Racial/Ethnic Disparities in Wisconsin Birth Outcomes: Data Trends, Evidence Base, and Best Practices

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Chief Medical Officer

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Department of Health and Family Services
The true measure of a nation’s standing is how well it attends to its children – their health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies into which they are born.

Overview of this Presentation

1. What is the problem and its magnitude?
2. What are the underlying determinants?
3. What is the evidence for some of the interventions?
4. What are some best-practice programs that have worked elsewhere?
What is the problem and its magnitude?
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

2005 Data
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)

<table>
<thead>
<tr>
<th>Infant Mortality</th>
<th>1984-86</th>
<th>2003-05</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>19.6</td>
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</tr>
<tr>
<td>African American</td>
<td>18.4</td>
<td>16.5</td>
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<tr>
<td>Hispanic</td>
<td>6.4</td>
<td>6.2</td>
</tr>
<tr>
<td>White</td>
<td>8.6</td>
<td>5.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>9.5</strong></td>
<td><strong>6.4</strong></td>
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## Non-Hispanic African American Infant Mortality Rates, among Reporting States and DC, 2001-2003

<table>
<thead>
<tr>
<th>Rank</th>
<th>US</th>
<th>AA Rate</th>
<th>Rank</th>
<th>State</th>
<th>AA Rate</th>
<th>Rank</th>
<th>State</th>
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## Infant Mortality Rates, by Country, 2004

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<th>Rank</th>
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<th>IMR Rate</th>
<th>Rank</th>
<th>Country</th>
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<tr>
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<td>Norway</td>
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<td>Canada</td>
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U.S. Census International Data Base, for countries with populations greater than 250,000
FETAL INFANT MORTALITY REVIEW
REPORT TO THE CITY OF MILWAUKEE

2002-2004 INFANT MORTALITY
2003-2004 FETAL MORTALITY
HOW DOES MILWAUKEE’S INFANT MORTALITY RATE RANK COMPARE TO THE INFANT MORTALITY RATE OF OTHER COUNTRIES?

2004 INFANT MORTALITY RATES, by COUNTRY

<table>
<thead>
<tr>
<th>RANK</th>
<th>COUNTRY</th>
<th>IMR RATE</th>
<th>RANK</th>
<th>COUNTRY</th>
<th>IMR RATE</th>
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<tr>
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<td>75</td>
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<tr>
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<td></td>
<td>Philippines</td>
<td>24.24</td>
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</table>
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

Fetal Infant Mortality Review, 2002-04, Milwaukee
A tale of two zip codes

<table>
<thead>
<tr>
<th></th>
<th>53206</th>
<th>53211</th>
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</thead>
<tbody>
<tr>
<td>Population*</td>
<td>32,868</td>
<td>35,225</td>
</tr>
<tr>
<td>Median age*</td>
<td>25.8</td>
<td>29.9</td>
</tr>
<tr>
<td>African American*</td>
<td>96.1%</td>
<td>2.5%</td>
</tr>
<tr>
<td>High school graduate (25+ yrs of age)*</td>
<td>57.6%</td>
<td>95.7%</td>
</tr>
<tr>
<td>Disabled (21-64 yrs of age)*</td>
<td>37.0%</td>
<td>9.3%</td>
</tr>
<tr>
<td>Median family income*</td>
<td>$21,867</td>
<td>$70,704</td>
</tr>
<tr>
<td>Families below poverty level*</td>
<td>35.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Teen birth rate 2004**</td>
<td>111</td>
<td>3</td>
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<tr>
<td>HIV rate 2004***</td>
<td>47</td>
<td>9</td>
</tr>
<tr>
<td>STD rate (15-19 yrs of age)***</td>
<td>22,795</td>
<td>1,070</td>
</tr>
</tbody>
</table>

* Source: 2000 U.S. Census data
** Per 1,000 population
*** Per 100,000 population

Hoxie, N
The Southeast Region accounts for 92% of African American infant deaths.

77% of Wisconsin’s African American infant deaths occurred in the City of Milwaukee from 2003-2005.
## Infant Mortality Rates, 2001-2005

<table>
<thead>
<tr>
<th>State/City</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>B/W Ratio</th>
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</thead>
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<td>6.6</td>
<td>16.9</td>
<td>7.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Madison</td>
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<td>10.7</td>
<td>7.6</td>
<td>2.8</td>
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<td>Kenosha</td>
<td>4.1</td>
<td>18.1</td>
<td>X</td>
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<td>Racine</td>
<td>6.9</td>
<td>28.3</td>
<td>7.0</td>
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<td>Beloit</td>
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<td>3.4</td>
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<tr>
<td>Wisconsin</td>
<td>5.3</td>
<td>17.3</td>
<td>6.4</td>
<td>3.3</td>
</tr>
</tbody>
</table>

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

**Wisconsin’s Leading Causes of Infant Mortality, 2003-2005**

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

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

Percent of live births

- Hispanic: 10.7%
- White: 10.3%
- Black: 17.7%
- Native American: 11.4%
- Asian: 11.4%
- Total: 11.1%
What are some of the characteristics of City of Milwaukee infant deaths due to Prematurity in 2002-2004 (n=202)?

• 71.3% of the mothers were Black.
• 72.8% of the infants were born before 24 weeks gestation.
• 53% of the mothers had had a previous preterm birth.
• 26.7% of the mothers were smokers.
• 23.8% of the mothers were less than 20 years old.
• 35.6% of the mothers had their 1st pregnancy when they were < 17 years old.
• 17.3% of the mothers had a drug or alcohol problem.
• 16.3% were multiple births where one or more of the infants died.
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)

Linked Birth Events File, Bureau of Health Information

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<th>Weight Category</th>
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<td>2,000-2,499 Grams</td>
<td>$13,659</td>
</tr>
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<td>1,000-1,499 Grams</td>
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<td>750-999 Grams</td>
<td>$223,565</td>
</tr>
<tr>
<td>&lt; 750 Grams</td>
<td>$251,788</td>
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</table>

Total: $123,038,281
"I wish I’d have been told more about contractions and signs of labor," replied one mother. Symptoms of preterm labor (PTL) were experienced by 42% of interviewed mothers, but nearly 16% of them didn’t recognize them as signs of PTL. One mother said, “I didn’t call my doctor right away because I thought maybe I had a urinary tract infection and the cramping was normal.”
A second and more difficult problem is getting mothers’ concerns across to the right people when she calls the hospital. 13.5% of mothers with symptoms of preterm labor were delayed in coming to the hospital by staff, or their concerns were dismissed by staff. It isn’t clear whether mothers are having difficulty communicating their concerns, or whether they are being prevented from talking with a doctor or nurse trained in obstetrics by the triage system.
What are the underlying determinants?
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

Physical, Social, and Environmental Stressors

Psychosocial Stress

Behavioral Risk Factors

Biological Risk Factors

Low Birth Weight

Protective Cultural Factors

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

- Infection
  - Microbe
  - Host
  - Environment
- Stress
  - Money
  - Work
  - Relationships
  - Health
  - Safety
  - Racism
- Preterm Birth
- Intrauterine Growth Restriction
- Low Birth Weight
- Infant Mortality
Life Course Perspective

Good Birth Outcome
- White
- Poor Nutrition
- Stress
- Abuse
- Tobacco, Alcohol, Drugs
- Poverty
- Lack of Access to Health Care
- Exposure to Toxins

Poor Birth Outcome
- African American

Age 0 5

Puberty

Pregnancy

Lu, 2003
Life Course Perspective

Reproductive Potential

Age

White
African American

Pregnancy

Lu, 2003
Life Course Perspective

Good Birth Outcome

Poor Birth Outcome

Early Intervention

Primary Care for Children

Primary Care for Women

Prenatal Care

Internatal Care

Age 0 5

Puberty

Pregnancy

White

African American

Lu, 2003
What is the evidence for some of the interventions?
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 alcohol 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
Breast Feeding ≥ 6 months

Percent of WIC infants who breastfed at least 6 months

- Non-Hispanic White
- Non-Hispanic Black
- American Indian
- Asian/Pacific Islander
- Hispanic
- Total

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

![Graph showing SIDS by month of age for 1992 and 2001.

- The graph plots the percentage of SIDS deaths against the age of death in months.
- The data for 1992 is represented by squares, and the data for 2001 is represented by triangles.
- The peak incidence of SIDS occurs around the 3rd month of age for both years.
- There is a significant decrease in SIDS rates after the 3rd month, with the rates continuing to decrease steadily thereafter.]
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
Essential Elements of Good Prenatal Care

Assessment
Health Promotion
Medical and Psychosocial Treatment

Informed, Activated Woman

Productive Interactions

Prepared Practice Team

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
What are some best-practice programs that have worked elsewhere?
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
What Works?

Medicaid Managed Care

(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

• Identify women with previous poor pregnancy outcomes
• Educate women on the signs of preterm labor and fetal movement
• 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

• 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.
• Fund community-based, multi-disciplinary care.
Vision

- Eliminate racial and ethnic disparity in birth outcomes
- 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
Wisconsin’s Framework for Action to Eliminate Racial and Ethnic Disparities in Birth Outcomes
To achieve greatness:
Start where you are,
Use what you have,
Do what you can.

- Arthur Ashe