

# **Disparities in Birth Outcomes:** **Data Trends, Evidence Base, and Best Practices**

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# In an Average Week in Wisconsin:

- **1,364** babies are born
- **155** babies are born preterm
- **96** babies are born low birthweight
- **9** babies die before reaching their first birthday

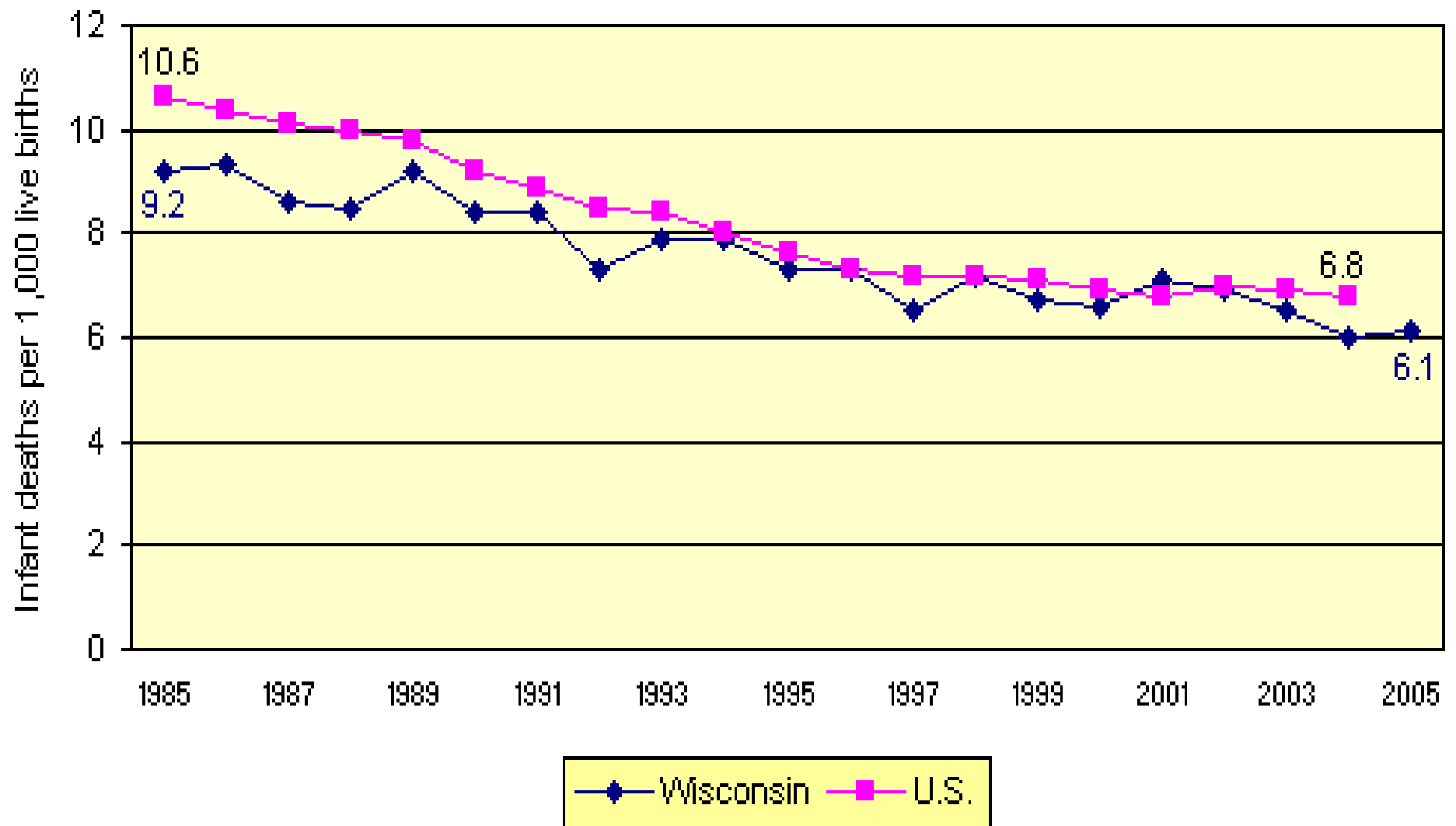
# **Infant Mortality Rate (IMR)**

- **Infant mortality rates reflect a tragic loss of life to individuals, families, and the community.**
- **In Wisconsin, infant mortality rates show widespread disparities across racial and ethnic groups.**

# Some Indicators of Perinatal Health

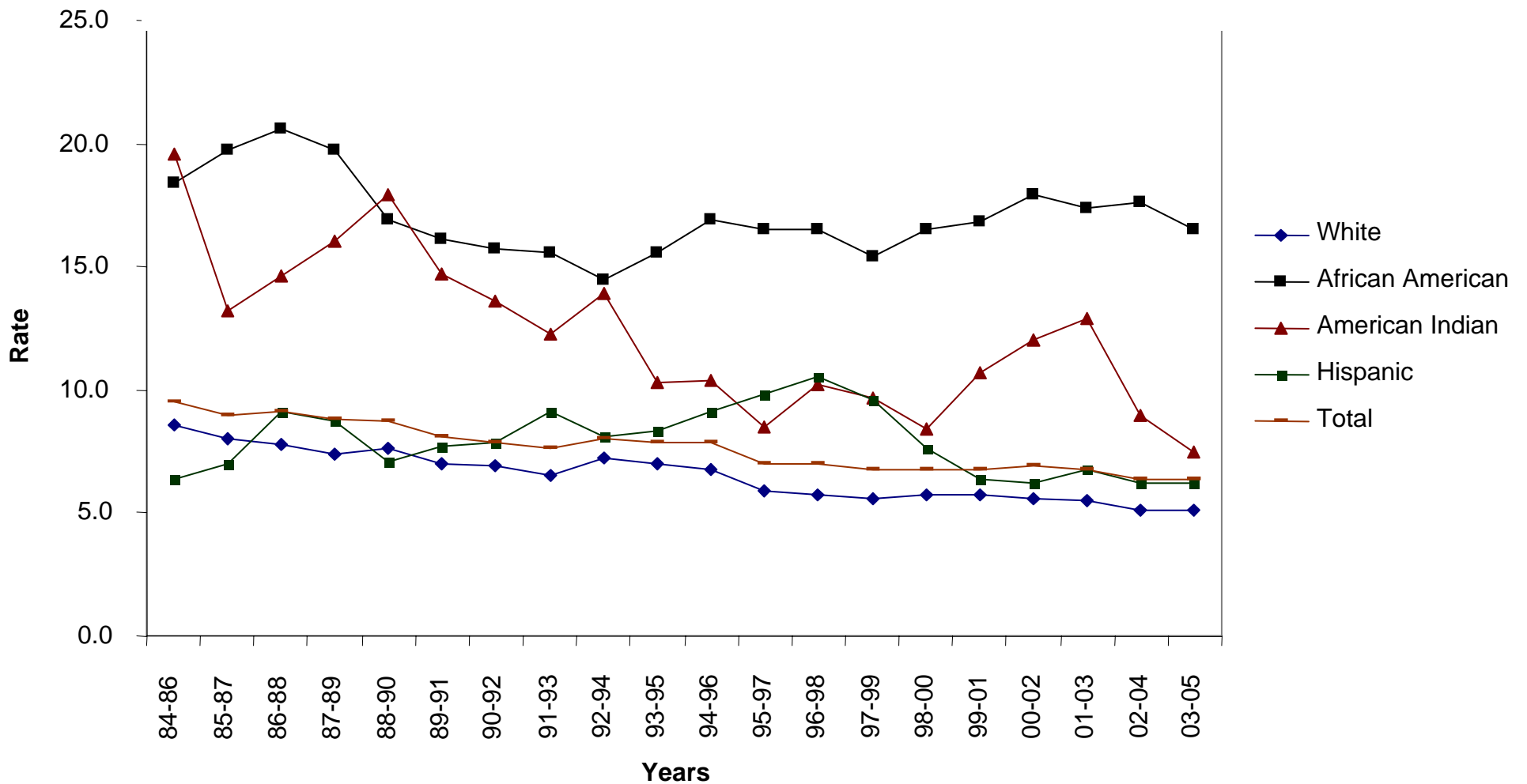
- **Infant mortality rate** (the number of infants who die before the first birthday/1,000 live births)
- Percent of babies born **preterm** (<37 weeks)
- Percent of babies born with **low birth weight** (<2,500 g; <5.5 lb)
- Percent of pregnant women who receive **prenatal care** that begins in the first trimester (<13 weeks)

## Infant Mortality Rates, Wisconsin and the United States, 1985-2005



Note: Rates are the number of infant deaths per 1,000 live births.  
Infant deaths are those that occur before 365 days of age.

# Wisconsin Infant Mortality Rates by Race/Ethnicity, 1984-2005 (3-Year Rolling Averages)



# 3-Year Infant Mortality Rates

1984-2005, Wisconsin  
(number of infant deaths per 1000 live births)

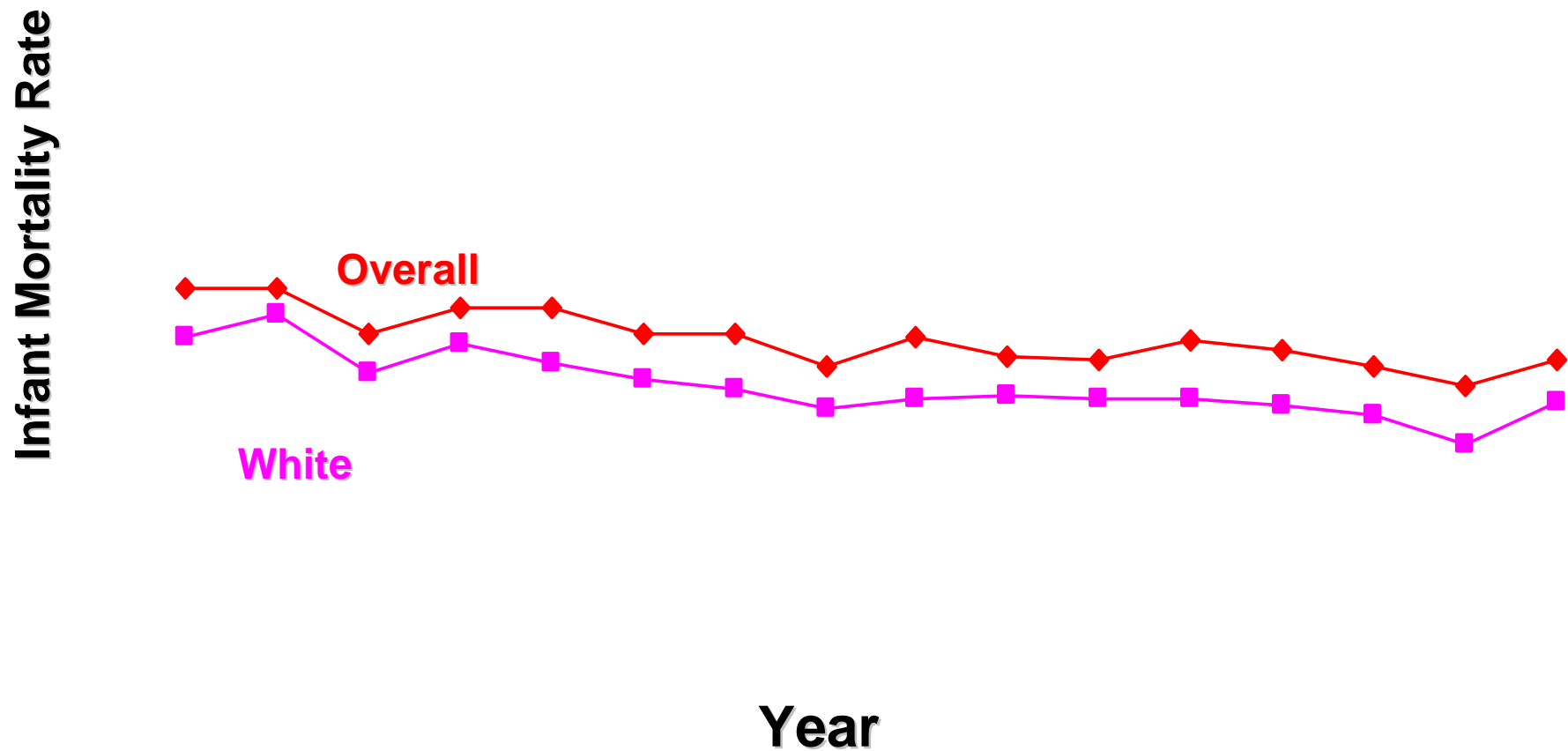
<b>Infant Mortality</b>	<b>1984-86</b>	<b>2003-05</b>
<b>American Indian</b>	<b>19.6</b>	<b>7.5</b>
<b>African American</b>	<b>18.4</b>	<b>16.5</b>
<b>Hispanic</b>	<b>6.4</b>	<b>6.2</b>
<b>White</b>	<b>8.6</b>	<b>5.1</b>
<b>TOTAL</b>	<b>9.5</b>	<b>6.4</b>

## Non-Hispanic African American Infant Mortality Rates, among Reporting States and DC, 2001-2003

US								
Rank	State	AA Rate	Rank	State	AA Rate	Rank	State	AA Rate
		<b>13.65</b>						
1	Minnesota	8.39	13	New Jersey	13.08	27	South Carolina	14.52
2	Oregon	9.35	15	Maryland	13.21	28	Mississippi	14.72
3	Washington	9.45	16	Florida	13.31	29	District Columbia	14.81
4	Kentucky	10.07	17	Georgia	13.46	30	North Carolina	15.12
5	Massachusetts	10.18	18	Connecticut	13.58	31	Nebraska	15.18
6	California	11.13	19	Arizona	13.81	32	Ohio	15.41
7	News York	11.22	20	Indiana	13.84	33	Illinois	15.52
8	Rhode Island	11.84	21	Louisiana	13.92	34	Missouri	15.75
9	Texas	11.94	22	Alabama	14.09	35	Kansas	15.81
10	Iowa	12.31	23	Pennsylvania	14.11	36	Delaware	16.43
11	West Virginia	12.47	24	Virginia	14.15	37	Michigan	16.71
12	Nevada	12.81	25	Colorado	14.24	38	Tennessee	16.87
13	Arkansas	13.08	26	Oklahoma	14.25	<b>39</b>	<b>Wisconsin</b>	<b>17.48</b>

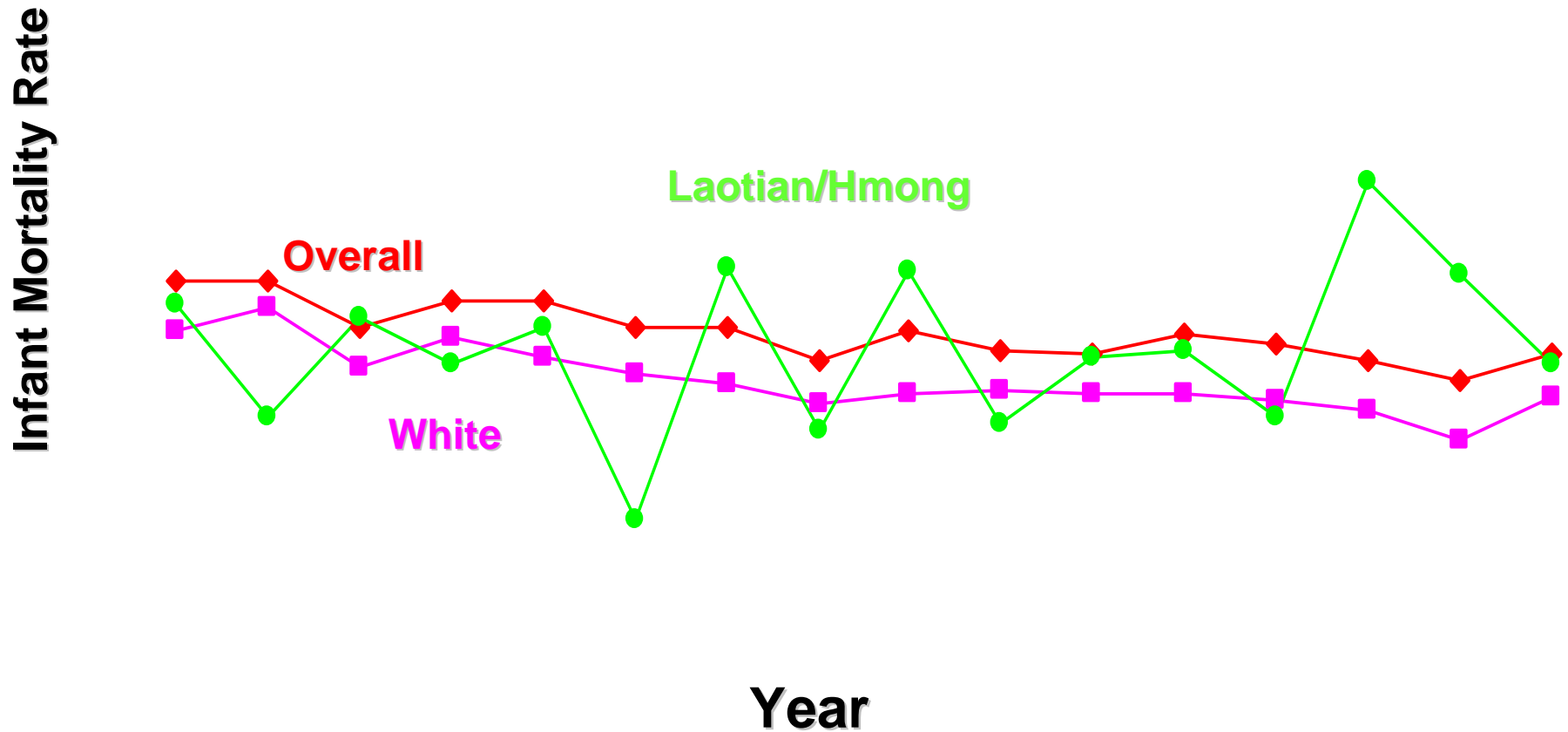
**Mathews TJ, MacDorman MF. Infant mortality statistics from the 2003 period linked birth/infant death data set. National vital statistics reports; vol 54 no 16. Hyattsville, MD: National Center for Health Statistics, 2006.**

# Infant Mortality Rate (per 1,000 live births) White Non-Hispanics Wisconsin, 1990-2005



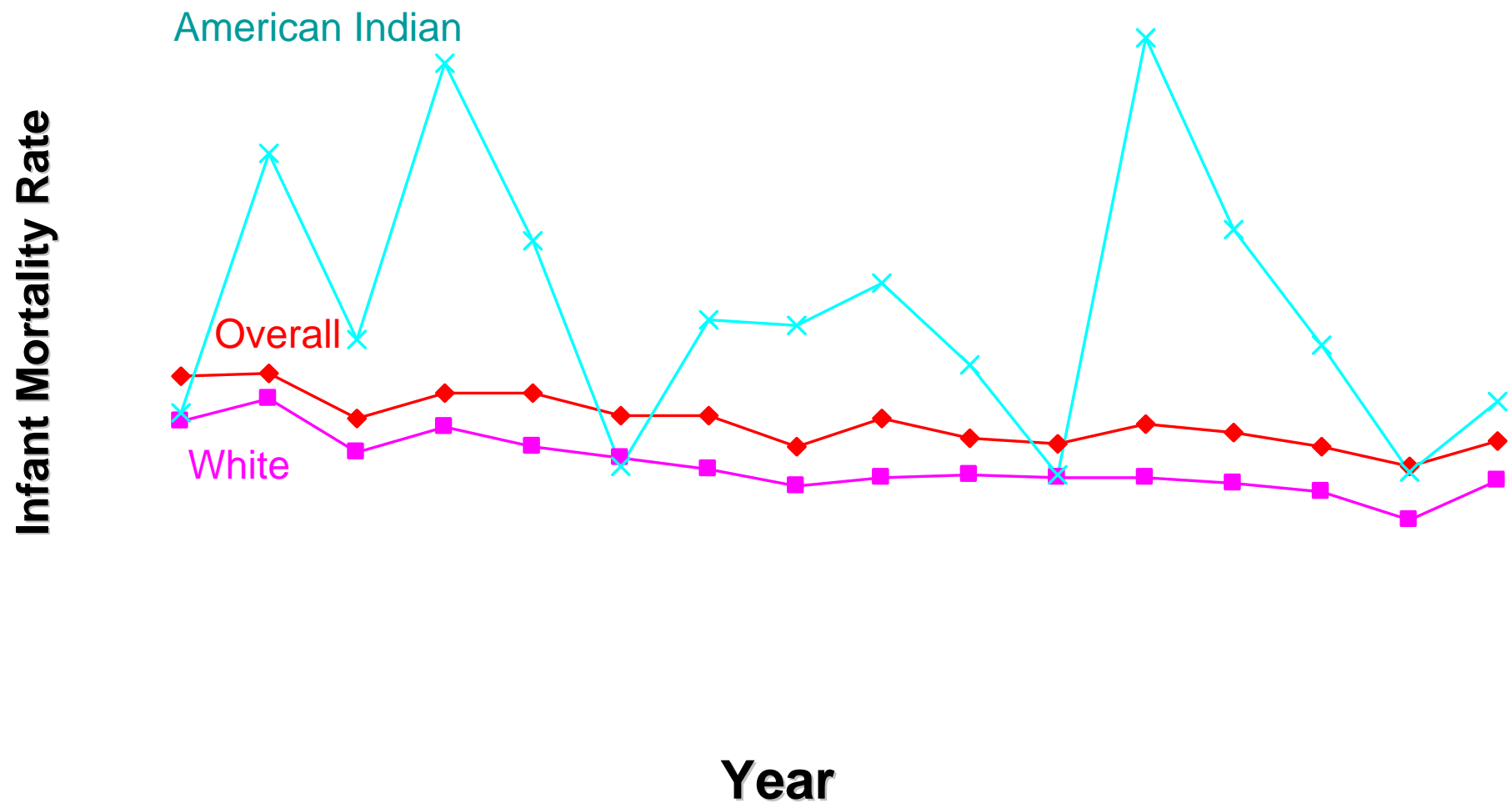
Source: WISH data query system. Accessed Sept. 25-29, 2006

# Infant Mortality Rate (per 1,000 live births) Laotian/Hmong and White Non-Hispanics Wisconsin, 1990-2005



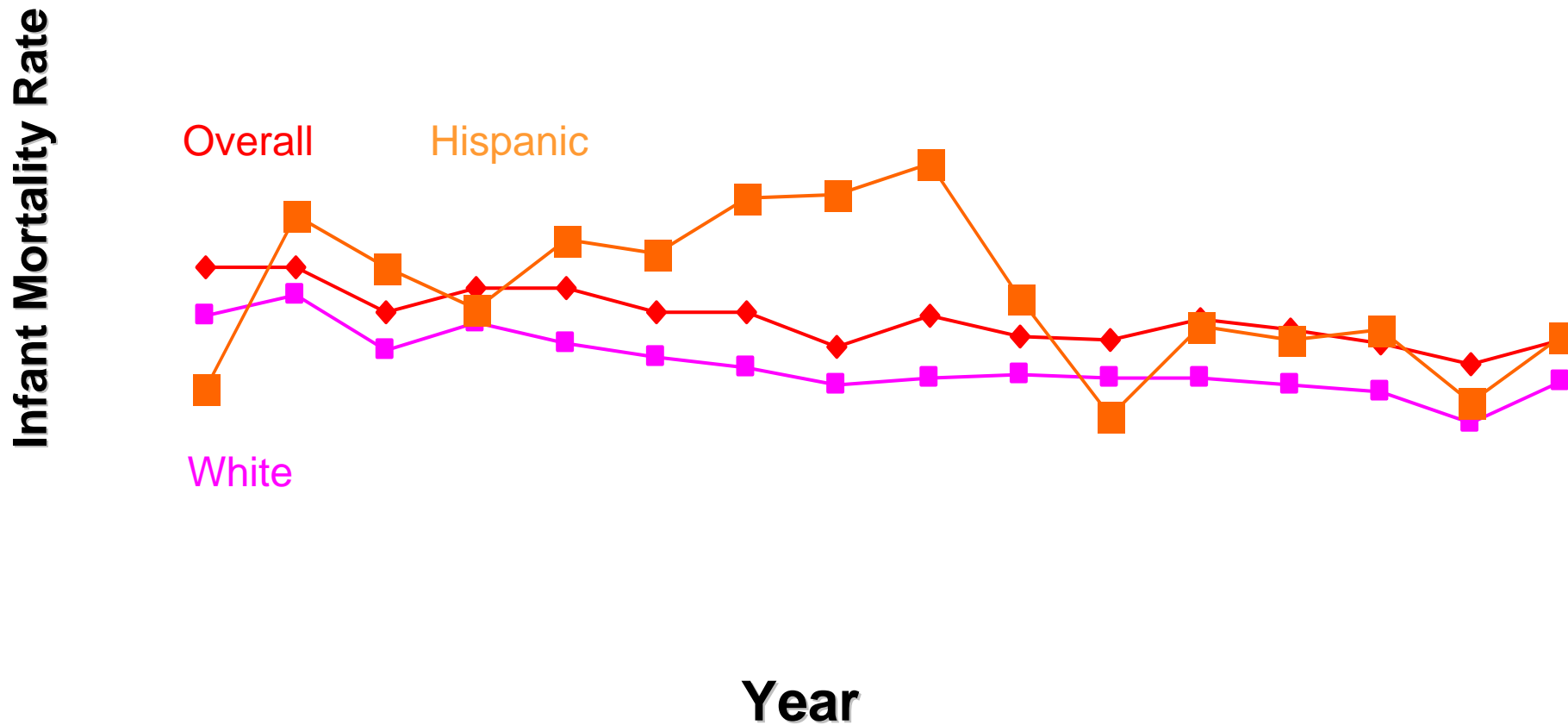
Source: WISH data query system. Accessed Sept. 25-29, 2006

# Infant Mortality Rate (per 1,000 live births) American Indian and White Non-Hispanics Wisconsin, 1990-2005



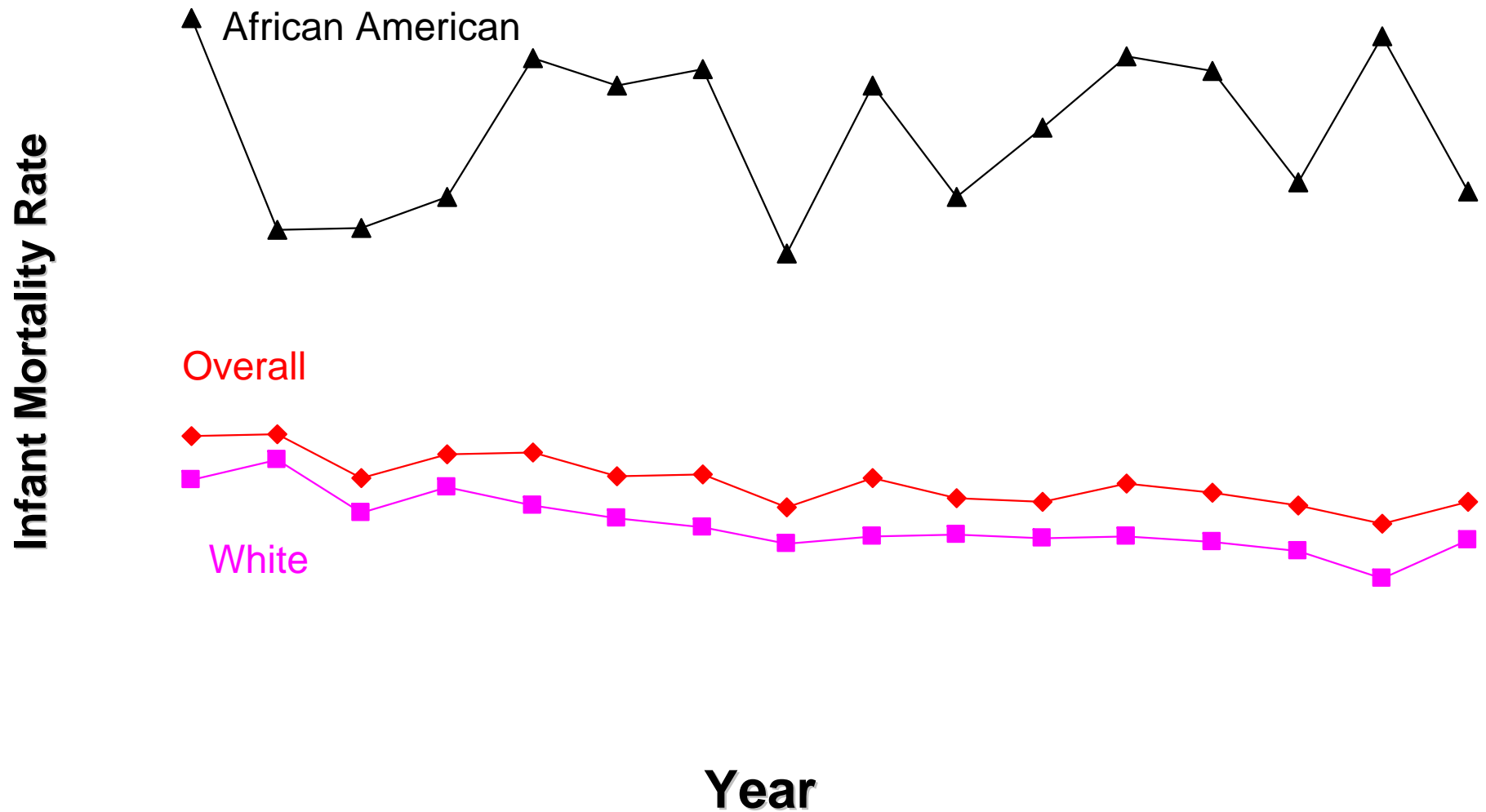
Source: WISH data query system. Accessed Sept. 25-29, 2006

# Infant Mortality Rate (per 1,000 live births) Hispanics and White Non-Hispanics Wisconsin, 1990-2005



Source: WISH data query system. Accessed Sept. 25-29, 2006

# Infant Mortality Rate (per 1,000 live births) African American and White Non-Hispanics Wisconsin, 1990-2005

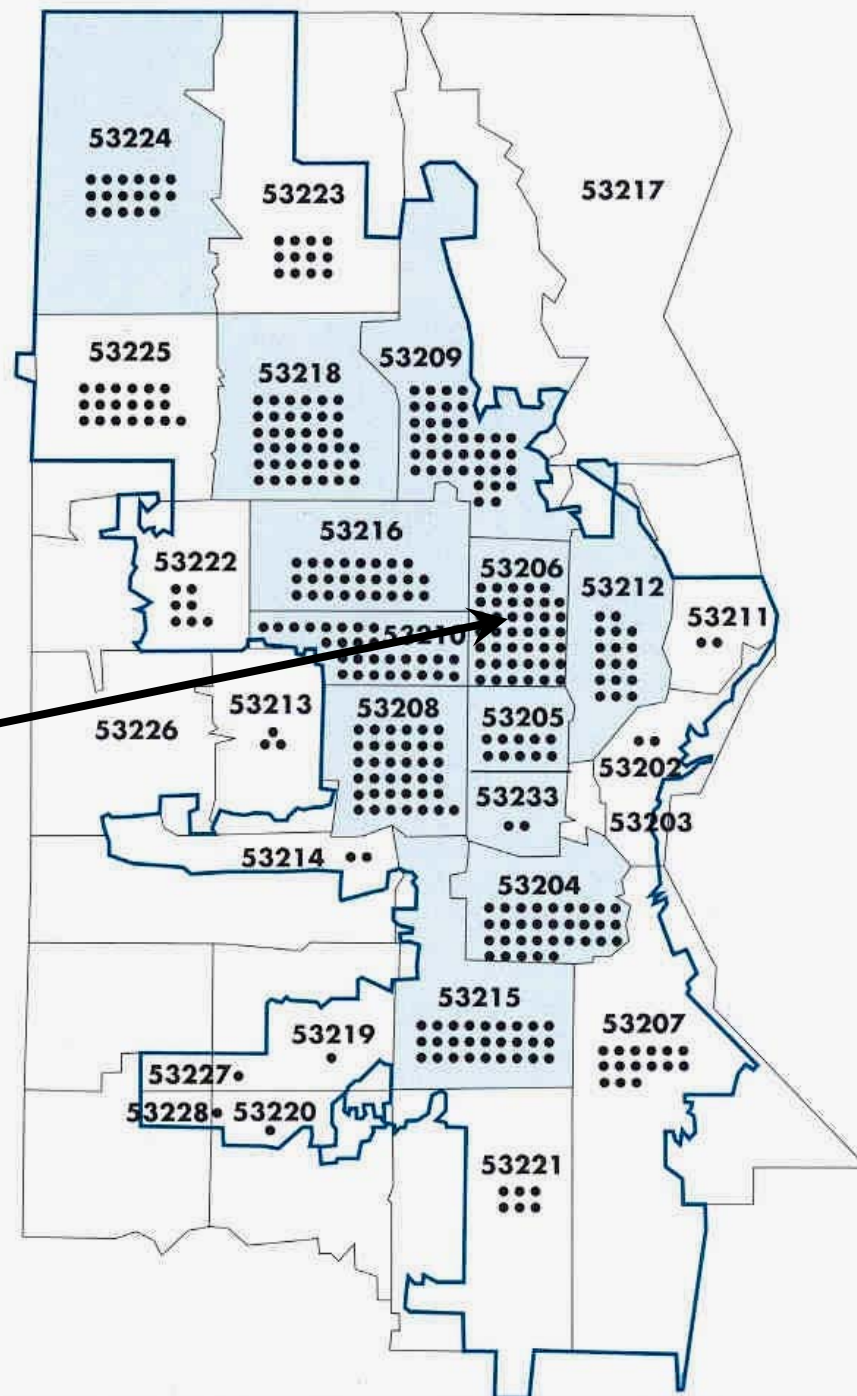


Source: WISH data query system. Accessed Sept. 25-29, 2006

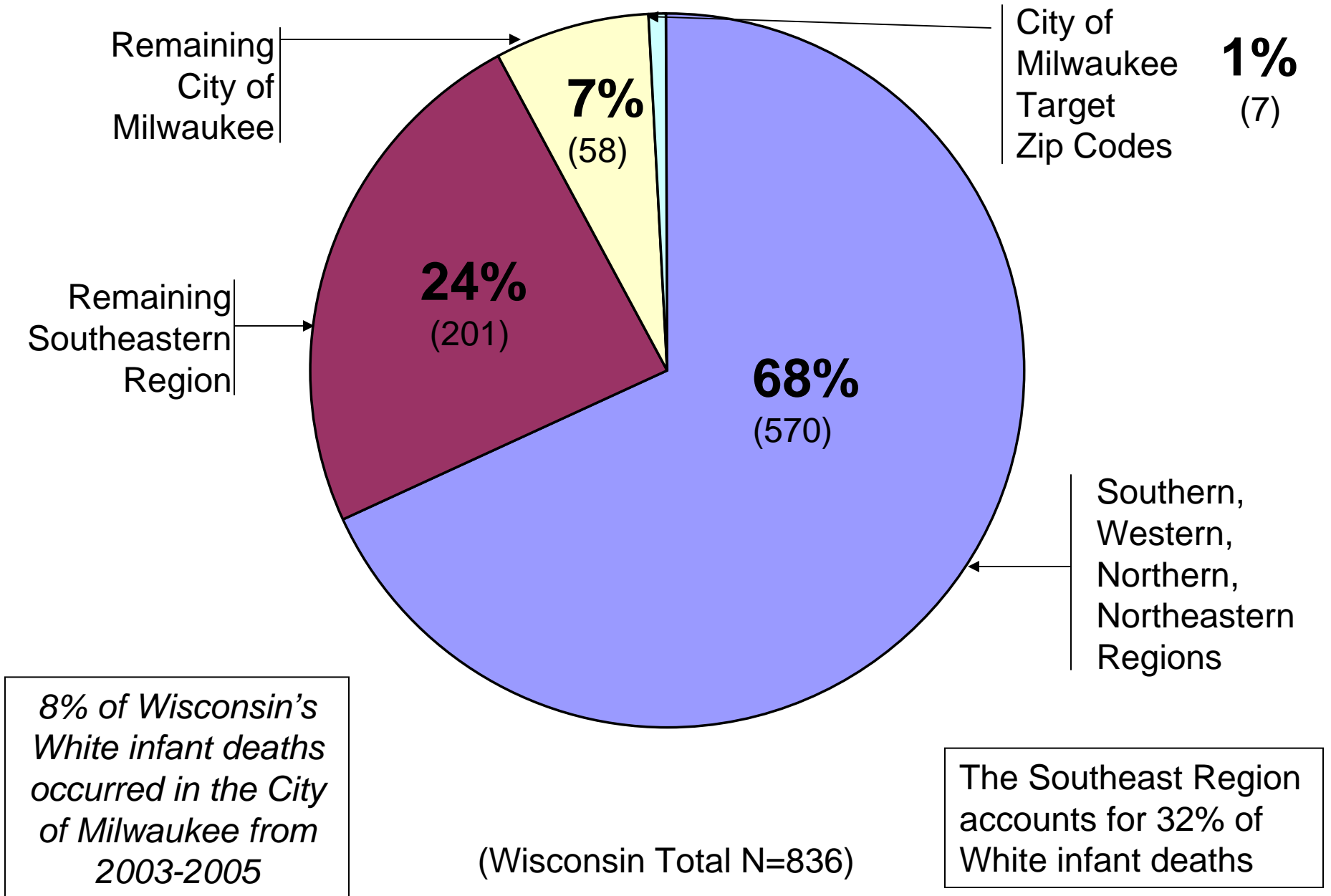
# Map of Milwaukee Infant Deaths 2002-2004 (N = 389)

Zip Code **53206** had the greatest number of infant deaths = 41 and the highest infant mortality rate = 20.4

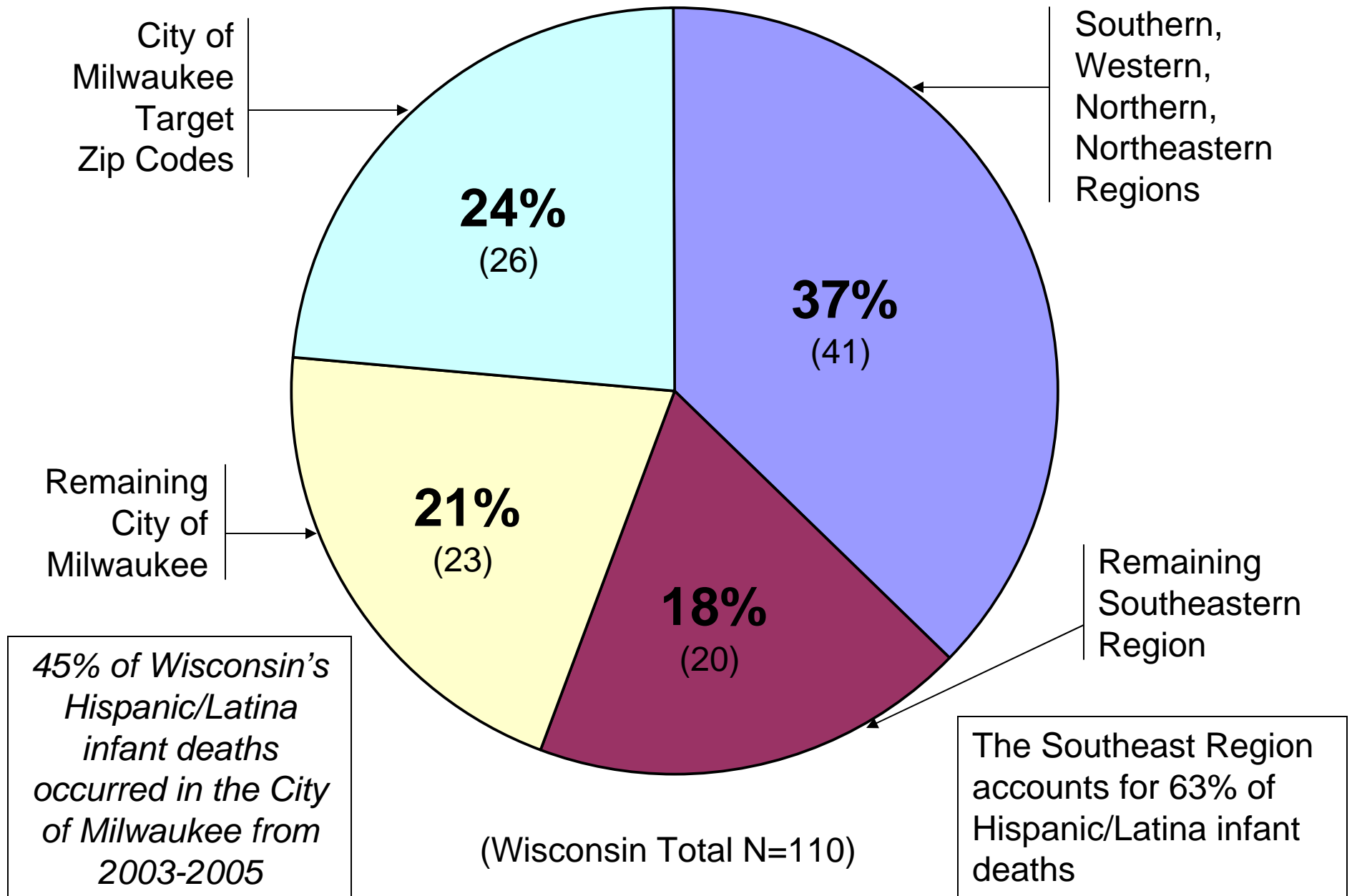
Milwaukee Home Visiting Program, Empowering Families in Milwaukee is in **53204, 05, 06, 08, 12, & 33**



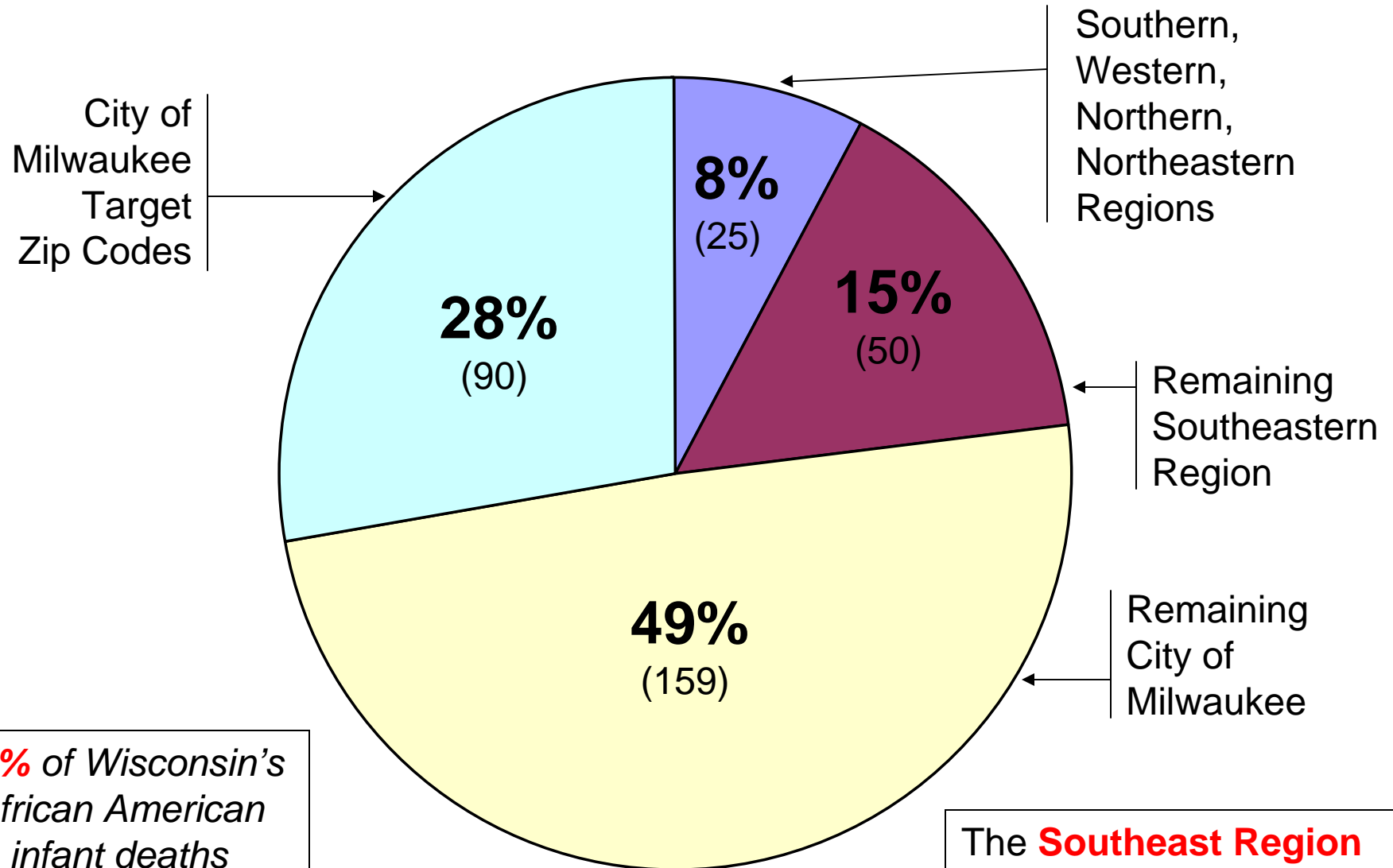
# Geographical Contribution of White Infant Deaths, 2003-2005



# Geographical Contribution of Hispanic/Latina Infant Deaths, 2003-2005



# Geographical Contribution of African American Infant Deaths, 2003-2005



**77%** of Wisconsin's African American infant deaths occurred in the City of **Milwaukee** from 2003-2005

(Wisconsin Total N=324)

The **Southeast Region** accounts for **92%** of African American infant deaths.

# Infant Mortality Rates, 2001-2005

<b>State/County City</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>B/W Ratio</b>
<b>Dane</b>	<b>3.9</b>	<b>9.6</b>	<b>6.4</b>	<b>2.5</b>
Madison	<b>3.8</b>	<b>10.7</b>	<b>7.6</b>	<b>2.8</b>
<b>Kenosha</b>	<b>4.1</b>	<b>18.1</b>	<b>X</b>	<b>4.4</b>
<b>Racine</b>	<b>6.9</b>	<b>28.3</b>	<b>7.0</b>	<b>4.1</b>
<b>Rock</b>	<b>4.7</b>	<b>17.6</b>	<b>5.6</b>	<b>3.8</b>
Beloit	<b>5.8</b>	<b>19.4</b>	<b>X</b>	<b>3.4</b>
<b>Wisconsin</b>	<b>5.3</b>	<b>17.3</b>	<b>6.4</b>	<b>3.3</b>

Note: 'X' denotes less than 5 events and is not reported.

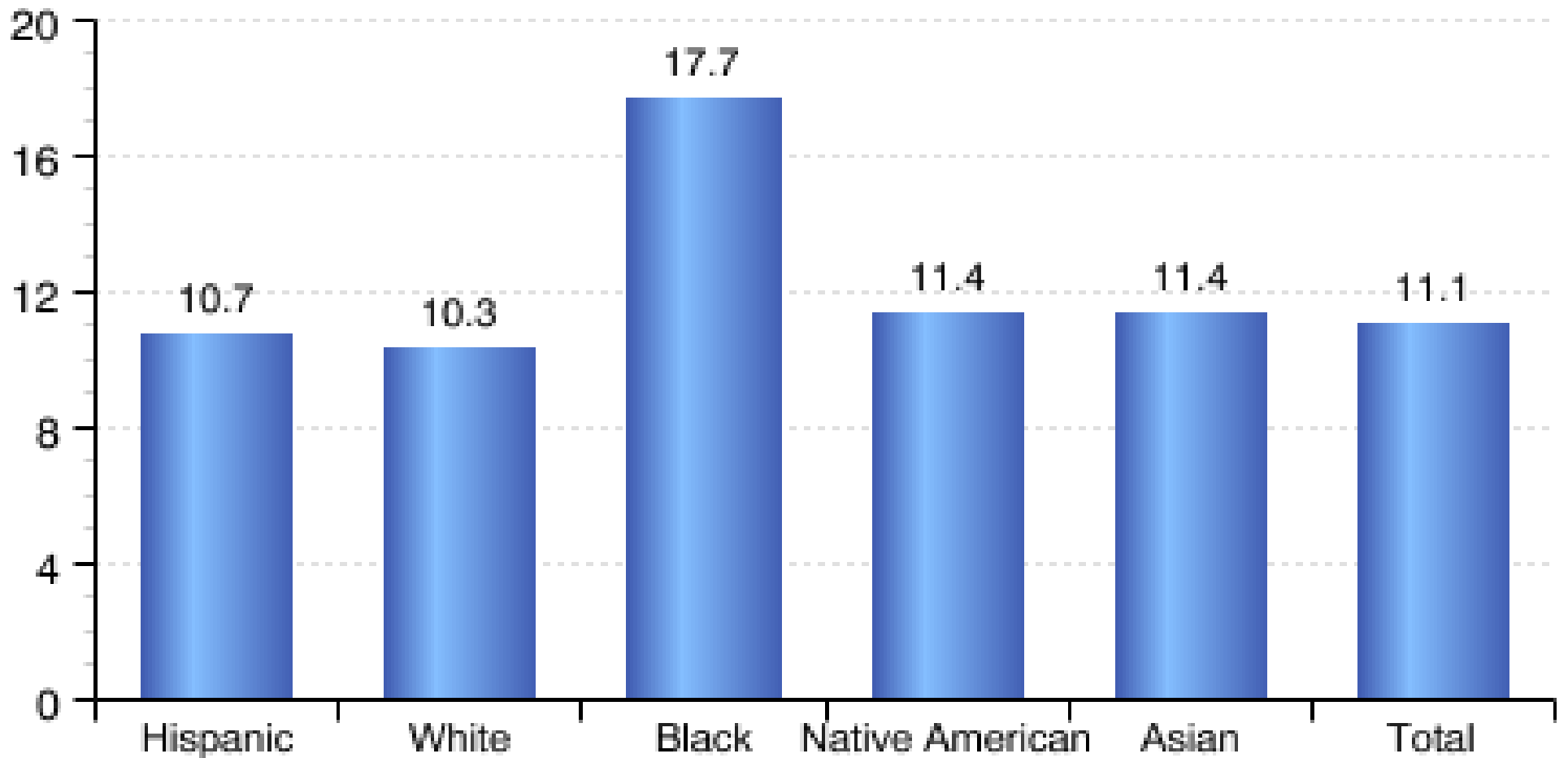
# Wisconsin's Leading Causes of Infant Mortality, 2003-2005

Cause of Death	All Race/Ethnicity	African American	White
Perinatal: Disorders related to Preterm Birth and LBW	<b>20.6%</b>	<b>28.1%</b>	<b>17.3%</b>
Congenital Malformations/Birth Defects	<b>20.3%</b>	<b>10.8%</b>	<b>22.0%</b>
SIDS (Sudden Infant Death Syndrome)	<b>9.3%</b>	<b>12.7%</b>	<b>8.9%</b>
Perinatal: Maternal Complications of Pregnancy	5.4%	5.6%	5.7%
Respiratory Distress Syndrome (RDS)	3.3%	3.4%	3.1%
Perinatal: Newborn Complications of Placenta/Cord/Membranes	3.5%	3.4%	3.7%

WISH (Wisconsin Interactive Statistics on Health), Infant Mortality Module, accessed 3/5/07.

# Preterm Births by Race/Ethnicity Wisconsin, 2001-2003 Average

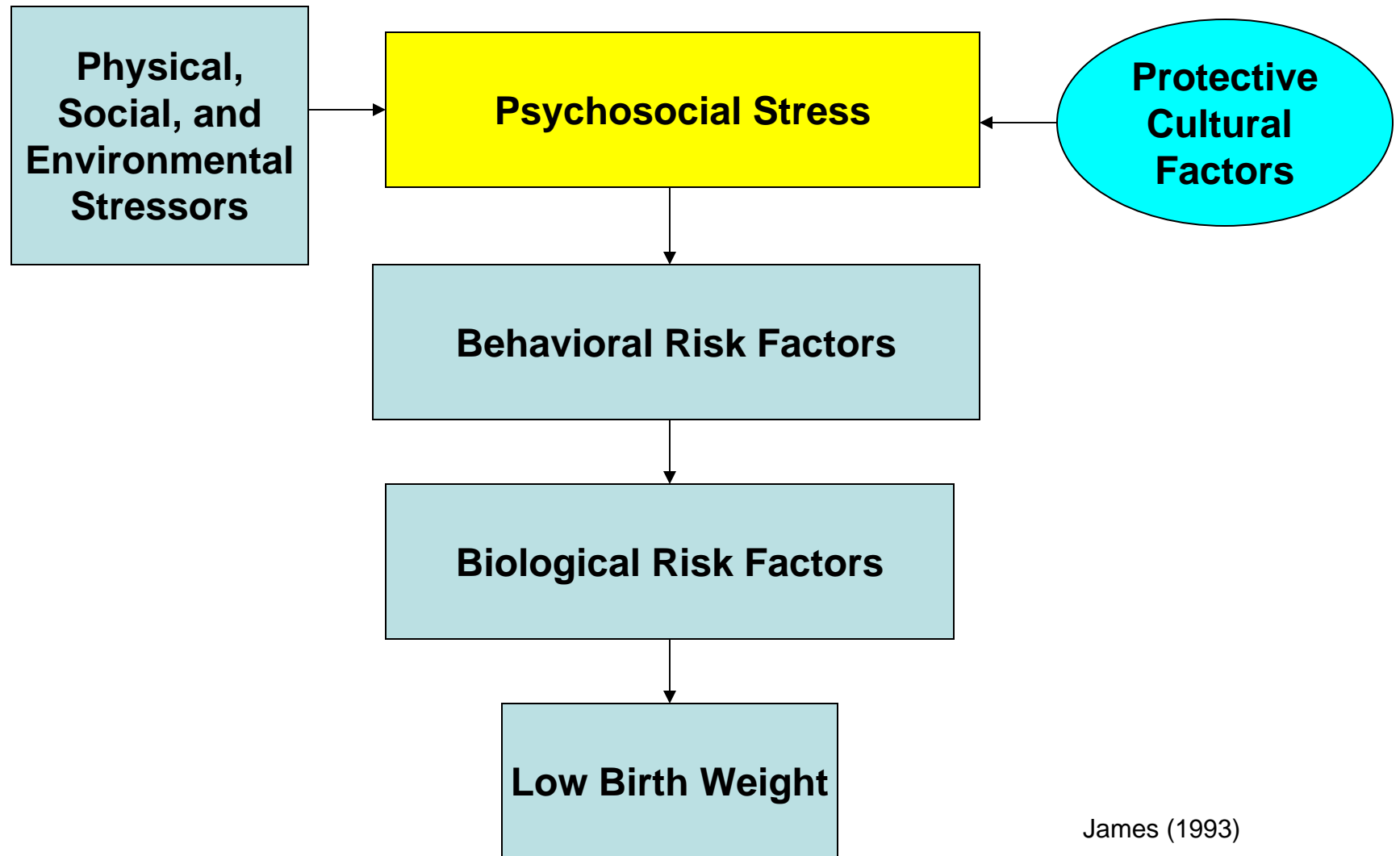
Percent of live births



# Life Course Perspective

- Perhaps the best way to understand the racial and ethnic disparities in birth outcomes is from a “life course perspective.”
- The life course perspective takes a more holistic, longitudinal approach to the problem of poor birth outcomes, which spans generations.

# Stress and Preterm Birth *Culture*



James (1993)

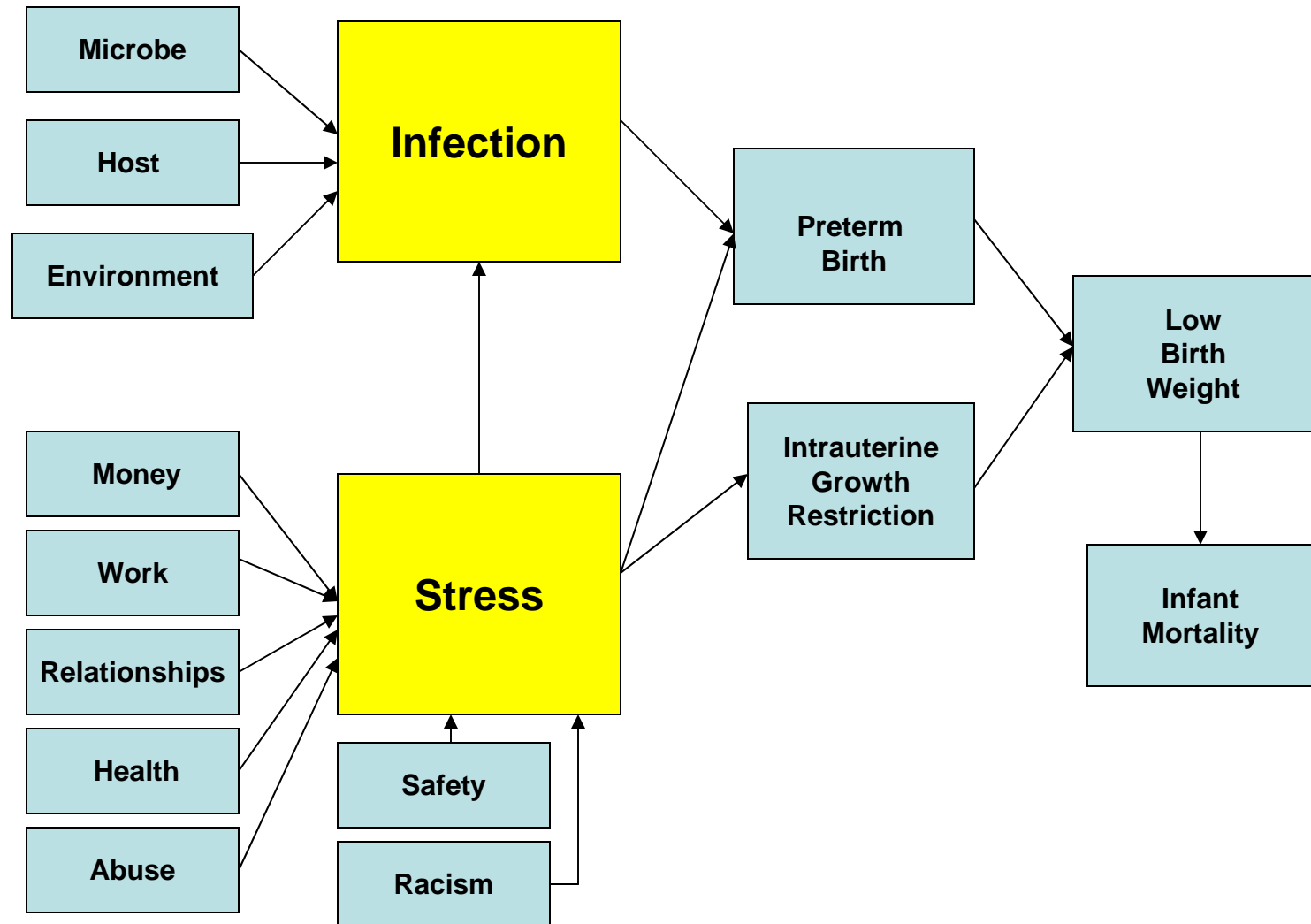
# Life Factors that Affect Infant Mortality

## POVERTY

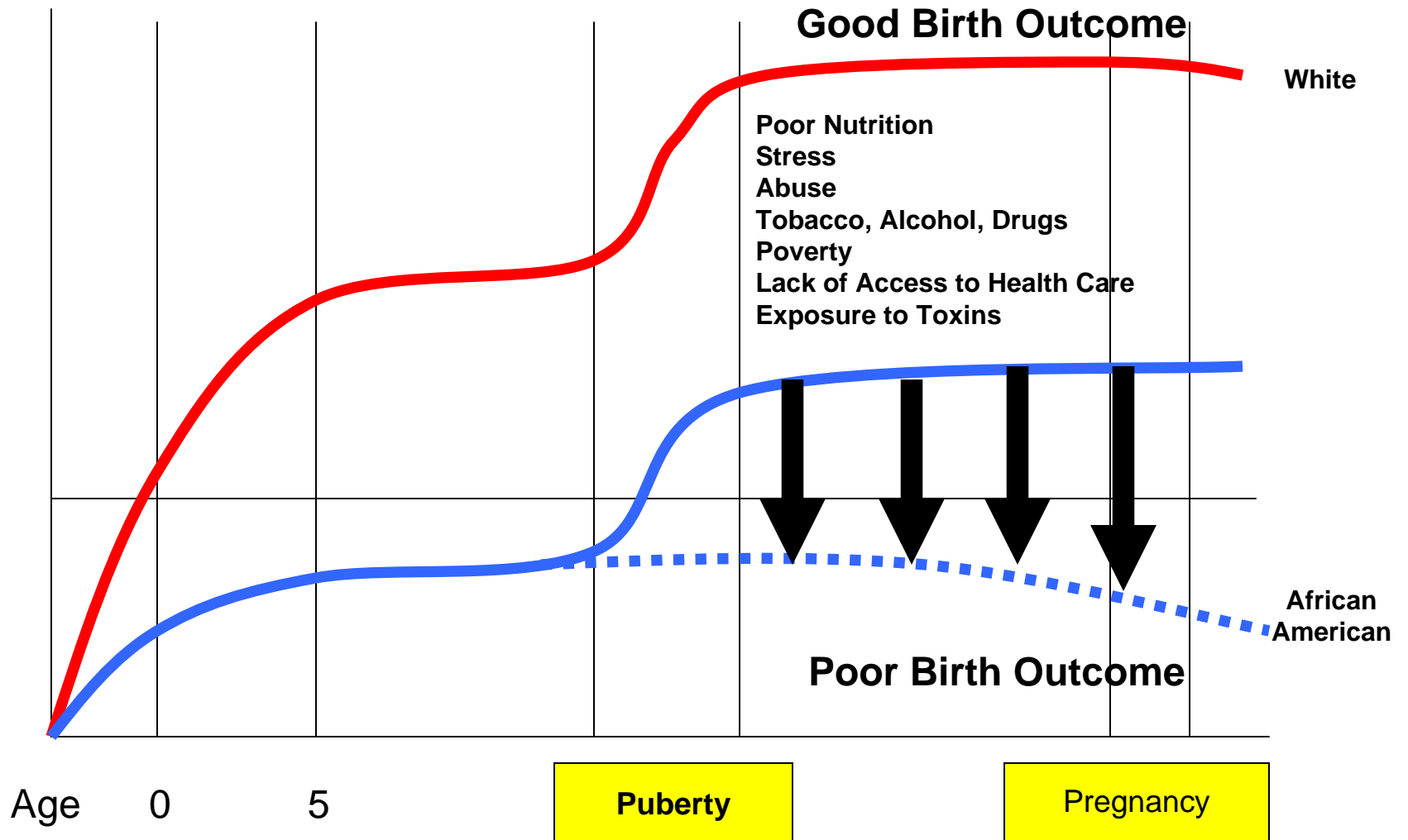
– In Wisconsin, percent poverty for children less than 5 years old:

» White	7%
» Black	44%
» American Indian	32%
» Hispanic	26%
» Asian	17%

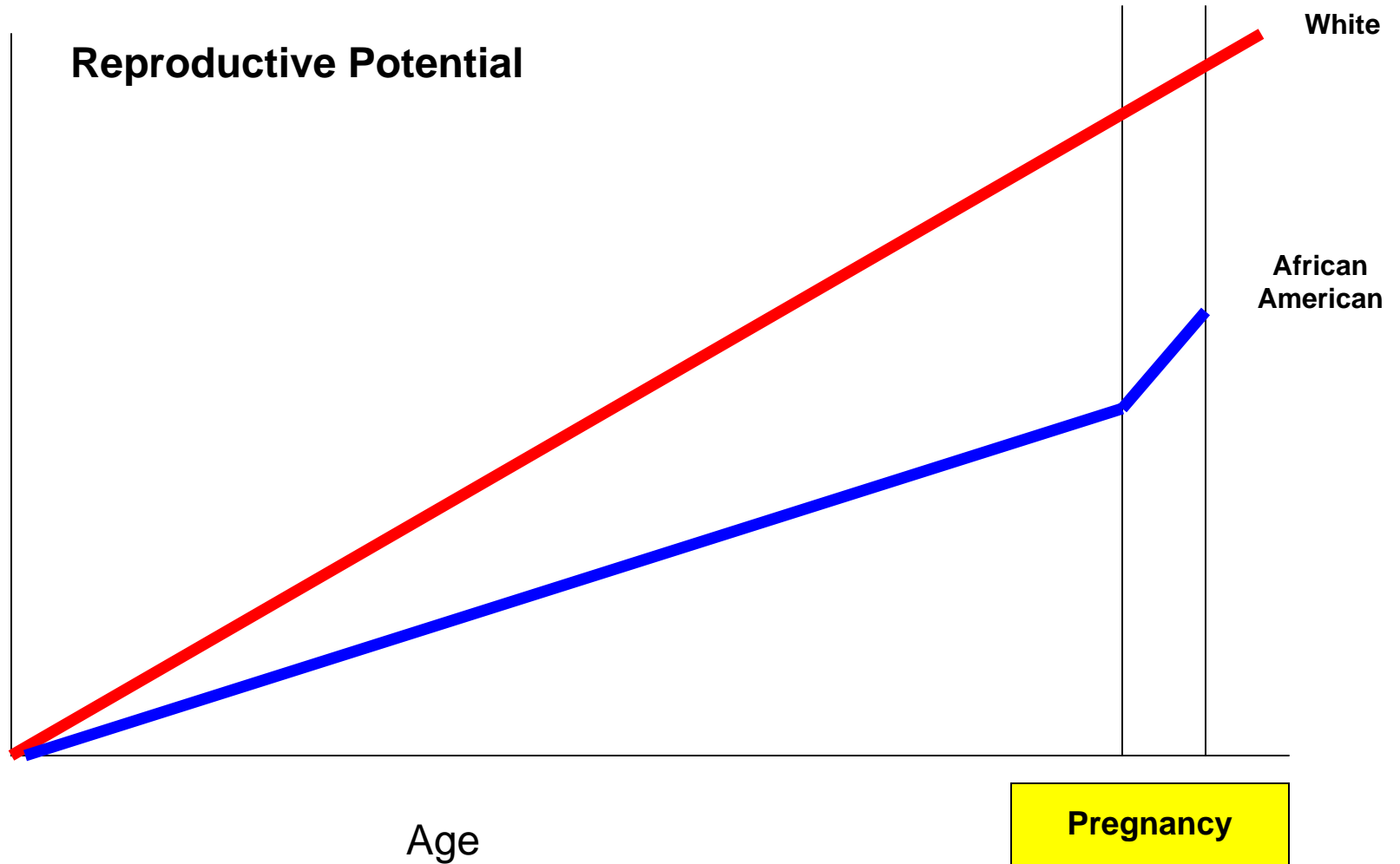
# Pathways to Preterm Birth



# Life Course Perspective

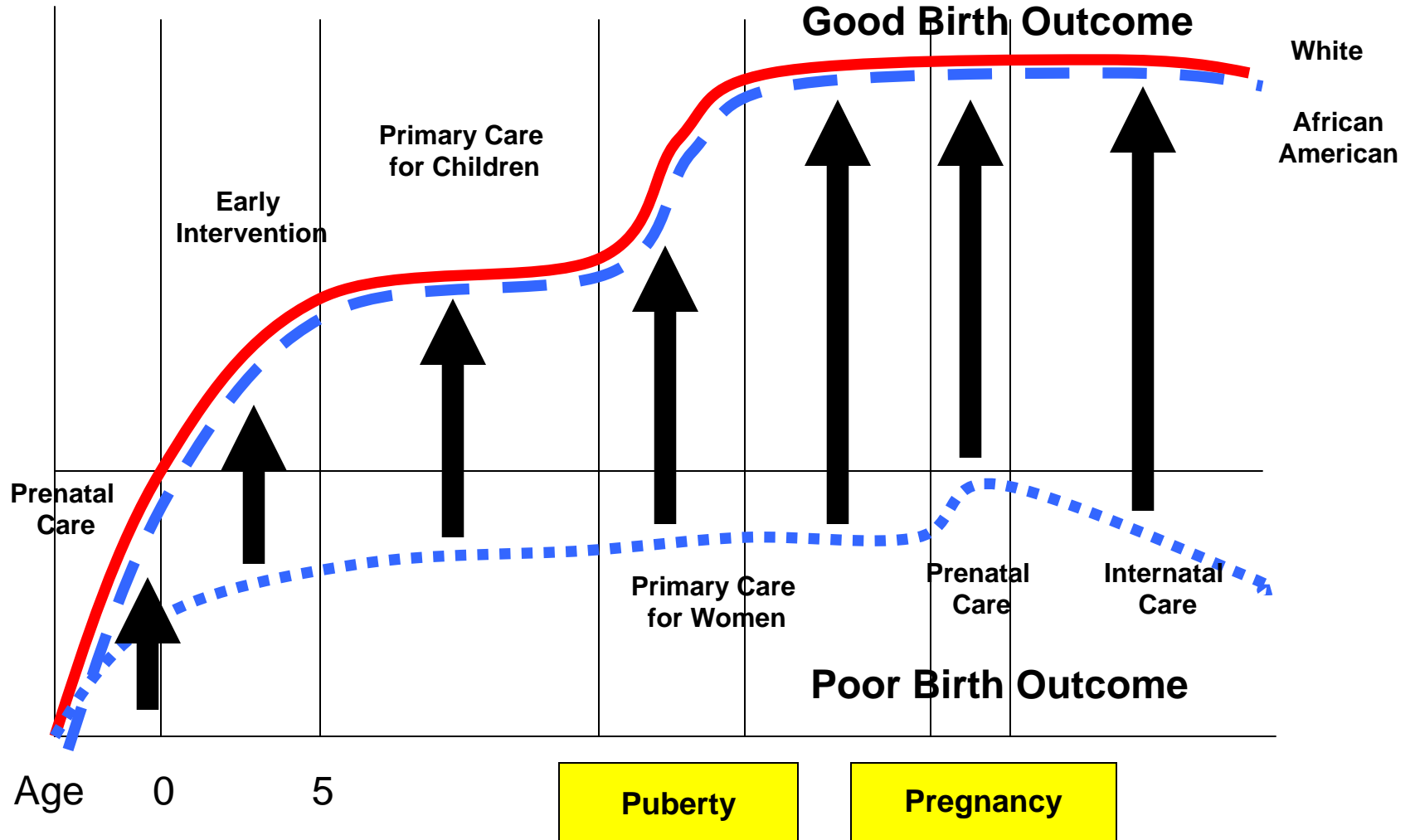


# Life Course Perspective



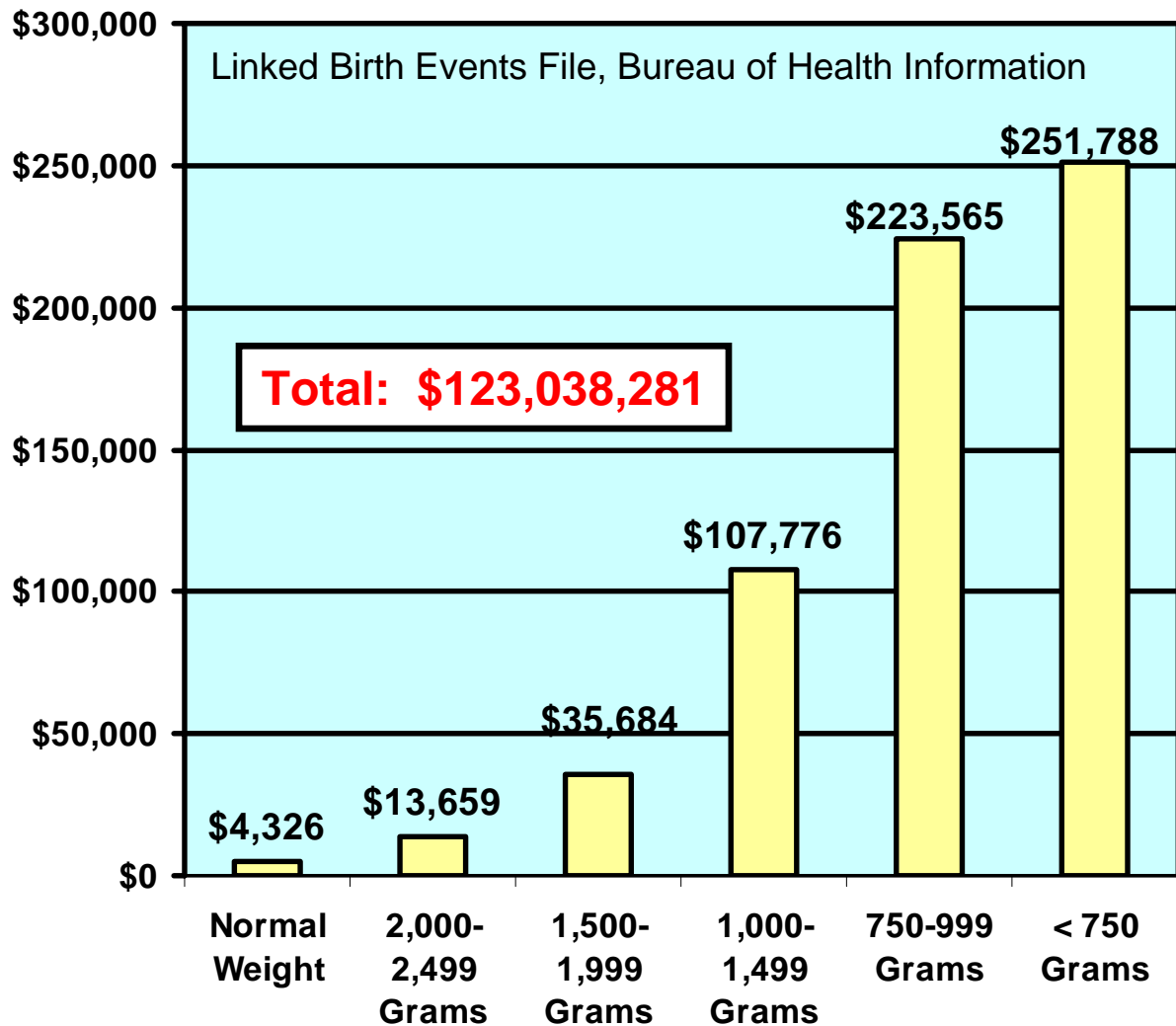
Lu, 2003

# Life Course Perspective



# Birth Weight and Infant Hospitalization Charges During the First Year of Life 2001 Medicaid Births in Selected Counties

(Dane, Kenosha, Milwaukee, Racine, and Rock Counties)



# Interventions

## Must be:

- **family-centered**
- **community-based**
- **culturally-competent**
- **coordinated and collaborative**
- **comprehensive and multi-level**
- **evidence-based or a best practice**
- **connecting what we do  
to what we know**

# **Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes**

## **Behavioral-Risk Reduction:**

### **Tobacco Use**

**-low birth weight**

### **Alcohol and Substance Use**

**-fetal alcohol spectrum and other  
malformation disorders**

# Evidence-Based or Best-Practice Behavioral-Risk Reduction

## Tobacco Cessation

- Evidence:
  - **21% reduction in LBW** with early cessation (Lumley 2001)
  - For every 56 women who receive effective counseling, 1 LBW birth is prevented
- Prevalence: **13.4%** of WI pregnant women smoke
- Recommendation: **5-As** assessment & intervention
- (e.g., **Gap** in Los Angeles)
  - 80% of providers **Ask** and **Advise** to quit;
  - Fewer than 30% **Assess** readiness to quit, **Assist** to quit, or **Arrange** ongoing follow-up

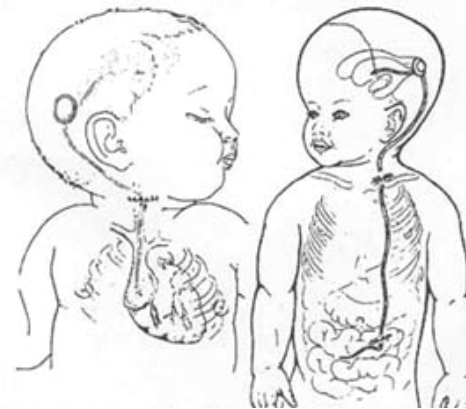
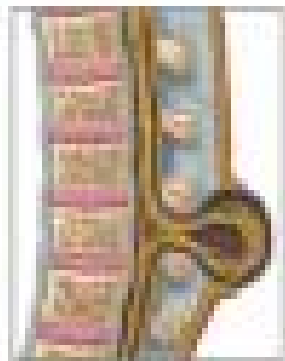
# Evidence-Based or Best-Practice Behavioral-Risk Reduction

## Substance Use/Abuse

- Evidence:
  - Comprehensive, family-centered services for pregnant women, their children, and families demonstrate:
    - **70% reduction in number PTBs**
    - **84% reduction in LBW birth**
    - **67% reduction in infant mortality** (Clark, 2001)
- Prevalence: ? WI births exposed to EtOH or substances
- Recommendation: screening using appropriate tool in each trimester
- (e.g., Gap in Los Angeles)
  - 40% of providers ask about alcohol at first visit;
  - fewer than 20% ask about substance use/abuse

# Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes

- **Nutritional support**
- **Breast Feeding**
- **Prevention of birth defects with folic acid and other vitamins/minerals**



# **Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes**

## **Medical Conditions:**

- **Diabetes and  
Gestational Diabetes**
- **Hypertension**
- **Infections**

# **Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes**

## **Diagnosis and Treatment of Infections:**

- **Urinary Tract Infections**
- **Sexually-Transmitted Disease (STDs)  
and HIV/AIDS**
- **Periodontal Disease**

# Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes

## Asymptomatic Bacteriuria

- Evidence:
  - **40% reduction in PTB** with screening and treatment asymptomatic bacteriuria (Smaill, 2001)
  - For every 21 women who are treated, 1 PTB could be prevented
- Prevalence: **2% to 8%** of pregnant women
- (e.g., Gap in Los Angeles)
  - **Fewer than 50%** providers screen using culture
  - **85%** of women in baseline data screened

## Chlamydia

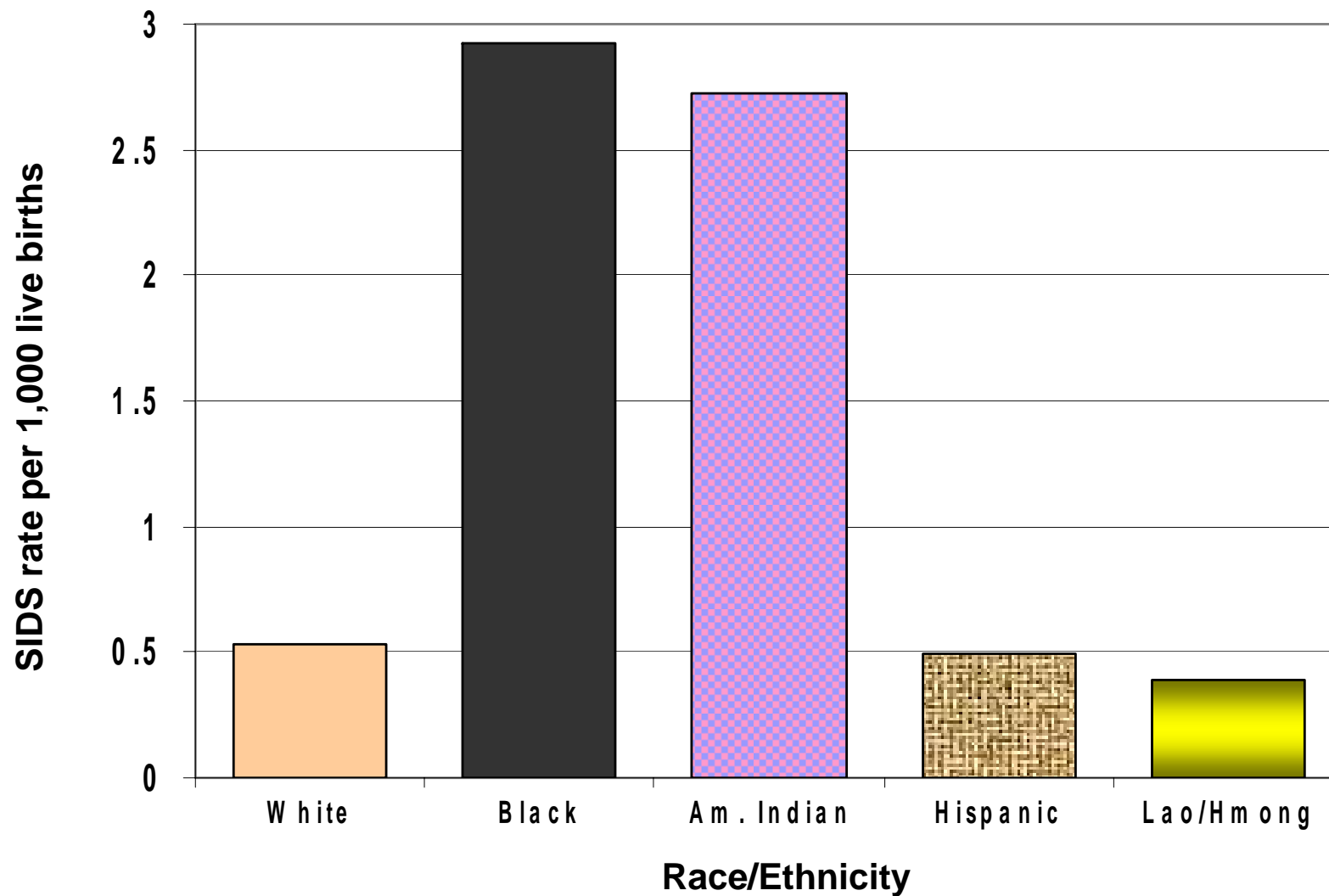
- Evidence: **50% reduction in LBW** (Martin, 1997)
- (e.g., Gap in Los Angeles)
  - **Fewer than 50%** OB/GYN perform recommended screening (LAC-Medical)

# Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes

## Post Partum Care

- Evidence:
  - contact by 2 weeks post partum is key to identifying **PP depression**. Improvement is noted within 3-6 weeks following onset of treatment for depression.
  - ADA recommendation to screen those with **gestational diabetes** for type-2 diabetes at 6 wks PP
- (e.g., **Gap** in Los Angeles)
  - Depression: **27%** of providers screening for depression at 2 wks; 40% at 6-8 wks PP
  - Diabetes: **47%** screening for type-2 DM at 6-8 wks PP

# SIDS in Wisconsin, 2000-2004

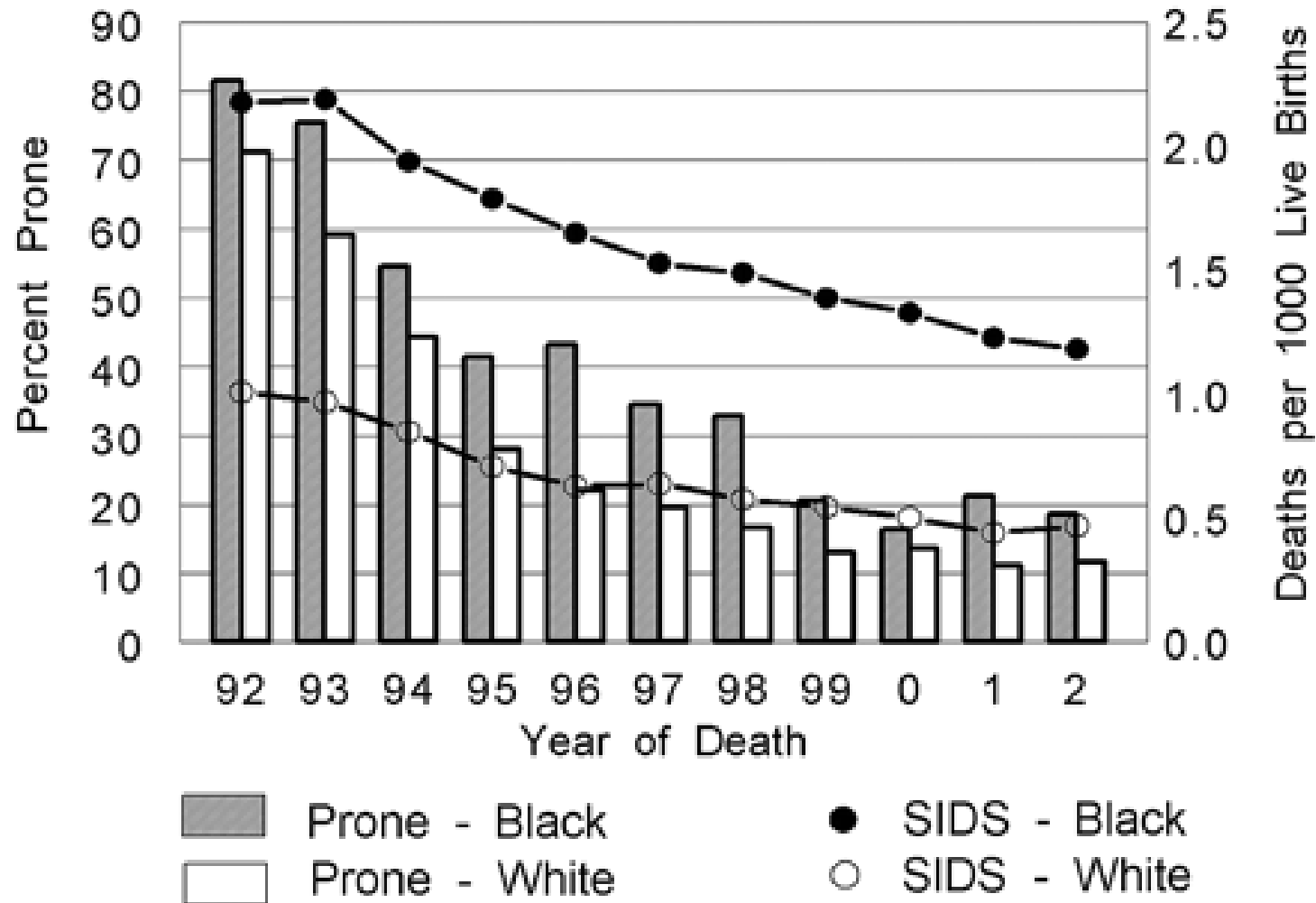


WISH (Wisconsin Interactive Statistics on Health), Infant Mortality Module, accessed 11/22/05.

# SIDS by Month of Age



# SIDS and Sleep Position by Race



# **Evidence-Based or Best-Practice Interventions**

## **Safe Sleep:**

- **“Back to Sleep”**
- **Firm surface**
- **No soft objects or loose bedding**
- **No overheating**
- **NO smoking in environment  
of sleeping baby**
- **No co-bedding while sleeping**

# What Works?

(and what doesn't)

## One Study: *Maternal Upward Socioeconomic Mobility and Black-White Disparities in Infant Birthweight,*

Colen, CG, Geronimus, AT, Bound J, James SA. *Am J Public Health.* 2006;96:2032-2039.

- **Increase in family income and socioeconomic position**
  - **Significant decrease in low birth weight for White infants but not for Black infants**
- **Grandmother who resides in the home**
  - **Reduces likelihood of low birth weight for Black infants by 53%, but no association for White infants**
- **Inadequate weight gain during pregnancy**
  - **Indicator of low birth weight for 3<sup>rd</sup> generation Black infants but not White infants**

# What Works?

## Model State Programs

### New York/Harlem

- multi-faceted community approach, funded at \$7.5 million
- African American IMR decreased from **28** in 1990 to **5.1** in 2004, per 1,000 live births

# What Works?

## Model State Programs

### Minnesota

- **\$249 per capita public health spending vs. \$79 in Wisconsin**
- **“Save 10” provocative social marketing campaign**
- **8.9 African American infant deaths per 1,000 live births**
  - **lowest in nation (2001-2003)**

# What Works?

## Medicaid Managed Care

(Center for Health Care Strategies)

### Rochester, NY

- **Culturally competent outreach, education, and family planning to high-risk pregnant teens**
- **\$2.86 returned for every \$1.00 spent on program**

# What Works?

## Medicaid Managed Care

(Center for Health Care Strategies)

### Baltimore, MD

- **System-wide racial and ethnic data collection to focus on reducing disparities**
- **Increased percentage of African American women who completed 80% of prenatal visits**

# What Works?

## Medicaid Managed Care

(Center for Health Care Strategies)

### *UPMC for You, Pittsburgh*

- Integrated clinical team
- Focus groups
- Mobile outreach
- Doula program

### Outcomes

- Increased first trimester identification of African American women
- Decreased low birth weight

# **What Works?**

## **Selected Recommendations from FIMR Clinical Care for Women**

- **Respectful, high-quality prenatal care**
- **Identify women with previous poor pregnancy outcomes**
- **Educate women on the signs of preterm labor and fetal movement**

# What Works?

## Selected Recommendations from FIMR Clinical Care for Women

- **Screen and refer for domestic violence and depression**
- **Systematic assessment and referral for tobacco, alcohol, and other substance use**

# What Works?

## Selected Recommendations from FIMR Systems of Care

- **Dialogue is needed to change intolerance and neglect**
- **Fund community-based, multi-disciplinary care**
- **Encourage fathers to be involved**

# What Works?

## Selected Recommendations from FIMR Systems of Care

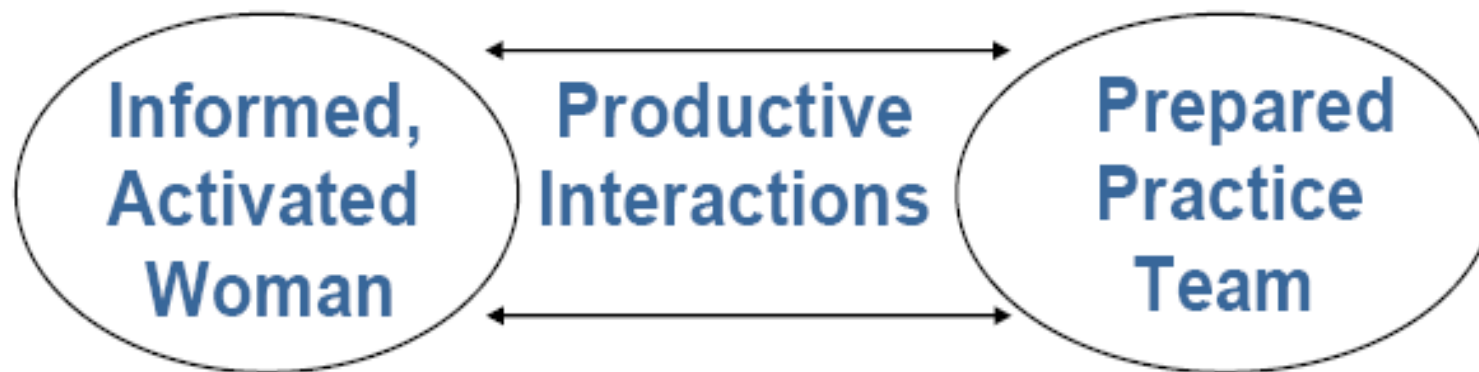
- **Educate women of color on quality prenatal care and empower them to expect it**
- **Incorporate quality measures into reimbursement and contracts**
- **Eliminate gaps between application for insurance/Medicaid and initiation of care**

# Essential Elements of Good Prenatal Care

Assessment

Health Promotion

Medical and Psychosocial Treatment



Adapted from the Care Model-Ed Wagner MacColl Institute

# Evidence-Based or Best-Practice Interventions for Healthier Birth Outcomes

- Provider collaboratives to focus on systems change for improvement of the content, quality and cultural competency of PNC:

- Prenatal nutrition and multivitamins with folic acid
- Breastfeeding preparation and support
- Infection and inflammation  
–(UTI, STD, periodontal)
- Perinatal depression
- Domestic violence
- Safe sleep

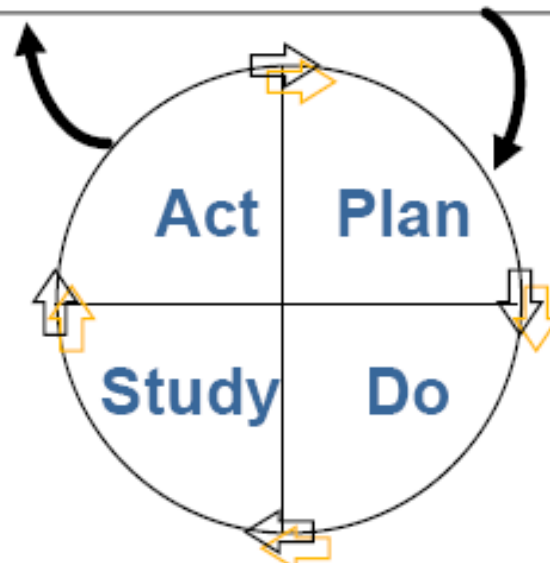
- Substance use
- Tobacco use
- Diabetes care
- Hypertension care
- Cultural competency
- Health literacy
- Self management
- Comprehensive PP care

# LA Collaborative Learning Model

- 10 clinical sites & community partners
- Actively engaged senior leadership and clinical champion at each site
- Teams (3-5 people per site) working together
- Testing small changes every month
- Track progress towards goals monthly
  - Report to the collaborative monthly
  - Entering data in client registry
  - Weekly team meetings
    - Share learning, tools, and ideas

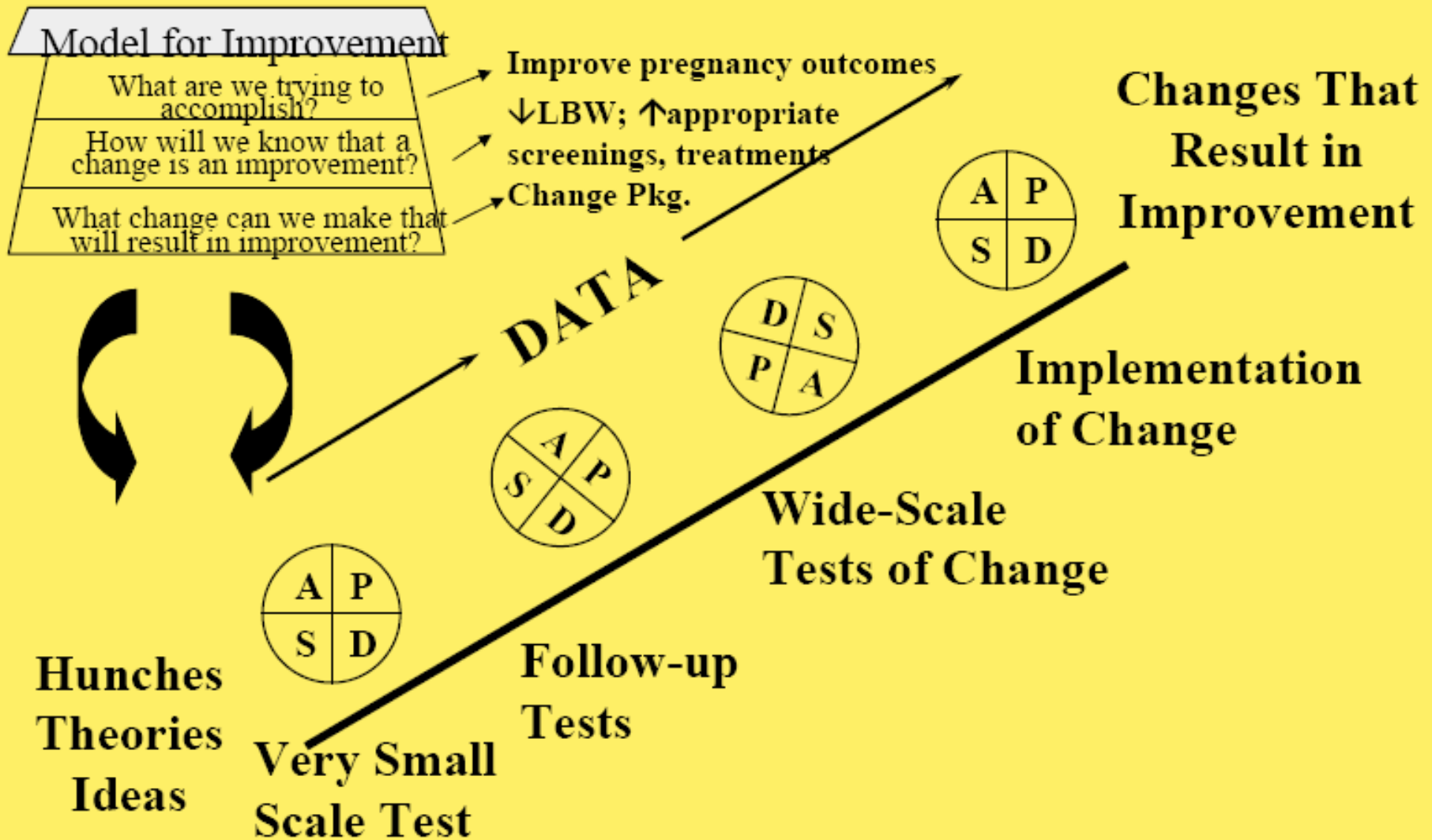
# Model for Improvement

- Aims*** - What are we trying to accomplish?
- Measures*** - How will we know that a change is an improvement?
- Ideas*** - What changes can we make that will result in an improvement?

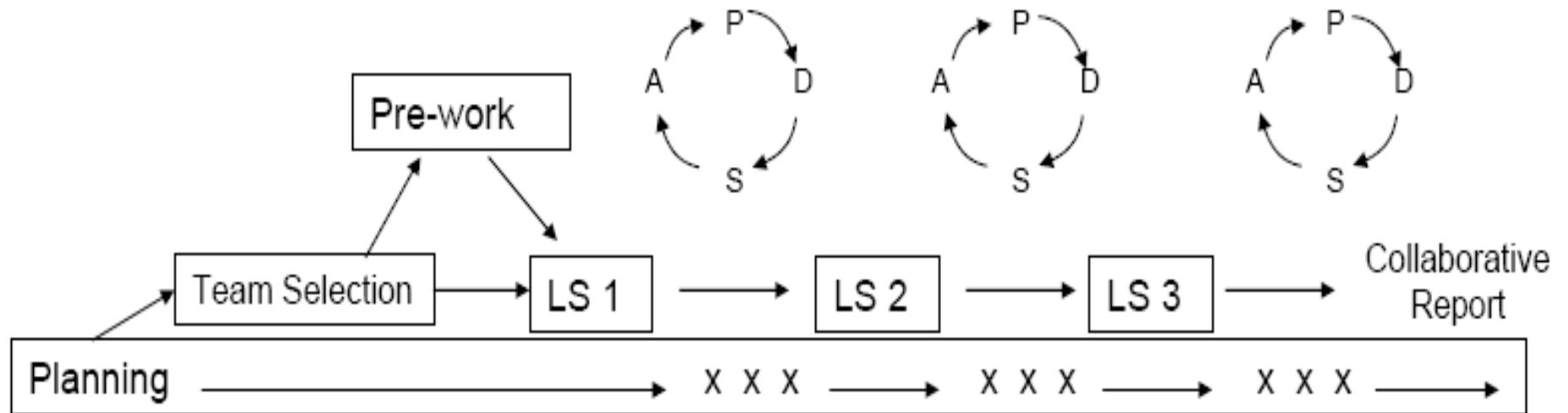


Based on model developed  
by Associates in Process  
Improvement

# Repeated Use of the PDSA Cycle



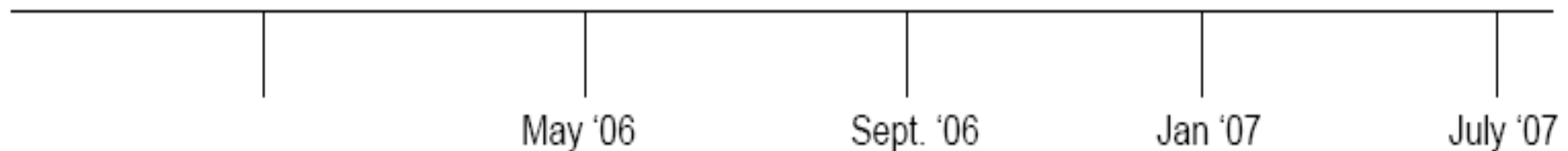
# Healthy Births Care Quality Collaborative



- **Select Guidelines and Tools**
- **Develop Change Concepts and Measures**
- **Data Collection**
- **Reporting**
- **Criteria for Participation**

x x x = Conference calls, results sharing

Support- Email, Visits, Phone, Documents, Assessment, etc.



# Vision

- **Optimize the health and well-being of each mother, child and family**
- **Optimize potential for early childhood development, intellectual capacity and lifelong good health**

# How Will This Be Achieved?

- **Promote and support systems change efforts**
- **Increase use of nationally or locally established clinical guidelines**
- **Address maternal health issues and modifiable risk factors**
- **Link clinical practice to community resources**

**To achieve greatness:  
Start where you are,  
Use what you have,  
Do what you can.**

***- Arthur Ashe***

