Women's Health and Birth Outcomes

Taking a Closer Look at Low Birth Weight and Associated Risk Factors

Woman's Health Sub-Committee
Presentation to the Medicaid Managed Care Council
May 14, 2010

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Overview

1. Review of Woman's Health document prepared for Sen Harp
2. Problem of Low Birth Weight
3. Factors Associated with LBW
4. Birth Outcomes at a prenatal clinic in CT serving HUSKY A and uninsured women (CHC Inc.)
5. Decision Process for Prioritizing Policy and Resource Distribution
6. Woman's Health Sub-committee Plan to Convene Summit in CT to Develop a Prenatal Care Health Plan based in the VCHP model

Women's Health Before, During and After Pregnancy: The Relationship Between Women's Health and Birth Outcomes, Child Development and School Readiness

A Report to Senator Toni Harp

www.cga.ct.gov/ph/medicaid/mmcc/wh/WHFinalDraft_1207.doc

In response to a charge by Senator Toni Harp to identify **key factors in maternal and child health that could be monitored for improved birth outcomes and early childhood development**, a maternal and child health workgroup was convened

This report describes **five specific adverse indicators that were identified to be most associated with the inter-generational connection between women's heath and that of their offspring** as it relates to birth outcomes, early child development, and, ultimately, to school readiness.

- **Preterm birth and low birth weight outcomes**
- **Teen Pregnancy**
- **Lack of Insurance**
- **Unaddressed Mental/Emotional Health Issues**
- **Infant Feeding**

Prepared by Amy Gagliardi: Contributions by the following are acknowledged: **Lisa Davis,** RN, BSN, MBA, Title V Director, Connecticut Department of Public Health, Fellow, Robert Wood Johnson Nurse Fellowship Program; **C. Neill Epperson** , MD, Director Woman's Reproductive Health, Yale School of Medicine; **Amy D. Gagliardi**, MA, IBCLC, RLC, Community Health Center, Inc, Fellow, Edward Zigler Center in Child Development and Social Policy, Child Study Center, Yale School of Medicine; **Sandra Bishop-Josef**, PhD, Assistant Director, Edward Zigler Center in Child Development and Social Policy, Child Study Center, Yale School of Medicine; **Kathleen Marinelli**, MD,IBCLC, FABM, Department of Neonatology, Connecticut Children's Medical Center; **Mariette McCourt**, RN, MSN, MA, Connecticut Medicaid Managed Care Council; **Stephanie Milan**, PhD, Assistant Professor, University of Connecticut Department of Psychology; **Carol Stone**, PhD, MA, MAS, MPH, Epidemiologist, Family Health Section, Connecticut Department of Public Health.

Maternal Health and That Of Their Offspring Are Intertwined

- Beginning with the preconception period, maternal environmental, nutritional, health and stress-related factors weigh heavily on fetal growth and development.
- After birth, maternal health and well-being continue to be reflected in child health and well-being

Low Birth Weight

•Low birth weight (LBW): < 5 lbs 8 oz (< 2500 grams)

•Very Low Birth Weight (VLBW): < 3 lbs 4oz (<1500 grams)

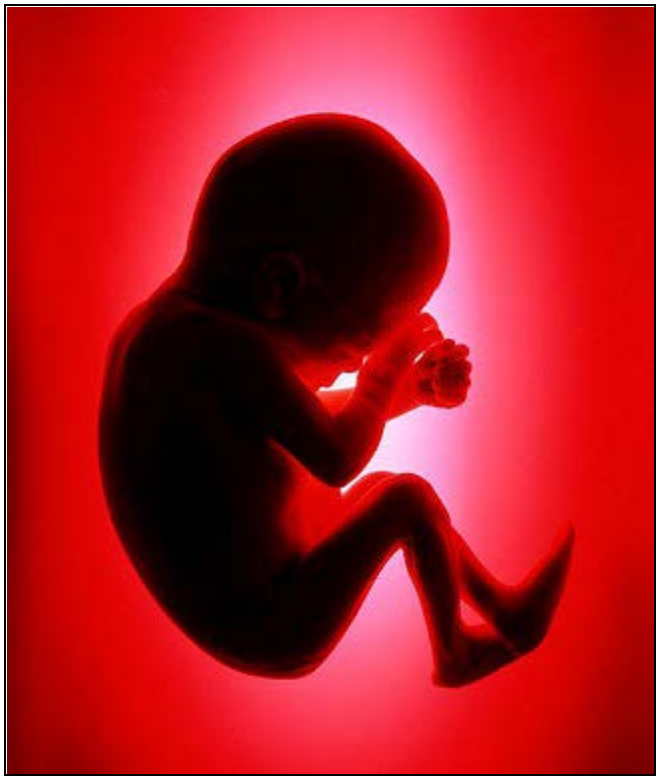
•Prematurity: < 37 weeks of gestation (Full term: 37 $^{1/7}$ to 41 $^{6/7}$ weeks)

•Premature babies are almost always low birth weight, but low birth weight babies are not necessarily premature.

Prematurity/Low Birth Weight

- LBW and prematurity indicate abnormal intrauterine environment and are red flags for potential abnormal extrauterine development

- Some of the most common maternal risk factors for LBW and/or prematurity are:
- **previous low birth weight delivery; ethnicity (Black > Hispanic > Caucasians); teenage mothers; low socioeconomic status; unmarried status; significant maternal medical conditions (e.g. pre-eclampsia, diabetes, renal disease, etc.); prenatal alcohol and/or substance abuse; maternal smoking; interpersonal violence, smoking, depression/stress and lack of early or any prenatal care**



Risks Associated with Preterm/Low Birth Weight

- Since the 1970's, much smaller and younger babies now survive than in years past (advancements in the technology of Neonatal Intensive Care)
- As weight and gestational age decreases, the risk for both cognitive and physical disabilities increases
- Some of these conditions are **cerebral palsy, mental retardation, deafness, poor eye sight or blindness, severe, persistent respiratory disorders, and nutritional inadequacies**
- Any one of these alone can substantially impact the trajectory of a child's life but **many of these children have more than one of these conditions**

Percent Change in Preterm and Late Preterm Birth 2006 Final and 2008 Preliminary Birth Data

	Preterm				Late Preterm		
	2006	2008	Significant Change	Percent Change	2006	2008	Percent change
United States	**12.8**	**12.3**	**Yes**	**-3.9**	**9.1**	**8.8**	**-3.3**
Connecticut	10.4	10.4	No	0.0	7.2	7.2	0

- **Preterm is less than 37 completed weeks gestation. Late preterm is between 34 and 36 weeks gestation**
- *Source: National Center for Health Statistics, Preliminary 2008 and Final 2006 Natality Data*
- *Prepared by March of Dimes Perinatal Data Center, May 2010*
- *Rates of preterm Births for HUSKY program was 10.3%, FFS Medicaid coverage 12.2% and 9.6% to other women in CT during 2007*
- *Source: Connecticut Voices For Children Births to Mothers with HUSKY Program and Medicaid Coverage: 2007, Lee ,M A, Sautter, K, Lear ned, A.*

2010 National Goal for rate of preterm Birth is 7.6%

Cost Associated with Preterm/LBW 2005 Calculations

- Average length of hospital stay is 9 xs greater for preterm/LBW **(13 days vs 1.5 days)**
- Average medicals costs 10 xs greater

  ($ 32.325 vs $3,325)
- Annual cost to society is **$ 26.2 billion** in medical, lost productivity and educational costs
- Preterm/LBW babies are at risk for lower cognitive test scores, behavioral problems and to be enrolled in special education classes **generating additional long term costs**

Maternal, Infant and Child Health in the United States March of Dimes Foundation Data Book for Policy Makers 2010

Fetal Origins Hypothesis

(Rucker C. Johnson PhD)

Low Birth weight
Poverty
Lack of Insurance

Bulk of racial disparity related to prevalence of certain health conditions

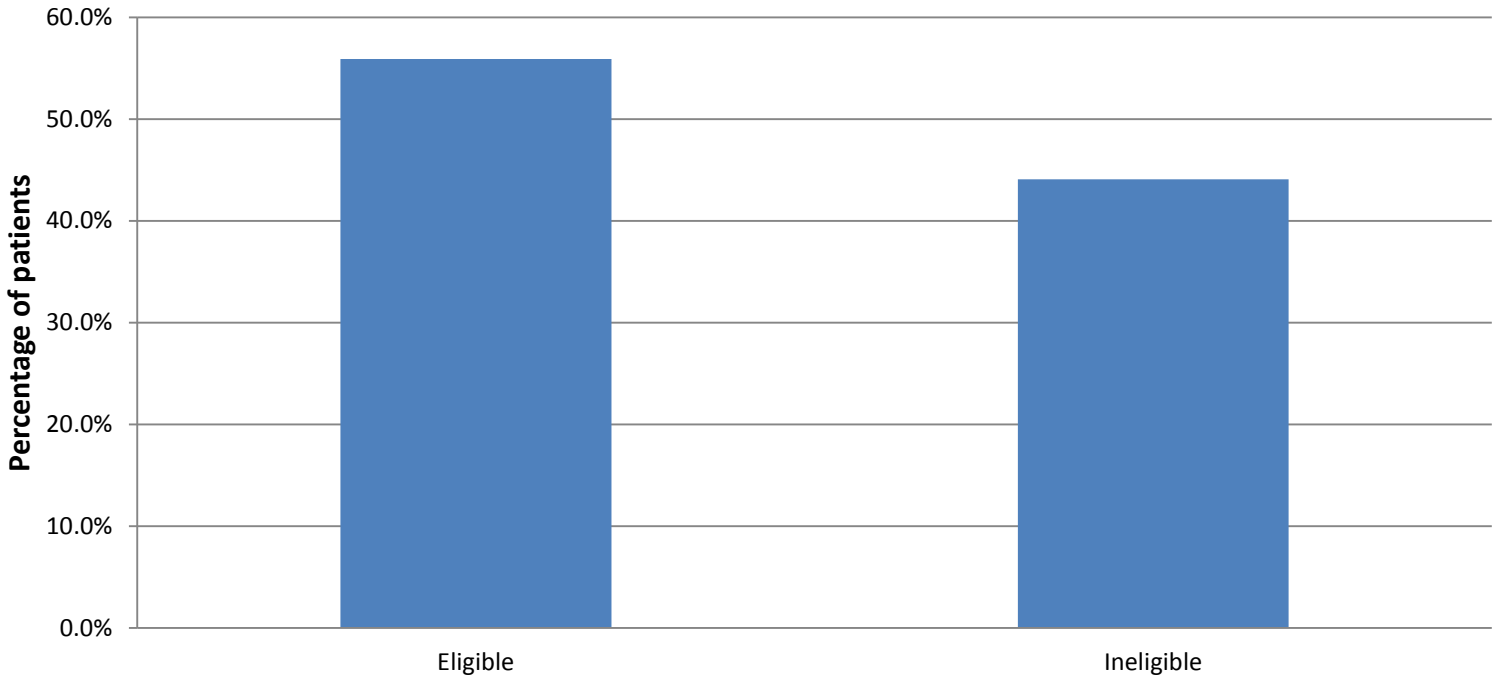
Low Birth Weight Increases Odds

Asthma by 67%
Hypertension by 50 %
Doubles odds of heart attack or stroke during middle age

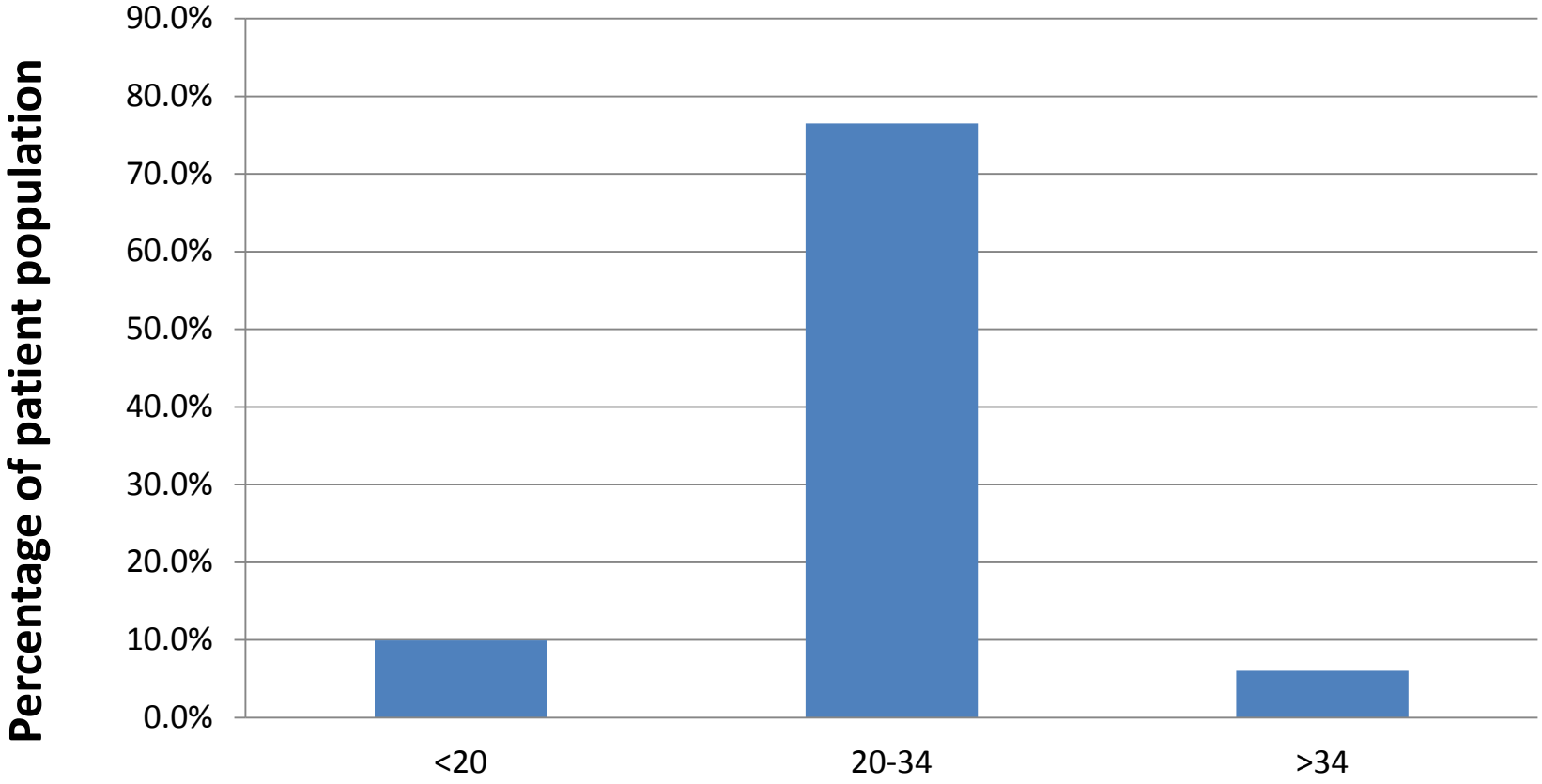
Community Health Center, Inc
Middlesex County Prenatal Care Outcomes

- Internal Quality Report on birth outcomes from 2007 -2009
- 334 live singleton births during this period
- Family Medicine Residents and faculty, IBCLC, CBE, Intensive case management staff, Fidelity to the Healthy Start model
- Low Birth Weight Rate 6.9%
- Full term Births 94.9%
- Preterm Births 3.6%
- Very Preterm Births 2.1%
- Cesarean Birth Rate 27.2%
- Breastfeeding Initiation Rate 78.5%
- Insurance Status: HUSKY A: 55.9% , Uninsured: 44.1%

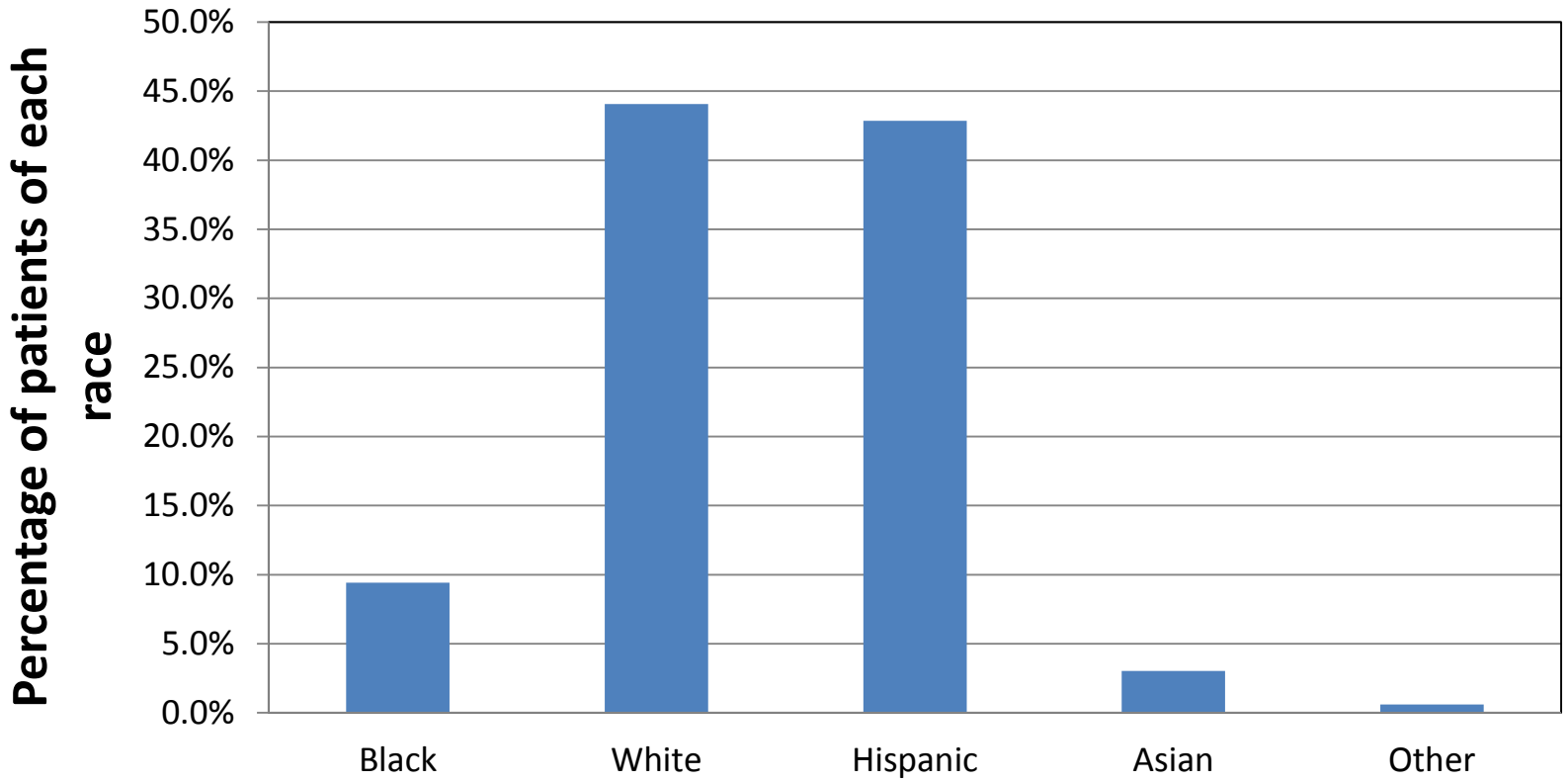
HUSKY Eligibility of Patient Population



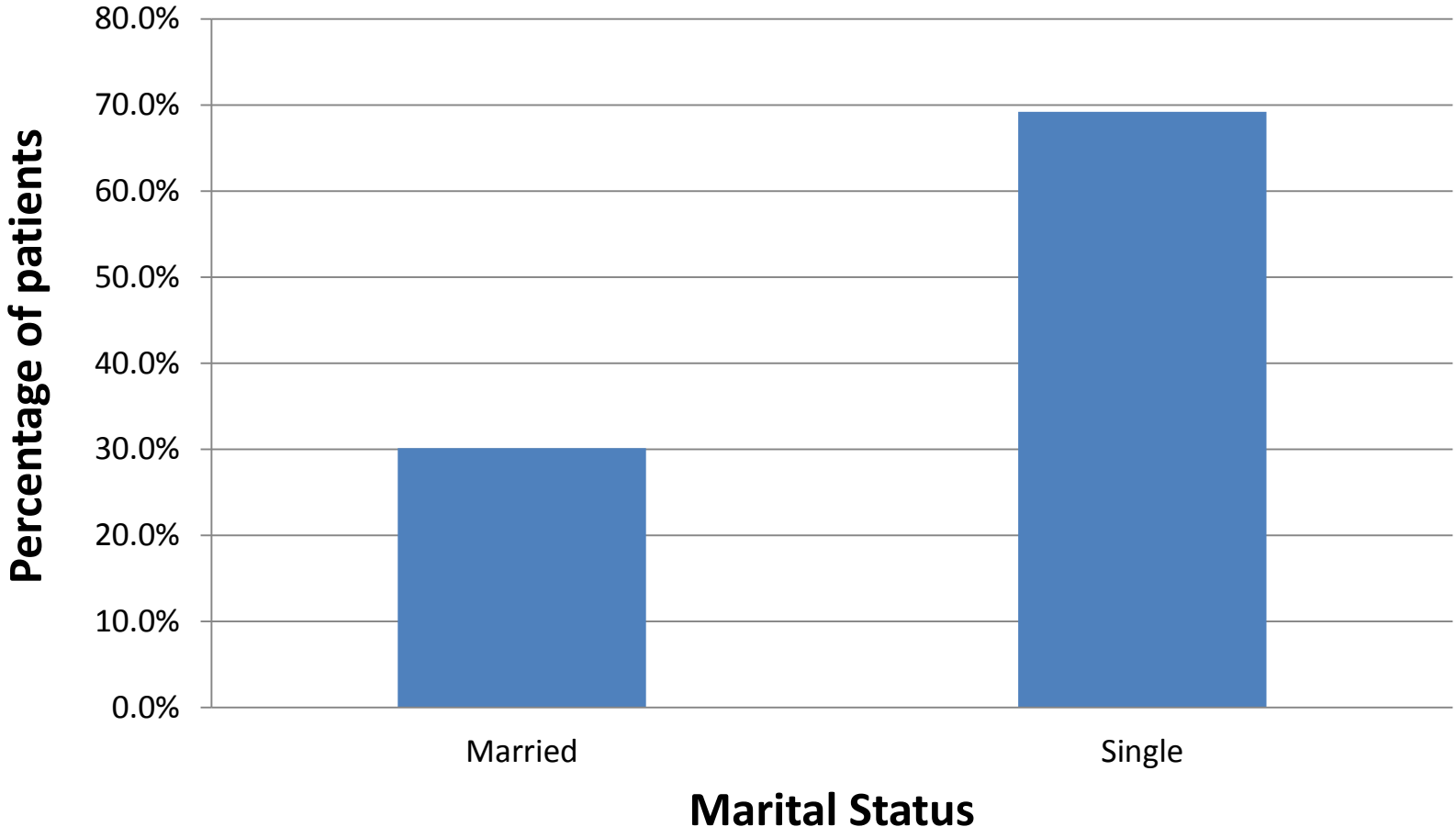
Age of Population



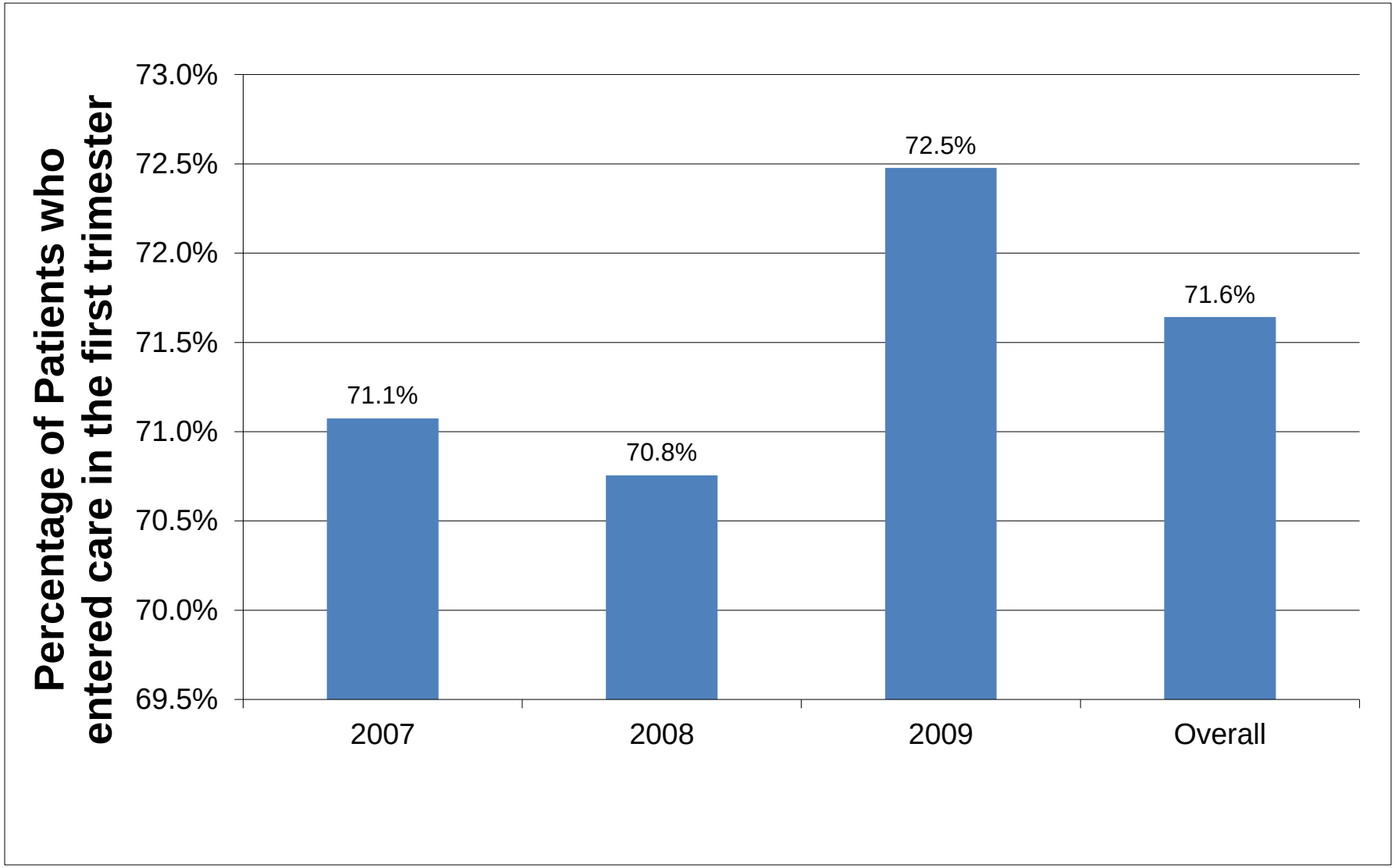
Racial Demographics of Population



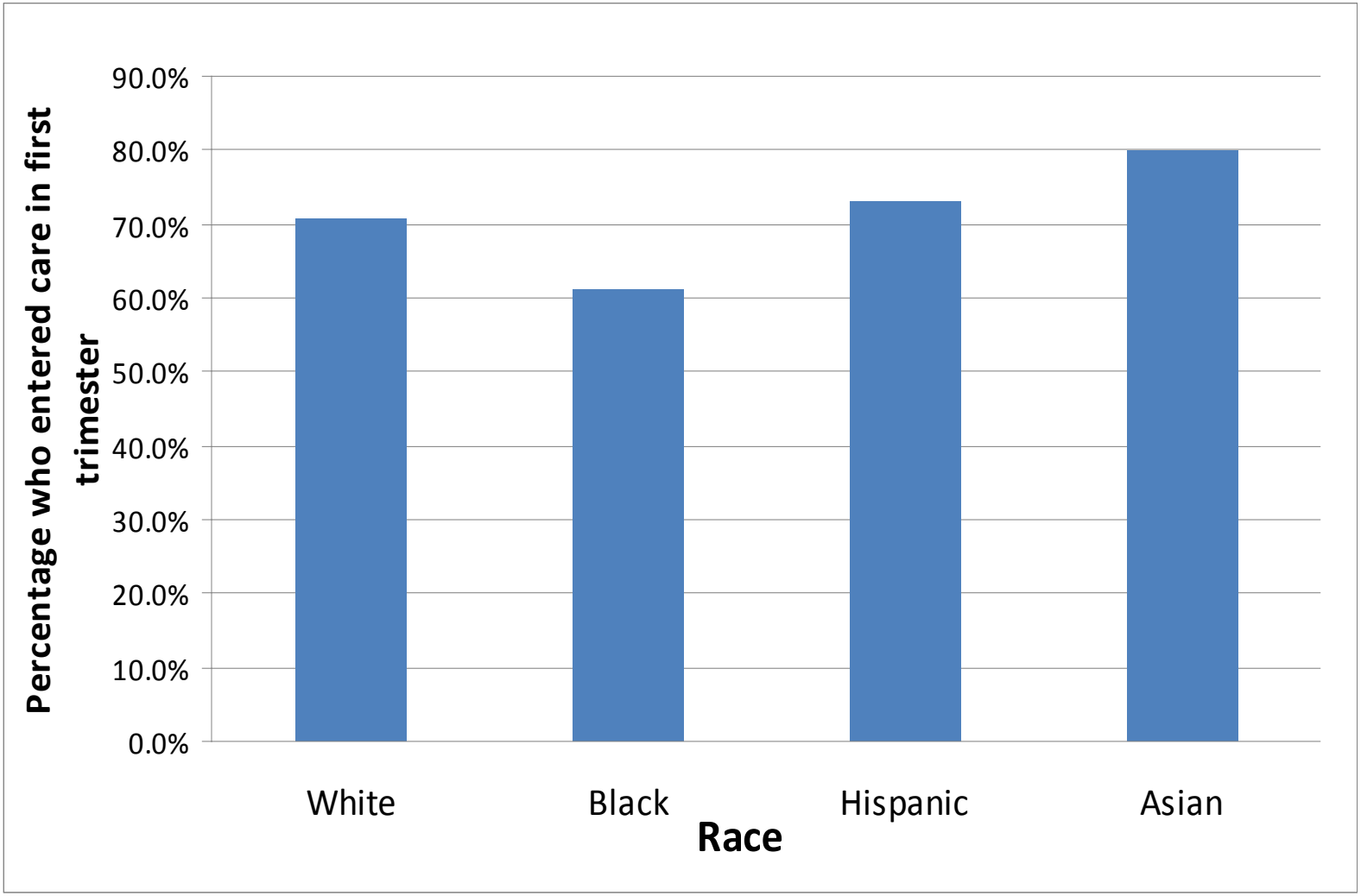
Marital Status of Population



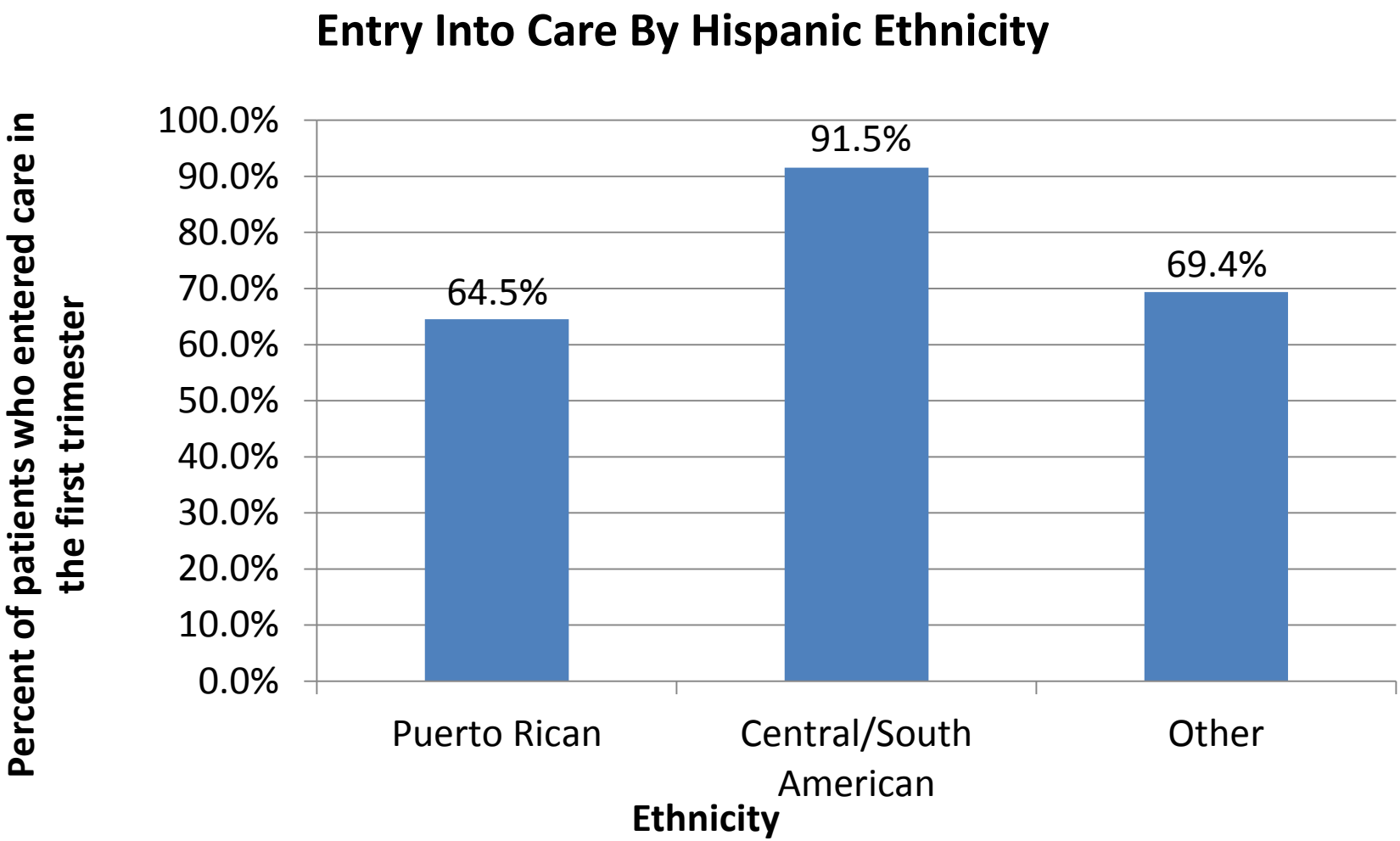
First Trimester Entry Into Care By Year



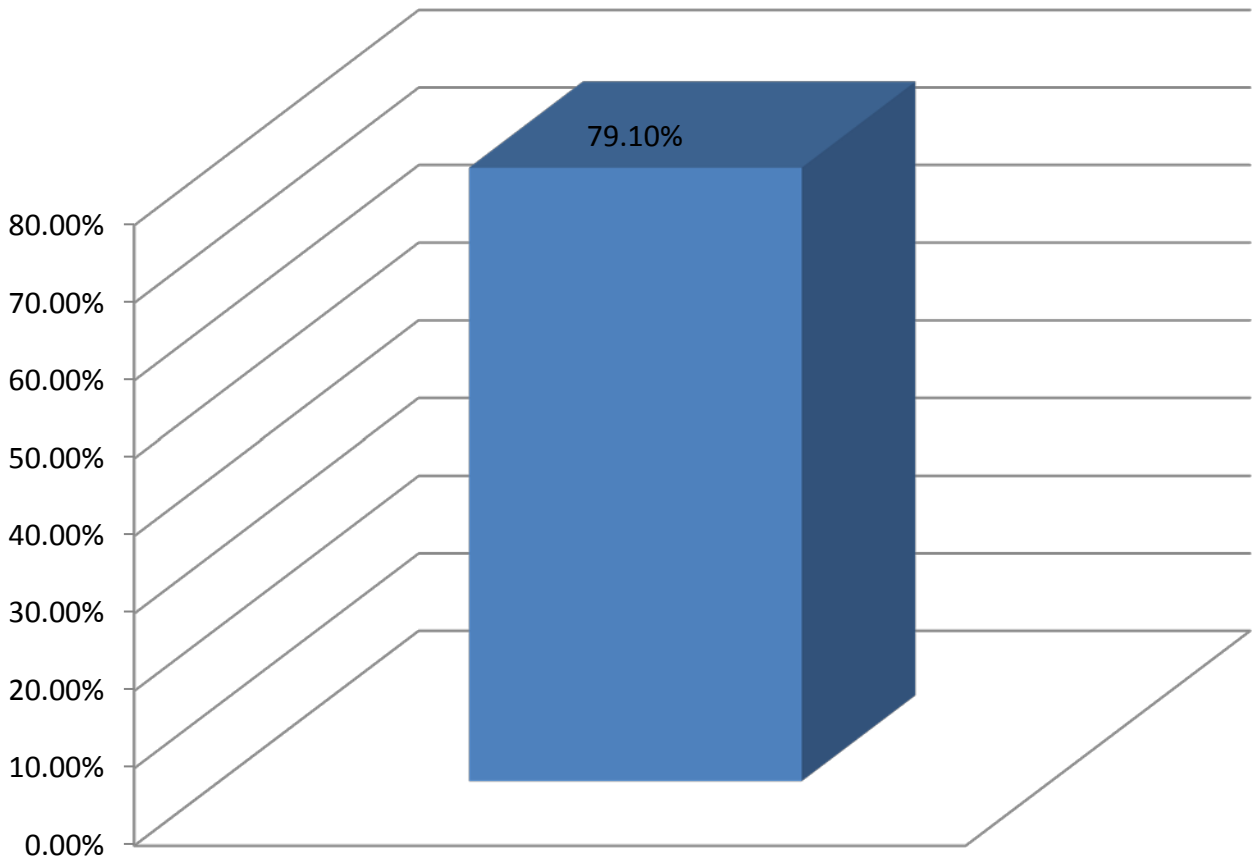
Entry Into Care By Race



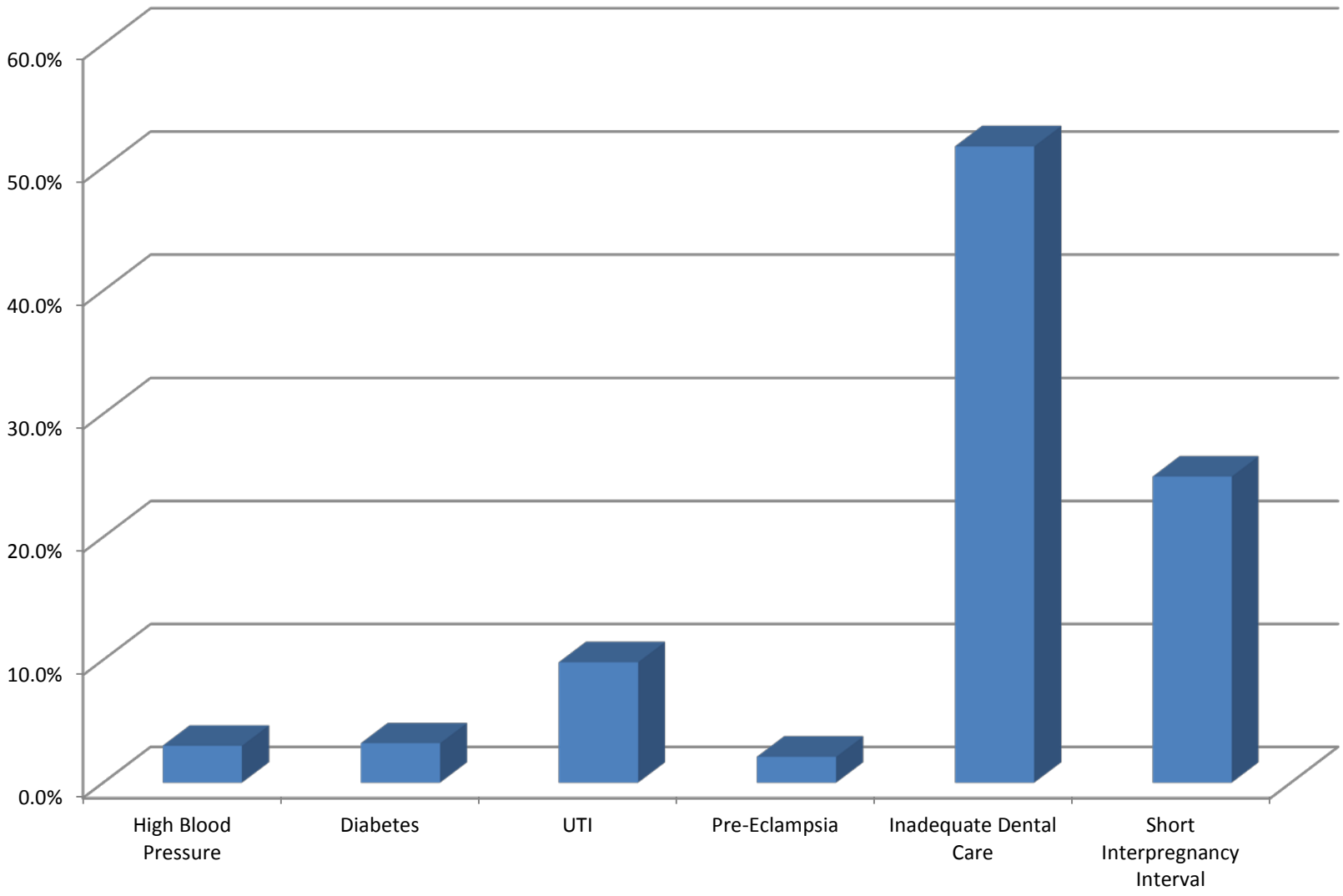
Entry Into Care By Hispanic Ethnicity



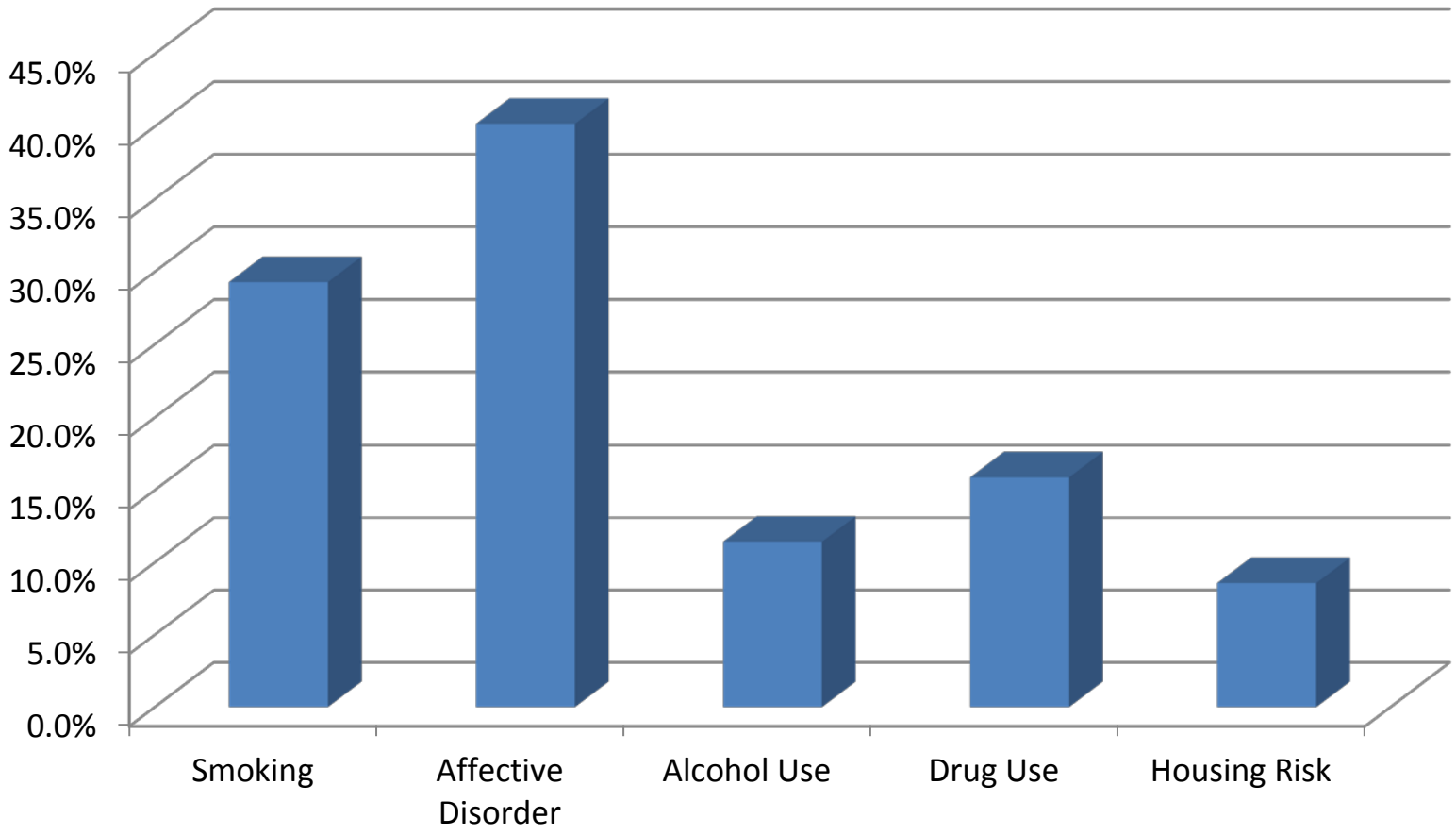
Percentage of Patients with Adequate Prenatal Care of Those Who Entered Care Within the First 14 weeks of Pregnancy



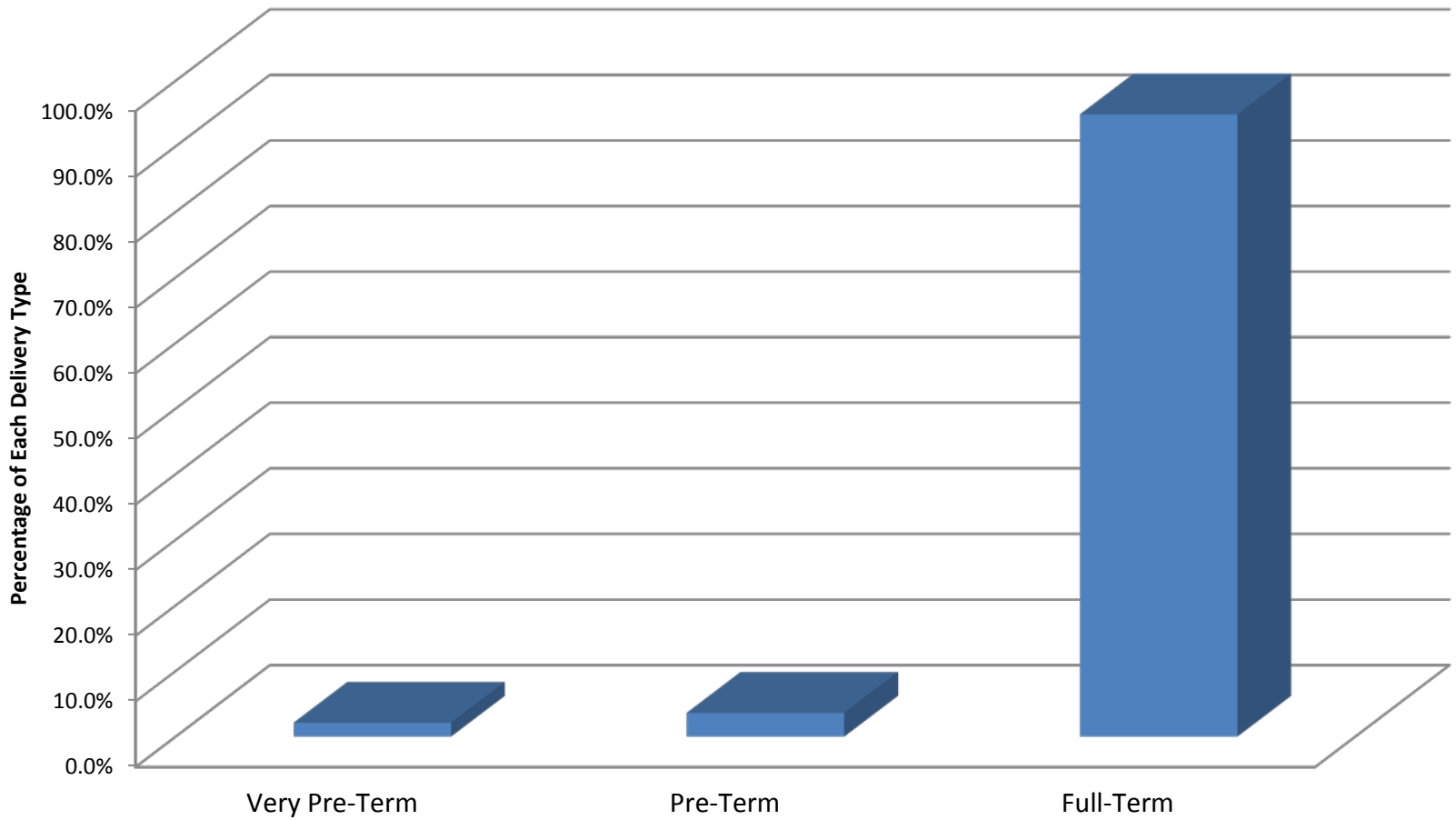
Medical Risk Factors



Social Risk Factors

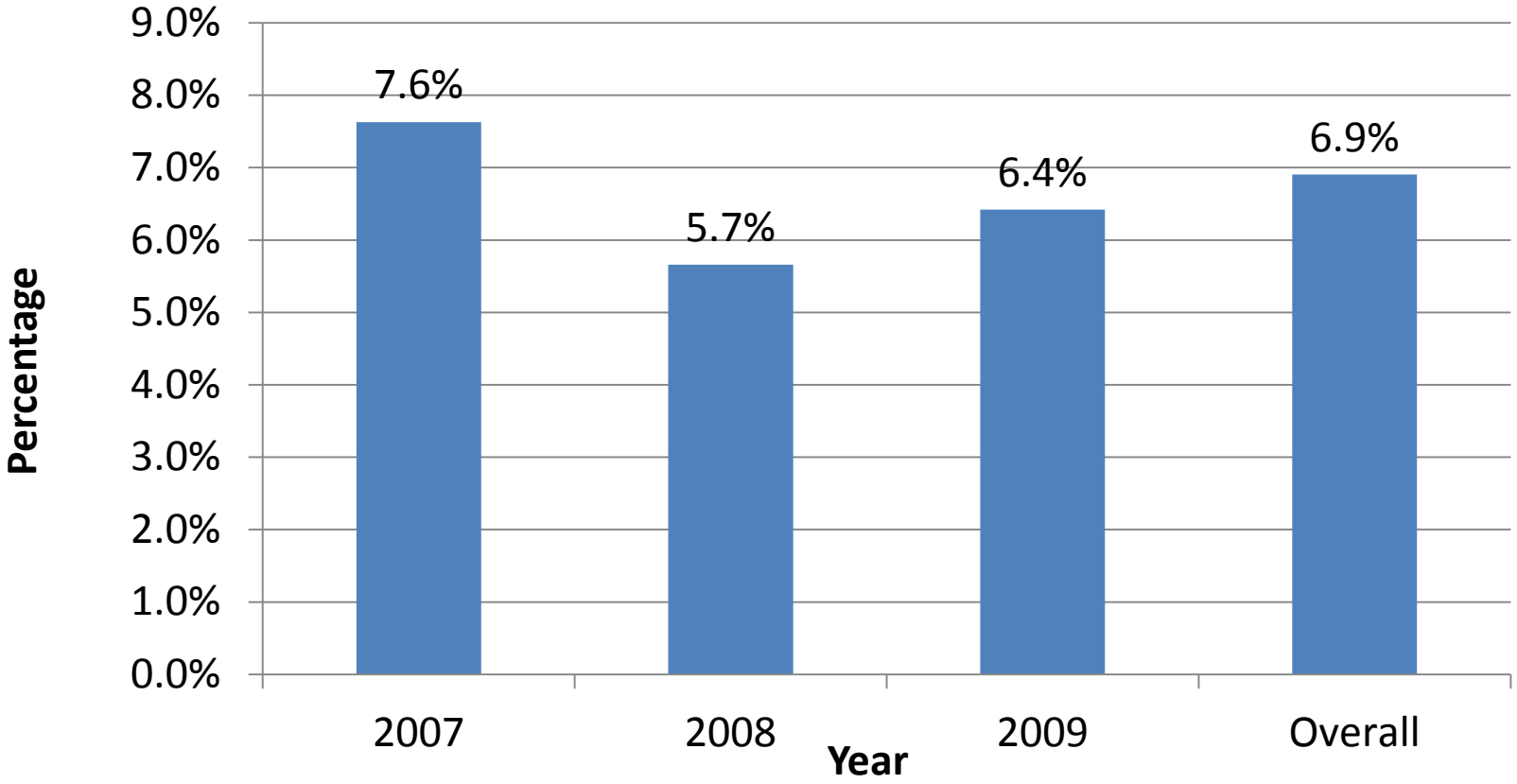


Percentage of Pre-Term and Very Pre-Term Deliveries



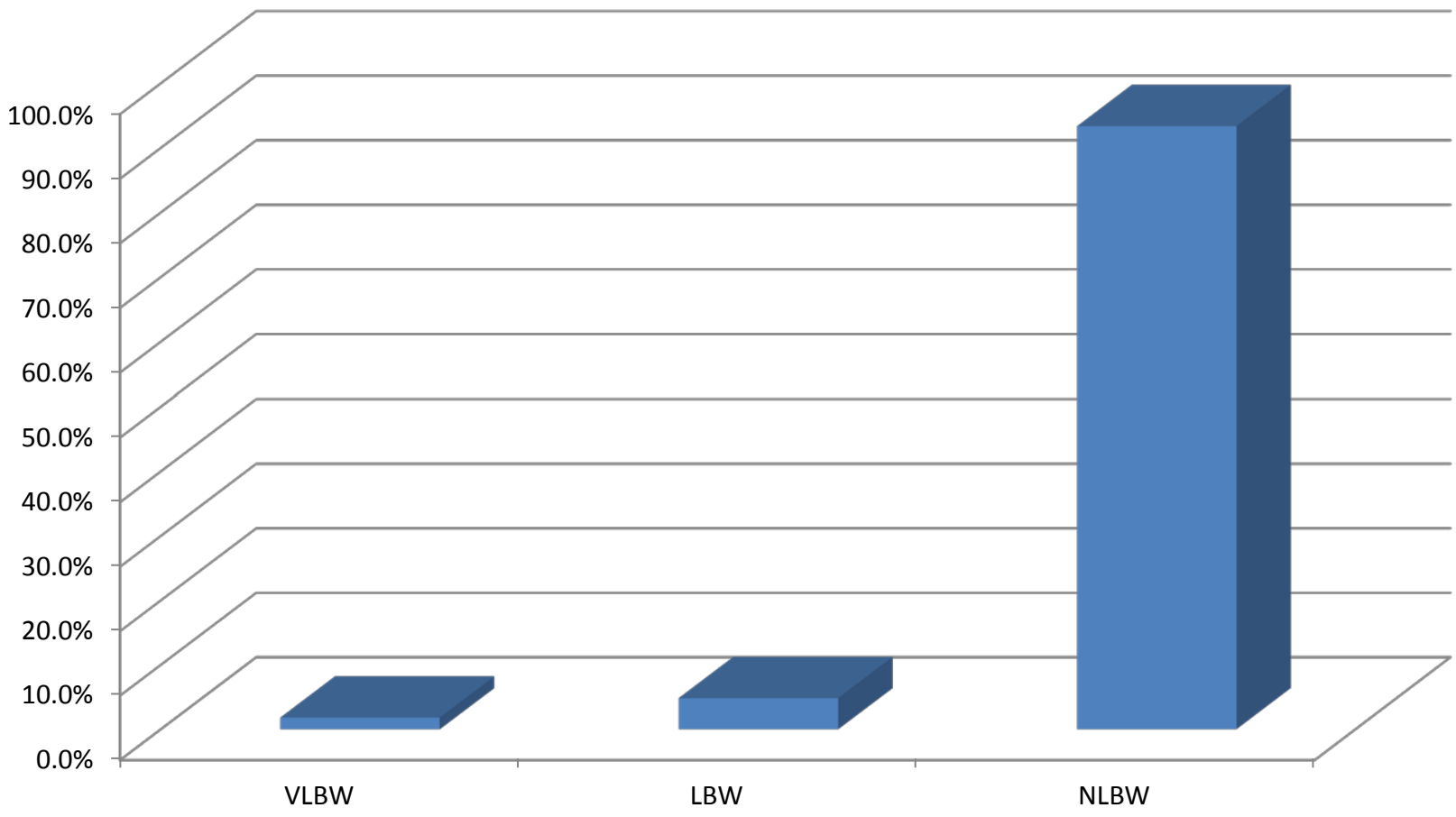
CT Preterm Birth Rate for 2006-2008 10.4% Very Preterm 1.9%
CHC Preterm Birth Rate 2007-2009 3.6% Very Preterm 2.1%

Percentage of LBW Births By Year

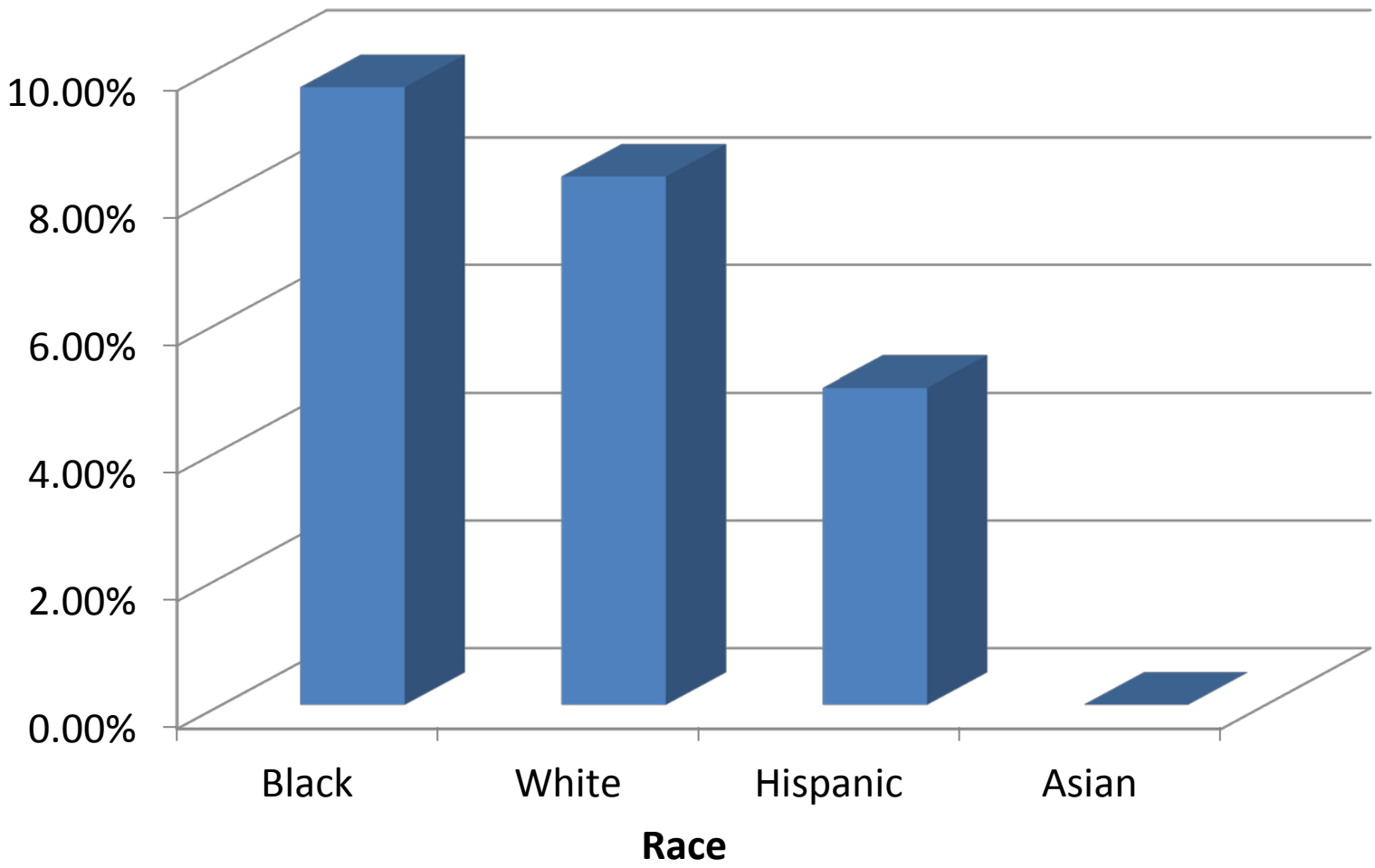


CT LBW 2006 8.1%, National Goal 2010 7.6%
CT Voices data for 2007: LBW 8.9% for HUSKY Program, FFS Medicaid 9.7%, other women 7.6%

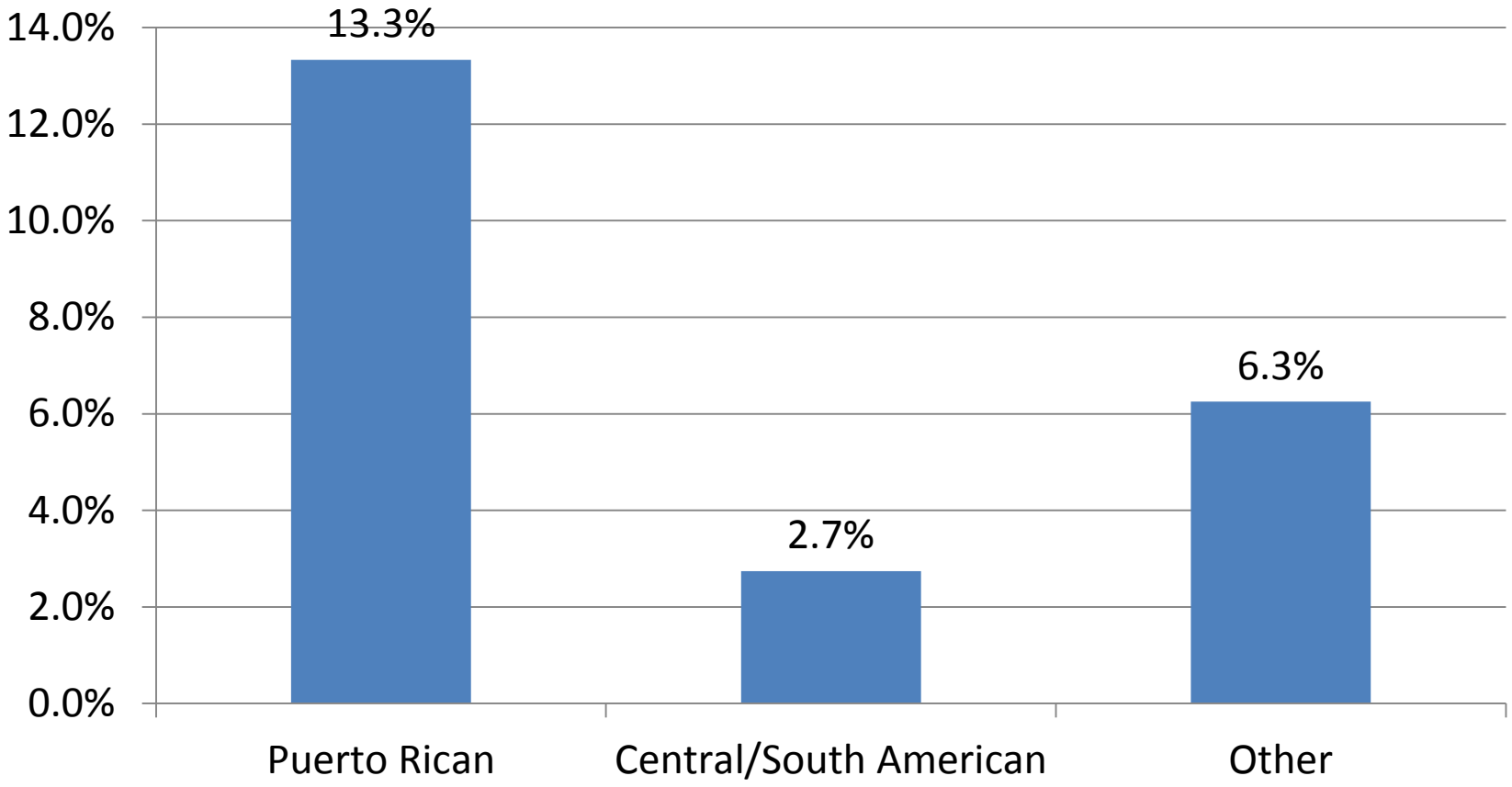
Percentage of Very Low Birth Weight and Low Birth Weight Births



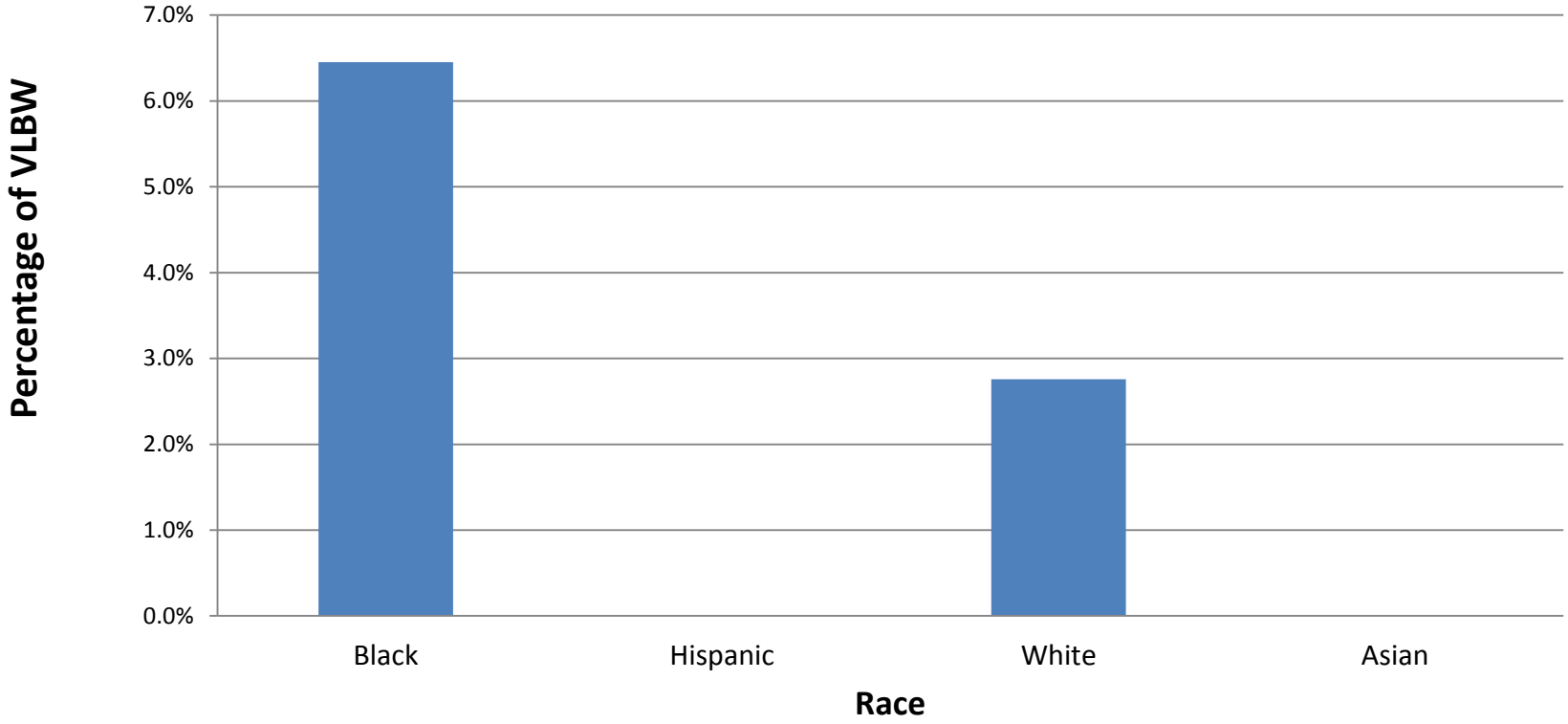
Percentage LBW By Race



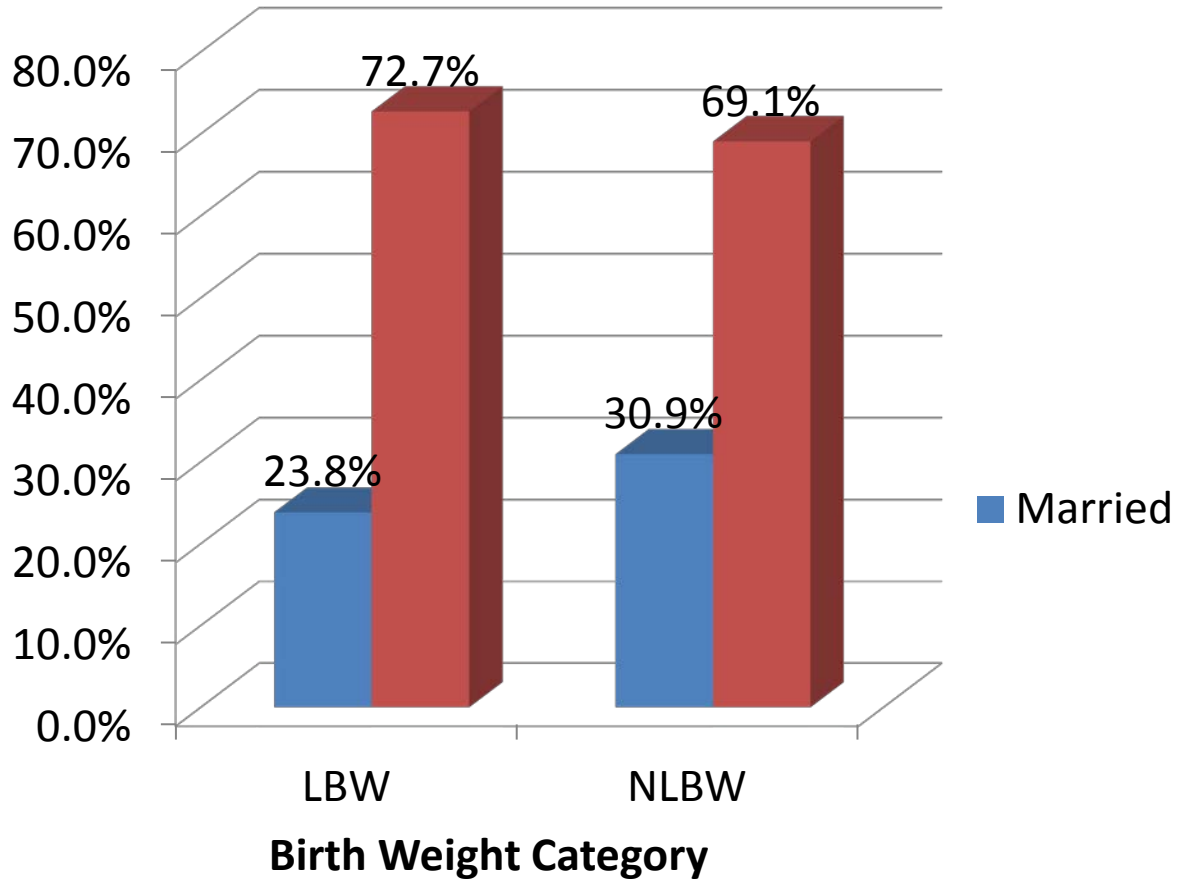
LBW By Hispanic Ethnicity



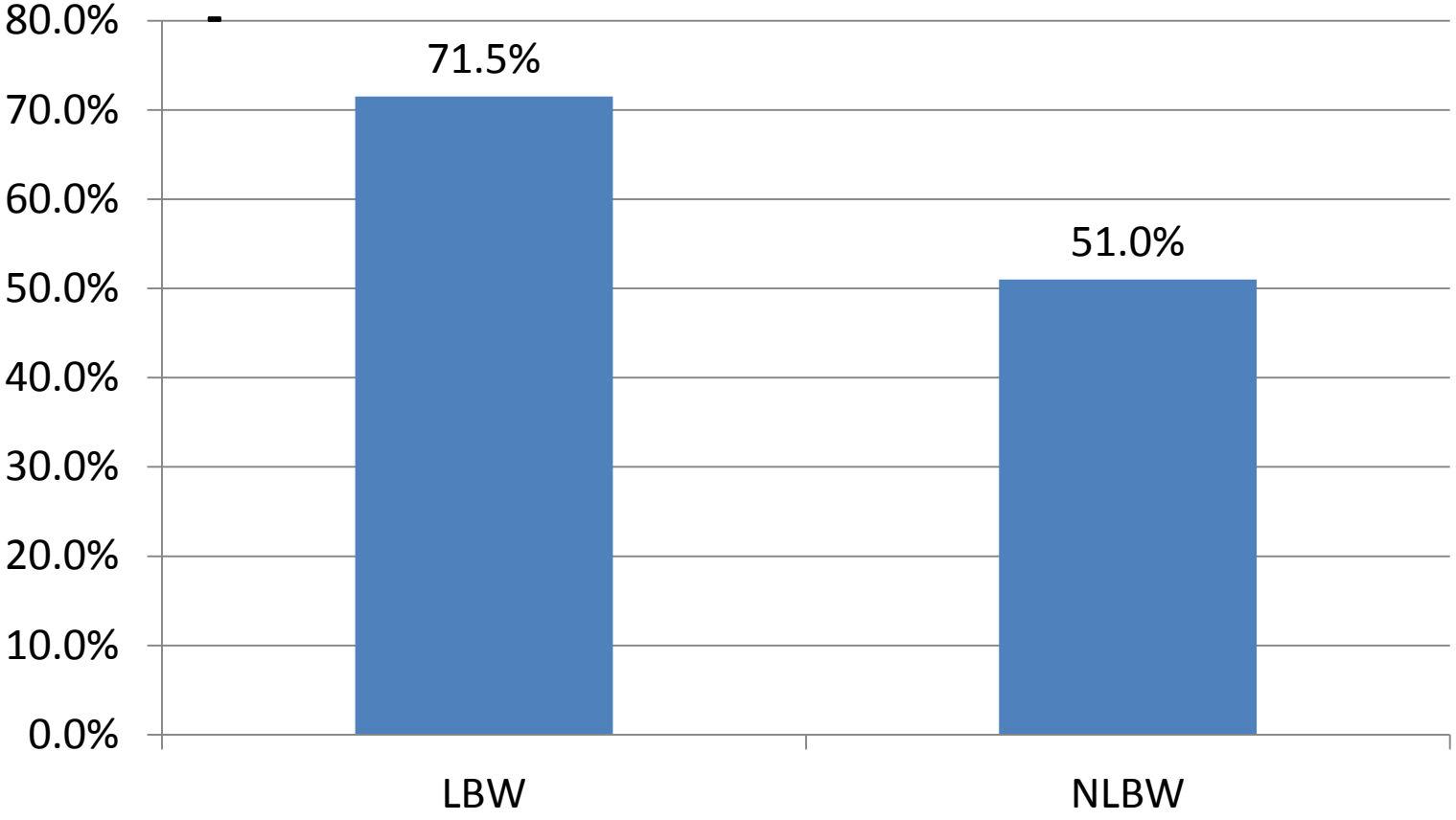
Percentage of VLBW By Race



Marital Status By Birth Weight Category



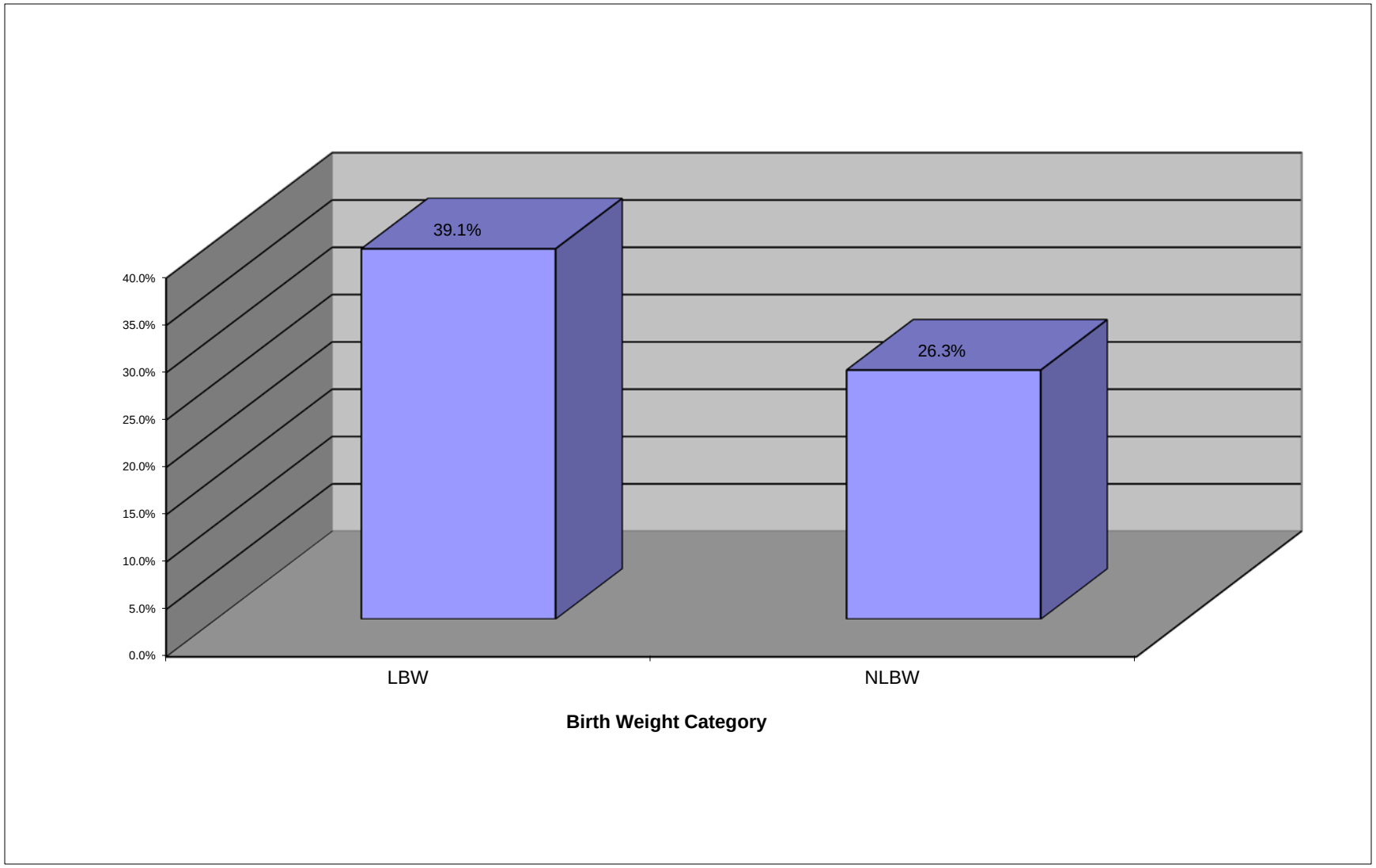
Inadequate Dental Care By Birth Weight Category



Periodontal Disease and Birth Outcomes

- While some RCS (Jeffcoat, M. et al., 2003, Lopez, N., et al. 2002) indicate the treatment of periodontal disease (SRP) may reduce the risk of preterm birth, the present consensus is that there is a **relational rather than causal association** between the two.
- Additional studies are needed to explore if a relationship exists between severity of periodontal disease and risk for preeclampsia, gestational diabetes, preterm birth, early and late term miscarriage or restricted intrauterine growth (Xiong, X., et al. 2006).
- Preliminary Data from study at CHC, Inc. reveal premature birth is associated with pregnant women reporting > 2 years since their last dental cleaning. (Flinter, M. Gagliardi, A., Milan, S.).
- Vertical transmission of S. mutans bacteria between mother and children has been demonstrated by numerous studies (Lapirattanakul, J., et al . 2008)
- Mothers with high levels of S. mutans in saliva is associated with her child's earlier establishment of bacteria
- Early establishment of bacteria places child at increased risk of dental carries (Kohler, B et al, 1988)

Percentage of smokers in each birth weight category



Smoking Is Associated with Preterm Birth
Smoking Cessation Interventions are associated with Cost Savings

Smoking increases the risk of premature delivery

- slows fetal growth
- Women are 2xs as likely to have a low-birth weight baby if they smoke
- Smoking cessation early in pregnancy decreases the risk of preterm/low birth weight to nearly that of women who do not smoke
- Medicaid women are more likely to smoke than other pregnant women
- Centers for Medicare and Medicaid and CDC estimate the initial cost of smoking cessation services for pregnant women is offset by costs saved from smoking attributable neonatal health care costs
- CT does not cover smoking cessation interventions for pregnant women (neither pharmacotherapy nor counseling)

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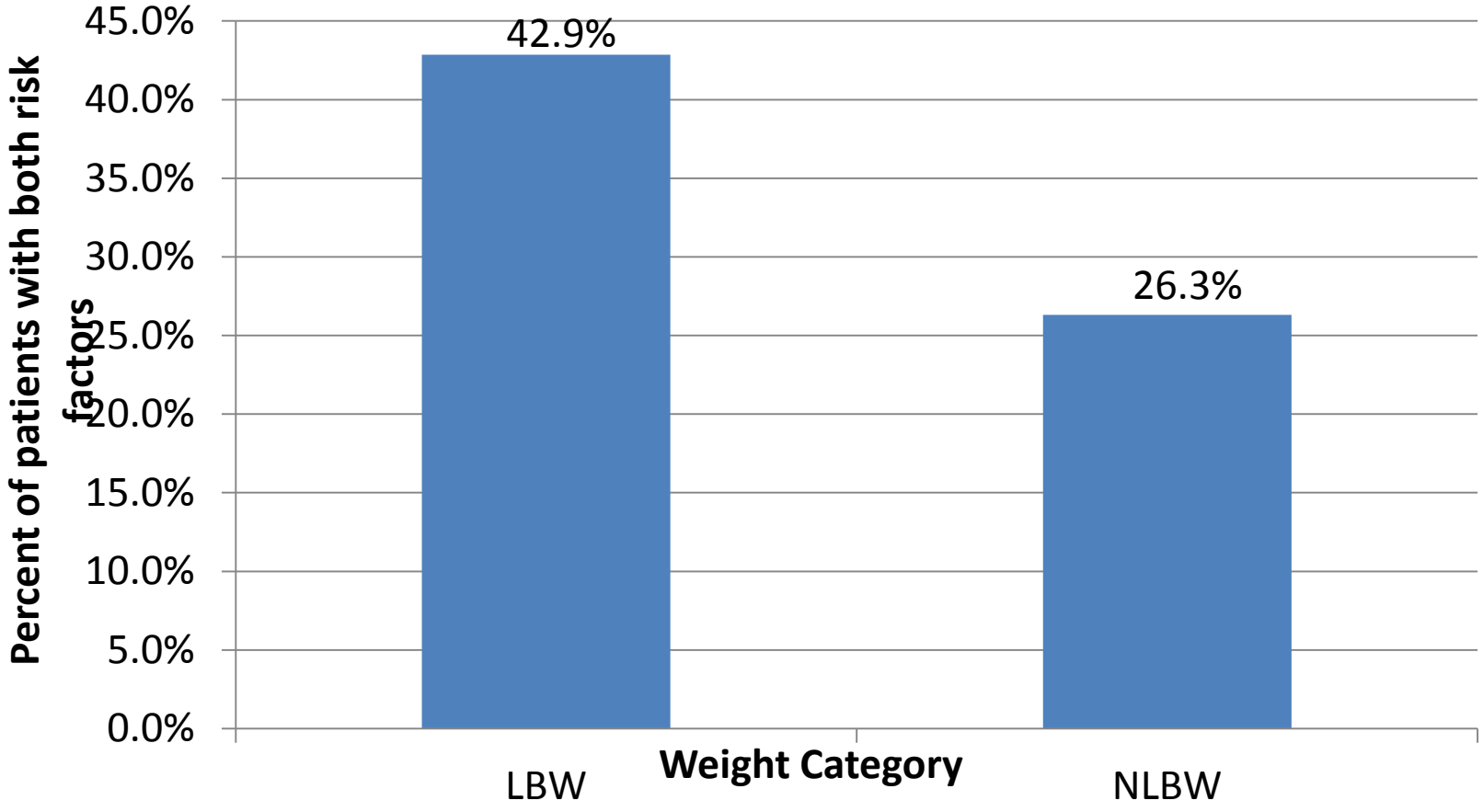
Smoking and Inadequate Dental Care By Birth Weight Category



Depression and Stress during Pregnancy and the Postpartum Period

10-15% of women suffer from significant depressive symtomatology during the perinatal period

25-30% of low-income women suffer from perinatal depression

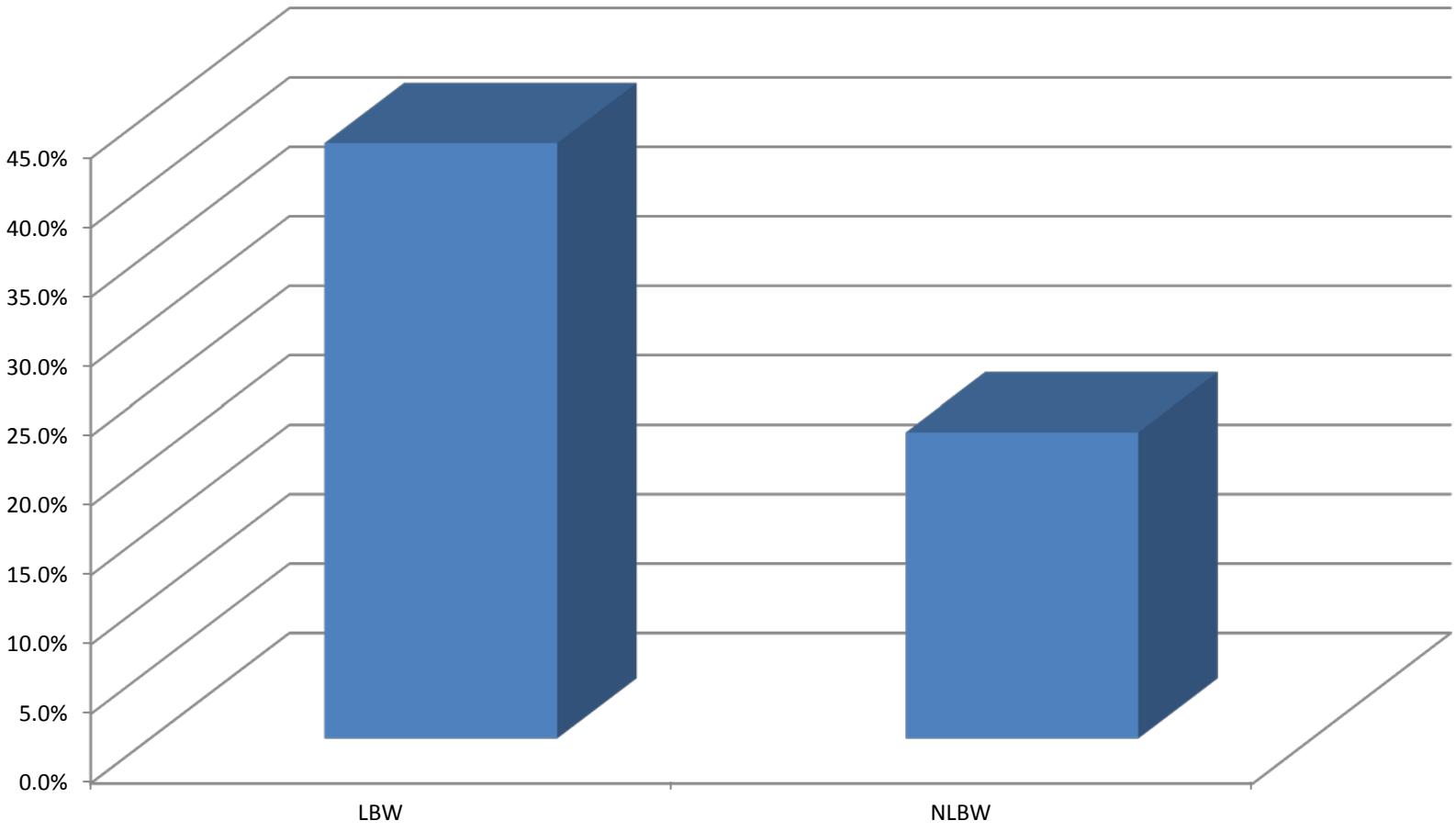
Associated with **decreased fetal growth, preterm birth, poorer neonatal health, all of which are risk factors for developmental delays**

Stress/anxiety/depression during pregnancy elevates cortisol levels mirrored by elevation of cortisol in fetus

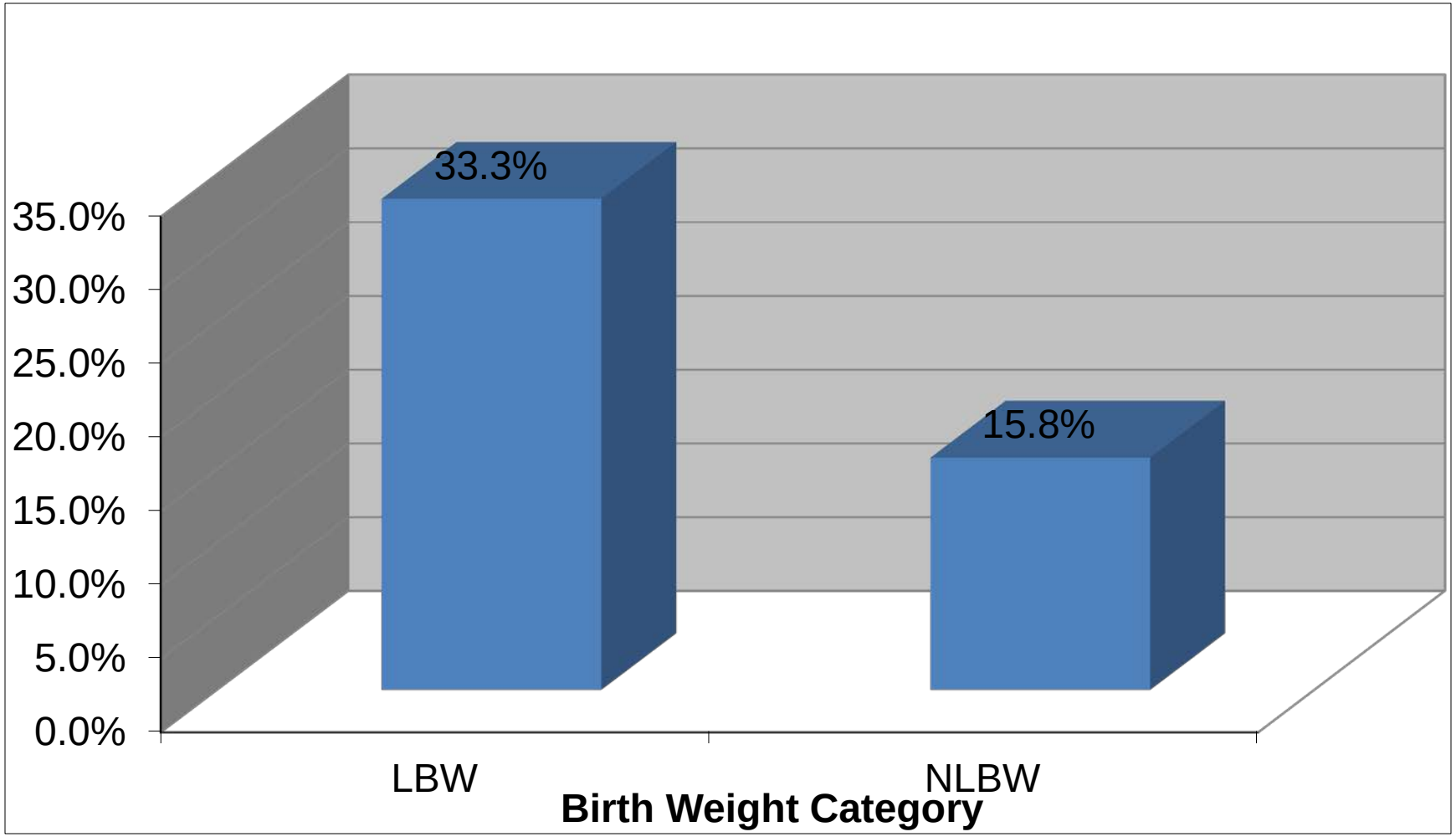
Maternal Depression and Comorbidity

- Depression and stress during the perinatal period may also be a marker of other factors which adversely affect children's early development
- **Depressive symptoms in women often co-occur with smoking, poor nutrition, other psychological disorders, substance use, and domestic violence**
- These factors increase the risk for negative birth outcomes, such as low birth weight and prematurity, which have long-term implications for children's cognitive development and academic success can negatively impact children's early cognitive and emotional development

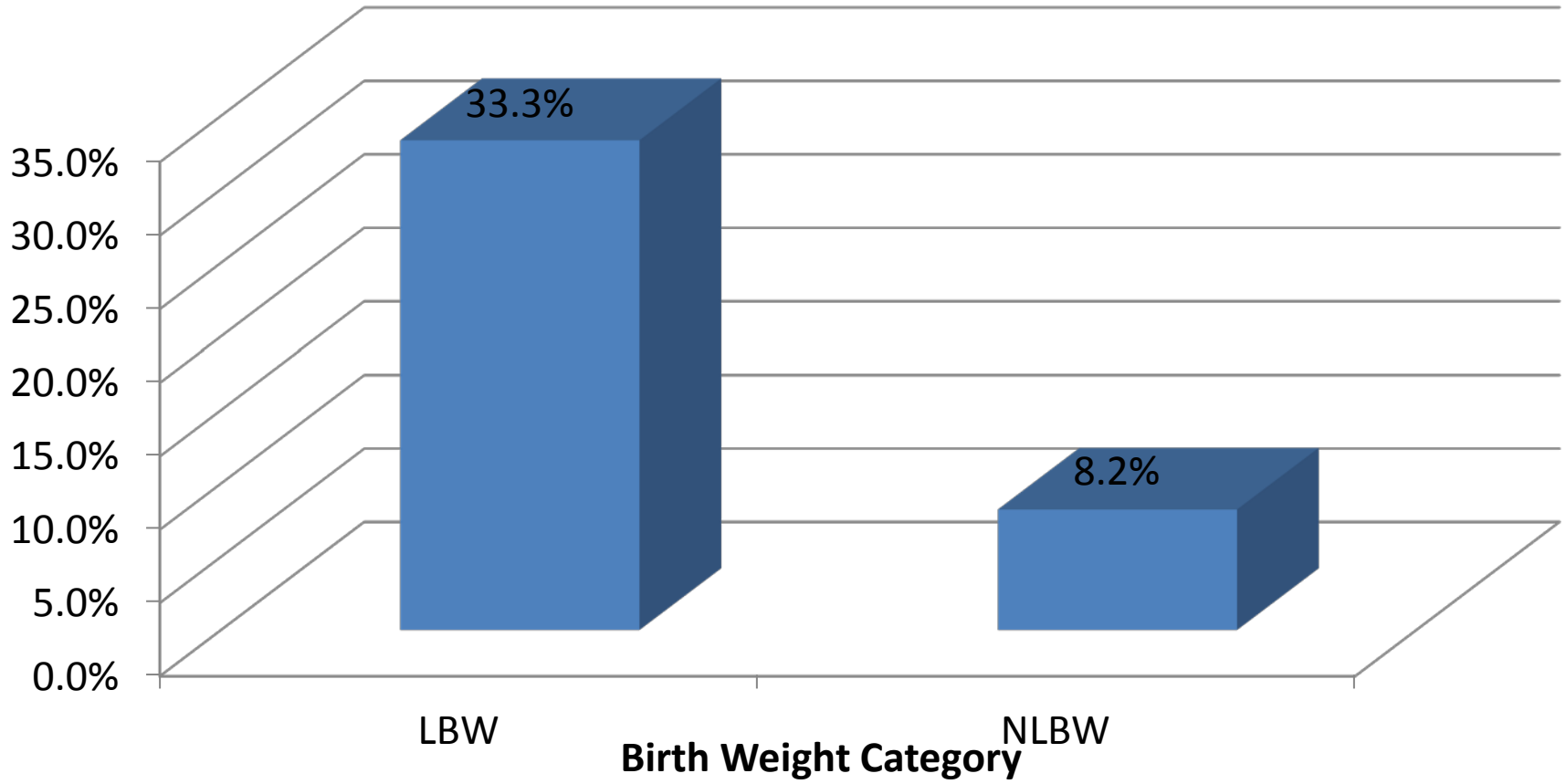
Affective Disorder and Inadequate Dental Care



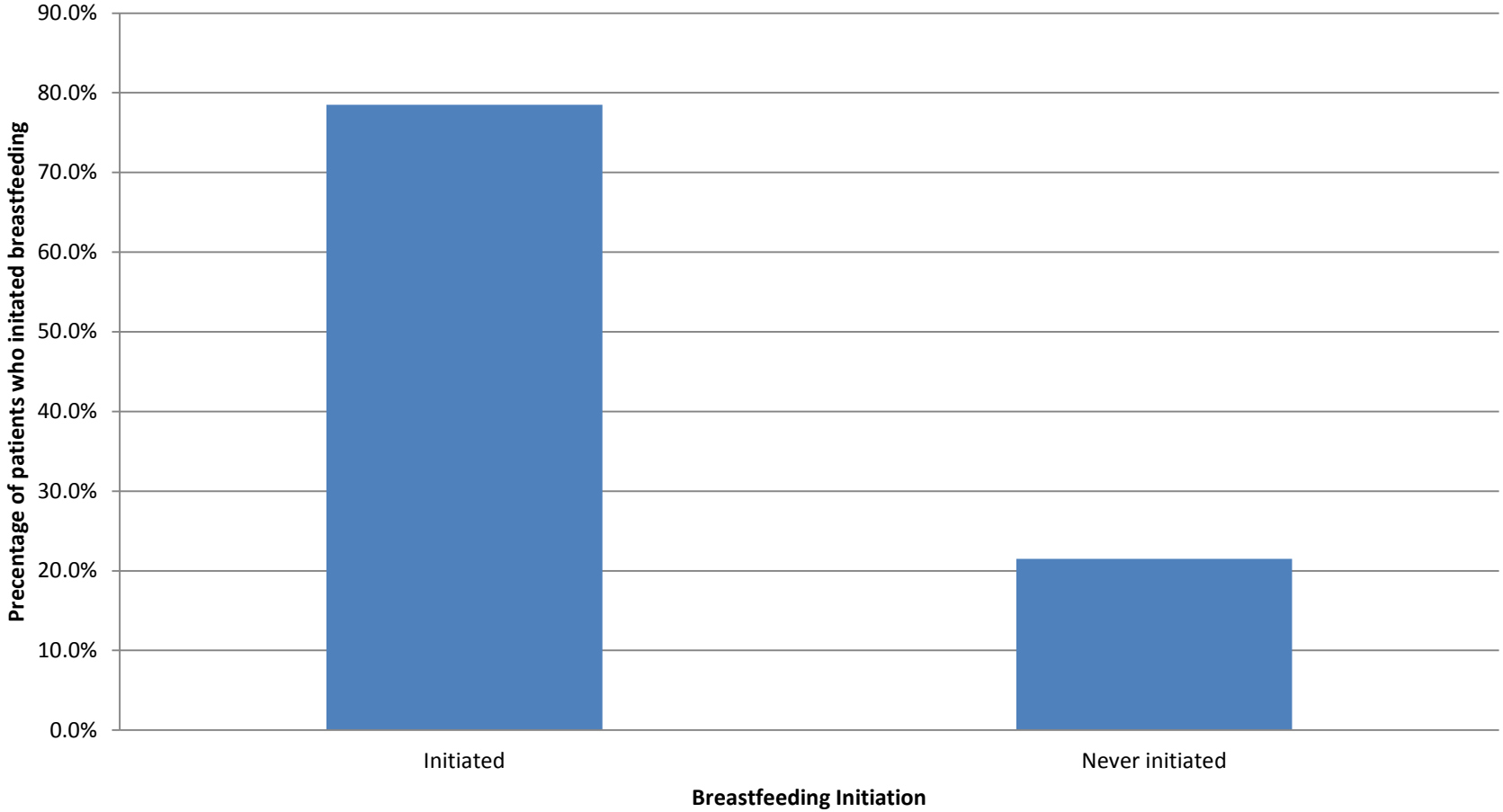
Smoking and Affective Disorder By Birth Weight Category



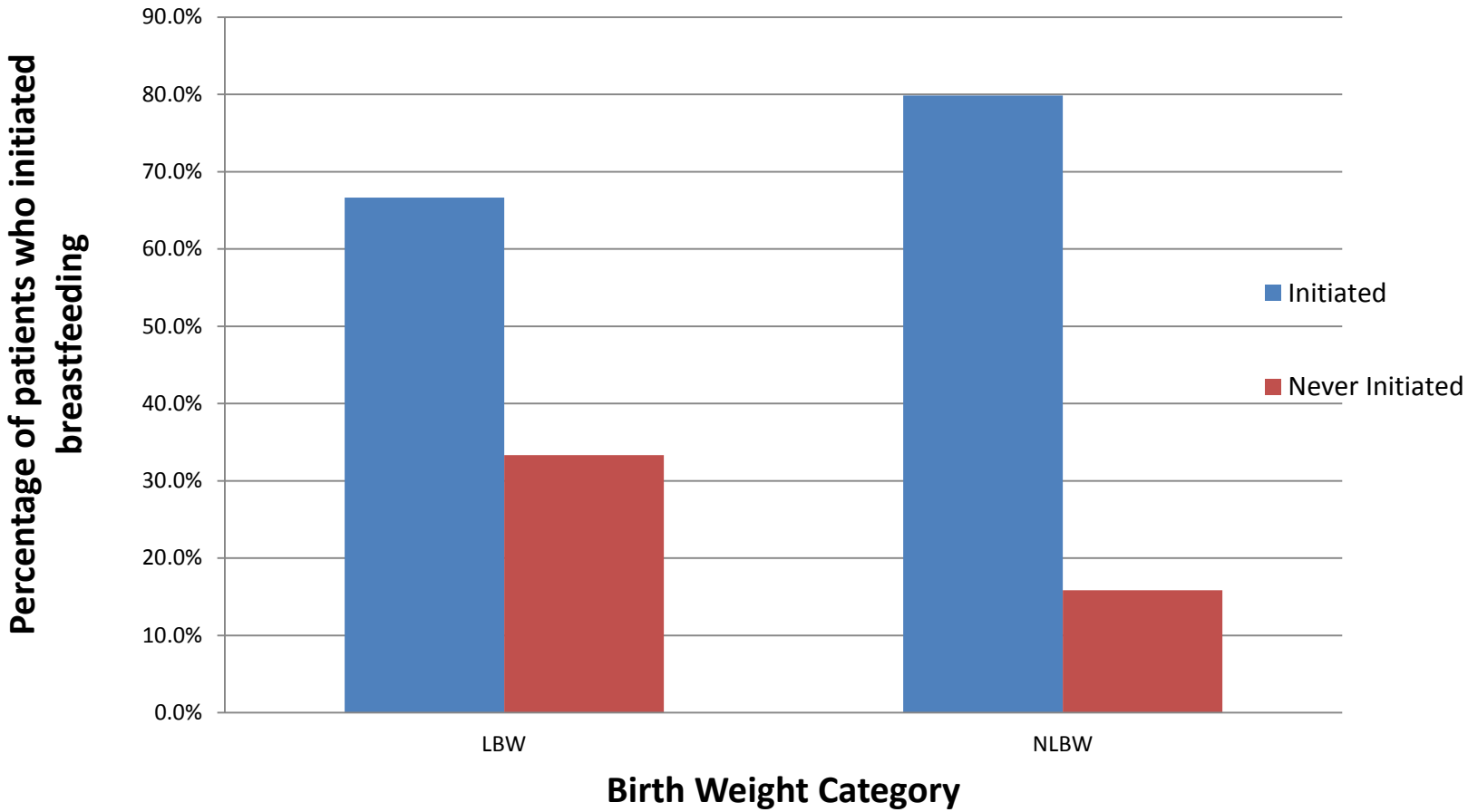
Smoking X Affective Disorder X Inadequate Dental Care By Birth Weight Category



Breastfeeding Initiation in Overall Population



Initiation of Breastfeeding in Each Birth Weight Category



Resource Distribution

Evidence

Relationship
vs
Cause

Policy Decision

Evidence which supports rather than proves

(back to sleep campaign)

Ideal Evidence

Waiting too long

vs

Acting too soon

Perspective on Evidence

Differs based on who is evaluating

(researcher, payer, advocate, patient, provider,

Policy maker)

Values

How we decide to act

(is the outcome of this intervention valuable? Do I think I can get better information if I wait? Risk/benefit of waiting

Prenatal Care Summit in CT

1. Vermont Child Health Improvement Program
2. VT included a prenatal care plan in their CHIP (VCHIP)
3. MODs and Woman's Health SC will partner to convene a Summit on prenatal care in the fall 2010
4. Open to all including providers, state agencies, plans, woman and child health stakeholders, HUSKY members

Contact Information

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