

2007 Mississippi Infant Mortality Report¹

Presented
to

Chairmen
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Prepared by

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I. Introduction

The Mississippi State Department of Health (MSDH) is committed to decreasing infant mortality. The Healthy People 2010 goal is to reduce infant mortality in the United States to 4.5 deaths per 1,000 live births by the year 2010. Given Mississippi's 2006 infant mortality rate of 10.5 per 1,000 live births, an additional reduction of 6.0 deaths per 1,000 live births poses a tremendous challenge in reaching the 2010 goal.

During the past ten years from 1997 to 2006, the rate of Mississippi infants dying in the first year of life ranged from a low of 9.7 deaths per 1,000 live births in 2004 to a high of 11.4 in 2005. Each year on average, approximately 448 deaths occurred among some 42,850 births. In 2004, Mississippi ranked 49th in the nation for infant mortality.

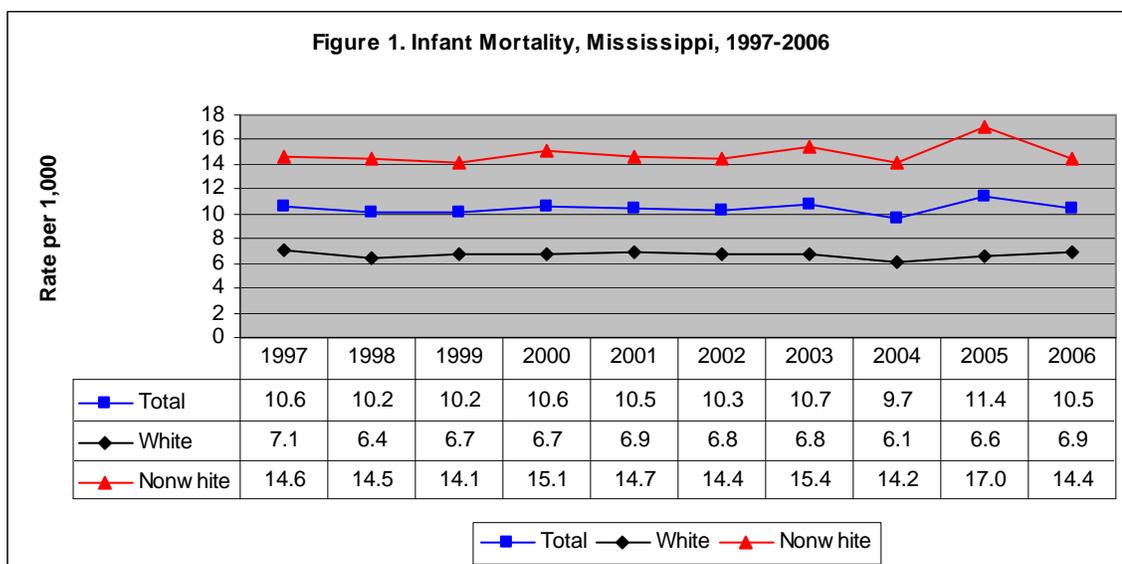
This report describes the pattern of infant mortality, delineates contributing factors, and outlines a work plan for reducing the infant mortality rate. MSDH, Bureau of Health Statistics is the principal data source.

II. Data Monitoring

The leading causes of infant mortality in Mississippi are low birthweight and premature birth, followed by Sudden Infant Death Syndrome, birth defects, accidents and maternal complications of pregnancy. Maternal factors, racial disparities, and prenatal care also impact infant mortality in Mississippi. The magnitude and significance of their contribution to Mississippi infant mortality is demonstrated by the following statistics, underscoring the need to monitor these events most closely and target interventions towards reducing them.

1. Infant mortality trend

The infant mortality rate for Mississippi has shown some fluctuation during the last ten years (1997-2006). The average total infant mortality rate for the period was 10.5 infant deaths per 1,000 live births. The 10-year average infant mortality rate was 6.7 for whites and 14.8 for nonwhites (Figure 1).



2. Infant mortality by region of state

During the period 2004 to 2006, the average infant mortality rate was 10.5 deaths per 1,000 live births in the state. Across years, the rate has shown little variation between the north (including public health districts I-IV), central (including public health districts V-VI), and south (including public health districts VII-IX) (Appendix A & Table 1) regions of the state. For example, in 2006, the infant mortality rates for north, central, and south region were 11.3, 10.9, and 9.1 deaths per 1,000 live births, respectively.

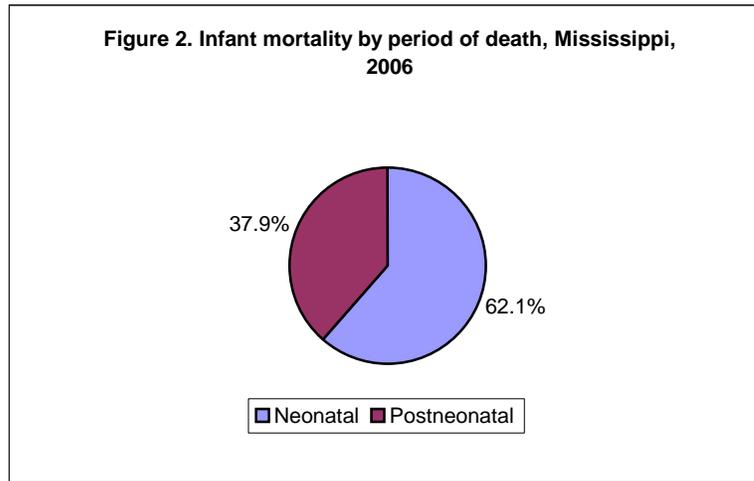
Table 1. Mississippi Infant Mortality by Region, 2004-2006

Year	North Region		Central Region		South Region		Mississippi	
	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
2004	152	9.3	144	11.0	121	9.1	417	9.7
2005	181	11.0	164	12.5	136	10.6	481	11.4
2006	200	11.3	155	10.9	128	9.1	483	10.5

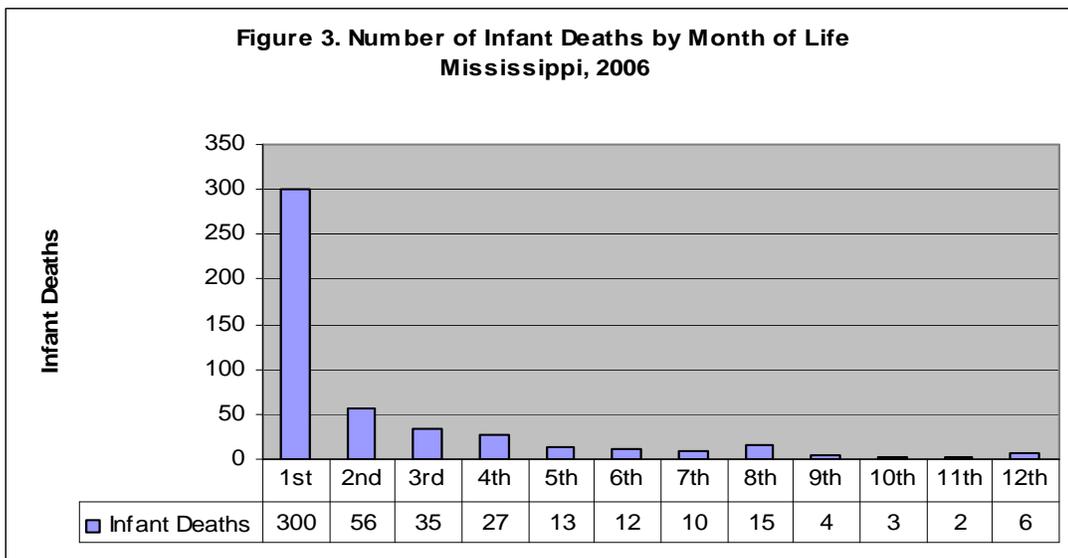
3. Infant mortality by period of death

In 2006, 62.1% of infant deaths occurred during the neonatal period, and 37.9% of infant deaths occurred during the postneonatal period. Neonatal deaths take place prior to the

28th day of life. Postneonatal deaths occur between the 28th day of life and the first birthday (Figure 2).



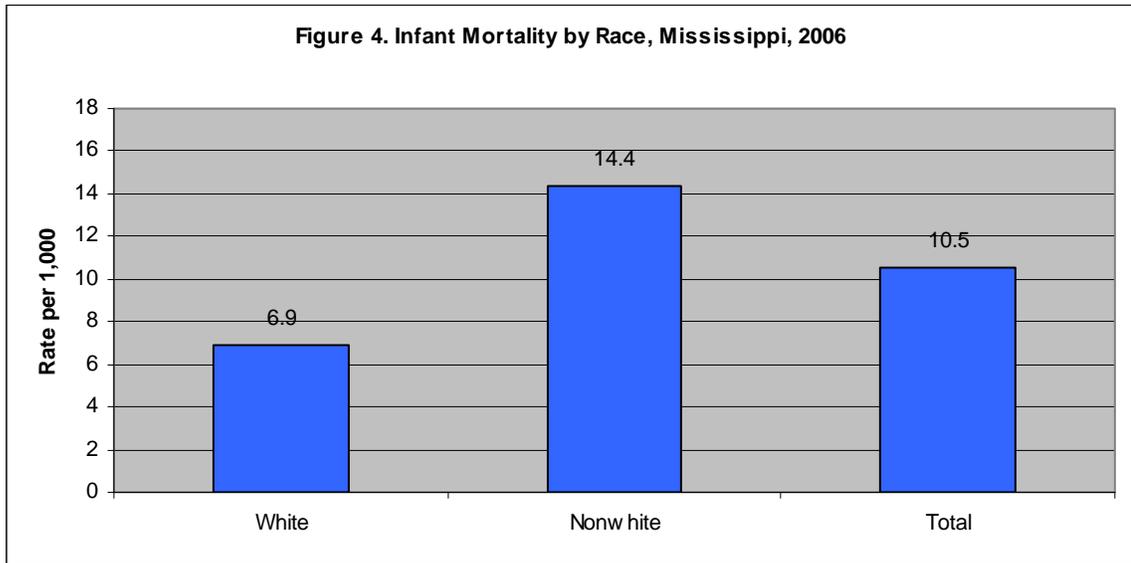
Infant age in months at time of death demonstrates that the majority (62.1%) of infant deaths took place during the first month of life (neonatal period). In addition, 24.4% occurred when infants were 2-4 months of age. The remaining deaths (13.5%) were sparsely spread across the 5th through the 12th month of life (Figure 3).



4. Infant mortality by race

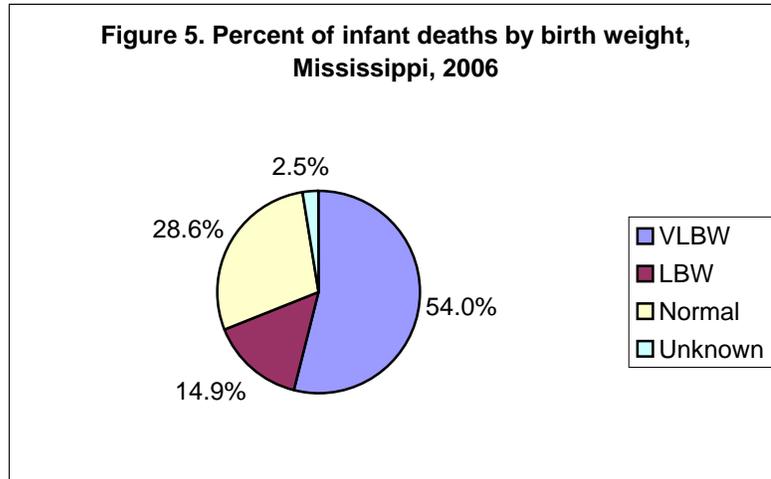
In 2006, the infant mortality rate for nonwhites (96.5% of nonwhites were African Americans) was 14.4 compared to 6.9 deaths per 1,000 live births for whites. While a

significant racial disparity continues to exist, the rate for nonwhites has decreased by 15.3% from 17.0 in 2005 to 14.4 deaths per 1,000 live births in 2006. The rate for whites has increased by 4.5% from 6.6 in 2005 to 6.9 deaths per 1,000 live births during the same period (Figure 4).



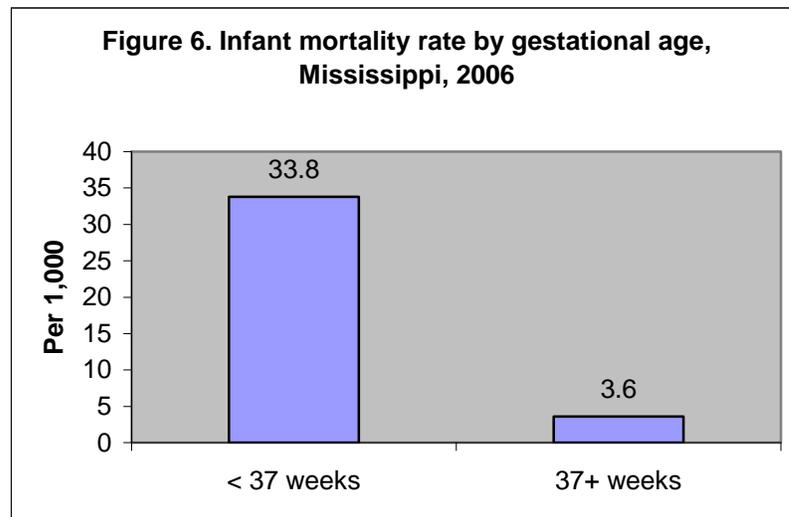
5. Infant mortality by birth weight

Besides birth defects, preterm birth (PTB) and low birth weight (LBW) are the most common causes of infant death. In 2006, 54.0% of infant deaths were among babies having very low birth weight (VLBW, less than 1,500 grams). Another 14.9% were those having LBW (between 1,500 and 2,499 grams). Less than one third (28.6%) of infant deaths occurred among babies with weights greater than or equal to 2,500 grams. The infant mortality rates for VLBW babies and LBW babies were 220.6 and 10.7 deaths per 1,000 live births, respectively. For babies weighing 2,500 grams or more, the rate was only 3.0 deaths per 1,000 live births (Figure 5).



6. Infant mortality by gestational age

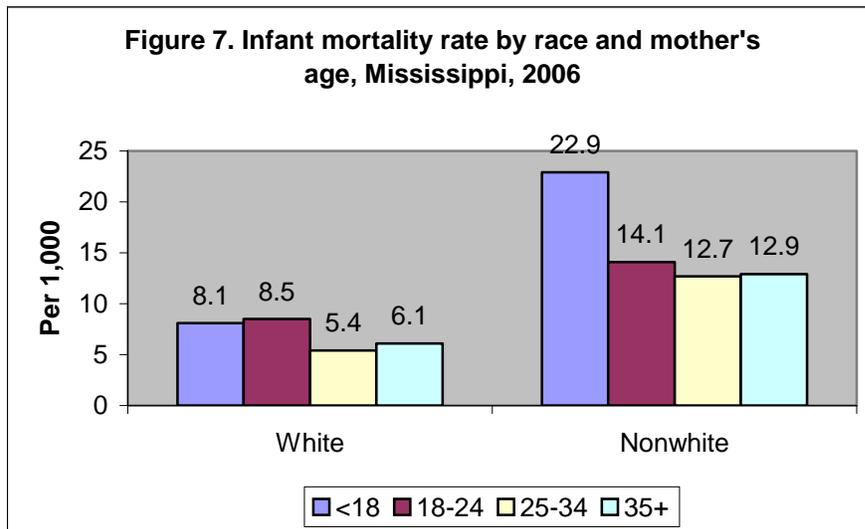
In 2006, 58.6% of infant deaths were among babies with a gestational age of less than 37 weeks. About 25.3% of infant deaths were among babies with a gestational age greater than or equal to 37 weeks. The infant mortality rate for babies born prematurely (< 37 weeks gestation) was about 9 times higher than those born full term (Figure 6).



7. Infant mortality by mother's age

In 2006, ten white infants and 39 nonwhite infants born to teen mothers (less than 18 years of age) died. Although the teen pregnancy rate has declined in the state during the past ten years, the infant mortality rate for teen mothers remained high compared to

mothers in other age groups. Babies born to mothers aged 25 to 34 had the lowest infant mortality compared to mothers in other age groups (Figure 7).



8. Infant mortality by mother's marital status

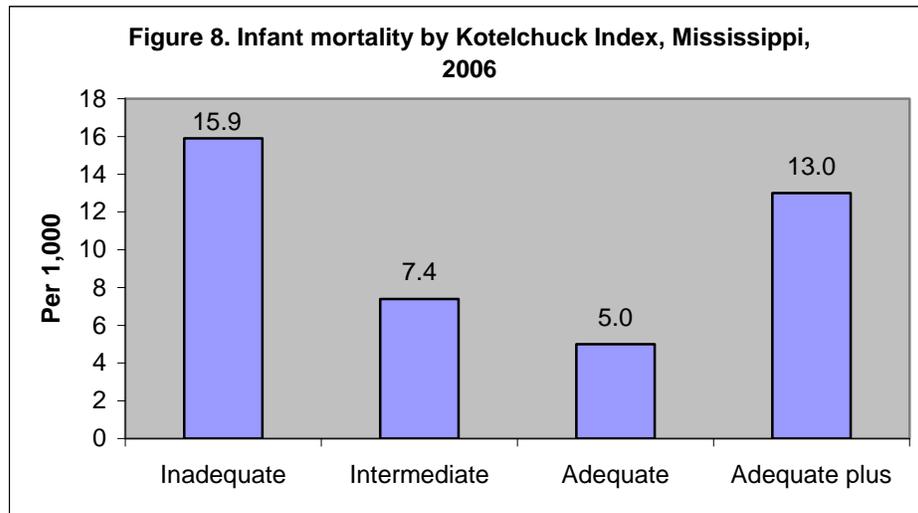
In 2006, 70.1% of infant deaths occurred among families with unmarried mothers. The infant mortality rate for unmarried mothers was 13.7 compared to 6.5 deaths per 1,000 live births among married mothers.

9. Infant mortality by Kotelchuck Index

The Kotelchuck Index classifies prenatal care into one of four categories by combining information about the timing of prenatal care, the number of prenatal care visits and the fetus' gestational age.

- Inadequate: Prenatal care began after the 4th month or less than 50% of recommended prenatal visits were received.
- Intermediate: Prenatal care began by the 4th month and 50% to 79% of recommended prenatal visits were received.
- Adequate: Prenatal care began by the 4th month and 80%-109% of recommended prenatal visits were received.
- Adequate Plus: Prenatal care began by the 4th month and 110% or more of recommended prenatal visits were received.

In 2006, mothers who received “inadequate” prenatal care had the highest infant mortality rate compared to those who had received “intermediate” and “adequate” prenatal care. However, the infant mortality rate for infants born to mothers who received “adequate plus” prenatal care is more than double that of infants born to mothers who received “adequate” prenatal care. This finding suggests that mothers likely received “adequate plus” prenatal care due to high-risk pregnancy or anticipated negative outcome (Figure 8).



III. Work Plan

The MSDH designated infant mortality as a priority focus. An intra agency infant mortality task force was charged with the assignment of identifying immediate or near future interventions that could be quickly implemented to begin reducing Mississippi’s infant mortality. The task force was convened in August 2007 utilizing a multidisciplinary, multi-geographical approach.

Representatives from all nine Public Health Districts were assembled. The interdisciplinary team included administrators, data analysts, community health educators, directors, epidemiologists, various nursing positions, nutritionists, physicians, and social workers. Two physical meetings were held and supplemented with email interactions.

Open forum discussions revealed key themes for contributing or confounding factors. Prenatal care availability needs to be reviewed in areas with high rates of infant mortality. Nursing and other staff skills/knowledge base updates for various components of maternal and child

healthcare are warranted. County, district, and central office staff should develop and improve working relationships with hospitals and communities. Home visiting services should resume, where possible. A statewide media campaign featuring topics such as *Back to Sleep* should be developed and implemented. Medicaid enrollment specialists should be housed in local health departments. Further detail of work plan recommendations includes the following:

1. *Expedite Medicaid application process by placing Medicaid eligibility workers in Local Health Clinics to facilitate health coverage and earlier entry into prenatal care*
 - a. Negotiate Memorandum of Understanding with Division of Medicaid to establish reasonable parameters for accommodating Medicaid representatives within Local Health Clinics (90 days)
 - b. Maintain working relationship with in-house Medicaid representatives through liaison with District Social Worker Supervisors (ongoing)
 - c. Continue working towards elimination of face-to-face eligibility interviews and improved exchange of birth certificate data between Medicaid and Vital Statistics (ongoing)
2. *Conduct statewide Needs Assessment of available health department services and staffing capabilities to support those services (i.e. prenatal care, PHRM/ISS, mortality reviews, post partum home visit other than PHRM, hospital visiting) along with further analysis of infant mortality data*
 - a. Collaborate with CDC epidemiology team on infant mortality data analysis (6 months)
 - b. Survey districts regarding availability/feasibility of services and staffing needs (60 days)
 - c. Investigate Medicaid reimbursement for post-partum home visit other than PHRM (90 days)
3. *Expand staffing to support delivery of infant mortality related services*
 - a. Prepare report of Needs Assessment findings with proposal of staffing needs in time for Legislative session (90 days)
 - b. Identify creative retention methods for health department staffing (ongoing)

- c. Identify seed/start-up funding for reimbursable service positions (i.e. EPSDT and PHRM/ISS)
4. *Provide staff education and professional development activities*
- a. Develop curriculum for educational activities including (60 days)
 - i. Reinforcement of need for consistent screening for PHRM
 - ii. Risk reduction education
 - iii. Core service orientation and updates for new staff
 - b. Cross-train health department staff across disciplines and/or practice areas (90 days)
 - c. Plan and implement educational activities (90 days)
5. Provide education and outreach at professional and community levels
- a. Health Department clinicians call on private providers to build working relationships and promote health department services i.e. PHRM/ISS (6 months)
 - b. Prepare one page handout on maternity Questions & Answers that can be easily regenerated on copier and distributed in clinics, health fairs, and other opportunities (60 days)
 - c. Prepare “packaged” PowerPoint presentation that can be easily used by medical and/or nursing staff when educational opportunities arise (90 days)
 - d. Send out offers for presentations at medical and nursing grand rounds at birthing hospitals and to healthcare professional organizations (6 months)

Immediate action was taken to address the absence of Medicaid enrollment specialists in local health departments. A committee was formed to review and update previously established Memorandums of Understanding between the MSDH, the Mississippi Department of Human Services, and the Mississippi Division of Medicaid. An additional committee was appointed to investigate the availability of seed money or start-up funding for reimbursable positions. Other strategies are currently being discussed and further defined.

Appendix A: Mississippi Infant Mortality Regions

