

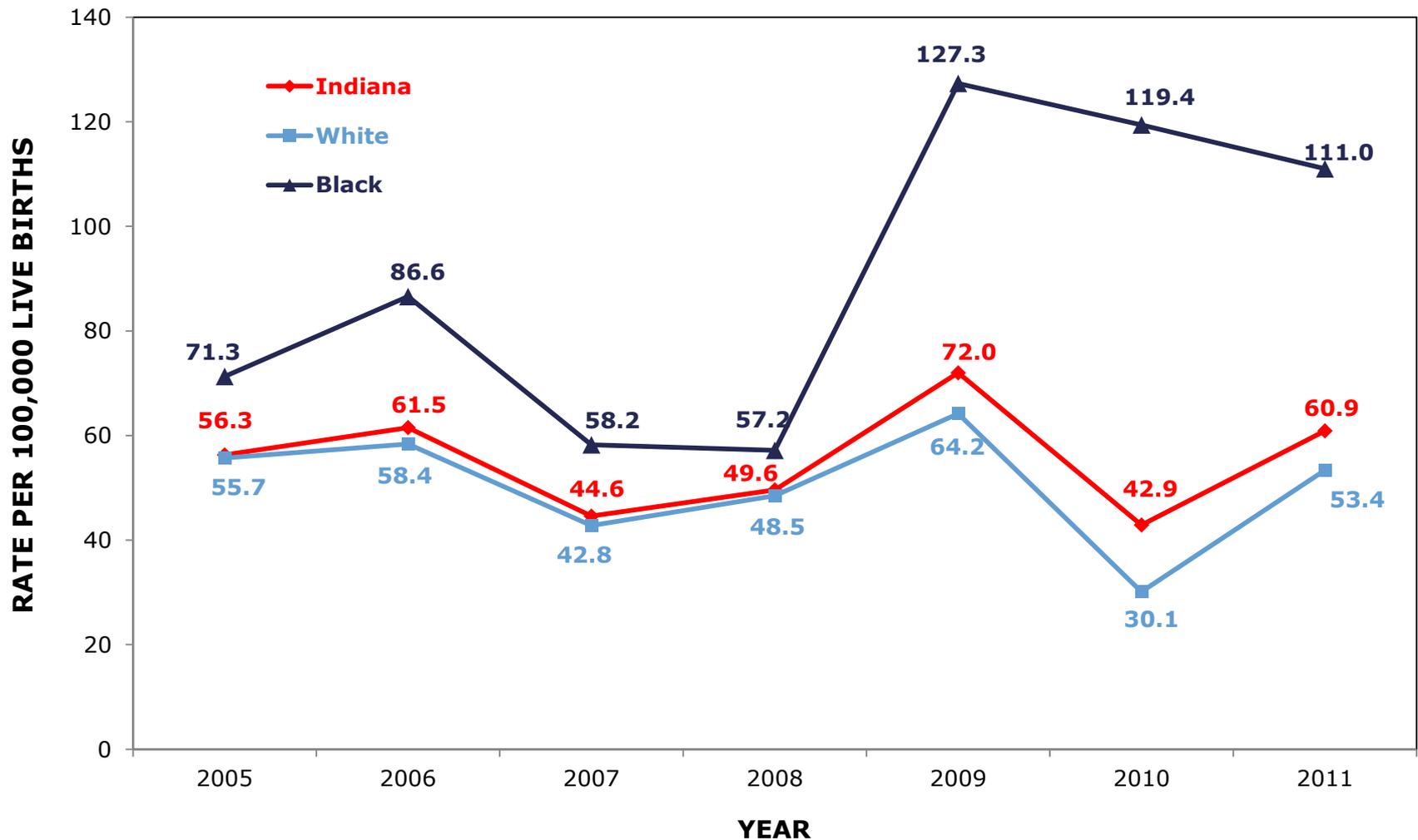
Why Should We Care About Health Disparities in Infant Mortality?

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Indiana Infant Mortality by Race

Year	2006	2010	2011
Overall	7.9	7.5	7.7
RACE ETHNICITY			
White/Non Latino	6.4	6.0	6.9
Black/Non Latino	18.1	14.7	12.3
Latino	5.2	8.6	6.5
Other Race/Ethnicity	8.1	7.4	7.8

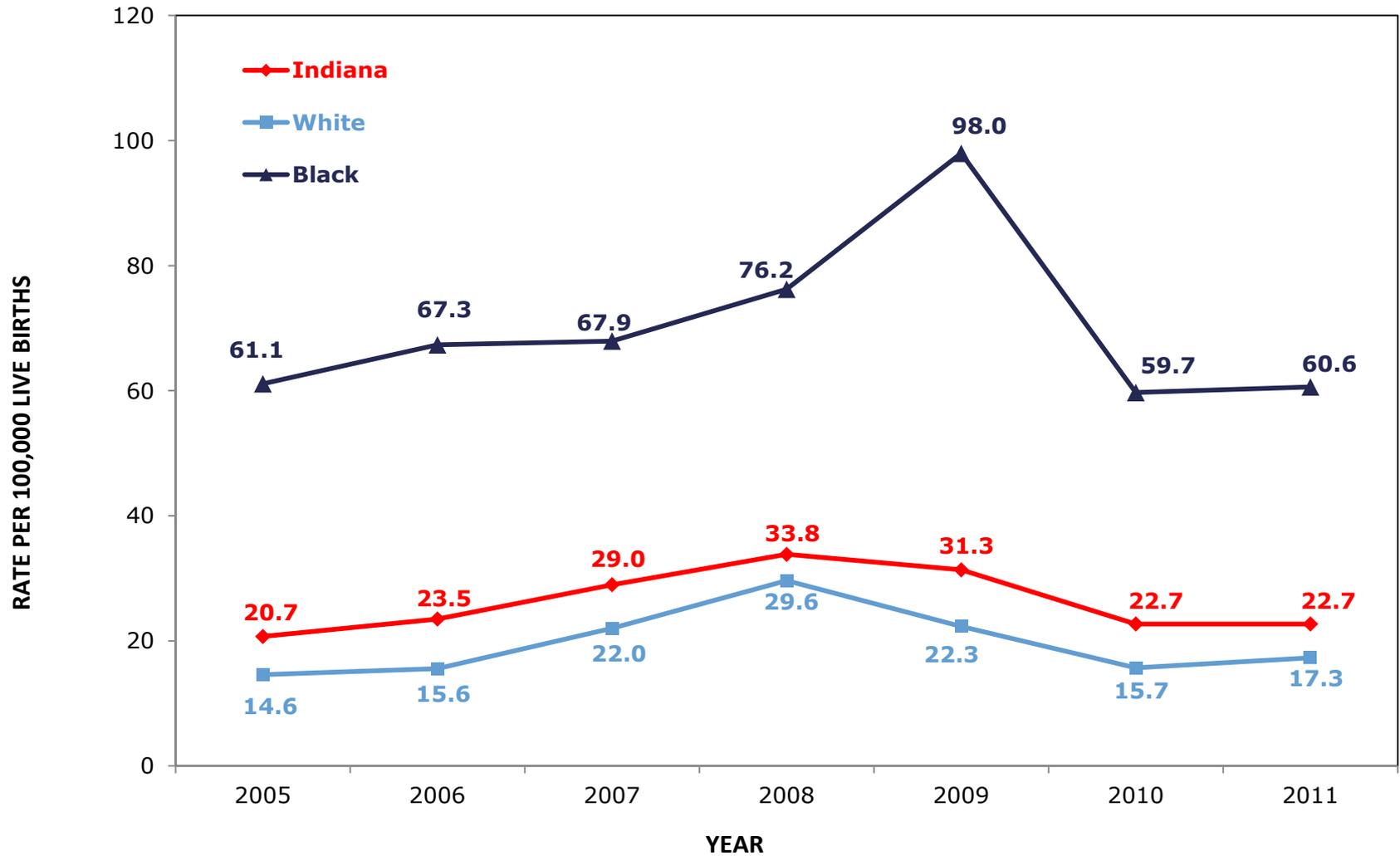
Rate of SIDS* by Race, Indiana, 2005-2011



*Sudden infant death syndrome (R95)

Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

Rate of Suffocation Deaths* by Race, Indiana, 2005-2011



*Accidental suffocation and strangulation in bed (W75)

Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

Black:White Infant Mortality “Excess Deaths”

6,000 African-American infant deaths a year could be prevented if the IMR of African-Americans was lowered to the level of Whites.

It generally takes the B-IMR 20 years to “catch up” to the W-IMR.

$$20 \text{ years} \times 6,000 \text{ “excess deaths”/year} = \\ 120,000 \text{ “excess deaths”}$$

Black and White Infant Mortality for College Educated Parents



	Black	White	O.R./R.R
Mortality	10.2	5.4	1.82
LBW (<2500g)	7%	3%	2.12
VLBW(<1500g)	1.5%	0.52%	3.13
>2500g	92.9%	96.9%	0.96

Schoendorf. NEJM 1992:326:1522-6



Disparities in Perinatal Risk Factors

Live Births with Reported Outcomes (Percent)	Total	White	Black	Non-Hispanic	Hispanic
Smoked During Pregnancy	16.6	17.9	13.3	17.8	5.1
Unmarried Parents	42.7	37.8	79.9	42.0	48.6
Mothers under 20 years old	9.6	8.8	15.9	9.4	10.9
Breastfeeding upon Discharge	74.0	76.0	57.8	73.5	80.0

Data Source: Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team.

Disparities in Perinatal Risk Factors

Live Births with Reported Outcomes (Percent)	Total	White	Black	Non-Hispanic	Hispanic
Low Birthweight	8.1	7.4	13.3	8.1	8.1
Very Low Birthweight	1.5	1.3	3.0	1.4	1.9
Preterm*	10.0	9.6	13.5	9.9	10.5
PNC** First Trimester	68.1	70.3	56.1	69.3	57.3

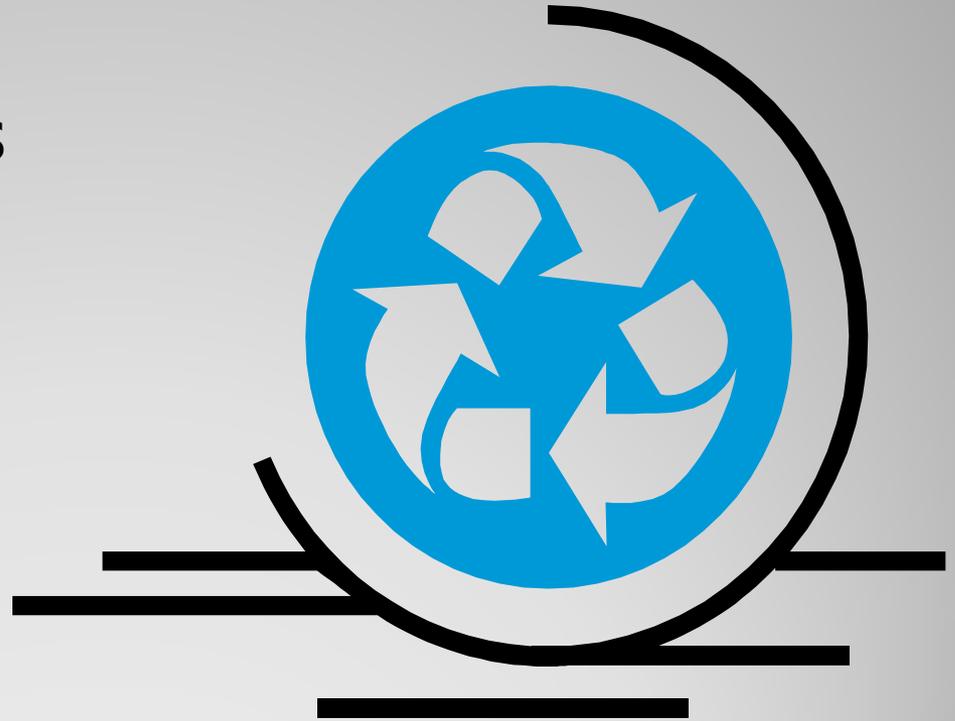
*Preterm: Less than 37 weeks gestation

**PNC: Prenatal Care

Data Source: Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team.

Factors Increasing Vulnerability of Black Women to Prematurity

- Biology, Genetics
- Social
- Economic
- Behavioral
- Environmental
- Medical



Causes of Health Disparities

- **Inequities in income, housing, safety, education and job opportunities**
- **Health care – system level, patient level and provider level factors**

Preterm PROM

So what's the problem?

- **Incidence 2-3% of all pregnancies**
 - **20% of all perinatal deaths**
- **120,000 pregnancies in the US per year**
- **30-40% of all preterm neonates are result of PPRM**



Specific Hypotheses on Stress and Prematurity

- **Preterm birth will occur more commonly in women with perceived stress, who have biological markers of stress and of altered inflammation**
- **These women will more commonly be African American and will more commonly have pro-inflammatory polymorphisms**
- **African American women w/PTD will have evidence of stress & altered inflammation**

Stress and Immune Function

Chronic Stress has been shown to:

- **↑ susceptibility / severity of infections**
- **Decrease response to vaccines**
- **Alter wound healing**
- **Increase reactivation of herpesviruses**
- **Alter # & function of WBC's**
- **Increase IL-6 & decrease IL-10**
- **Associated with BV in pregnancy**

Source: Glaser R, Kiecolt-Glaser J. Stress-induced immune dysfunction: implications for health. *Nature Reviews/Immunology* 2005;5:243-51.

Factors Accounting for Prematurity Differences in Low Risk Whites and Blacks

- ◆ **Current health status**
- ◆ **Childhood and adolescent health history**
- ◆ **Stresses**
- ◆ **Nutrition**
- ◆ **Parents and/or grandparents socioeconomic status**
- ◆ **Quality of medical care during pregnancy**

Source: Kleinman JEM 317;749;1987

Unanswered Research Questions (US-born Female Descendants of African-born Women)

- **Cultural changes across generations?**
- **Lifestyle and nutritional changes across generations?**
- **Familial and social support systems across generations?**
- **Chronic and acute stressors across generations?**
- **Bacterial infections across generations?**
- **Environmental exposures across generations?**