Community Participatory Research to Eliminate Disparities in Pregnancy Outcome

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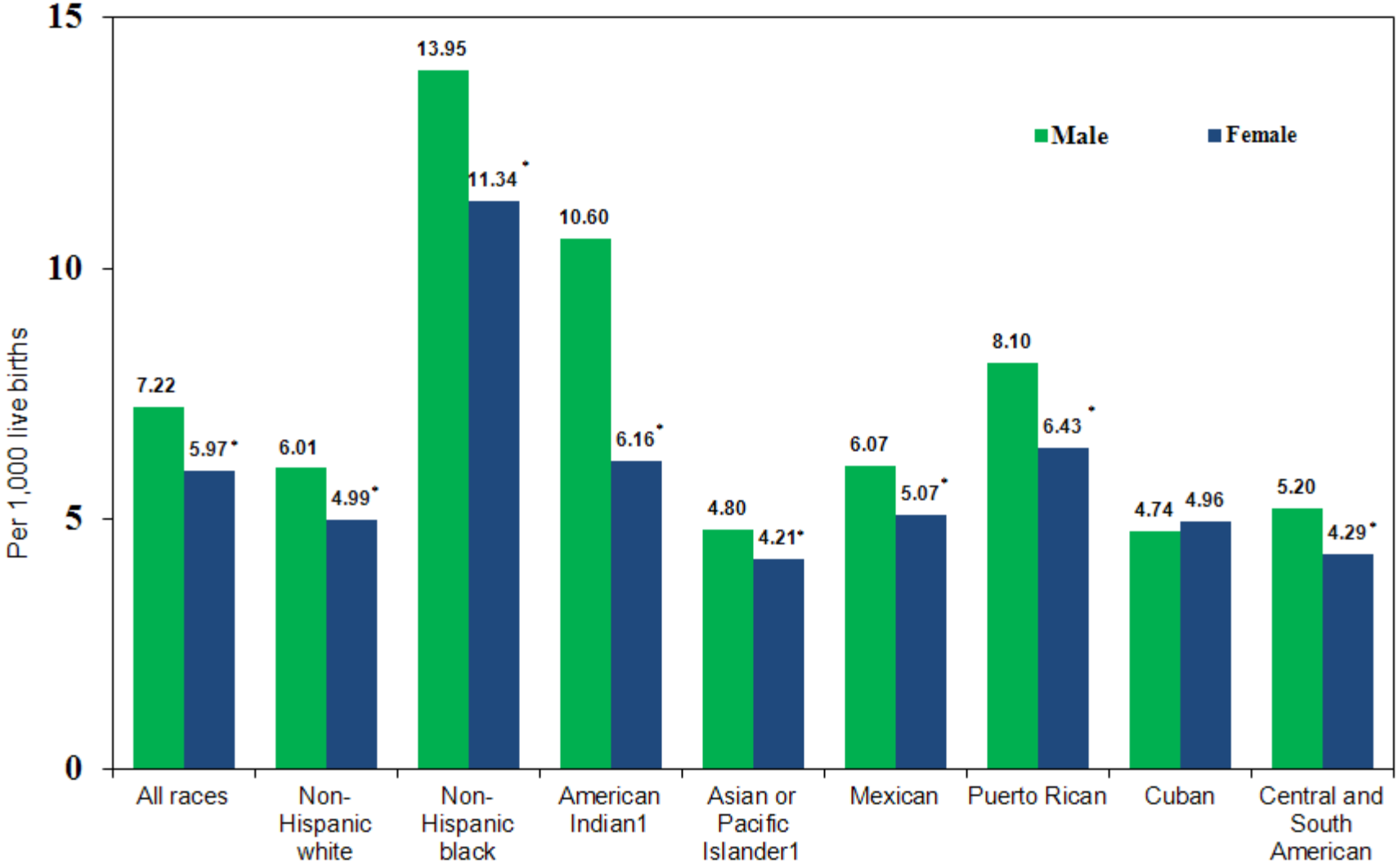
Figure 2. Infant mortality rates by sex of child and race and ethnicity of mother: United States, 2008



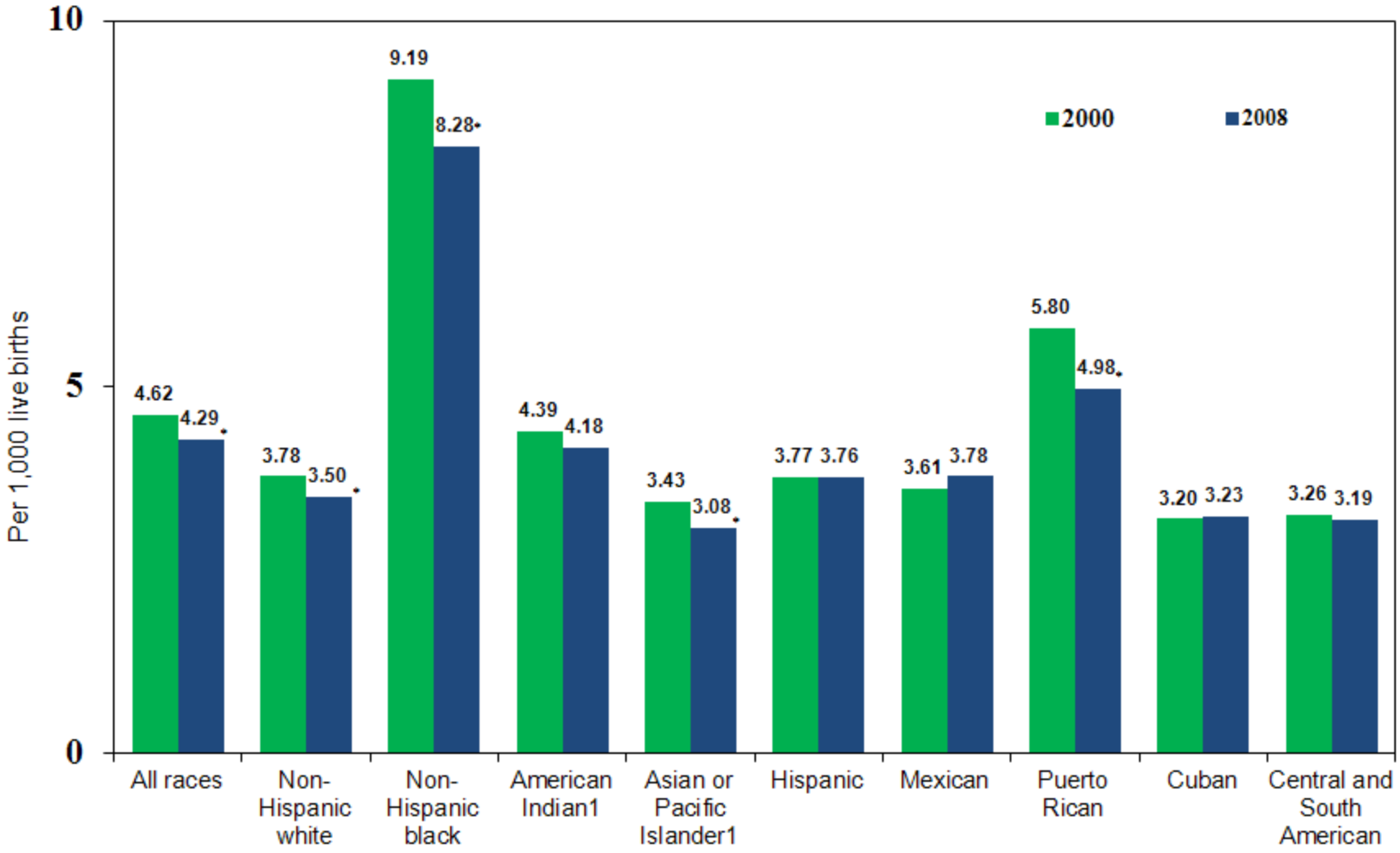
* Significantly different

1/ Includes persons of Hispanic and non-Hispanic origin.

NOTE: Race and Hispanic origin are reported separately on birth certificates. Race categories are consistent with the 1977 Office of Management and Budget standards. Persons of Hispanic origin may be of any race. In this table Hispanic women are classified only by place of origin; non-Hispanic women are classified by race. See reference 2. Thirty States reported multiple-race data on the birth certificate for 2008 and 27 for 2007. The multiple-race data for these States were bridged to the single-race categories of the 1977 standards for comparability with other States; see reference 2 and 3.

SOURCE: National Vital Statistics System, NCHS, CDC

Figure 1. Neonatal mortality rates by race and ethnicity of mother: United States, 2000 and 2008



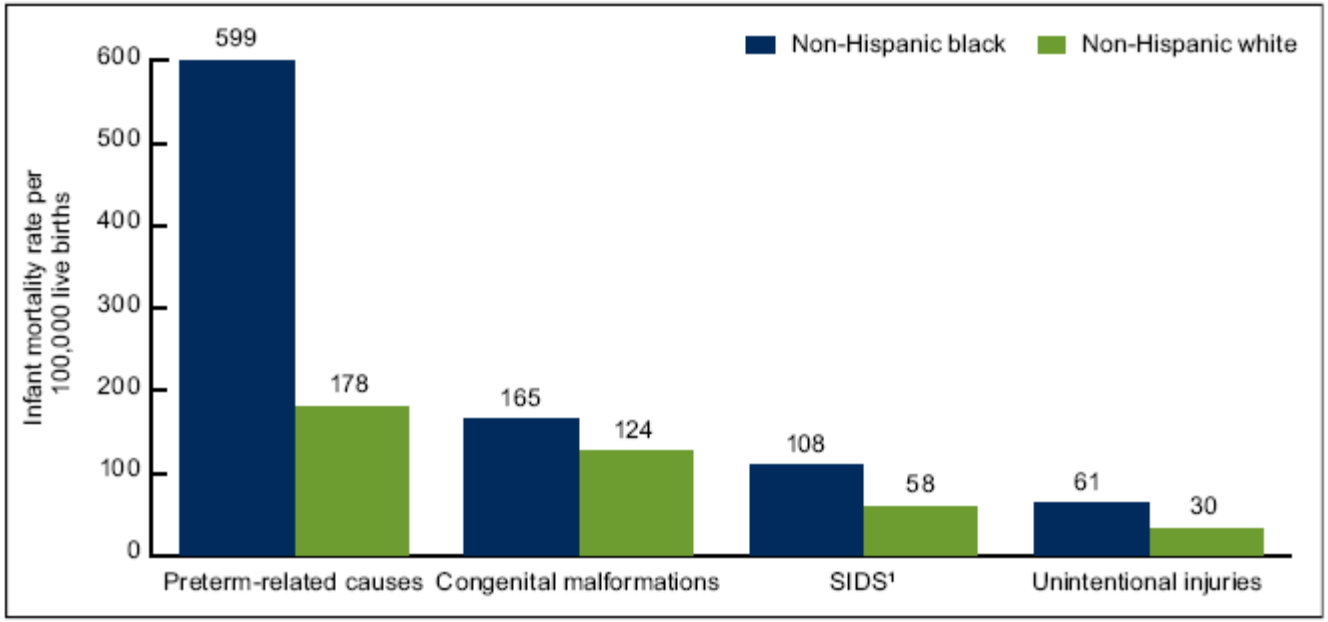
* Significant decline

1/ Includes persons of Hispanic and non-Hispanic origin.

NOTE: Neonatal is less than 28 days. Race and Hispanic origin are reported separately on birth certificates. Race categories are consistent with the 1977 Office of Management and Budget standards. Persons of Hispanic origin may be of any race. In this table Hispanic women are classified only by place of origin; non-Hispanic women are classified by race. See reference 2. Thirty States reported multiple-race data on the birth certificate for 2008 and 27 for 2007. The multiple-race data for these States were bridged to the single-race categories of the 1977 standards for comparability with other States; see reference 2 and 3.

SOURCE: National Vital Statistics System, NCHS, CDC

Figure 3. Infant mortality rates for selected causes of death for non-Hispanic black and non-Hispanic white women: United States, 2007



¹Sudden infant death syndrome.
SOURCE: CDC/NCHS, linked birth/infant death data set, 2007.

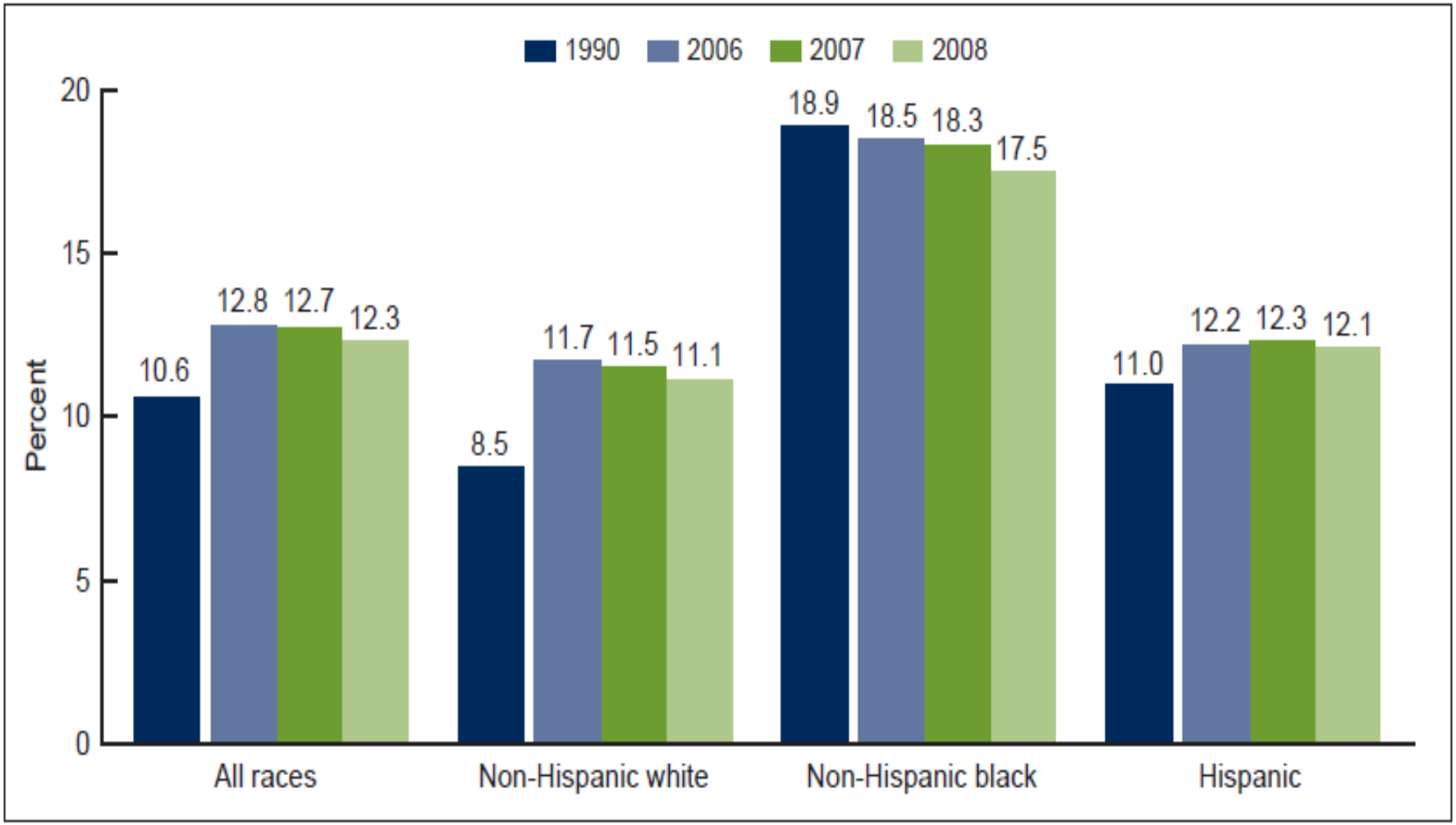
Table. Gestational age-specific infant mortality rates, by race and Hispanic origin of mother: United States, 2007

	Gestational age (weeks)						
	Total	Less than 32	32–33	34–36	37–38	39–41	42 or more
Total	6.75	178.36	16.12	7.42	3.09	2.07	2.62
Non-Hispanic white	5.63	165.61	16.23	7.10	2.95	1.95	2.51
Non-Hispanic black	13.31	209.03	16.91	9.42	4.45	3.43	4.40
Hispanic	5.51	158.71	14.64	6.48	2.63	1.70	2.04
Mexican	5.42	161.31	15.11	6.67	2.69	1.66	2.10
Puerto Rican	7.71	172.18	*	8.15	3.11	2.32	*
Central and South American	4.57	142.09	13.52	5.24	2.02	1.41	*
American Indian or Alaska Native	9.22	156.99	28.51	14.27	6.14	3.79	*
Asian or Pacific Islander	4.78	173.30	14.84	5.59	2.12	1.43	1.69

* Figure does not meet standards of reliability or precision; based on fewer than 20 infant deaths in the numerator.

NOTE: Reliable rates cannot be computed for the Cuban population due to the small number of infant deaths (88).

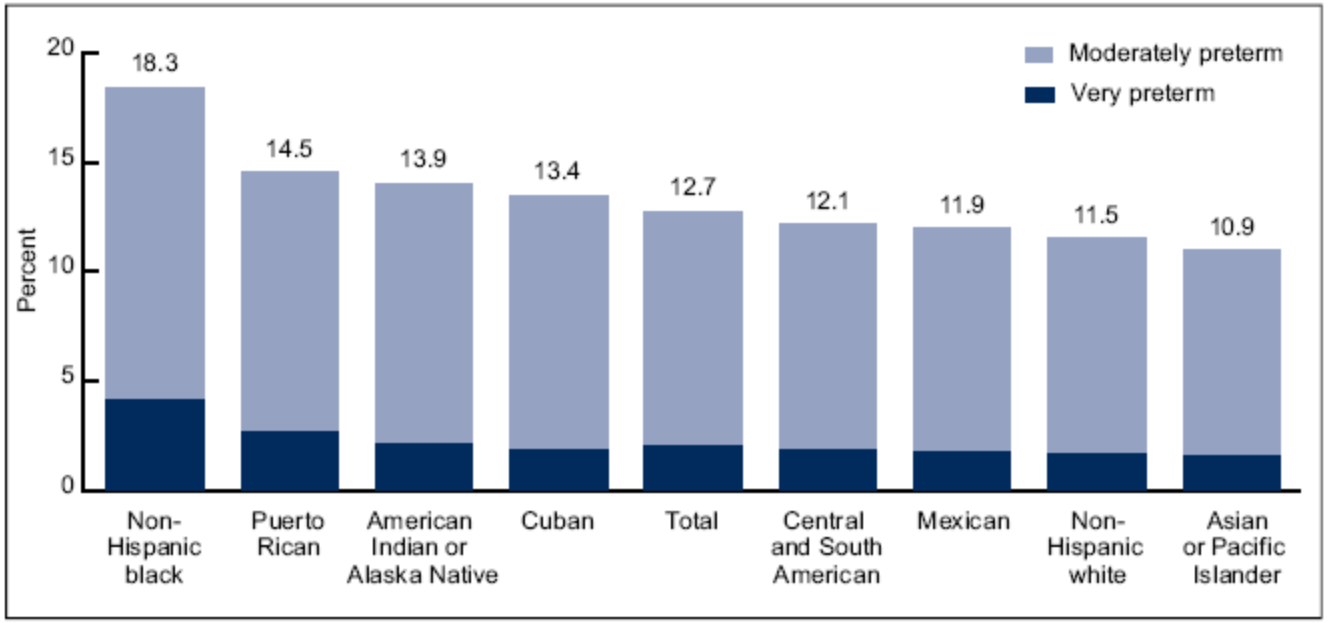
Figure 3. Preterm birth rates, by race and Hispanic origin of mother: United States, 1990 and 2006 final and 2007 and 2008 preliminary



NOTE: The preterm birth rate is births at less than 37 completed weeks of gestation per 100 births in the specified age group.

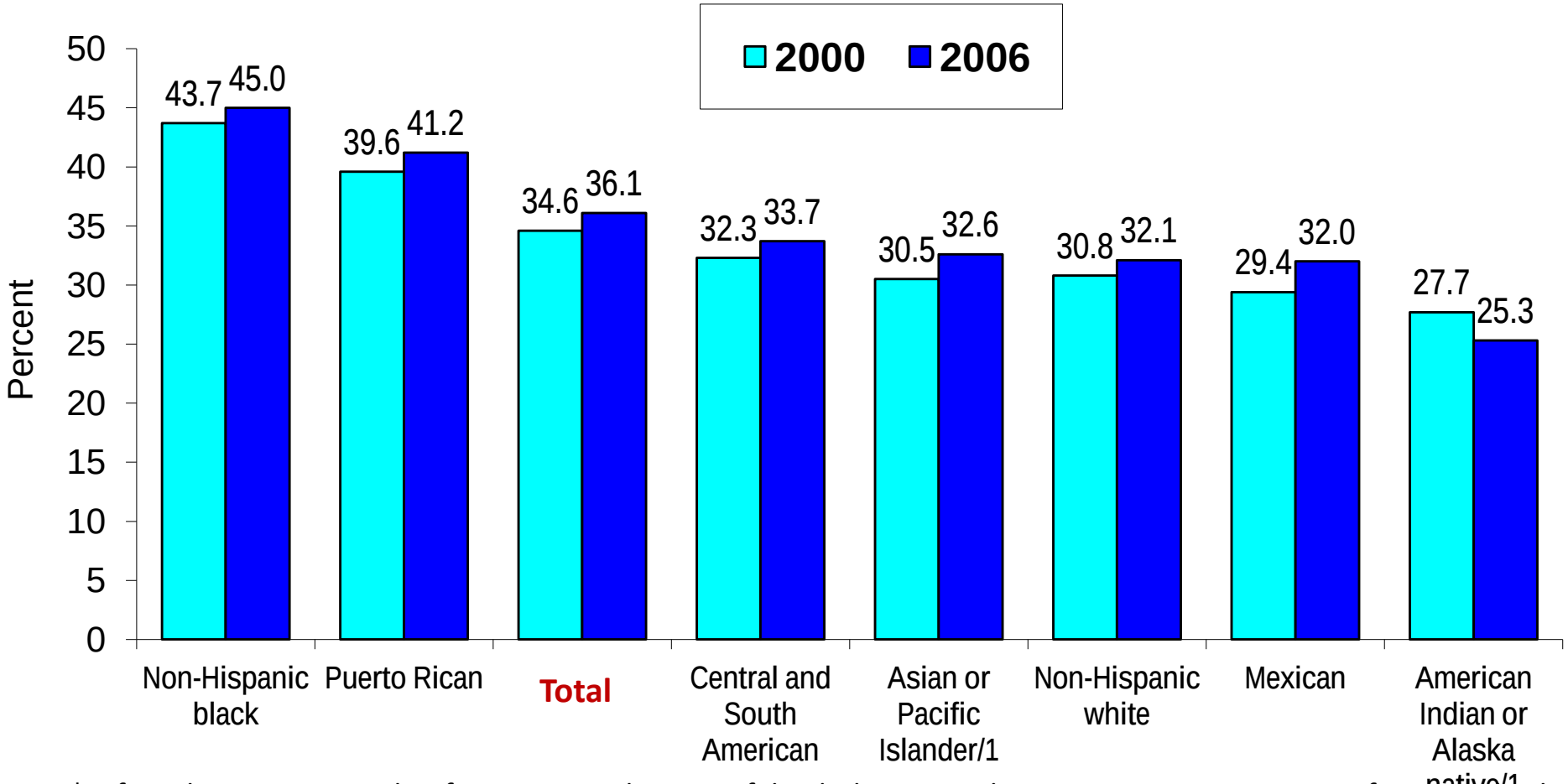
SOURCE: Are preterm births on the decline in the US? NCHS data brief no 39.

Figure 2. Percentage of preterm births, by race and Hispanic origin of mother: United States, 2007



NOTE: Preterm is less than 37 weeks of gestation; very preterm is less than 32 weeks; and moderately preterm is 32–36 weeks.
SOURCE: CDC/NCHS, linked birth/infant death data set, 2007.

Percentage of Infant Deaths from Preterm-Related Causes* by Race/Ethnicity, US, 2000 and 2006



* Infants born at <37 weeks of gestation with cause of death that was a direct cause or consequence of preterm birth (ICD-10 codes K550, P000, P010, P011, P015, P020, P021, P027, P070-P073, P102, P220-P229, P250-279, P280, P281, P360-P369, P520-P523, P77).

1/ Includes persons of Hispanic and non-Hispanic origin.

SOURCE: NCHS, linked birth/infant death data set.

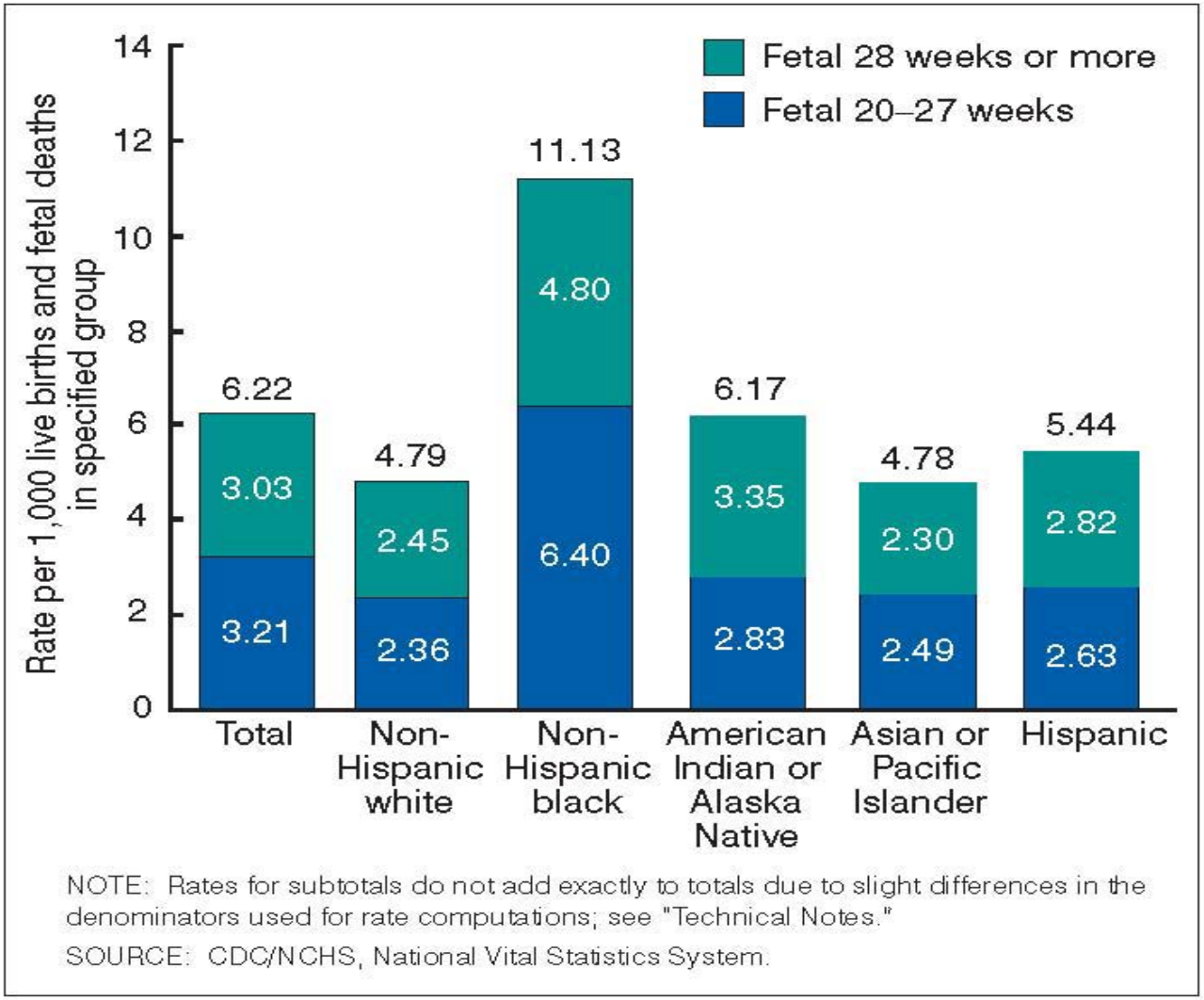
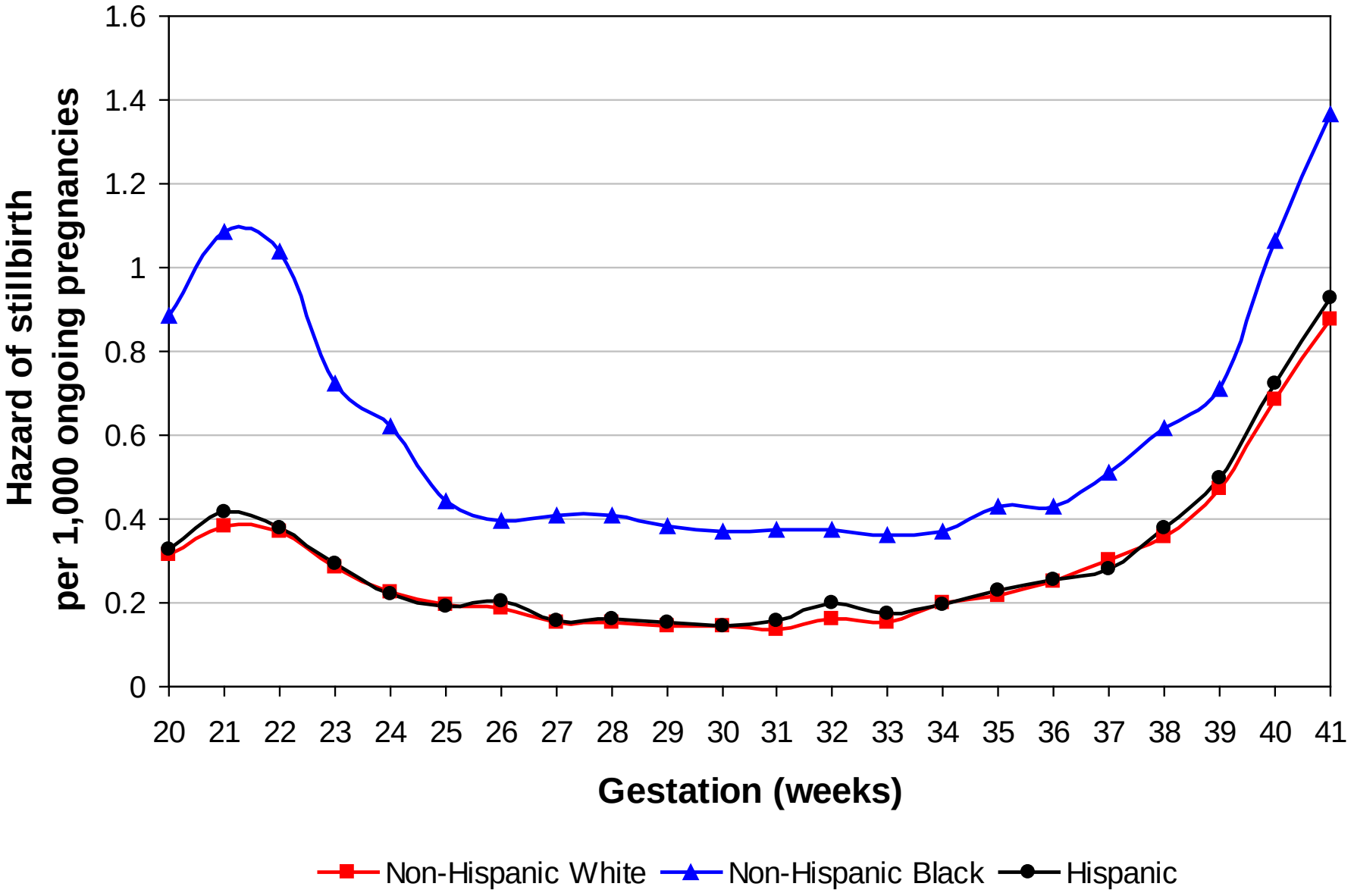


Figure 4. Fetal mortality rates by race and Hispanic origin of mother: United States, 2005

Source: MacDorman MF, Kirmeyer S. Fetal and perinatal mortality, United States, 2005. National vital statistics reports; vol 57 no 8. Hyattsville, MD: National Center for Health Statistics. 2009.


Hazard of stillbirth per 1,000 ongoing pregnancies
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
Gestation (weeks)
Non-Hispanic White
Non-Hispanic Black
Hispanic

Eliminating Racial Disparity in Pregnancy Outcome

- Eliminating disparity in the incidence of preterm birth will have a significant impact on disparities in infant mortality and morbidity. Preterm births of infectious and inflammatory etiologies are more common among Blacks.

- While a constellation of biomedical, sociodemographic, and environmental factors are associated with disparities in pregnancy outcome, they alone cannot explain these disparities.

- NICHD established the Community Child Health Network (CCHN), to implement community participatory research to address the interaction of individual, family, and community level factors in mediating healthy or poor pregnancy outcome.

CCHN Composition for Phase 1 and Phase 2 Studies: Five Clinical Sites & One DCAC

Georgetown University, with DC Community Groups.

Northwestern University, with Lake County Health Department

Baltimore City Healthy Start with Johns Hopkins University

University of North Carolina, with Baby Love Plus Consoritum

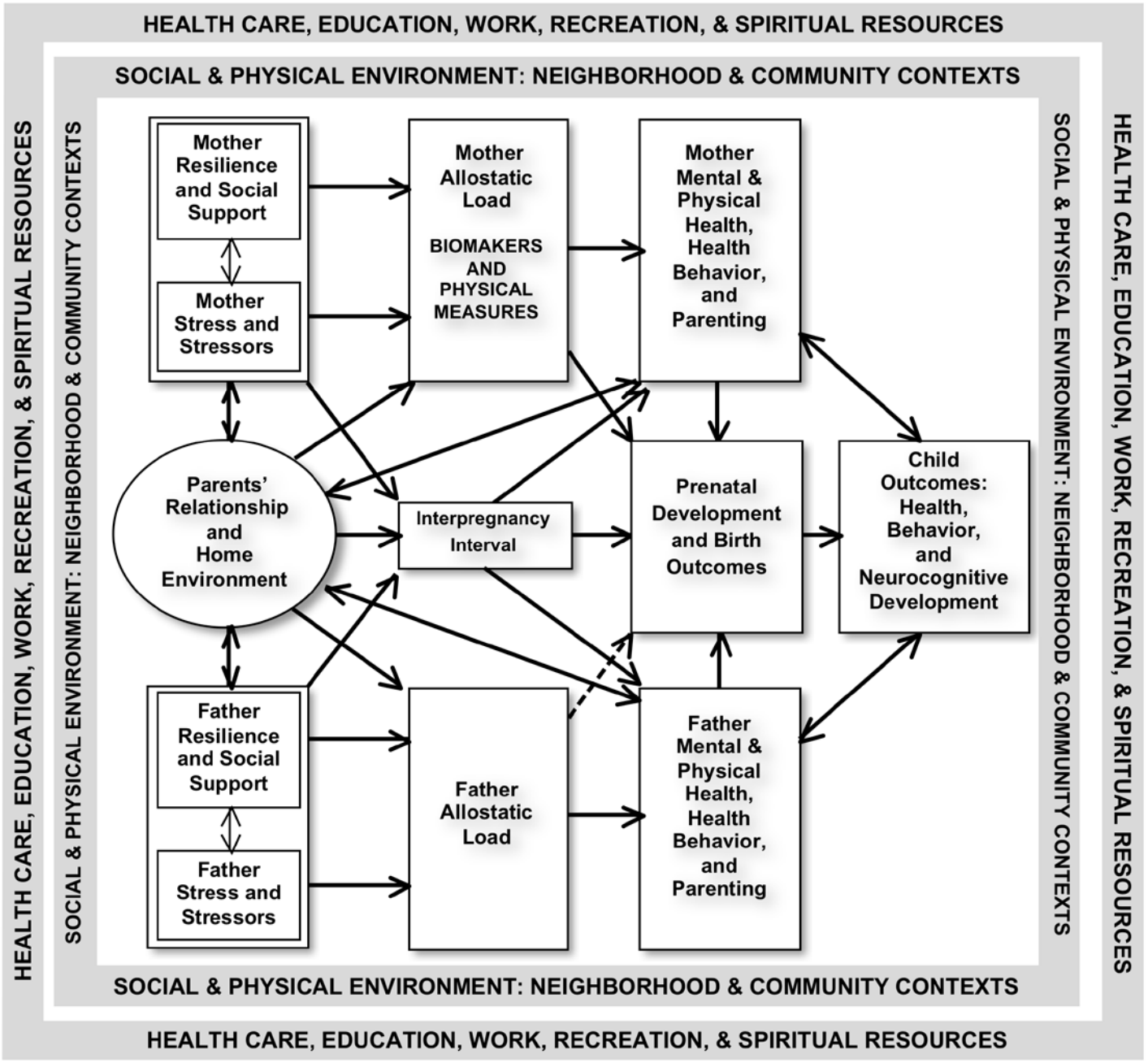
UCLA with Healthy African American Families group.

Data Coordination & Analysis Center
Penn State University, Hershey, PA

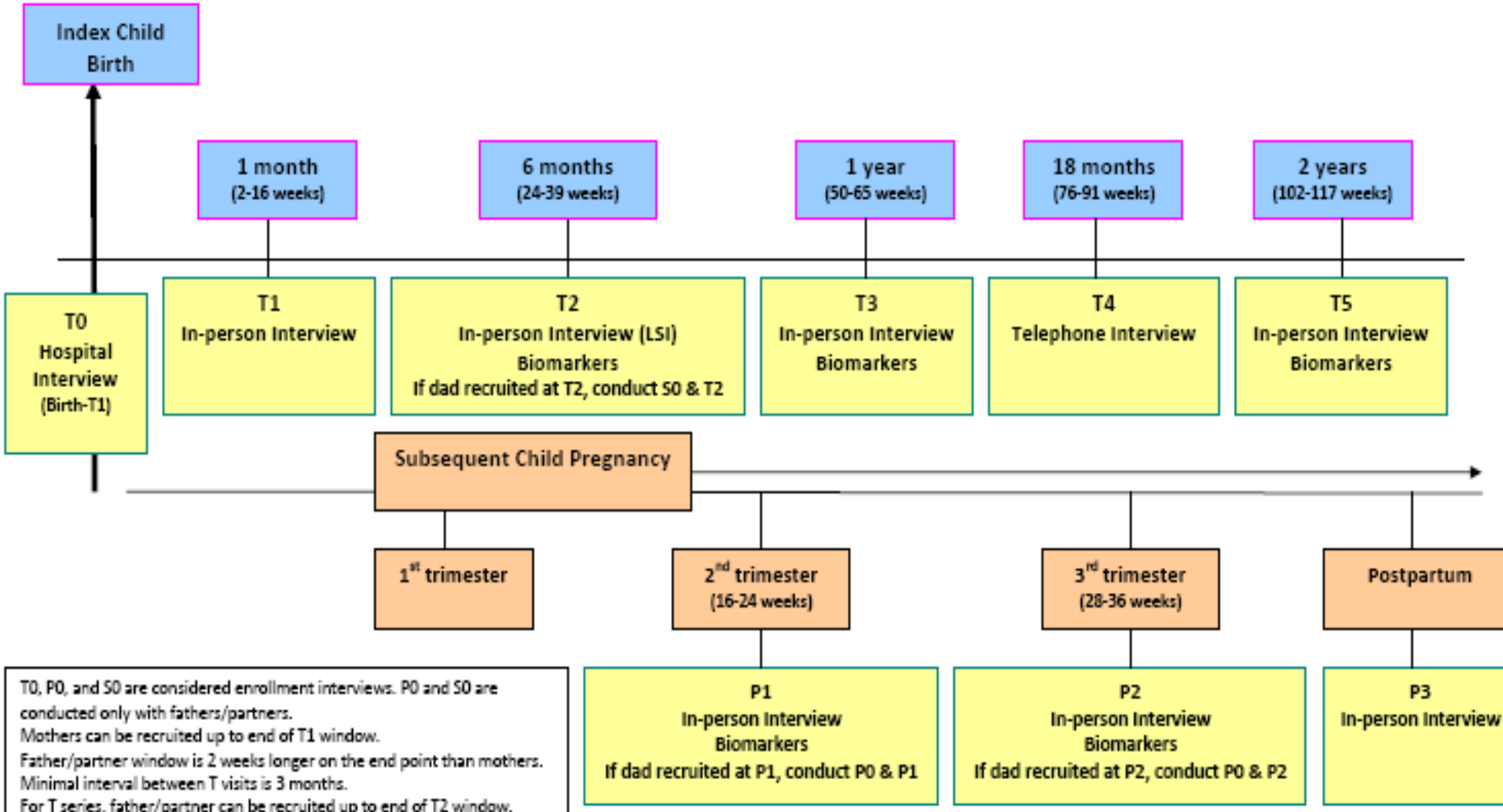
Site-specific differences contributed to heterogeneity, with a good mix of high and low risk populations

Overview of the Study

- Phase 1: Planning and development of study design in collaboration with the community PIs and partners
- Phase II: Prospective cohort of 2,400 mothers and their partners to be recruited after delivery.
  - Longitudinal assessment of stressors, resiliency factors, and maternal allostatic load, through 12 months after study entry, and optional until the next pregnancy, with a potential for follow-up of the subsequent child outcomes.
  - To examine the determinants of parental stress and resilience and their effect on maternal allostatic load- and long term- the course of the next pregnancy


HEALTH CARE, EDUCATION, WORK, RECREATION, & SPIRITUAL RESOURCES
SOCIAL & PHYSICAL ENVIRONMENT: NEIGHBORHOOD & COMMUNITY CONTEXTS
Mother Resilience and Social Support
Mother Stress and Stressors
Mother Allostatic Load
BIOMAKERS AND PHYSICAL MEASURES
Mother Mental & Physical Health, Health Behavior, and Parenting
Parents' Relationship and Home Environment
Interpregnancy Interval
Prenatal Development and Birth Outcomes
Child Outcomes: Health, Behavior, and Neurocognitive Development
Father Resilience and Social Support
Father Stress and Stressors
Father Allostatic Load
Father Mental & Physical Health, Health Behavior, and Parenting
SOCIAL & PHYSICAL ENVIRONMENT: NEIGHBORHOOD & COMMUNITY CONTEXTS
HEALTH CARE, EDUCATION, WORK, RECREATION, & SPIRITUAL RESOURCES

Community Child Health Network (CCHN)
Interview and Biomarker Collection Timeline



T0, P0, and S0 are considered enrollment interviews. P0 and S0 are conducted only with fathers/partners.
Mothers can be recruited up to end of T1 window.
Father/partner window is 2 weeks longer on the end point than mothers.
Minimal interval between T visits is 3 months.
For T series, father/partner can be recruited up to end of T2 window.
If father/partner recruited at P series, father/partner does not participate in T series.

Operationalizing Allostatic Load

- Cardiovascular
  - Systolic blood pressure
  - Diastolic blood pressure
- Metabolic
  - BMI or Waist-to-hip ratio
  - Glycosylated hemoglobin (bloodspot)
  - Cholesterol (bloodspot)
- Inflammatory
  - C-reactive protein (bloodspot)
  - Tumor necrosis factor (maybe)
  - Interleukin-6 (maybe)
- HPA Axis
  - Salivary cortisol (diurnal pattern)
- SAM Axis
  - Salivary amylase (maybe)

Father enrollment issues

Fathers to Mothers ratio by Race/Ethnicity of Mother				
	African-American	White	Hispanic	TOTAL
Number of Mothers*	1648	642	784	3074
Number of Fathers*	743	448	472	1663
Fathers to Mothers Ratio	45.1%	69.8%	60.2%	54.1%
* *Numbers reflect numbers recruited at T0*				

Fathers Participating in study by Relationship status

	Mother n	Permission given n	Father enrolled n	Father enrolled % of Permission given n	Father enrolled % of Mother n
Spouse	810	734	531	72.3%	65.6%
Partner	1300	1058	623	58.9%	47.9%
Neither	367	111	31	27.9%	8.4%
REF / missing	11	2	0	0.0%	0.0%
TOTAL	2488	1905	1185	62.2%	47.6%

Understanding the differences in Father enrollment rates

Theory behind what is driving the **outcome variable 1 of mother giving permission** and **outcome variable 2 of father actually enrolling** (among those where mother's permission was given):

- Primary predictor is relationship type (married; in a relationship; neither)
- Secondary predictor are relationship quality issues: mother happy about being pregnant; mother's view on whether partner wanted her to become pregnant

  Race, income, age, number of prior live births, and education variables are probably wrapped up in the primary predictor of relationship type.