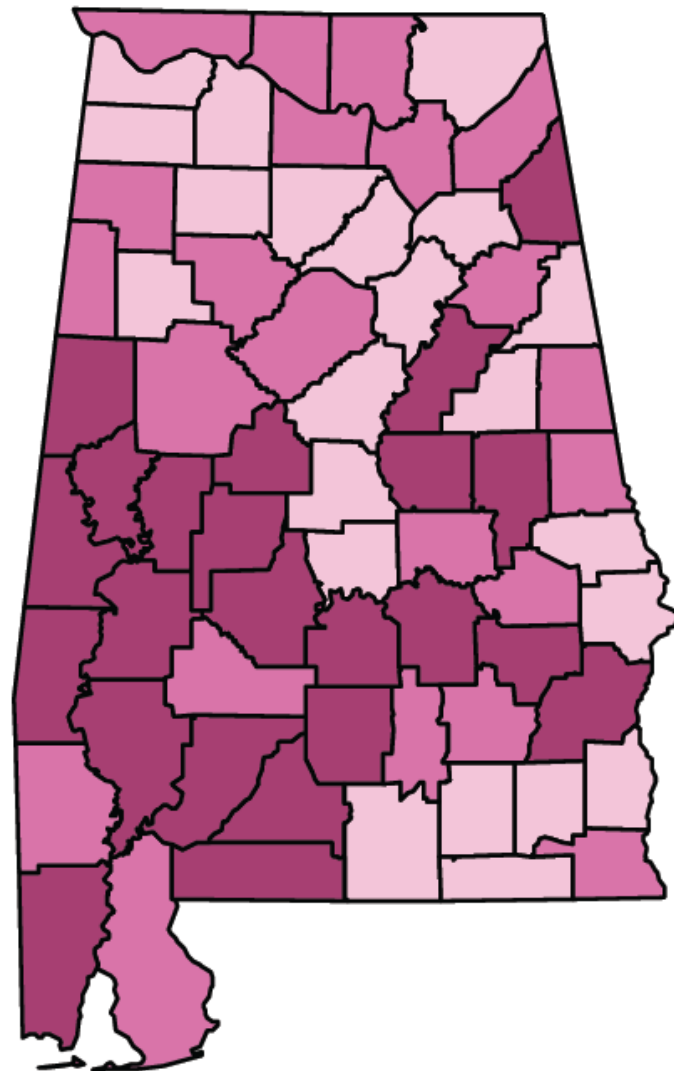
Preterm Birth Rates

2009-2012 Average

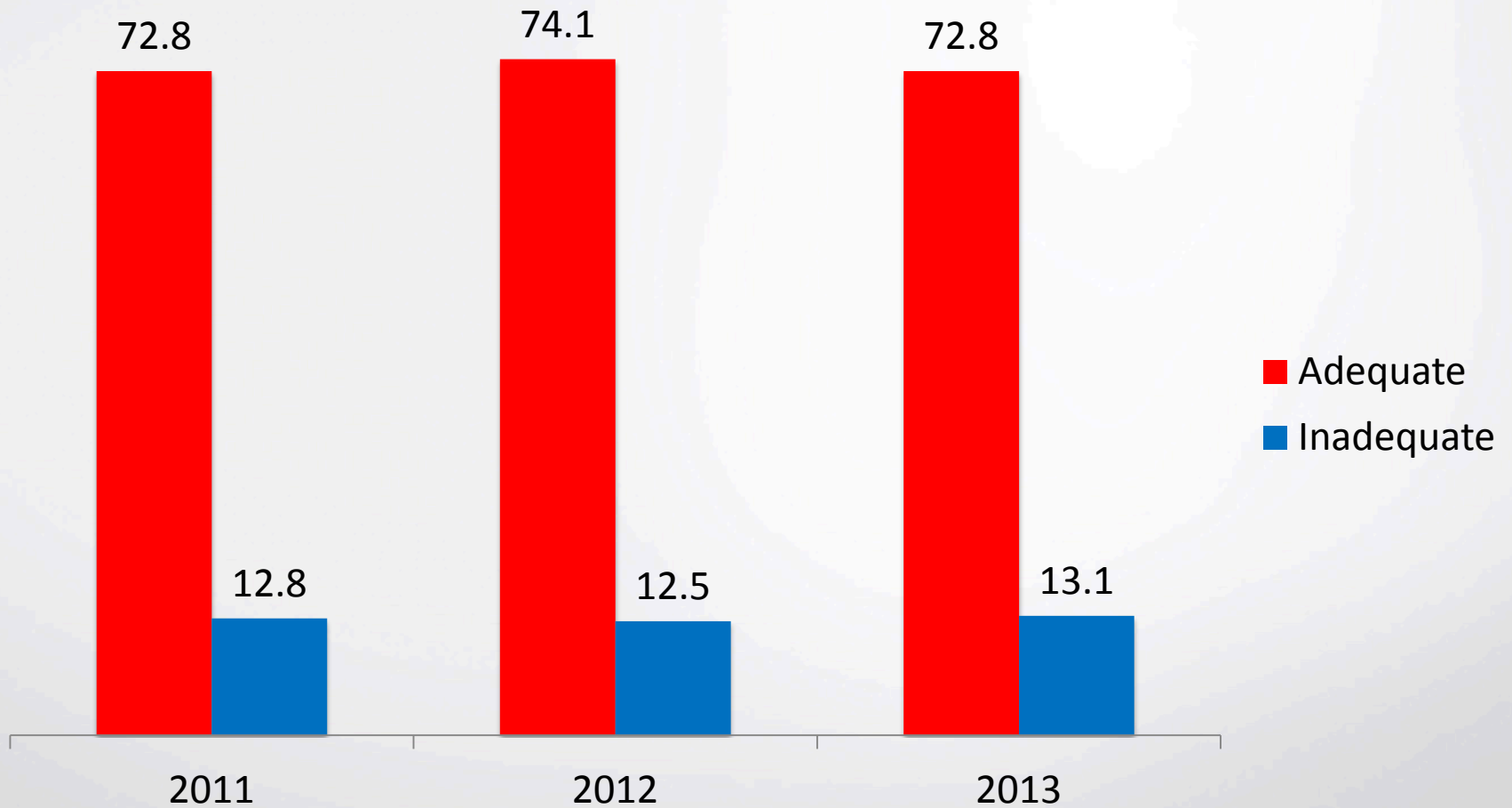
Percent of live births (67 Counties)



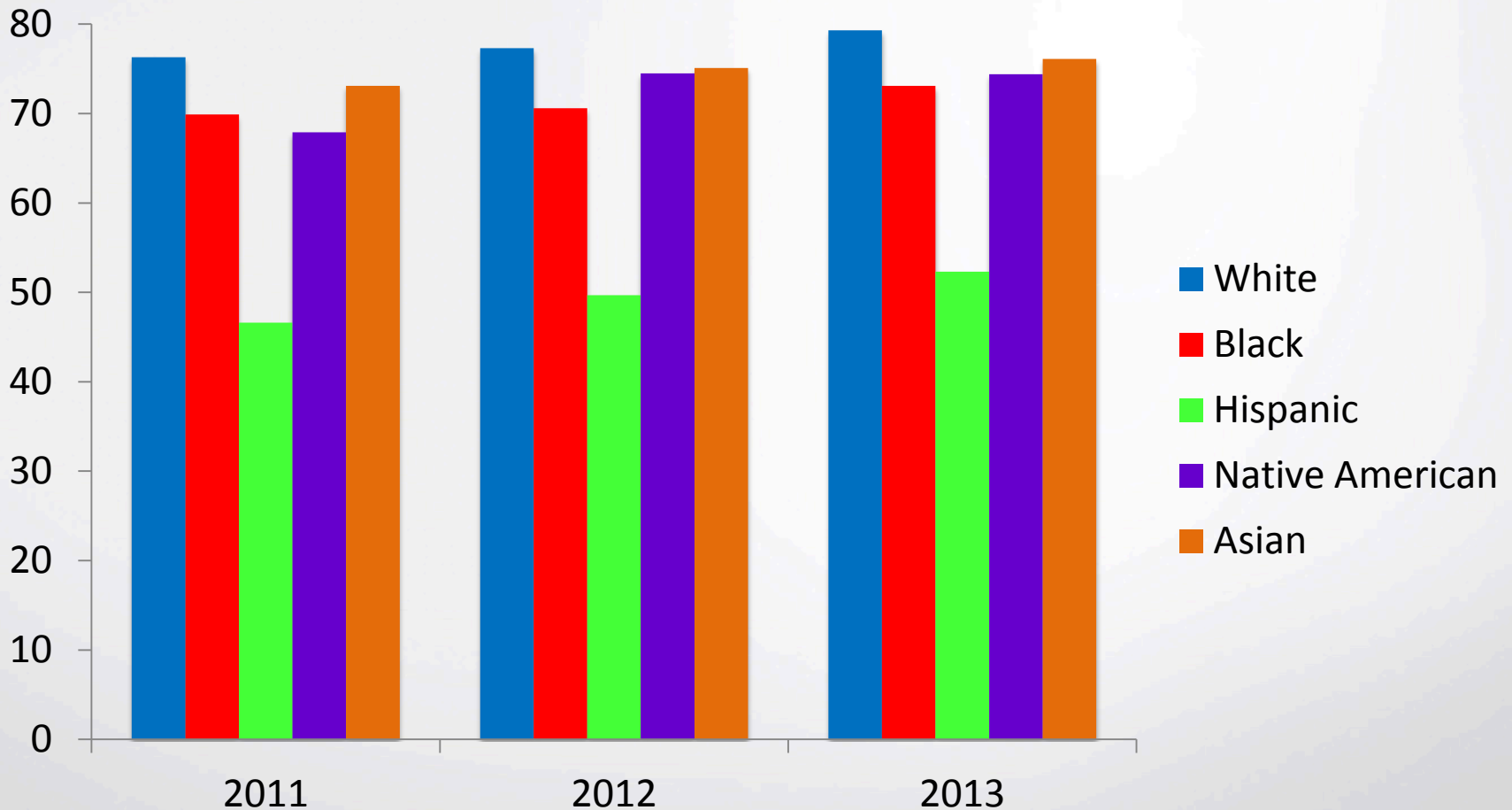
Value ranges are based on an approximately equal number of counties in each range.



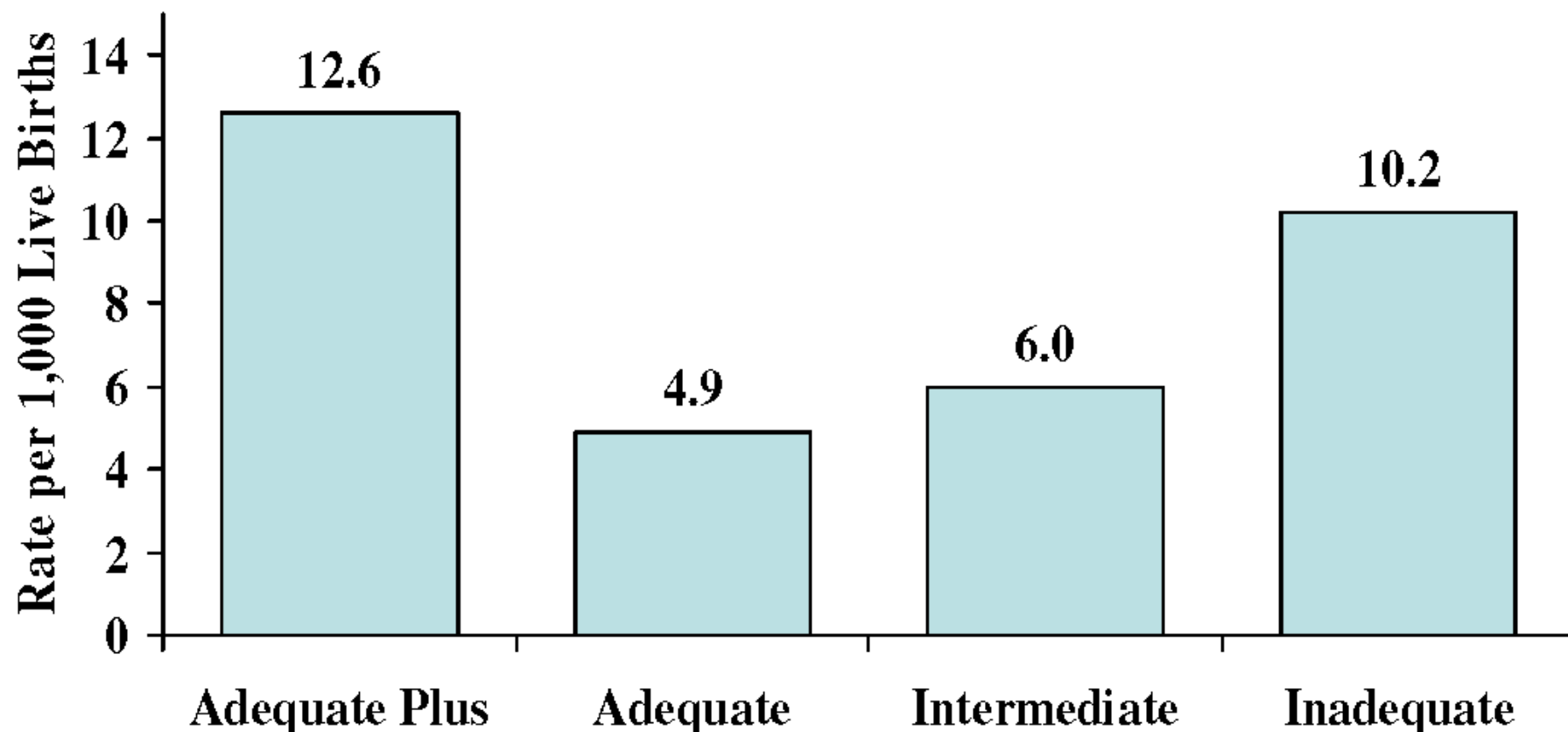
Prenatal Care Provision



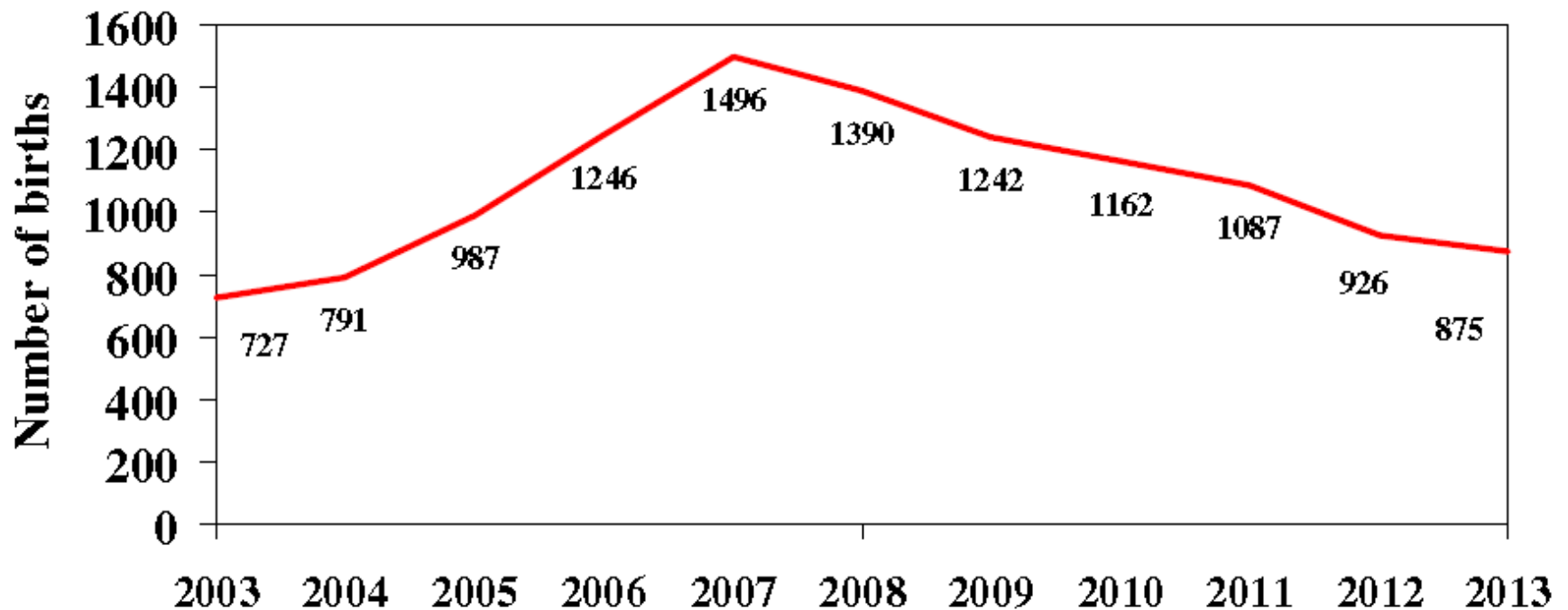
Adequate Prenatal Care by Racial Group



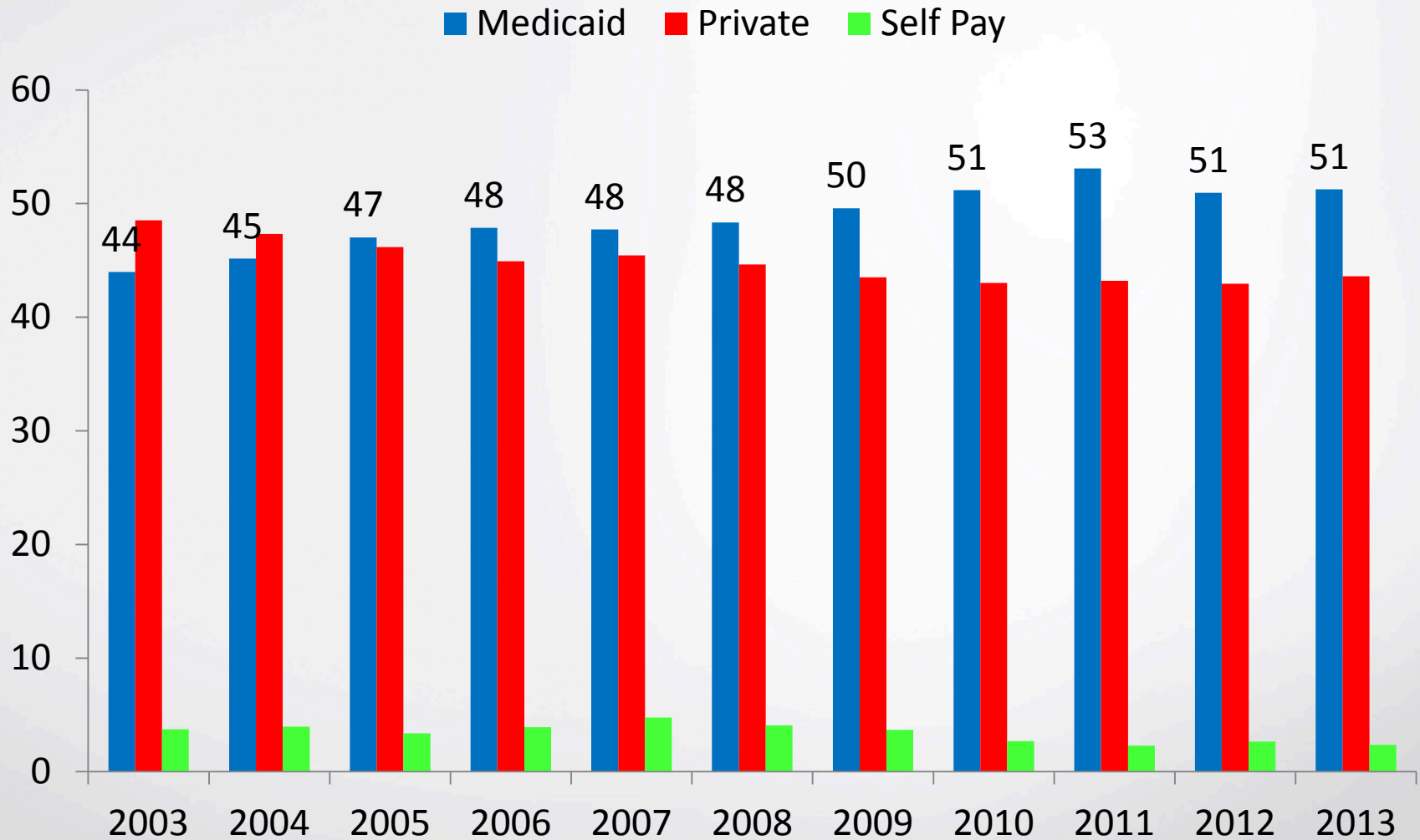
INFANT MORTALITY RATES BY ADEQUACY OF PRENATAL CARE¹ ALABAMA, 2013



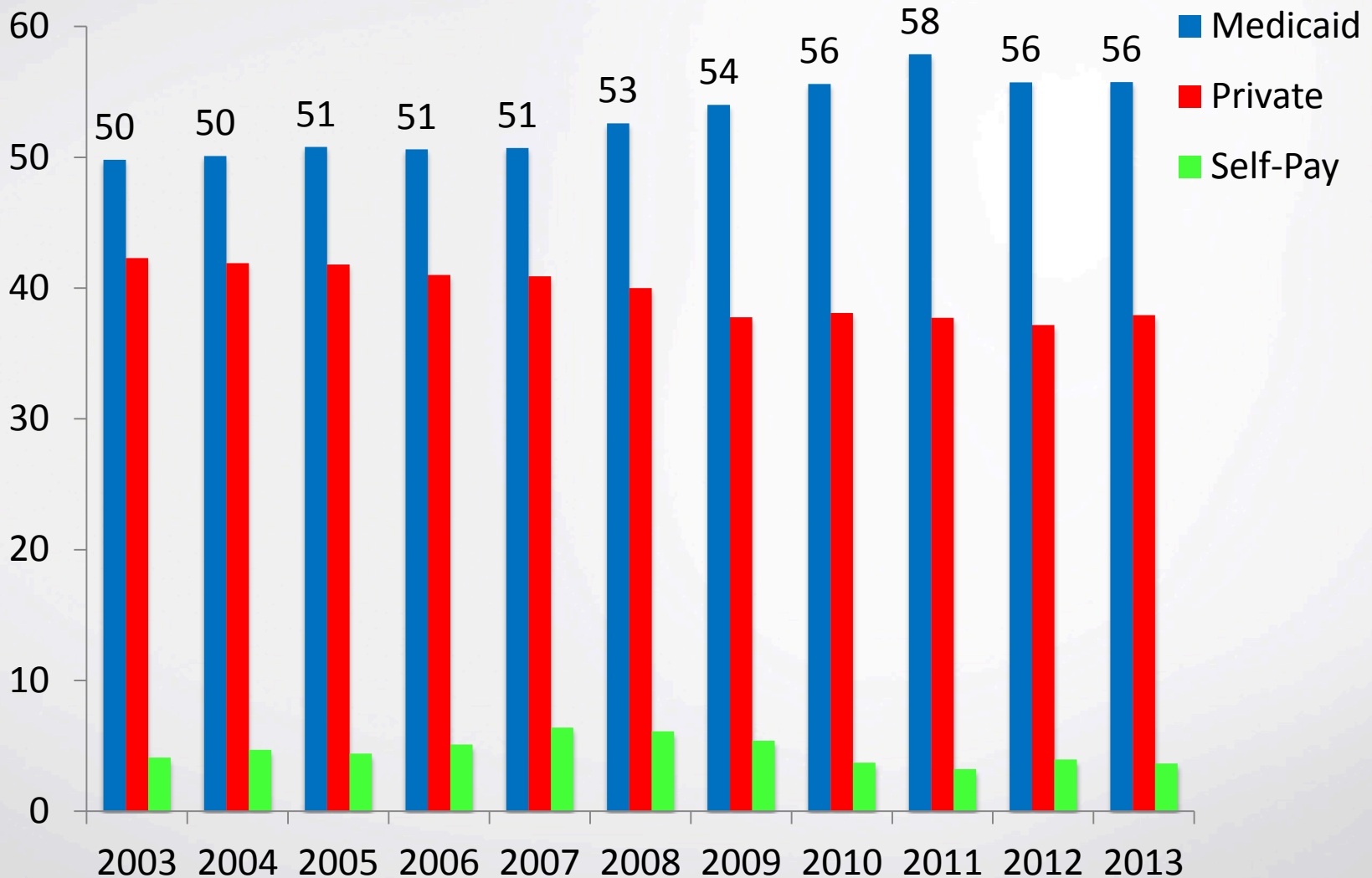
BIRTHS WITH NO PRENATAL CARE ALABAMA 2003-2013



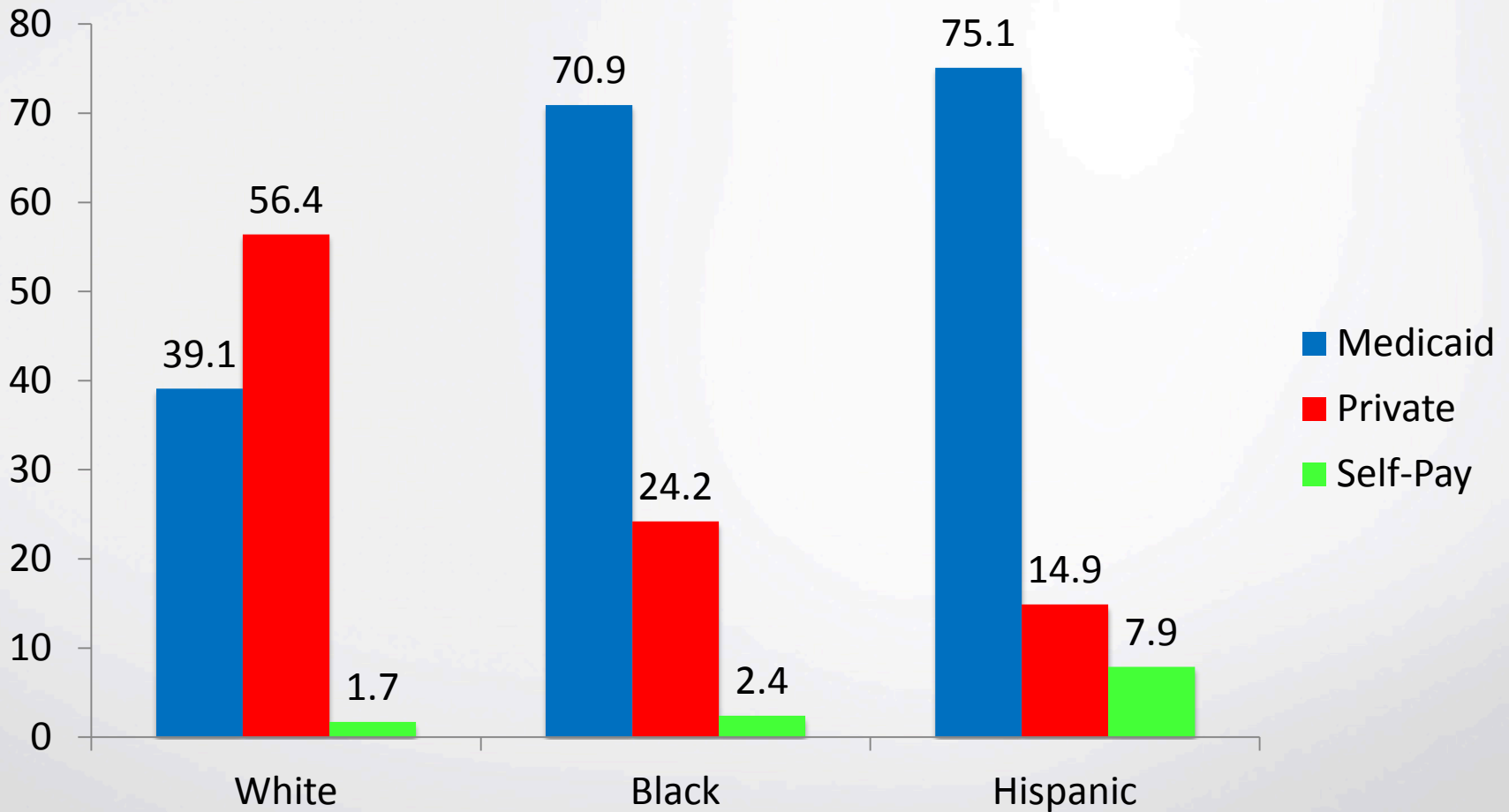
Insurance Status in Alabama



Insurance Status in PTB: Alabama

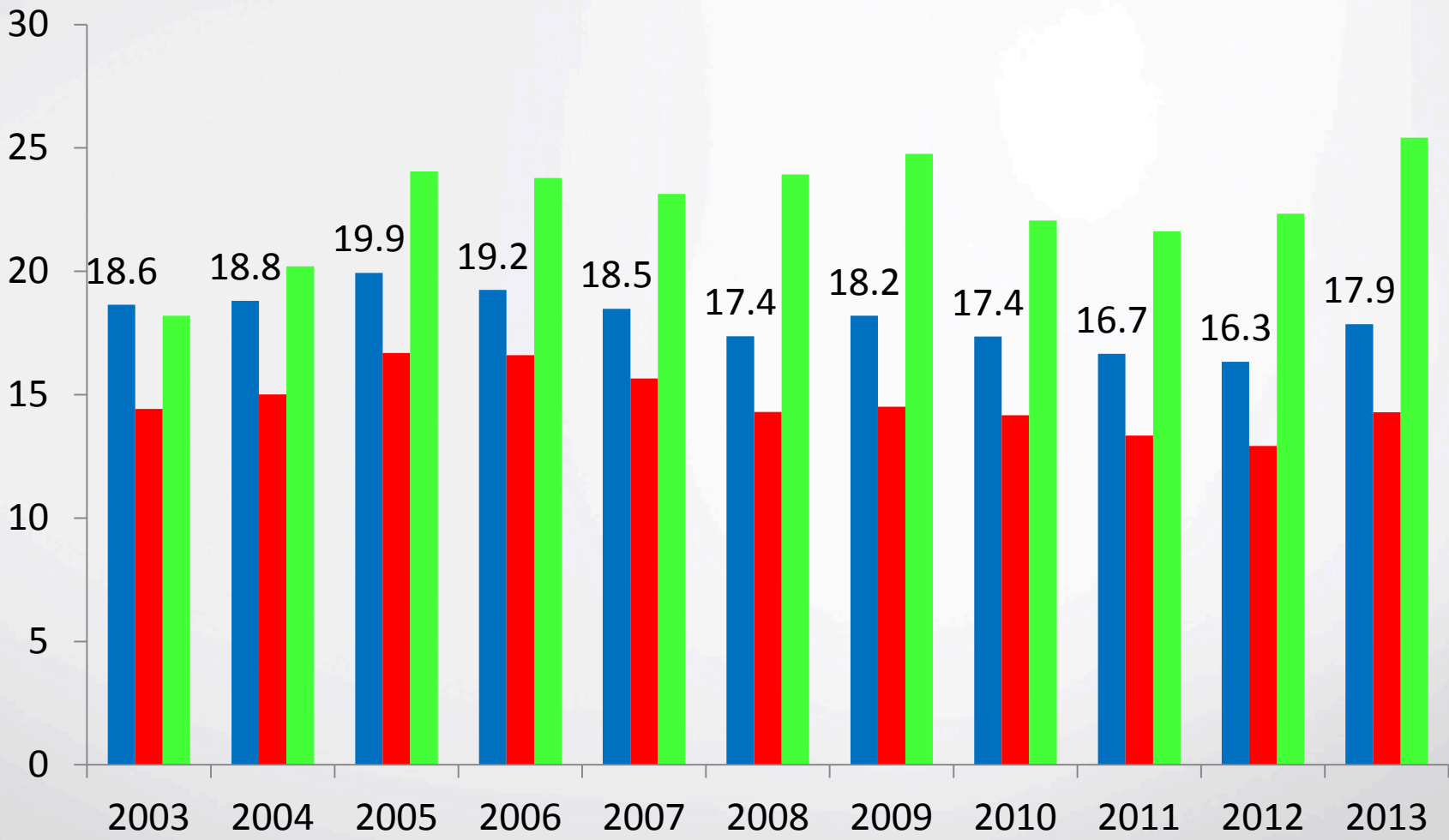


Insurance Status by Racial Group: 2013 Alabama

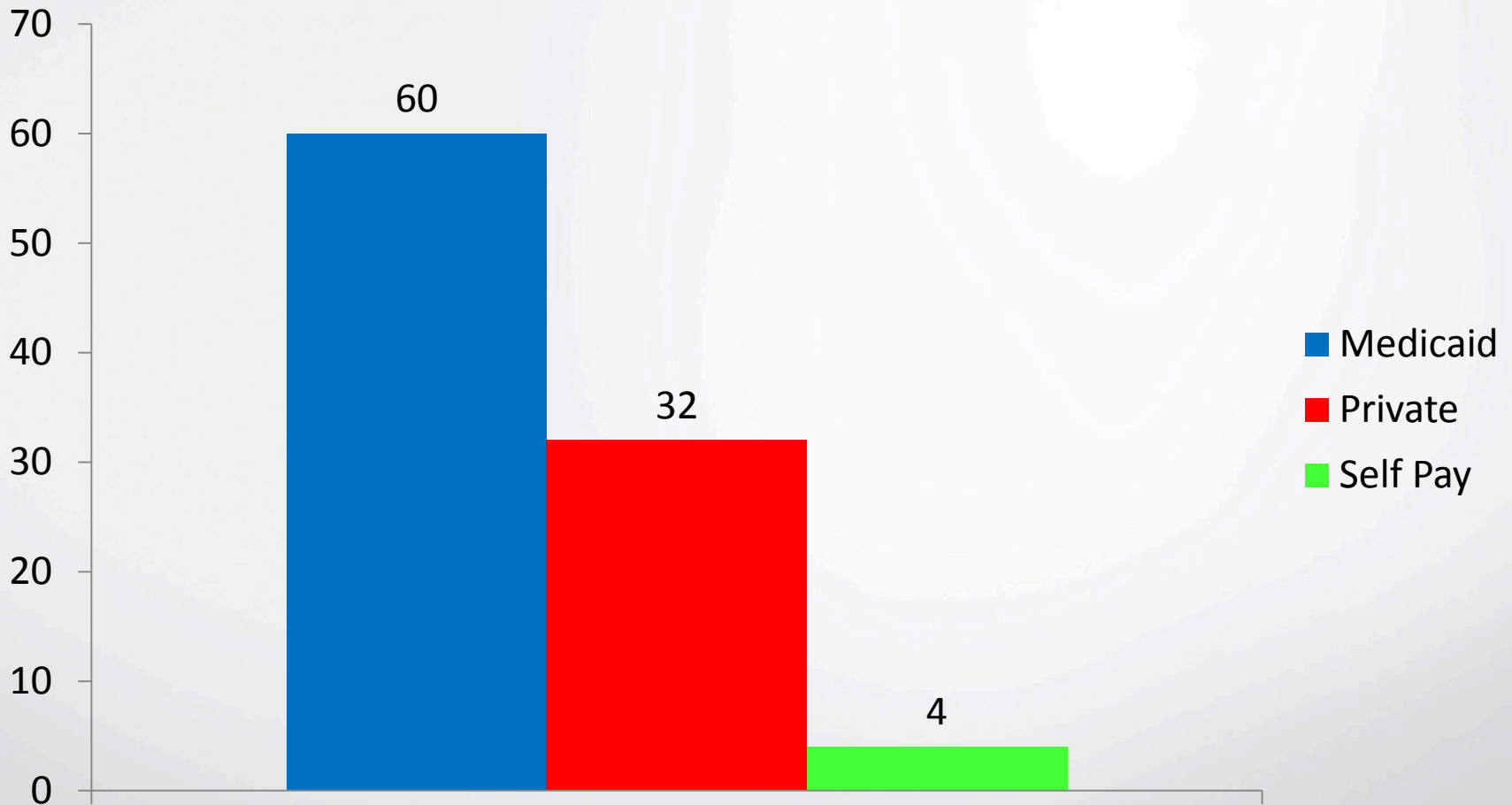


PTB Rate by Insurance Status

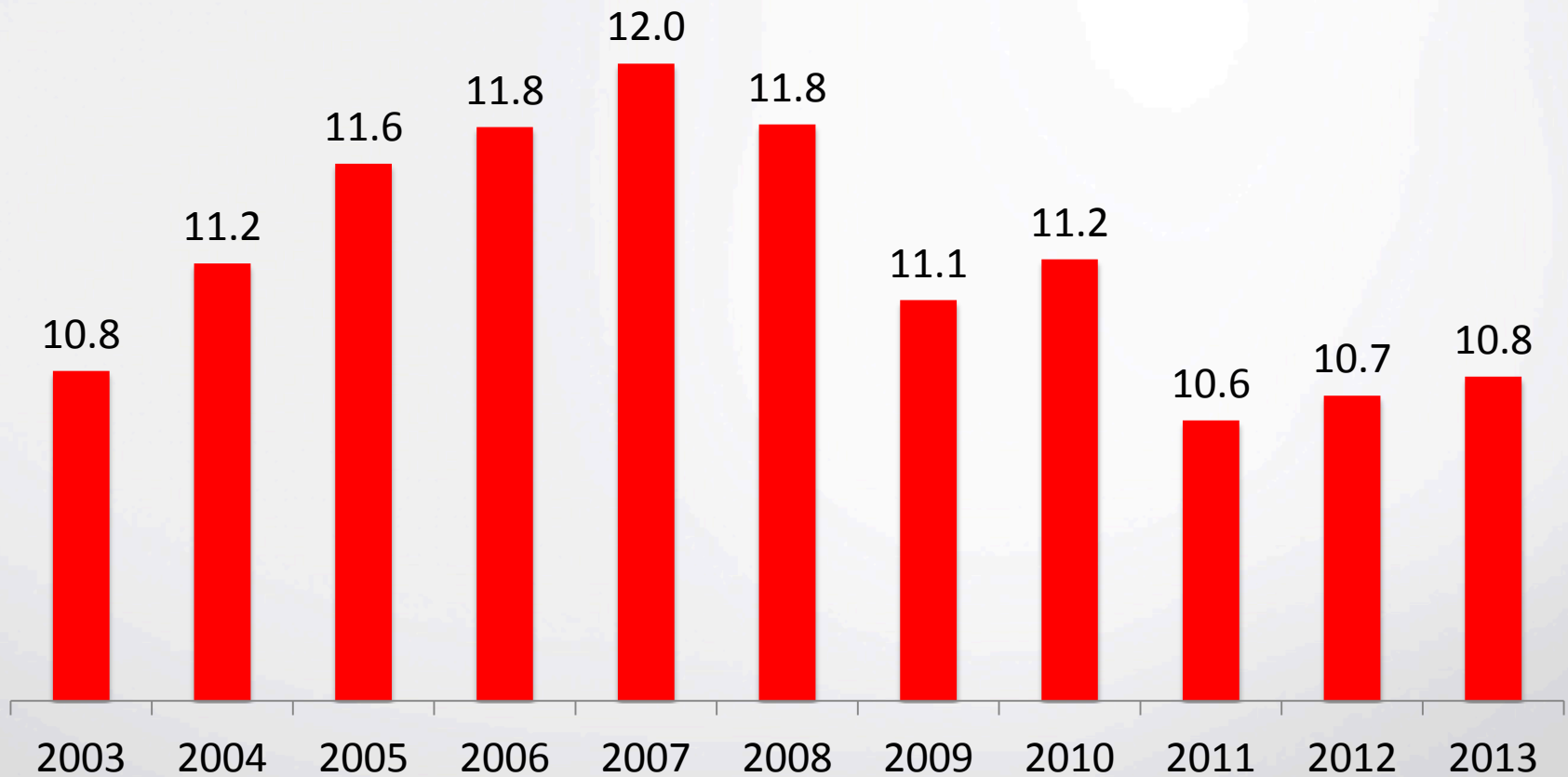
■ Medicaid ■ Private ■ Self Pay



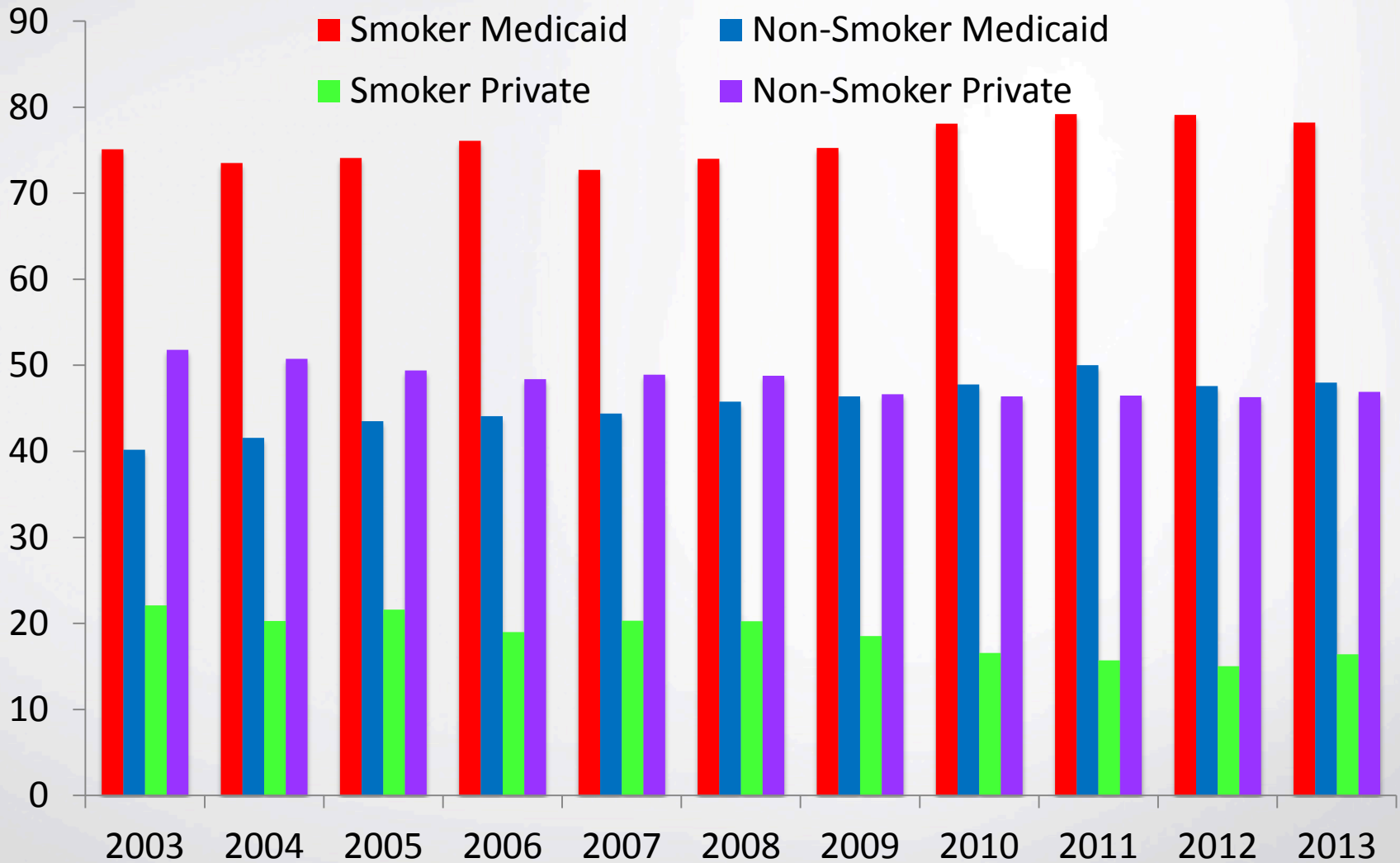
Insurance Status of Infant Mortality: 2013



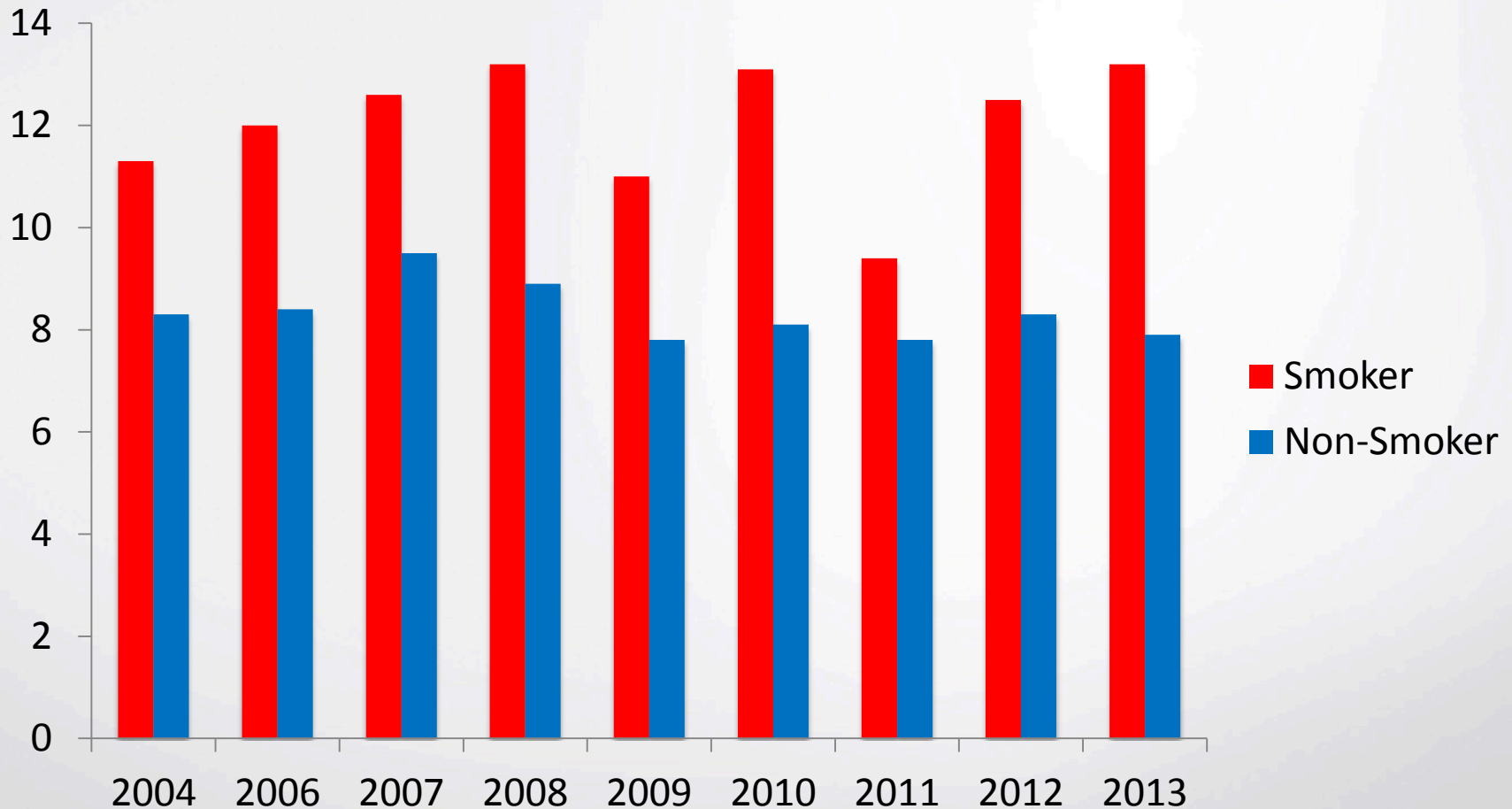
Smoking during Pregnancy: Alabama



Insurance status by Smoking

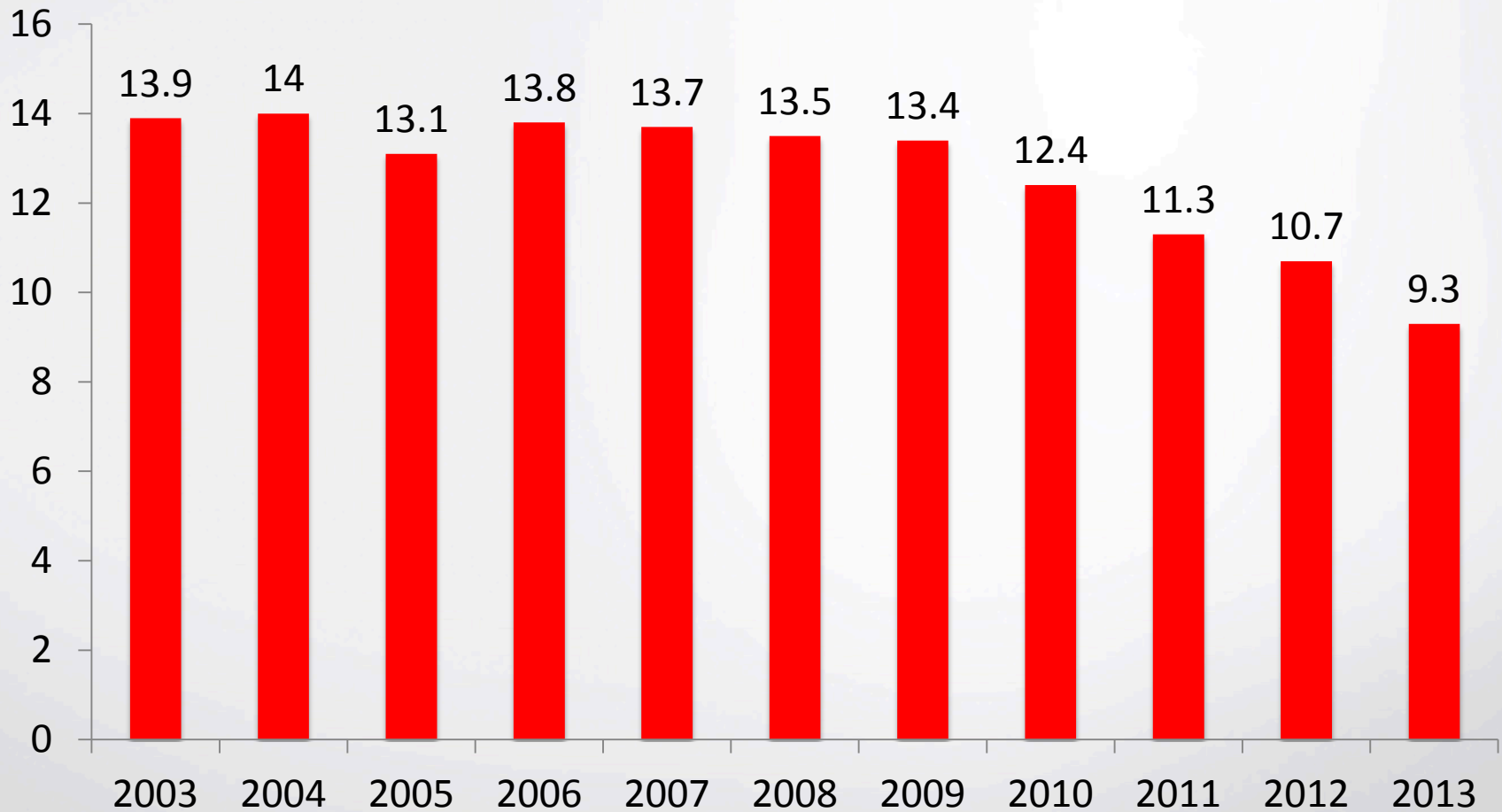


Infant Mortality: Smoker vs Non-Smoker *per 1,000 livebirths*

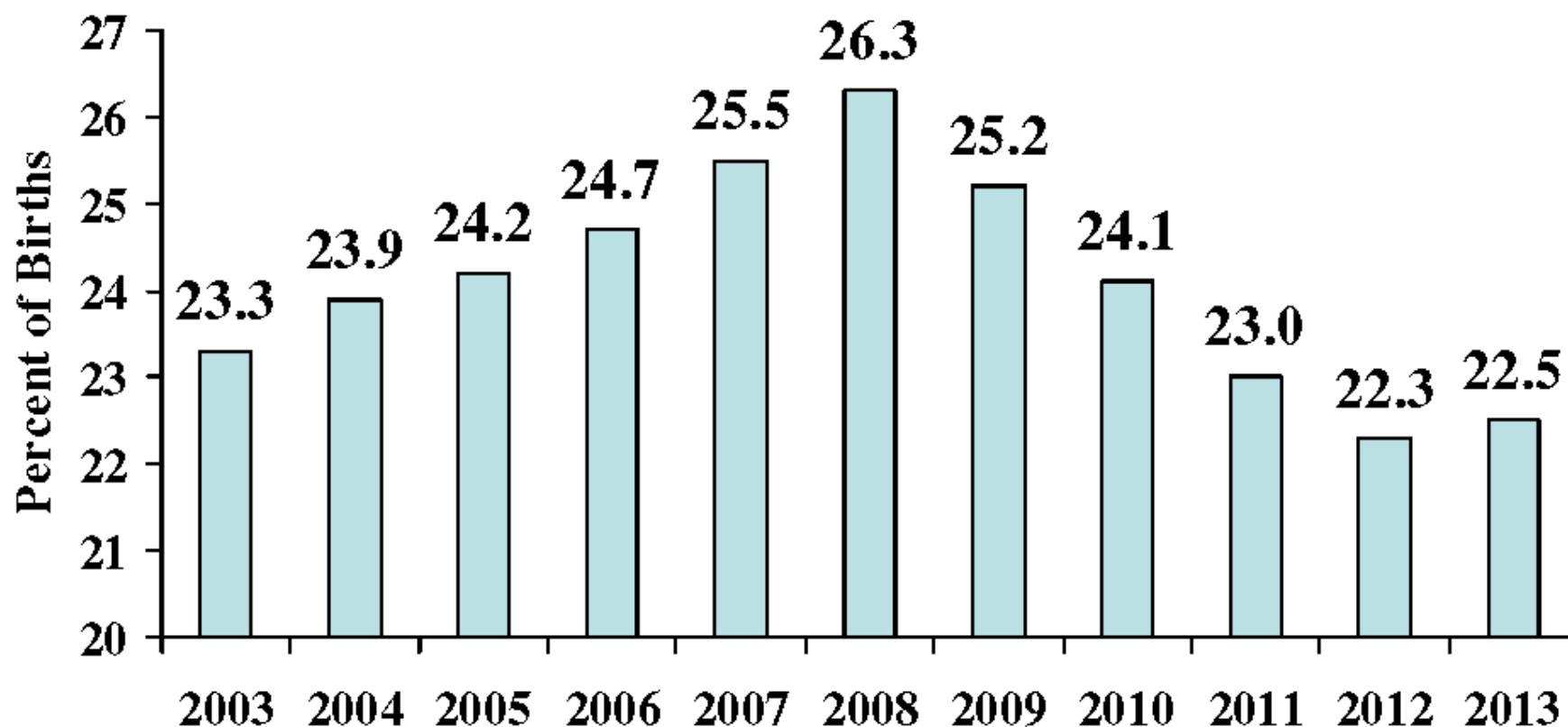


Teen Births: Alabama

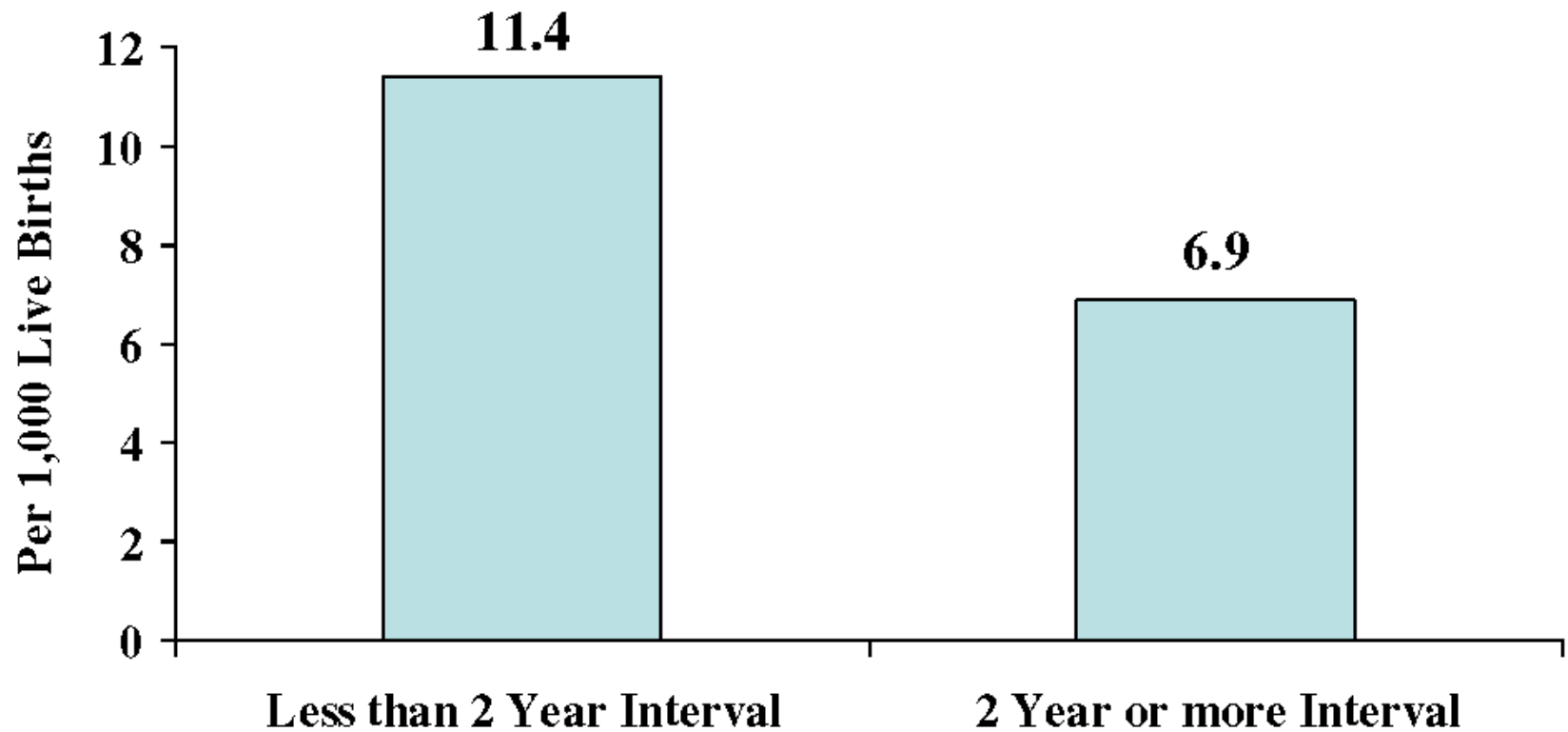
Percent of Births



PERCENT OF BIRTHS WITH A BIRTH INTERVAL LESS THAN 2 YEARS, ALABAMA, 2013

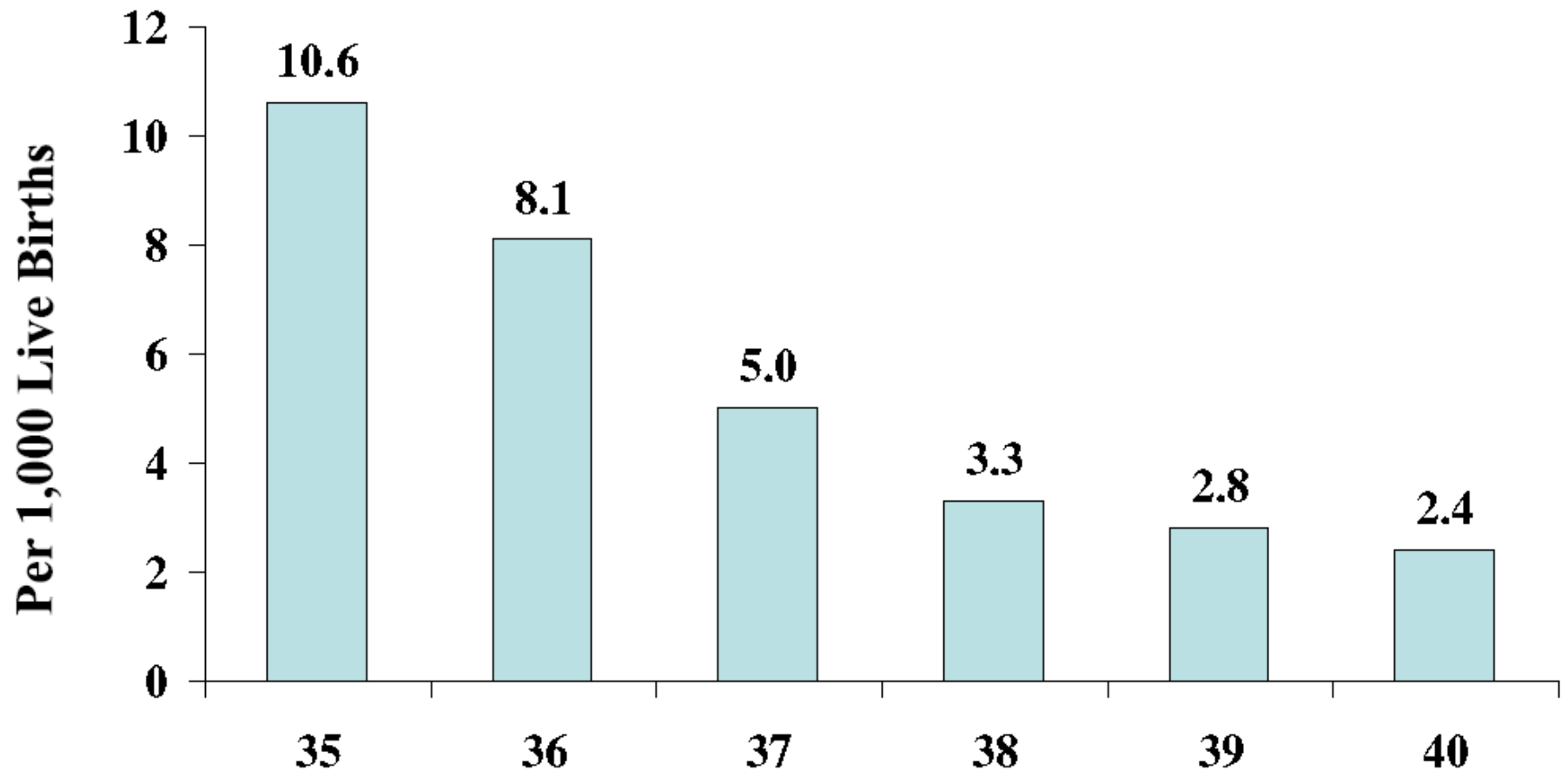


INFANT MORTALITY RATES BY BIRTH INTERVAL ALABAMA, 2013

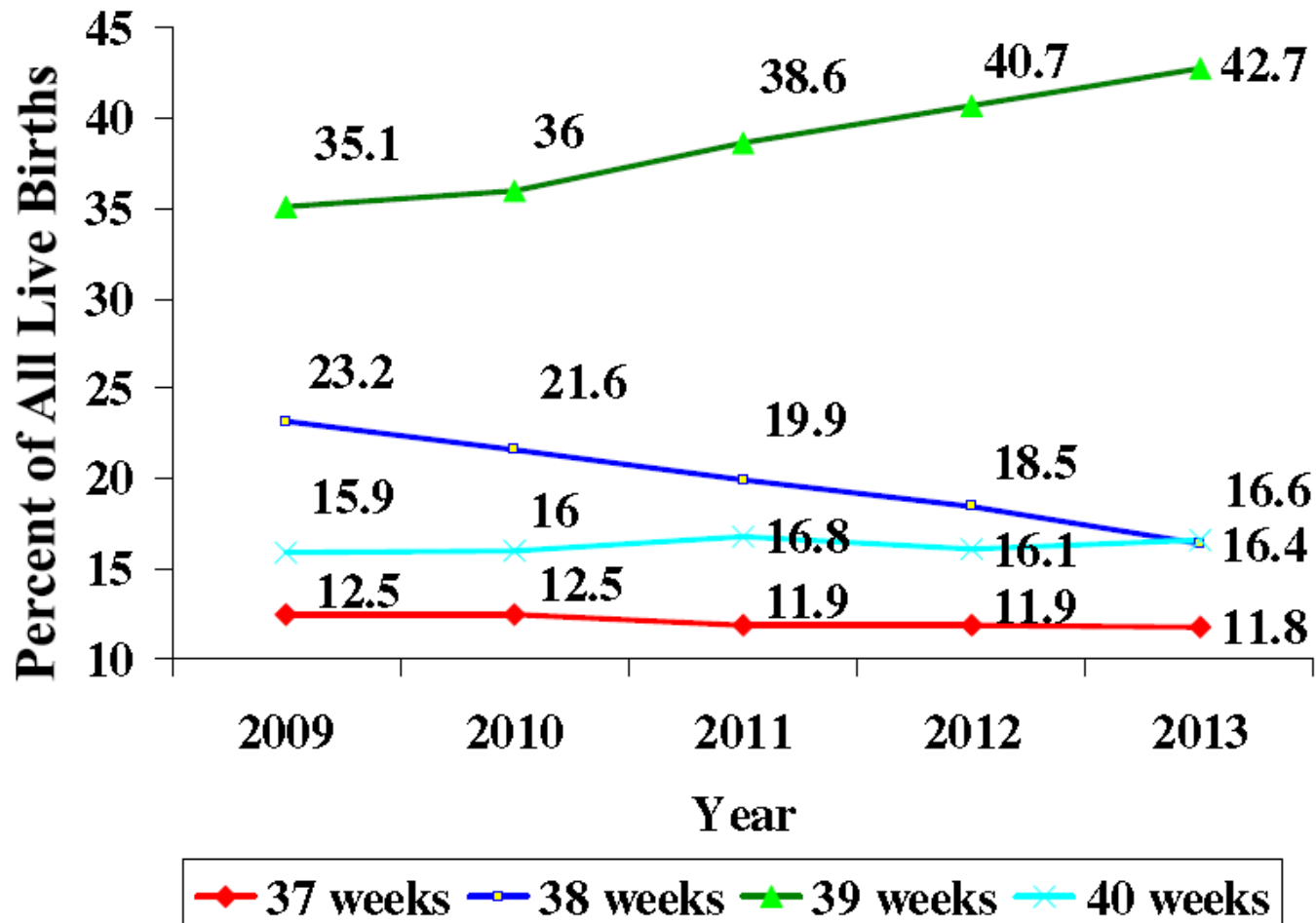


Late Preterm and Early Term Birth: Significance and Changes

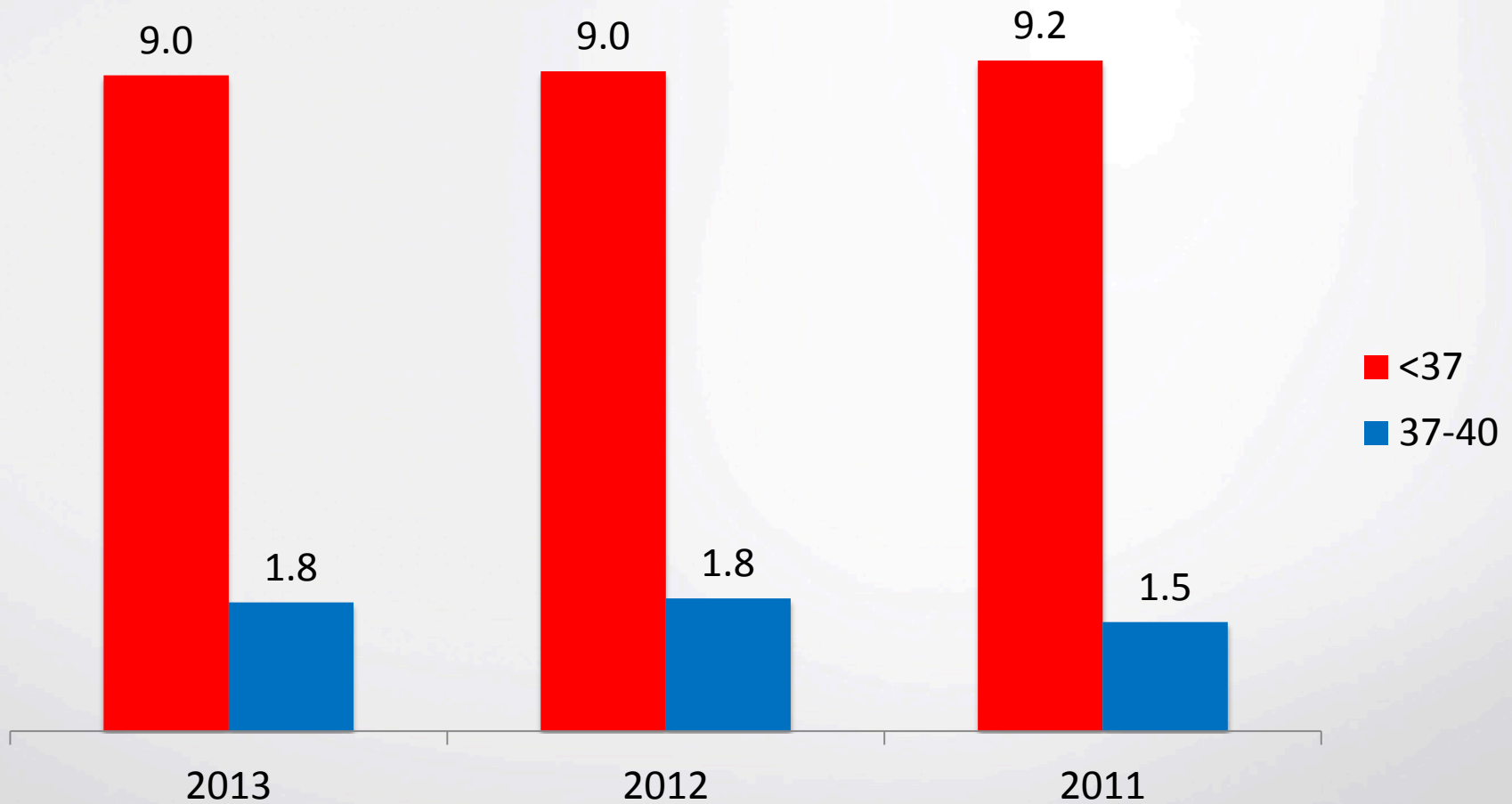
INFANT MORTALITY RATE, GESTATIONS 35-40 WEEKS, ALABAMA, 2013



PERCENT OF BIRTHS AT 37-40 WEEKS GESTATION, ALABAMA, 2009-2013



Stillbirths in Alabama: *Per 1,000 births*



Summary

- Alabama continues to have one of the highest rates of PTB in the US
- The high rate of PTB is a major contributor to the high perinatal mortality rate
- There are significant racial and geographic disparities
- We have made progress in reducing early elective deliveries
- We have tremendous opportunities for improvement