Introduction

This report describes infant deaths of Mississippi residents during 2015. The infant mortality rate in 2015 increased by 12.2% compared to 2014, from 8.2 to 9.2 deaths per 1,000 live born infants. There was a 5% increase in the white infant mortality rate (5.9 to 6.2 deaths per 1,000) and a 16% increase in the black infant mortality rate (11.2 to 13.0). The increase in the infant mortality rate was largely driven by a rise in unexplained and sleep-related deaths including Sudden Infant Death Syndrome, and accidental suffocations associated with unsafe sleep environments.

Geography

Mississippi County Infant Mortality Rate Average, 2011-2015

![Map showing Mississippi counties with varying infant mortality rates.]

Timing
Half of all infant deaths happened on the first day of life. Another 25% happened within the first month.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Within First Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>&lt;1 Day Old</td>
</tr>
<tr>
<td>25%</td>
<td>1-28 days</td>
</tr>
<tr>
<td>25%</td>
<td>1 month</td>
</tr>
</tbody>
</table>

Racial Disparity
The black infant mortality rate was more than twice the white infant mortality rate at 13 deaths per 1,000 for black infants compared to 6.2 for white infants.

<table>
<thead>
<tr>
<th>Race</th>
<th>Infant Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>6.2</td>
</tr>
<tr>
<td>Black</td>
<td>13</td>
</tr>
</tbody>
</table>

Maternal Health
A mother’s health and medical care before and during pregnancy can directly impact infant health and the risk of infant mortality. Three key areas of preconception health that can impact infant health include 1) exposure to tobacco before and during pregnancy, 2) the presence and management of chronic medical conditions and 3) if a woman plans her pregnancies.

Chronic Medical Conditions
MS, Females Age 18-44

<table>
<thead>
<tr>
<th>Condition</th>
<th>Before Pregnancy</th>
<th>During Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td>5%</td>
</tr>
</tbody>
</table>

Unintended Pregnancy
MS Females, 2010, 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Planned</th>
<th>Unplanned</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>2011</td>
<td>45%</td>
<td>55%</td>
</tr>
</tbody>
</table>

Trends
2014 brought the lowest infant mortality rate in Mississippi, which was preceded by an overall declining trend since 2010. The infant mortality rate across all groups increased in 2015, with the black infant mortality rate reaching its highest level since 2011. There was a widening in the disparity in infant deaths between white and black infants during this time.


Smoking Before and During Pregnancy, MS

<table>
<thead>
<tr>
<th>Year</th>
<th>Before Pregnancy</th>
<th>During Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>4,994</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>4,542</td>
<td>4,342</td>
</tr>
</tbody>
</table>

Smoke Before Pregnancy, MS 10% of Mississippi women giving birth in 2015 smoked at some point during pregnancy.

Smoke During Pregnancy, MS 13% of women who smoked before pregnancy, quit during pregnancy.

Smoke Before Pregnancy, MS 14% of mothers whose infant died in 2014 smoked during pregnancy.

Women entering pregnancy with medical conditions like obesity, hypertension (HTN) and diabetes are at an increased risk of complications like preterm birth and stillbirth. Poorly controlled diabetes can lead to birth defects. Black women have higher rates of these preexisting conditions.

In 2011, there were fewer unintended pregnancies than 2010 (most recent data). However, more than half of pregnancies were unplanned. Women who plan their pregnancies are less likely to smoke and are more likely to start prenatal care early and take folic acid to prevent birth defects.


Source: MS BRFSS, 2015

Source: MS PRAMS, 2010-2011
Leading Causes

Prematurity

When the multiple complications of prematurity and low birth weight are grouped together, preterm birth (delivery before 37 weeks of pregnancy) is the leading cause of infant death in Mississippi. Infants born preterm are at an increased risk of breathing complications, infections and brain injury. In 2015, 13% of infants were born preterm in Mississippi, an increase from 12.9% in 2014.

Sudden Unexpected Infant Deaths (SUID) often occur while an infant is sleeping in an unsafe sleep environment due to suffocation, strangulation or overlay. SIDS or Sudden Infant Death Syndrome is a form of SUID where no cause is identified. These are the leading causes of death for infants between 1 and 4 months of age and combined are now the second leading cause of all infant death in MS. Most of these deaths are preventable by infants sleeping alone, on their backs, in a crib/bassinet and away from tobacco smoke.

#3

Birth Defects

Major structural birth defects are defined as conditions that 1) are present at birth, 2) result from a malformation or disruption in one or more parts of the body and 3) have a serious adverse effect on health, development, or functional ability. Congenital heart defects and chromosomal abnormalities (like Trisomy 21 or Down's Syndrome) are the leading categories of infant death due to birth defects.

Unseen Sleep Environments

- Sleeping on stomach/side
- In an adult bed
- On a couch or chair
- With an adult or siblings
- With pillows, loose bedding
- In car seats out of the car
- Extreme temperatures
- Around tobacco smoke

Number Infant Deaths due to Congenital Malformations 2011-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>69</td>
<td>80</td>
<td>77</td>
<td>69</td>
<td>59</td>
</tr>
</tbody>
</table>

Strategies for Improvement

Reducing Preterm Birth & Preterm Related Mortality

- **PROGESTERONE THERAPY**
  Progesterone medication can reduce the risk of preterm birth in select high-risk patients. Pregnant women need to be screened for a history of spontaneous preterm birth or have an ultrasound of the cervix to determine if they are candidates for this therapy.

- **LOW DOSE ASPIRIN**
  Preeclampsia is a pregnancy related condition that causes severely high blood pressures and can lead to maternal and fetal death. It is one of the leading causes of preterm birth. Low dose aspirin can help prevent preeclampsia in certain women and reduce the risk of preterm birth.

MSDH is working with the March of Dimes and multiple partners to address these areas.

Improving Maternal Health

- **TOBACCO CESSATION**
  The MSDH Office of Tobacco Control trains providers in evidence-based techniques to assist pregnant women to stop smoking. Smoke-Free Air policies help reduce second-hand exposure.

- **LONG-ACTING REVERSIBLE CONTRACEPTION (LARC)**
  LARCs include intrauterine devices and subdermal hormonal implants. They are twenty times more effective than most other forms of birth control and help women to improve their health before pregnancy and space births adequately. MSDH is working with Medicaid and other partners to expand access to LARCs.

Reducing SIDS & Sleep-Related Deaths

- **HOSPITAL SAFE SLEEP**
  Hospital safe-sleep policies and programs ensure that every new parent is educated about recommended infant sleep guidelines to prevent SIDS and sleep related deaths. MSDH and the MS SIDS and Infant Safety Alliance are working to promote these policies statewide.

- **DIRECT ON SCENE EDUCATION**
  The Direct on Scene Education (DOSE) program trains first responders, including fire fighters and emergency medical technicians, to screen the homes they enter for unsafe infant sleep environments and provide education and cribs to families. MSDH is working to implement DOSE across the state.

Key Partnerships & Programs

- The **Fetal-Infant Mortality Review Program** uses local case review teams and community action teams to identify solutions for infant mortality. Mississippi now has three active FIMR programs- in District VIII, IX and the Delta and will be developing programs statewide.

- The **Mississippi Perinatal Quality Collaborative** is a multi-stakeholder partnership dedicated to improving birth outcomes through evidence-based statewide initiatives. MSPQC participants are currently working to improve the care of high-risk newborns during the first ‘Golden Hour’ of life, reduce maternal mortality caused by obstetric hemorrhage and improve breastfeeding rates.

- The **Sisters United Program of the MSDH Office of Health Disparity Elimination** aims to address the disproportionately high infant mortality rates among African-Americans in Mississippi. Sisters United trains African-American sorority members to engage in community education and outreach.

- Communities and Hospitals Advancing Maternity Practices is a breastfeeding-focused initiative geared toward improving maternal and child health outcomes through the promotion of the Baby-Friendly Hospital Initiative (BFHI). The BFHI is a global program launched to encourage and recognize hospitals that offer an optimal level of care for infant feeding and mother/baby bonding. MSDH is working with CHAMPS as well as Blue-Cross Blue Shield of Mississippi to support hospitals pursuing Baby-Friendly status in Mississippi and increase breastfeeding rates across the state.

Increase Breastfeeding

- **HOSPITAL & COMMUNITY TRAINING**
  Breastmilk has been proven to reduce the risk of neonatal illness and SIDS. Breast milk is particularly beneficial to preterm and low birthweight infants. MSDH is working with multiple partners to strengthen breastfeeding support within hospitals and communities.

Acknowledgements

The Mississippi State Department of Health first acknowledges the families touched by infant death each year. This report is generated with the goal of preventing these tragic losses.

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