

INFANT SAFE SLEEP IN
MICHIGAN:
A COMPREHENSIVE LOOK AT
SLEEP-RELATED DEATHS,
2018



MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES

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STATE OF MICHIGAN
DEPARTMENT OF HEALTH AND HUMAN SERVICES
LANSING

RICK SNYDER
GOVERNOR

NICK LYON
DIRECTOR

Dear Colleagues,

I am pleased to introduce the State of Michigan's first Infant Safe Sleep Report. In Michigan, our infant mortality rate remains high and is above the national average. A major contributor to the infant mortality rate is sleep-related infant deaths. From 2010-2015, there were 871 sleep-related infant deaths, (Centers for Disease Control and Prevention (CDC) Sudden Unexpected Infant Death (SUID) Case Registry, Michigan Public Health Institute (MPHI), 2017). In response to the high infant mortality rate, Governor Rick Snyder identified the reduction of infant mortality as a top priority in his plans to make Michigan a healthier state for all of us to live in. One of these top priorities includes the reduction of sleep-related infant deaths.

Michigan Department of Health and Human Services (MDHHS), along with our partners, works tirelessly each day to promote safe sleep practices for babies to help reduce Michigan's infant mortality rate. Despite aggressive efforts to reduce this rate, babies are still dying. Social factors, racial disparities and economic realities all contribute to our unacceptably high infant death rate. This report seeks to paint a comprehensive picture of sleep-related infant deaths by combining data, research and information regarding local and statewide initiatives that are making a difference in local communities across our state.

Together we can provide families with the knowledge and tools needed to keep babies safe and healthy. Together we can make Michigan a national leader in eliminating preventable infant deaths. Together we can make Michigan a place that all infants survive but thrive.

Thank you for your commitment, dedication and unwavering support on this journey toward a healthier tomorrow for the children of Michigan.

Sincerely,

A handwritten signature in blue ink that reads "H. Lynette Biery".

H. Lynette Biery, PA-C, MSc
Director, Bureau of Family Health Services

Contents

- Executive Summary..... 5
- Introduction 6
- Historical Perspective and Background 8
- Understanding Common Definitions 9
- American Academy of Pediatrics Recommendations for Infant Safe Sleep 11
- Where Michigan is Now: Factors That Influence Sleep-Related Deaths 13
 - Social and Economic Determinants of Health in Sleep-Related Infant Deaths 13
 - Life Course: Maternal and Infant Characteristics in Sleep-Related Infant Deaths 17
 - Maternal Characteristics in Sleep-Related Infant Deaths 17
 - Infant Characteristics in Sleep-Related Infant Deaths 19
 - Racial and Ethnic Disparities in Sleep-Related Infant Deaths 20
 - Sleep Environment among Sleep-Related Infant Deaths..... 21
 - Substance Use and Sleep-Related Infant Deaths..... 24
 - Breastfeeding and Sleep-Related Infant Deaths..... 25
- Michigan’s Infant Safe Sleep Outreach and Educational Programs..... 26
 - Statewide Efforts to Increase Safe Sleep Awareness..... 26
 - Making the Message Digital..... 26
 - Michigan Legislature Passes Infant Safe Sleep Awareness and Education Act..... 27
 - Professionals Increase Knowledge Related to Infant Safe Sleep..... 28
 - MDHHS Programs and Partners..... 28
 - Local Community Efforts to Increase Safe Sleep Awareness..... 31
 - The Family Support Center of Barry County Answers the Need for Safe Sleep 31
 - Calhoun County Pack-n-Play Program 32
 - Ottawa County Safe Sleep Collaborative 32
 - Berrien County Reaches Youth and Senior Residents in their Efforts to Educate on Infant Safe Sleep 33
 - Yellow Shawl Gathering Inter-Tribal Council of MI, Inc. 33
 - DOSE Training Comes to Michigan..... 34
 - Cradle Kalamazoo Promotes Safer Sleep for Infants 35
 - The City of Detroit Partners with the Local Faith-Based Community to Spread the Message..... 35
- Moving Forward to Improve Adherence to Safe Sleep..... 36
 - 2016 Focus Group Recommendations..... 36

Michigan Health Endowment Fund Grant	38
What You Can Do To Help.....	39
Summary	39
Acknowledgements.....	40
References	42
Appendix	43

Executive Summary

All babies should be born healthy, thrive in supportive communities, and have the opportunity to live a healthy life. In 2012, the State of Michigan released its first Infant Mortality Reduction Plan. This plan was in response to persistently high infant mortality rates and significant disparities in birth outcomes. Reducing sleep-related infant deaths is one of the nine goals in this plan. Together with our partners, we developed an Infant Safe Sleep Strategic Plan to achieve this goal through various outreach and educational objectives. This report seeks to paint a comprehensive picture of the sleep-related infant deaths in Michigan by combining data, research, information regarding local and statewide initiatives, and opportunities for moving forward that are making a difference in local communities across our state.

The report describes the trends in infant safe sleep practices and outcomes and how these trends impact practices related to safe sleep behaviors. Our collective accomplishments and activities to date are highlighted in this document, as are descriptions of existing statewide and local campaigns and programs that support healthy babies. In addition, new opportunities and strategies have been identified for moving forward to work within the system infrastructure of our partners to impact policies, protocols and guidelines that support the delivery of the message in a consistent, planned manner at different points of contact with families during the preconception, perinatal period and early childhood phase.

The goals of the Infant Safe Sleep Report are as follows:

1. Provide a statewide summary/picture of Michigan's current progress in the use of infant safe sleep practices by families;
2. Increase knowledge of what the best practices for infant safe sleep are and why it is critical for all caregivers to follow them when caring for babies;
3. Identify key areas where we can improve behaviors that impact infant safe sleep practices by analyzing past trends in data; and
4. Illustrate key partnerships and campaigns impacting sleep-related deaths and the opportunities for moving forward to support infant safe sleep practices.

This report marks the first time that Michigan has compiled all of this data into one comprehensive document to learn more and guide future practice. The combined information highlighted in this report provides a snapshot of all that has been accomplished and also emphasizes the need for continued education, outreach, policy and systems change for all of those who work with families and caregivers of infants.

As we move forward, new advances in data collection, analysis, messaging and training, coupled with our work towards systems integration will be leveraged to guide effective strategies that are based on evolving our messages and outreach to improve effectiveness and reduce sleep-related infant deaths.

Introduction

Babies are not supposed to die. When they do, it is both an unspeakable tragedy and an important indicator of the health of our state. Michigan's infant mortality rate remains persistently high at 6.8 deaths per 1,000 live births in 2015 (Michigan Department of Health and Human Services (MDHHS), Division for Vital Records and Health Statistics, 2017). This rate is higher than the national rate of 5.9 per 1,000 live births and ranks Michigan in the lower half of all states (Centers for Disease Control and Prevention (CDC), 2015). A major contributor to the infant mortality rate in Michigan is sleep-related infant deaths. From 2010-2015, there were 871 sleep-related infant deaths that occurred in Michigan,

A baby dies nearly every other day in Michigan in an unsafe sleep environment. Evidence suggests that these deaths are overwhelmingly preventable.

which is a rate of 12.7 deaths per 10,000 live births * (CDC Sudden Unexpected Infant Death (SUID) Case Registry, Michigan Public Health Institute (MPHI), 2017). Embedded in these alarming statistics is an equally persistent theme of racial disparity among sleep-related infant deaths in Michigan. Statewide, the rate of sleep-related infant death for African American infants is more than 3 times the rate for White infants (27.9 compared to 8.0 per 10,000 live births) and the rate for American Indian infants is more than twice the rate for White infants (19.6 compared to 8.0 per

10,000 live births, CDC SUID Case Registry, MPHI, 2017). In 2015, 159 Michigan infants died due to sleep-related deaths. It is clear these numbers indicate that infant mortality continues to be a major public health issue in our state.

*Note that sleep-related infant deaths are represented per 10,000 live births because deaths per 1,000 live births results in rates less than 1, which are uninterpretable.

Infant mortality is a critical indicator of the overall health and welfare of Michigan and the quality and accessibility of prenatal care for women. It is viewed as one of the significant indicators of the health of the overall community. It reflects the status of maternal health, the accessibility and quality of primary health care, and the availability of supportive services in the community. High infant mortality is most often present in communities where socioeconomic challenges such as, poverty, substandard housing environments, lack of transportation, high unemployment, exist. Because infant mortality is so important, it is one measure that was selected by Governor Rick Snyder to gauge the health of Michigan's population. Infant mortality is publicly monitored on Michigan's performance dashboards, which were implemented by Governor Snyder to provide a quick assessment of the state's performance in key areas such as public health. This resulted in the creation of Michigan's Infant Mortality Reduction Plan. This strategic approach brought together numerous stakeholders and health professionals to develop reduction strategies to turn around Michigan's unacceptable infant mortality rates and create a healthier Michigan. Reduction of sleep-related infant deaths and disparity is one of the nine key goals of Michigan's Infant Mortality Reduction Plan. The potential to impact the infant mortality rate by reducing the number of sleep-related deaths is significant. Based on the average infant mortality rate of 6.9 for the years 2010-2015, if all sleep-related infant deaths were eliminated, the infant mortality rate in Michigan would reduce by almost 19%, to 5.6 deaths per 1,000 live births, or saving nearly 150 infant lives per year (MDHHS, Division for Vital Records and Health Statistics, 2010-2015). Together with our partners we have developed an

For more information on the sources of data in this report, such as Vital Records, Pregnancy Risk Assessment Monitoring System (PRAMS), and Sudden Unexpected Infant Death (SUID) Case Registry data, see Appendix A.

Infant Safe Sleep Strategic Plan to achieve this goal through the following outreach and educational objectives:

1. Promote a population-based approach to the use of safe sleep practices at both state and local levels.
2. Eliminate disparities in infant death related to unsafe sleep practices as a critical component of a population based approach.
3. Assure that consistent and appropriate outcome indicators and metrics are collected and analyzed to inform resource and programmatic decisions, as well as to contribute to identification of evidence based interventions and effective messaging.
4. Expand statewide public education and use of infant safe sleep practices using effective core messaging.
5. Provide infant safe sleep education to health/medical providers, home visitors, breastfeeding professionals/lactation consultants, child care providers and all state and local partners who serve pregnant and parenting families.
6. Support community based initiatives and activities that expand the use of safe sleep practices.
7. Support families who experience the death of an infant.
8. Seek additional opportunities to increase resources to support this work, as well as to maximize use and alignment of current resources; prioritize use of resources to the highest risk populations using evidence-based strategies.
9. Support the Michigan Infant Safe Sleep State Advisory Committee whose roles represent integrated statewide partnerships.

Michigan’s 2016-2019 Infant Mortality Reduction Plan:

Goal 5: Reduce sleep related infant deaths and disparities

Key Strategies:

A. Promote infant safe sleep practices to prevent suffocation.

B. Develop and support culturally appropriate strategies for safe sleep practices.

C. Promote and integrate safe sleep education into all programs that serve pregnant women and families with infants.

As we continue to implement our Infant Safe Sleep Strategic Plan, we are moving towards a systems approach which will result in the capitalization of programmatic and systems strengths through the enhancement of infant safe sleep messaging, education, training and support services. Creating stand-alone interventions and programming is not the most effective method of generating behavioral change on a statewide level. As stated previously, the number of sleep-related infant deaths has stagnated. We are not moving the proverbial needle. A systems approach to stop babies from dying preventable deaths will result in a culture shift from the individual level to the systems level hierarchy. As a result, the way in which “business is conducted” regarding infant safe sleep will permanently and sustainably be elevated to a population health approach by intersecting with families at every known point of interaction to prevent Michigan babies from dying due to unsafe sleep environments.

Historical Perspective and Background

The history of infant safe sleep practices dates back to 1969, when Sudden Infant Death Syndrome (SIDS) was first defined as a condition.¹ In 1974, Congress passed the Sudden Infant Death Syndrome Act of 1974, which recognized SIDS as a significant public health issue and directed the National Institute of Child Health and Human Development (NICHD) to oversee SIDS research. This led to the development of a definition for SIDS to be developed by NICHD in 1989. Two years later, studies in Australia, New Zealand, and the UK provide evidence for a link between SIDS and stomach sleeping. Due to this extensive research, the American Academy of Pediatrics (AAP) Task Force recommended that all babies in the United States be placed on their backs or sides to sleep to reduce the risk of SIDS. In 1994, the Back-to-Sleep campaign was launched by NICHD, collaborating with several other organizations to spread the message. Additional research conducted from 1996-2005 resulted in the AAP expanding the recommendations to address other risk factors for sleep-related deaths including side sleeping, the harm of bed-sharing, soft sleep surfaces, loose bedding, overheating, and maternal smoking. In 2011, the importance of vaccinations, breastfeeding, and prenatal care were added to recommendations for prevention of these deaths which led to the Safe to Sleep® campaign launching in 2012, emphasizing safe sleep environments. AAP recommendations are continuously evolving to reflect new scientific research and was most recently updated in 2016 to provide additional guidelines on topics such as skin-to-skin care, room sharing, bedside sleepers, and infant sitting devices. These evidence-based recommendations are provided to guide health care providers in conversations with parents and others who care for infants. Health care providers are encouraged to have open and nonjudgmental conversations with families about their sleep practices.

For over two decades, maternal and child health professionals have taught families the importance of the back to sleep position for babies, with a more recent emphasis on the total sleep environment. Since the Back-to-Sleep campaign was initiated in 1994, SIDS declined more than 50% over the next 10 years. However, this rate has remained fairly stagnant over the past 10 years. While we have succeeded in creating community awareness of best practice guidelines regarding an infant safe sleep environment, we have not addressed the primary reasons parents don't follow them. It is clear that new and innovative approaches are needed to improve the effectiveness of safe sleep messaging and education. Parenting is challenging and it can be exhausting and overwhelming, especially in the early months when unsafe sleep deaths are most prevalent. When coupled with persistent stressors, such as unsafe and/or substandard housing, social isolation, and poverty, the challenges become monumental. Receiving conflicting information regarding infant safe sleep recommendations makes a complex issue even more fraught with difficulty. All of these factors may contribute to babies not being put to sleep in safe environments, placing them at risk for sleep-related death.

Compounding the concerns noted above, current messaging and methodologies used to deliver the message may not resonate with all Michigan residents. There are often "missed opportunities" and weak or even nonexistent policies and protocols around infant safe sleep, which lead to some families not receiving the messaging in its entirety, some receiving it without adequate explanation and supports, and some not receiving it at all.

Dedicated professionals have invested time, energy and resources to address infant safe sleep for many years. Despite these efforts, there remains a multitude of factors that influence parent and caregiver

willingness and ability to implement safe sleep practices. There are a number of supports that could be put in place that would strengthen professional efforts to work with families on behavior change.

With over 114,000 births annually in Michigan and thousands of professional and community partners supporting families both before and after the birth, the number of potential individuals available to impact this issue is significant. Our efforts must be directed toward reaching families at multiple touch points across the life course to create a process of systems change impacting every Michigan citizen via increased knowledge and ability to practice infant safe sleep.

Understanding Common Definitions

Defining sleep-related infant deaths is a challenge, as states and local jurisdictions define it in distinctly different ways. MDHHS identifies sleep-related infant deaths according to the national CDC definitions which are defined below:

Sudden Unexpected Infant Death (SUID)

- A death that occurs suddenly and unexpectedly to a child younger than age 1 and whose cause of death is not immediately obvious prior to investigation. This includes: accidental suffocation and strangulation in bed (ASSB), sudden infant death syndrome (SIDS) and unknown.²
- **Accidental suffocation and strangulation in bed (ASSB)**
 - Despite the reference to “in bed,” ASSB also can occur on non-bed surfaces, such as an arm chair or couch. Mechanisms that lead to accidental suffocation or strangulation where an infant’s airway is obstructed or breathing is restricted are further defined below:
 - Suffocation can occur when an infant is placed on a non-firm surface (e.g., water bed, pillow-top mattress, soft bedding, blanket) and the infant’s face becomes pressed against the non-firm surface or when soft bedding, such as a pillow, comforter or blanket covers the infant’s face.
 - Strangulation can occur when an object is wrapped around an infant’s neck, such as baby monitor cords or blankets.
 - Overlay is when another person, or part of another person’s body, rolls on top of or against the infant while sleeping.
 - Wedging or entrapment is when an infant is wedged between two objects (e.g., a mattress and a wall, between couch cushions).²
- **Sudden Infant Death Syndrome (SIDS)**
 - The sudden death of an infant younger than age 1 that cannot be explained after a thorough investigation is conducted (including an autopsy, examination of the death scene and a review of the clinical history).²
- **Unknown**
 - The sudden death of an infant younger than age 1 that cannot be explained because a thorough investigation was not conducted and cause of death could not be determined.²

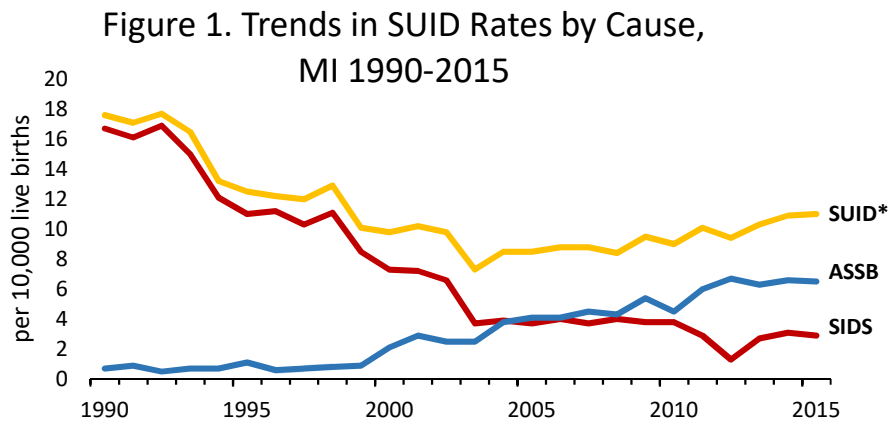
Michigan’s SUID Case Registry utilizes information collected by local child death review teams and other sources to identify many more cases where the sleep environment was likely to have contributed to the death. Therefore, Michigan’s SUID Case Registry defines these deaths differently than MDHHS Vital Records, which is defined below:

- **Sleep-related infant death**

- The death of a Michigan resident infant less than 1 year of age that occurs suddenly and unexpectedly and includes sudden infant death syndrome (SIDS), undetermined/sudden unexplained infant death (SUID), and suffocation/positional asphyxia and other causes wherein the sleep environment was likely to have contributed to the death

For the purposes of this report, the term “SUID” will refer to the definition used by MDHHS and “sleep-related infant death” will refer to the definition used by Michigan’s SUID Case Registry.

SUID declined during the 1990s and decreased again slightly beginning in 2009. Since 2000, there has been a shift in the types of SUID cases reported on death certificates. Deaths reported as an unknown cause and ASSB have increased and deaths reported as SIDS have decreased (Figure 1). While the Back-to-Sleep campaign increased the number of infants sleeping on their backs and reduced SIDS incidence nationwide, several studies have also found that the shift could also be due to more death certifiers classifying deaths as accidental suffocation and strangulation in bed, as opposed to SIDS.⁴ Although standardized guidelines for conducting thorough case investigations have been developed, case investigations are not conducted in the same manner over medical examiner jurisdictions. For example, some certifiers may no longer classify deaths as SIDS as a cause of death, whereas other certifiers may not classify a death as suffocation if there are no pathologic markers that indicate asphyxia in the autopsy.⁴ Therefore, comparing sleep-related infant deaths on even a statewide level can be very challenging.



*SUID includes infant deaths due to ASSB, SIDS, and unknown cause. Unknown deaths had too small of numbers to calculate a statistically stable rate and were not graphed but were included in the total SUID rate.

Source: Division for Vital Records & Health Statistics, MDHHS, 1990-2015

American Academy of Pediatrics Recommendations for Infant Safe Sleep

The American Academy of Pediatrics (AAP) is a professional organization of over 64,000 primary care pediatricians, pediatric sub-specialists and pediatric surgical specialists that are dedicated to improving the health of infants, children, adolescents, and young adults through policy, research, and education. The AAP has a task force on SIDS, which includes pediatric and breastfeeding professionals that are also subject matter experts on sleep-related infant death, meets to provide best-practice recommendations to reduce the risk of SUID. In November 2016, the AAP SIDS task force released a new technical report that included expanded recommendations for a safe infant sleeping environment.⁵ The following summary of these recommendations are updated from the 2011 recommendations released by AAP to provide further guidance on how parents should sleep their infants safely. In addition, data has been included in this section relevant to Michigan babies. Not all recommendations have been addressed in this report. For a full list of AAP recommendations, please visit <http://pediatrics.aappublications.org/content/early/2016/10/20/peds.2016-2938>.

Recommendation 1: Infants should be placed for sleep in the supine position for every sleep period by every caregiver until 1 year of age. Side sleeping is not safe and is not advised.

- An average of 80% of babies in Michigan sleep primarily on their back. However, 11% of infants still primarily sleep on their stomach, as well as 10% on their side (Michigan Pregnancy Risk Assessment Monitoring System (MDHHS PRAMS), 2012-2014).
- During 2010-2015, around 55% of Michigan infants who died from sleep-related causes were found on their side or stomach (CDC SUID Case Registry, MPHI, 2017).

Recommendation 2: Preterm infants should be placed supine as soon as possible.

- Approximately 10% of all live births in Michigan from 2010-2015 resulted in preterm infants (Division for Vital Records & Health Statistics, MDHHS, 2010-2015); however, 23% of all babies that died from SUID during that time were born prematurely. In addition, only 8% of all babies born in Michigan are low birth weight, yet over 20% of infants that died of SUID were low birth weight (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).

Recommendation 3: Infants should be placed on a firm mattress covered by a fitted sheet with no other bedding or soft objects to reduce the risk of SIDS and suffocation.

- 83% of all infants in Michigan sleep on a firm mattress (MDHHS PRAMS, 2012-2014).
- Only 57% of Michigan infants sleep in a crib *without* any other bedding or soft objects (MDHHS PRAMS, 2012-2014).

Recommendation 4: A crib, bassinet, portable crib, or play yard that conforms to the safety standards of the Consumer Product Safety Commission (CPSC) is recommended.

- An average of 89% of babies in Michigan sleep in a crib or portable crib (MDHHS PRAMS, 2012-2014).
- However, only 38% of babies are sleeping in cribs alone with no other hazards (including pillows, bumper pads, blankets, stuffed toys, positioners, and people; MDHHS PRAMS, 2012-2014).

Recommendation 5: Breastfeeding is associated with a reduced risk of SIDS and the protective effect increases with exclusivity. Any breastfeeding is more protective than none.

- Overall, 81% of Michigan mothers initiate breastfeeding. Of the Michigan infants who died of sleep-related causes, only 39% had ever been breastfed. (National Immunization Survey, CDC, Department of Health and Human Services (2013 births); CDC SUID Case Registry, MPHI, 2017).

Recommendation 6: Infants should sleep in the parents' room close to the parents' bed but on a separate sleep surface for at least the first 6 months of life.

- 21% of babies sleep with their mother or another person (MDHHS PRAMS, 2012-2014).
- 57% of sleep-related deaths occurred among infants who shared a sleep surface, the majority of which involved sharing an adult bed. Of the infants who were sharing a sleep surface at the time of death, 97% were sharing that surface with one or more people (CDC SUID Case Registry, MPHI, 2017).

Recommendation 7: Couches and armchairs are extremely dangerous places for infants and they should not be placed to sleep on these surfaces.

- Of the infants who died of sleep-related causes, 15% were placed to sleep on a couch or chair (CDC SUID Case Registry, MPHI, 2017).

Recommendation 8: Keep soft objects, such as pillows, pillow-like toys, quilts, comforters, sheepskins, and loose bedding such as blankets and non-fitted sheets away from the infant's sleep area.

- Nearly 17% of all babies sleep with plush or thick blankets, 5% sleep with pillows, and 3% sleep with stuffed toys in their environment (MDHHS PRAMS, 2012-2014).
- Of the sleep-related deaths where objects were known to be in the sleeping environment, the vast majority involved two or more objects. Of these, the most common objects were adults and/or children, soft mattresses, thin blankets/flat sheets, comforters, and pillows. (CDC SUID Case Registry, MPHI, 2017).

Recommendation 9: Bumper pads are not recommended; they have been implicated in deaths attributable to suffocation, entrapment, and strangulation in bed.

- 19% of babies in Michigan are still sleeping with bumper pads, although there was a significant decreasing trend from 2012-2014 (MDHHS PRAMS, 2012-2014).

Recommendation 10: Pregnant women should obtain regular prenatal care to lower the risk of SIDS.

- It is recommended that women enter prenatal care within the 1st trimester. 74% of women who had a live birth in Michigan from 2010-2015 entered care within the 1st trimester; however, only 55% of women who had a baby die due to SUID entered care within the 1st trimester (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).

Recommendation 11: Smoking during pregnancy, in the pregnant woman’s environment, and in the infant’s environment should be avoided.

- 47% of babies that died from SUID had mothers that smoked before or during pregnancy, compared to 21% of the live birth population in Michigan during the same time (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).
- 36% of babies that died from SUID were exposed to tobacco smoke in their home environment, compared to just 16% of the live birth population in Michigan (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).

Recommendation 12: Avoid alcohol and illicit drug use during pregnancy and after the infant’s birth.

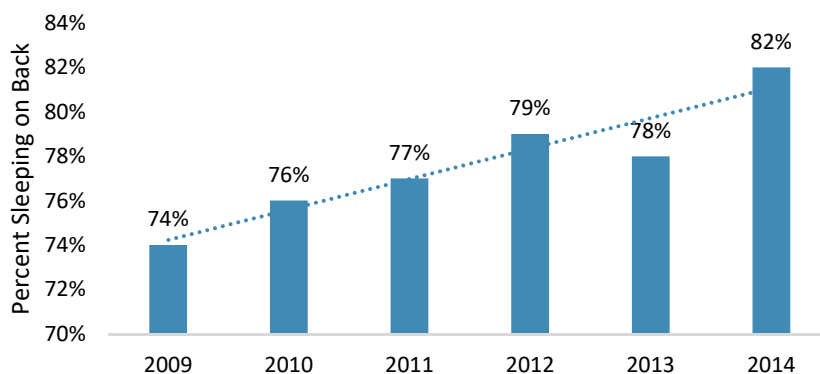
- Among infants who died of sleep-related causes, the majority of supervisors (61%) were not impaired at the time of the incident. Supervisors were impaired in 26% of cases and supervisor impairment was unknown in 13% of cases. Of supervisors who were impaired, alcohol (33%) and drugs (29%) were the most common types of impairments, although type of impairment was not mutually exclusive (CDC SUID Case Registry, MPHI, 2017).

Where Michigan Is Now: Factors That Influence Sleep-Related Deaths

Social and Economic Determinants of Health in Sleep-Related Infant Deaths

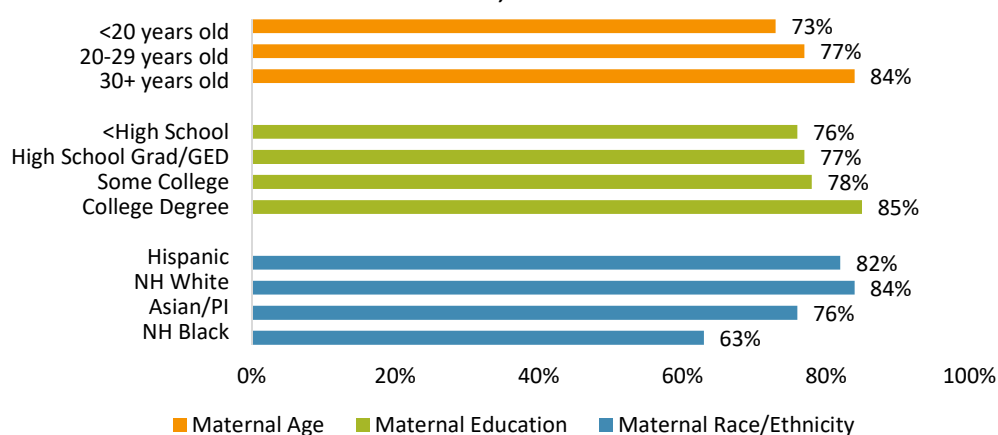
Since the “Back to Sleep” campaign was initiated in 1994, more infants have been placed to sleep on their backs in Michigan. From 2009-2014, Michigan saw a significant increasing trend in infants sleeping on their backs, from 74% in 2009 to 82% in 2014 (Figure 2). Differences in infant back sleeping exist based on maternal characteristics. According to MDHHS PRAMS, 82% of mothers aged 30 years or older placed their infants to sleep on their back, compared to only 68% of mothers less than 20 years old (Figure 3). College educated mothers also had a higher likelihood of practicing back sleeping compared to mothers with less than a high school education (84% compared to 74%). Disparities also exist in race of the mother. Only 59% of Non-Hispanic Black mothers put their infants down to sleep on their backs. Comparatively, approximately 82% of Non-Hispanic White, Asian/Pacific Islander, and Hispanic mothers place their infants to sleep on their backs.

Figure 2. Infants Sleeping on Back, MI 2009-2014



Source: MDHHS PRAMS, 2009-2014

Figure 3: Infant Back Sleeping by Maternal Characteristics, MI 2012-2014



Source: MDHHS PRAMS, 2012-2014

For the purposes of this report, a **safe sleep environment** exists when babies usually sleep:

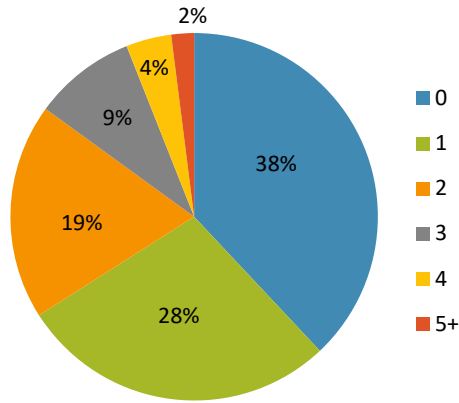
- On their backs;
- In a crib or portable crib;
- On a firm mattress;
- Without pillows, bumpers, blankets, stuffed toys, or infant positioners; and
- Without any other person in the sleep space.

Insurance coverage is often used as a proxy for income when analyzing data based on different socioeconomic factors. Insurance coverage among women who put their babies to sleep in a safe environment was assessed for this report. Women that had private insurance adhered to safe sleep more than women with Medicaid (45% and 33%, respectively; MDHHS PRAMS, 2012-2014).

Approximately 76% of infants in Michigan sleep in a crib or portable crib and do not sleep with anyone else (MDHHS PRAMS, 2012-2014). However, only about 50% of infants sleep in a crib or portable alone and *without anything else in the crib* (MDHHS PRAMS, 2012-2014). The majority of infants have at least one unsafe factor present in their sleep environments. Unsafe sleep factors

include sleeping in a position other than on the back, sleeping anywhere other than a crib, sleeping with other people, sleeping on a soft mattress, or sleeping with objects. If any of these factors were present, they were not considered to be sleeping in a safe sleep environment. Less than half (38%) of all infants were sleeping in a safe sleep environment from 2012-2014 (Figure 4). Sixty-six percent of infants faced one or less unsafe sleep factor and 85% faced two or fewer unsafe factors. Despite this, infants sleeping in safe sleep environments has significantly increased over the past several years. From 2012 to 2014, babies that were put to sleep in safe environments increased from 35% (in 2012) to 44% (in 2014) (MDHHS PRAMS, 2012-2014). However, there are still many barriers that prevent parents from achieving full safe sleep compliance which presents challenges to prevention efforts and reducing sleep-related infant deaths statewide.

Figure 4: Unsafe factors present in infant sleep environments*, MI 2012-2014

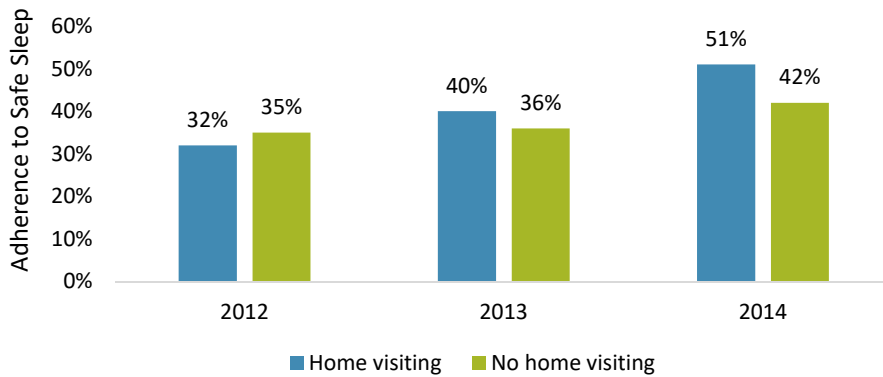


*Includes at least one of the following: sleeping position other than back, sleeping anywhere other than crib, sleeping with other people, and sleeping with objects

Source: MDHHS PRAMS, 2012-2014. Data reflects a three year average.

Data indicates that evidence-based home visiting services are associated with increased safe sleep adherence. Michigan has several home visiting programs in which a nurse, health care worker, or social worker provides support and care coordination for lower income families to help support healthy pregnancies and positive birth outcomes. Home visitors provide a number of services, including infant education and referrals to needed services. One of the components of home visiting is infant safe sleep education. Figure 5 shows that in 2014, 51% of mothers that received proper education and support for safe sleep after birth practiced infant safe sleep, compared to 42% of mothers who did not receive any home visiting services. The difference between these groups was not statistically significant but there was a significant increasing trend in safe sleep compliance in families receiving home visiting.

Figure 5. Home Visiting Services After Birth and Safe Sleep Adherence, MI 2012-2014



Source: MDHHS PRAMS, 2012-2014. Data reflects a three year average.

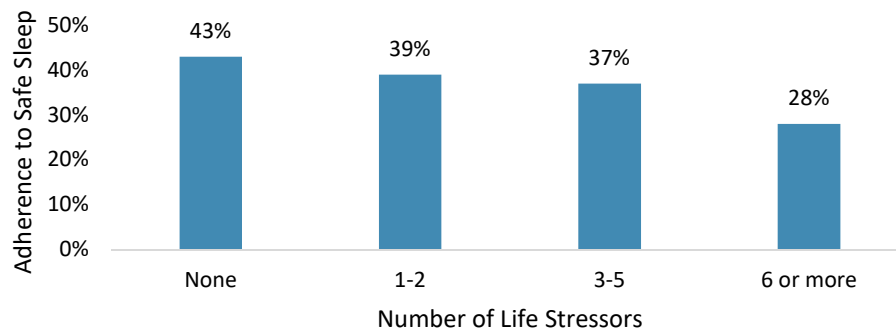
MDHHS PRAMS assesses stressful life events mothers experienced during the 12 months before their new baby was born. Stressful life experiences include:

- the serious illness of a family member
- separation/divorce
- moving
- homelessness
- lost job
- husband/partner issues
- financial challenges
- physical violence
- husband/partner or mother herself went to jail
- someone close to mother had drinking/drug problem
- someone close died

The more stressful life events that mothers experienced, the less likely they were to comply with safe sleep recommendations (MDHHS PRAMS, 2012-2014).

Managing stressful life events can be difficult, especially when expecting and caring for a new baby. Safe sleep adherence among women experiencing life stressors was measured to assess the challenges that women face when following guidelines provided by health care/human services professionals. Results showed that women who did not experience any of these life stressors in the year before their new baby was born adhered to safe sleep guidelines more than women who experienced any number of life stressors (Figure 6).

Figure 6. Life Stressors and Safe Sleep Adherence, MI 2012-2014



Source: MDHHS PRAMS, 2012-2014. Data reflects a three year average.

Mothers who answered the MDHHS PRAMS survey were also asked, “During the 12 months before your new baby was born, how often did you feel unsafe in the neighborhood where you lived?” For the mothers that answered rarely or never feeling unsafe in their neighborhood, they had a higher adherence to safe sleep practices (39%) and mothers that sometimes, often, or always felt unsafe in their neighborhood followed safe sleep practices significantly less often (30%). The association between neighborhood safety and safe sleep practice is unclear but mothers may sleep with their infants in order to protect them from the dangers outside. Presumably, many socioeconomic factors that are also related to neighborhood safety may impact whether parents are complying with safe sleep guidance or not.

Mothers who felt safe in their neighborhoods were more likely to practice safe sleep than those who did not (MDHHS PRAMS, 2012-2014).

Life Course: Maternal and Infant Characteristics in Sleep-Related Infant Deaths

Maternal Characteristics in Sleep-Related Infant Deaths

Socioeconomic factors affect the health of many populations. Infants are especially vulnerable to the health impact of several socioeconomic factors. Maternal education is often associated with infant health outcomes. The majority of mothers that lost their infants due to SUID had only a high school education or less. Comparatively, the majority of mothers who gave birth in Michigan during the same time had at least some college education (Table 1).

Age is another maternal factor that often times has an impact on infant health. Almost 40% of mothers that had infants who died of SUID were between the ages of 20-24. Compared to all mothers who gave birth in Michigan during the same time frame, the majority were between 25-34 years old (Table 1).

Insurance status is often a proxy that is used for income or economic status of an individual and can often impact health. During 2010-2015, 44% of Michigan babies were born to mothers insured by Medicaid and also enrolled in Women, Infants, and Children (WIC), a supplemental nutrition program of the United States Department of Agriculture. Comparatively, nearly 70% of mothers who lost an infant due to SUID were enrolled in Medicaid and WIC at delivery (Table 1).

Table 1. Maternal demographics in SUID cases compared to live birth population, MI 2010-2015

	Live Births		SUID	
	N	%	N	%
Education				
Less than high school	92,427	14	206	30
High school diploma/GED	173,405	25	249	36
Some college	224,854	33	180	26
College graduate	188,171	28	43	6
Unknown	4,130	1	14	2
Age				
19 years old or younger	51,084	7	109	16
20-24 years old	163,864	24	272	39
25-29 years old	204,552	30	168	24
30-34 years old	173,965	25	102	15
35-39 years old	72,743	11	29	4
40 years old or older	16,738	2	7	1
Unknown	41	<1	5	1
Payment Source				
Private insurance	362,661	53	178	26
Medicaid	301,212	44	482	70
Self-pay	9,796	1	15	2
Other	5,793	1	5	1
Unknown	3,525	1	12	2
WIC Enrollment				
Yes	300,642	44	470	68
No	365,408	54	190	27
Unknown	16,937	2	32	5

Source: Michigan Resident Live Birth and Death Files, Division for Vital Records & Health Statistics, MDHHS, 2010-2015. Data reflects a five year average.

The growth and development of an infant depends on the mother’s health behaviors and health care access and utilization starting at conception and continuing throughout the pregnancy. The American College of Obstetricians and Gynecologists (ACOG) recommends that the first prenatal visit be within the first 12 weeks of pregnancy. Up to 28 weeks, women should be receiving prenatal care every four weeks. From 28-36 weeks, visits should take place every two weeks and from 36 weeks until delivery, women should increase their visits to weekly.⁶ From 2010-2015, only 1% of women who delivered in Michigan received no prenatal care. Comparatively, 4% of mothers that had a baby who died due to SUID received no prenatal care. Three-fourths of all Michigan mothers received prenatal care in the first trimester of pregnancy, whereas only a little more than half of all mothers who had babies die of SUID received care in the first trimester (Table 2).

Mothers whose babies died of SUID were less likely to have received prenatal care in the first trimester of pregnancy and were more likely to have smoked before or during pregnancy (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).

Table 2. Maternal health behaviors in SUID cases compared to live birth population, MI 2010-2015

	Live Births		SUID	
	N	%	N	%
<i>Prenatal Care Initiation</i>				
None	8,716	1	30	4
1 st trimester	503,553	74	384	55
2 nd trimester	123,738	18	186	27
3 rd trimester	24,730	4	37	5
Unknown	22,250	3	55	8
<i>Number Prenatal Visits</i>				
0 visits	8,713	1	31	4
1-9 visits	129,624	19	195	28
10-15 visits	439,869	64	387	56
More than 15 visits	85,580	13	57	8
Unknown	1,9201	3	22	3
<i>Tobacco Use*</i>				
Yes	142,917	21	328	47
No	536,389	79	349	50
Unknown	3,681	1	15	2
<i>Household Smoking</i>				
Yes	112,551	16	249	36
No	539,295	79	386	56
Unknown	31,141	5	57	8

*Mothers who noted that they smoked before or during pregnancy

Source: Michigan Resident Live Birth and Death Files, Division for Vital Records & Health Statistics, MDHHS, 2010-2015. Data reflects a five year average.

Infants that are born prematurely or with a low birth weight have a greater chance of dying in an unsafe sleep environment (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).

Infant Characteristics in Sleep-Related Infant Deaths

While approximately an equal number of males and females are born in the state every year, there are more male infants that die due to unsafe sleep factors compared to female infants (Table 3). Gestational age and birth weight are important factors that determine an infant’s health and development. Premature infants (infants born at less than 37 weeks gestation), as well as low birth weight infants (infants with a birth weight less than 2,500 grams, regardless of gestational age), suffer from more health issues and have a higher risk for death, especially in the neonatal period (interval from birth to

28 days of age). During 2010-2015, 10% of all Michigan infants were born preterm; however, 23% of infants that died due to SUID were born prematurely (Table 3). While only 8% of infants in Michigan were born with a low birth weight during this period, 20% of infants that died due to SUID were born at a low birth weight. Infants that are born premature or with a low birth weight have a greater chance of dying in an unsafe sleep environment. Therefore, it is crucial to ensure that caregivers of these vulnerable infants are following all of the safe sleep guidelines.

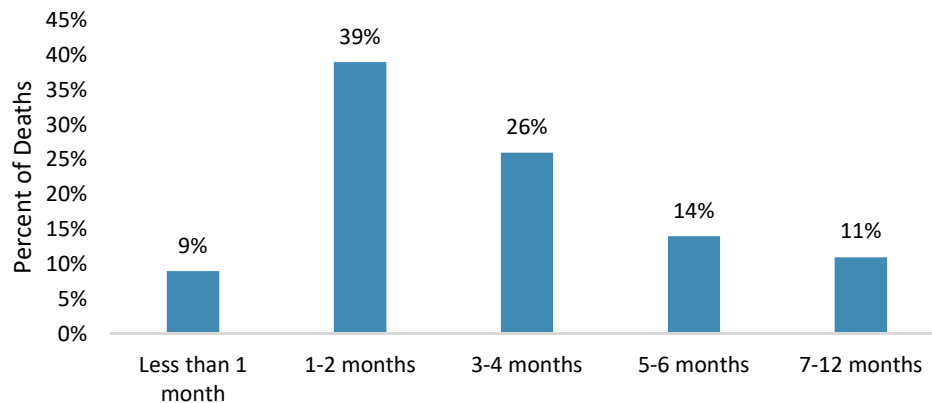
Table 3. Infant Characteristics in SUID cases compared to live birth population, MI 2010-2015

	Live Births		SUID	
	N	%	N	%
Sex				
Male	349,768	51	397	57
Female	333,203	49	295	43
Gestational Age				
Preterm	67,761	10	158	23
Term	614,661	90	528	77
Birth weight				
Low	57,396	8	141	20
Normal	625,591	92	551	80

Source: Michigan Resident Live Birth and Death Files, Division for Vital Records & Health Statistics, MDHHS. Data reflects a five year average.

Almost three in four (74%) infants who died of sleep-related causes do so before the 5th month of life (Figure 7). Interventions focused on safe sleep should especially focus on these vulnerable first months of life.

Figure 7. Sleep-Related Deaths by Infant Age, MI 2010-2015



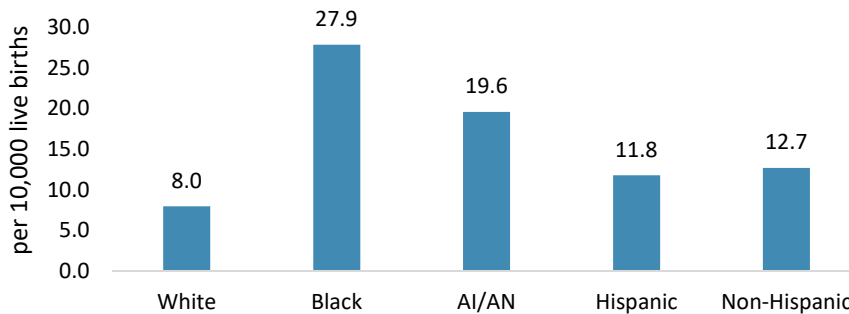
Source: CDC SUID Case Registry, MPHI, 2017

Racial and Ethnic Disparities in Sleep-Related Infant Deaths

When examining the problem of sleep-related infant deaths in Michigan, there are clear disparities. Health disparities are population-specific differences in the presence of disease, health outcomes, or access to healthcare. Disparities between populations are directly related to unequal distribution of social, political, economic, and environmental resources. Health disparities can result from multiple complicated factors including poverty, health care access, educational inequities, as well as individual behavior choices. Comprehensive intervention on issues like these takes into consideration that only addressing behavior choices, without addressing these social determinants of health and wellness, will see limited success.

Persistent racial and ethnic disparities exist in infant mortality, both statewide and nationally. Similarly, there are racial and ethnic disparities in sleep-related infant deaths. Figure 8 shows that black infants die at a much higher rate (27.9 per 10,000 live births) compared to all other races. American Indian/Alaska Native infants also die at a higher rate compared to White infants (19.6 and 8.0 per 10,000 live births, respectively). Non-Hispanic infants die from sleep-related causes at a higher rate compared to Hispanic infants (12.7 and 11.8 per 10,000 live births, respectively). Several state efforts have been working towards reducing and eliminating these disparities in SUID, focusing on predominantly Black and American Indian populations across Michigan. These efforts aim to evaluate and improve messaging, identify barriers to safe sleep practice and promote safe sleep messages and interventions in a consistent, culturally competent manner.

Figure 8. Sleep-Related Infant Death Rates by Race/Ethnicity, MI 2010-2015



Source: CDC SUID Case Registry, MPH, 2017; Division for Vital Records & Health Statistics, MDHHS, 2010-2015

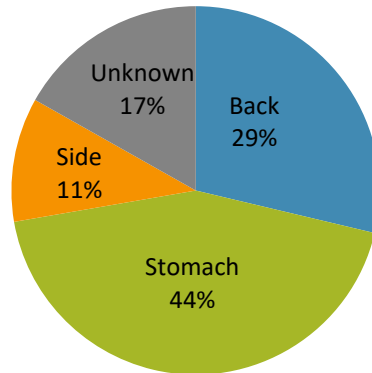
Sleep Environment among Sleep-Related Infant Deaths

Out of the 871 SUID deaths that were reviewed by Child Death Review teams across Michigan from 2010-2015, after a thorough review of the data, it was determined that the death was preventable in 86% of the cases or 752 deaths (CDC SUID Case Registry, MPH, 2017).

From 2010-2015, 60% of SUID were ruled as accidental suffocation and strangulation in bed, or ASSB (MDHHS Division for Vital Records & Health Statistics, 2010-2015). This can occur in many different instances when a baby's breathing is threatened while they sleep, such as when blankets are covering a baby's face or a baby gets trapped between two objects such as a mattress and wall. While the majority of sleep-related deaths used to be ruled as SIDS, a small percent are now ruled as SIDS. An additional 12% of SUID were ruled as "unknown" from 2010-2015, due to one or more parts of the investigation not being completed and therefore the medical examiner was unable to determine the final cause of death.

Figure 9 shows that approximately 44% of infants who died of sleep-related causes were found on their stomach and 11% were found on their side. However, 29% of infants who died of sleep-related causes were found unresponsive on their backs. Sleep position was unknown or missing in 17% of deaths. While AAP safe sleep guidelines state that supine is the safest position for babies to sleep, other factors contribute to infants dying while on their backs including an unsafe sleep surface, sleeping with others, and sleeping with objects in the sleep environment.

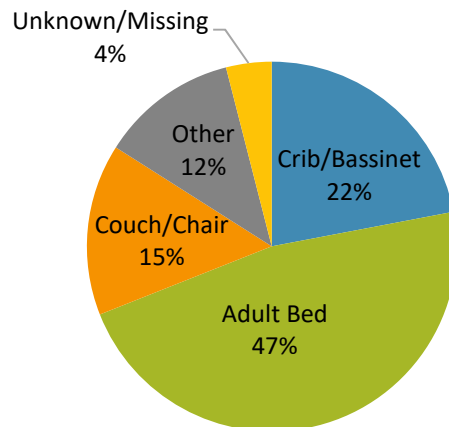
Figure 9. Sleep Position Where Baby Was Found, MI 2010-2015



Source: CDC SUID Case Registry, MPHI, 2017. Data reflects a five year average.

Death scene investigations that were conducted during 2010-2015 found that almost half of all infant sleep-related deaths occurred in an adult bed (Figure 10). Additionally, 22% of deaths occurred in a crib/bassinet and 15% were on a couch or chair. Although the AAP advocates for all infants to sleep in a crib or bassinet, other circumstances can contribute to an infant death in a crib or bassinet, such as sleeping with toys or blankets or sleeping on the stomach or side.

Figure 10. Sleep Place Where Baby Was Found, MI 2010-2015



Source: CDC SUID Case Registry, MPHI, 2017. Data reflects a five year average.

The majority of sleep-related infant deaths occurred in the child’s own home (74%) or a relative’s home (15%) (CDC SUID Case Registry, MPHI, 2017).

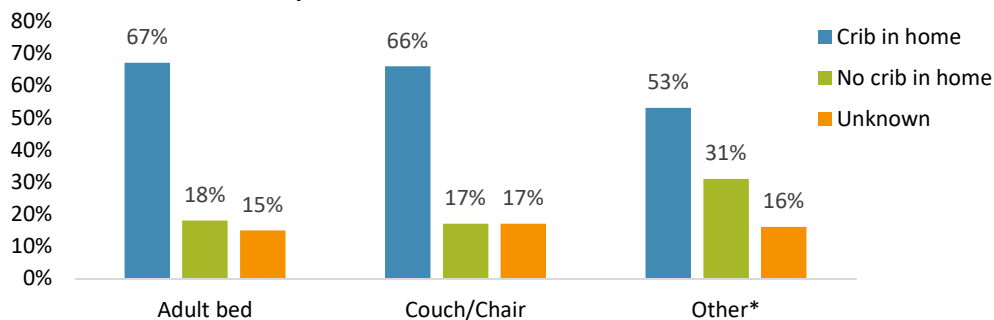
Sharing a sleep surface with another adult or child poses a risk to infants under the age of 1 due to accidental overlay or suffocation while sleeping. During 2010-2015, over 57% of infants that died due to unsafe sleep were sharing a sleep surface with at least one other person (CDC SUID Case Registry, MPHI, 2017). Therefore, it is recommended that babies sleep in the parent’s room but on a separate sleep surface.⁴

Of the sleep-related deaths where objects were known to be in the sleeping environment, the vast majority involved two or more objects. Of these, the most common objects were adults and/or children, soft mattresses, thin blankets/flat sheets, comforters, and pillows (CDC SUID Case Registry, MPHI, 2017).

Crib availability in the home at the time of death was assessed for infants that died during 2010-2015. Approximately 70% of infants that died due to sleep-related causes had a crib, bassinet or portable crib in their home at the time of death (CDC SUID Case Registry, MPHI 2017). Figure 11 shows that the majority of infants that were found in an adult bed, couch, or other unsafe sleep surface had a crib in their home but were not in the crib at the time of death. A smaller percentage of infants that were found on these surfaces had no crib available in the home.

Almost 6 in 10 infants (57%) who died of sleep-related causes were sharing a sleep surface at the time of death (CDC SUID Case Registry, MPHI, 2017).

Figure 11. Sleep Place Where Infant Was Found by Availability of Crib in Home, MI 2010-2015



*Other includes playpen, chair, floor, car seat, and other unsafe sleep spaces

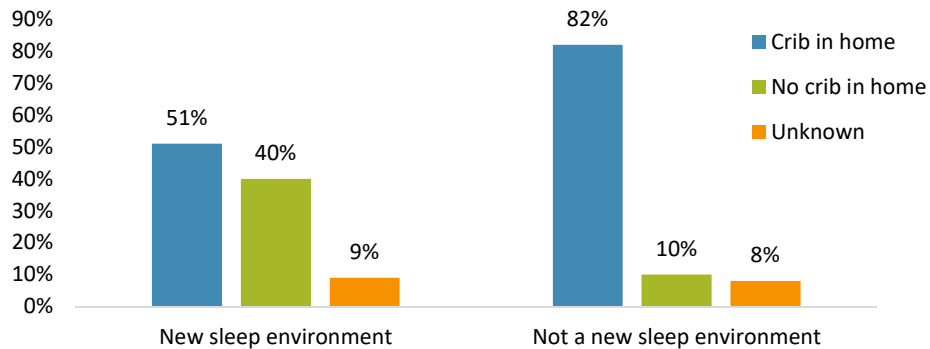
Source: CDC SUID Case Registry, MPHI, 2017

About 1 in 5 sleep-related deaths occurred when babies were in new or different sleep environments (CDC SUID Case Registry, MPHI, 2017).

New or different environments can also place infants in danger if there is no available safe sleep environment. Approximately 1 in 5 infants (19%) who died of sleep-related causes were in a new or different sleep environment at the time of the incident (CDC SUID Case Registry, MPHI, 2017). When infants who died of sleep-related causes were not in a new sleep environment, a crib, bassinet, or portable crib was available in the home 82% of the time. On the other hand, a crib, bassinet, or portable crib was

only available in the home 51% of the time when the infant was in a new sleep environment (Figure 12). Almost half of all infants sleeping in a new or different sleep environments were placed in an adult bed and another 28% were placed to sleep on a couch (CDC SUID Case Registry, MPHI, 2017). When infants died of sleep-related causes in a new or different sleep environment, they were most commonly sleeping at a relative's home. It is important for infants to sleep in homes where there is a safe sleep surface such as a crib or bassinet to reduce the risk of sleep-related infant deaths. Unstable sleep environments provide challenges for families that do not have access to a crib or bassinet, resulting in babies being placed on unsafe surfaces and in unsafe positions to sleep.

Figure 12. Crib Availability in Home by Sleep Environment, MI 2010-2015



Source: CDC SUID Case Registry, MPHI, 2017

Substance Use and Sleep-Related Infant Deaths

The AAP safe sleep guidelines include avoiding all smoking during pregnancy, in the pregnant woman’s environment and in the infant’s environment.⁵ Several studies have shown that maternal smoking during pregnancy puts an infant at greater risk of SIDS.⁷⁻¹⁰ Smoking during pregnancy increases the risk of preterm birth and low birth weight infants, which are both risk factors for SIDS. Additionally, secondhand smoke exposure impairs an infant’s arousal from sleep, increasing the risk of SIDS.¹¹⁻¹³

Around 48% of mothers who had infants die from SUID had smoked before or during pregnancy, compared to just 21% of all mothers who gave birth during the same time period (Table 2). This demonstrates that smoking during pregnancy could increase the risk of sleep-related deaths in infants. Adherence to safe sleep practice was assessed in mothers who smoked since the baby’s birth compared to mothers who did not smoke. Mothers who did not smoke had a significantly higher adherence to safe sleep compared to mothers who smoked (Table 4).

While about 1 in 5 mothers in Michigan smoked before or during pregnancy, about half of mothers who experienced a SUID smoked during the same timeframe; mothers who experienced a SUID were more likely to allow smoking in their homes (Division for Vital Records & Health Statistics, MDHHS, 2010-2015).

Table 4. Maternal smoking status since baby’s birth and adherence to safe sleep practice, MI 2012-2014

Year	Smokers adherence %	Non-Smokers adherence %
2012	27.5	36.5
2013	32.1	38.3
2014	35.0	45.7
2012-2014	31.4	40.2

Source: MDHHS PRAMS, 2012-2014.

Among infants that died of SUID, almost 40% of households allowed smoking at least some of the time, compared to just 17% of the households that had live births during the same time frame in Michigan (Table 2). Adherence to safe sleep practices was assessed for households where smoking was allowed inside of the household, compared to households where smoking was not allowed inside. In households where smoking was not allowed inside, 40% of families adhered to safe sleep practice compared to only 28% in households where smoking was allowed (MDHHS PRAMS, 2012-2014).

Another recommendation from the AAP is to avoid alcohol and illicit drug use during pregnancy and after the infant's birth. Several studies have shown an association between alcohol consumption or drug use and an increased risk of SIDS.¹⁴⁻¹⁷ Less than one-third of all mothers in Michigan who drank alcohol during the last trimester adhered to safe sleep practice with their infants (MDHHS PRAMS, 2012-2014). Comparatively, nearly 40% of mothers who avoided alcohol during the last trimester of pregnancy adhered to safe sleep practice. Among infants who died of sleep-related causes, the majority of supervisors (61%) were not impaired at the time of the incident. Supervisors were impaired in 26% of cases and supervisor impairment was unknown in 13% of cases (CDC SUID Case Registry, MPHI 2017). The most common type of supervisor impairments were alcohol, drugs, and distractions at the time of sleep-related deaths.

Breastfeeding and Sleep-Related Infant Deaths

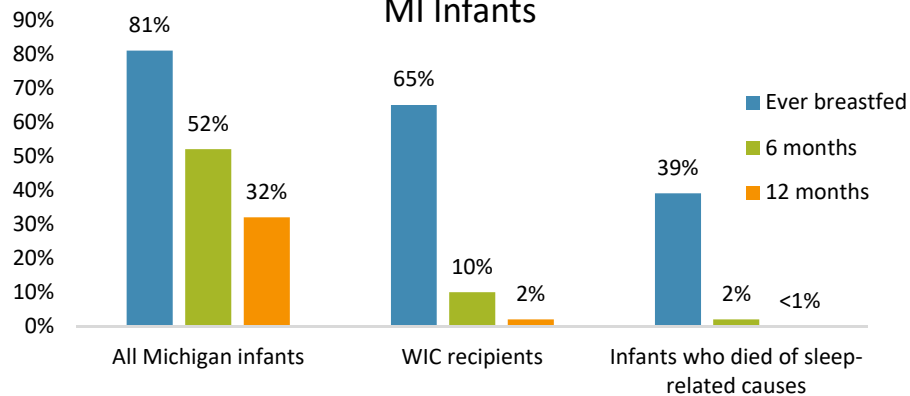
Breastfeeding is a behavior that positively impacts not only babies, but mothers as well, and has been shown to be a protective factor in reducing the risk of SIDS. Exclusive breastfeeding, without introducing formula in the diet, is recommended for at least 6 months in order to provide the greatest benefits to the infant.¹⁸⁻¹⁹

Of the infants who died of sleep-related causes, 65% were fed formula only for their last meal (CDC SUID Case Registry, MPHI, 2017).

Figure 13 shows differences in breastfeeding among different groups in Michigan. Among all Michigan infants, an average of 81% of mothers initiated breastfeeding at some point. Nearly two-thirds of mothers enrolled in WIC initiated breastfeeding. Conversely, of the infants that died of sleep-related causes, only 39% had ever been breastfed. About half of all Michigan mothers still

breastfeed at 6 months. Comparatively, 10% of WIC recipients are still breastfeeding at 6 months. Only 2% of infants that died due to sleep-related causes were still breastfeeding at 6 months. However, this percentage may be low because the majority of infants that die from sleep-related causes die before 6 months of age. Of the infants who died of sleep-related causes, 65% were fed formula only for their last meal (CDC SUID Case Registry, MPHI, 2017). The AAP recommends exclusive breastfeeding in order to provide the greatest protection for infants, but any amount of breastfeeding is more protective against SIDS than no breastfeeding.⁴

Figure 13. Breastfeeding Duration Among MI Infants



Sources: CDC Breastfeeding Report, 2016; MDHHS WIC, Fall 2016 Breastfeeding Report; CDC SUID Case Registry, MPHI 2010-2015

During the first few weeks of life, most babies feed at least 8-12 times in a 24 hours period, or every 2-3 hours.²⁰ Many times, mothers wake up in the middle of the night to breastfeed their baby. While AAP guidelines recommend that infants who are brought into the bed for feeding should be returned to their own crib or bassinet when the parent is ready to return to sleep, exhausted parents may accidentally fall asleep with their babies. Caregivers that fell asleep while feeding their infant were examined and found that 6% of caregivers of infants that died from sleep-related causes fell asleep while feeding their infant. However, of those that fell asleep while feeding, 60% were breastfeeding while 29% were bottle feeding (CDC SUID Case Registry, MPHI, 2017). It is important that mothers are educated during pregnancy on the benefits of safe breastfeeding to help reduce the risk of sleep-related infant deaths. The AAP recommends that babies who are brought into the bed for breastfeeding or comforting should be returned to their own crib once the parent is ready to return to sleep.⁴

Michigan’s Infant Safe Sleep Outreach and Educational Programs

The MDHHS Infant Safe Sleep program seeks to reduce sleep-related infant deaths and disparities by providing infant safe sleep outreach and education to health/medical providers, home visitors, breastfeeding professionals/lactation consultants, child care providers and all state and local organizations who serve pregnant and parenting families. Together with our partners, we have accomplished many outreach and educational activities in FY 2016 to help ensure parents, family members and friends know how to keep babies safe.

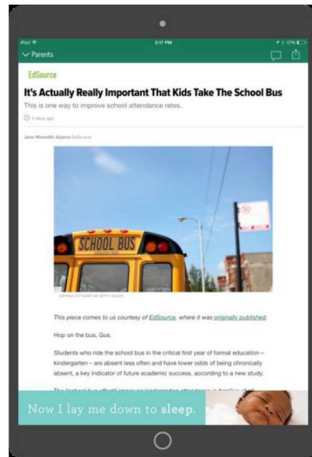
Statewide Efforts to Increase Safe Sleep Awareness

Making the Message Digital

The Michigan Department of Health and Human Services (MDHHS) ran a statewide media campaign in 2016 to increase the awareness of the importance of babies sleeping safely: In their own crib, on their back, with no pillows or blankets. The campaign targeted African American adults, ages 18-34 years, living within the following communities: Detroit, Pontiac, Southfield, Flint and Grand Rapids (specifically Kent County).

Safe Sleep For Your Baby
 Learn How To Avoid Unsafe Sleep Situations For You Baby
michigan.gov/safesleep

- Safe Sleep digital campaign elements (mobile & Google AdWords) delivered 82,905 clicks to the MDHHS website.



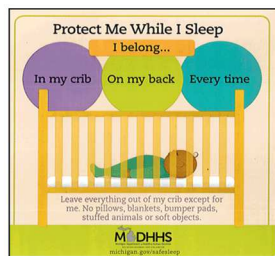
- 91% of our target audience uses a cell phone to go online and 56% of our target audience owns a smartphone. Mobile advertising delivered 830,000 additional impressions and garnered a 0.79% click through rate which is 3 times the industry standard of 0.25% (MDHHS Safe Sleep Recap, November 2016, Brogan & Partners).

- Cable television advertising delivered over 40% in added value which included an additional 4,116 spots.



Michigan Legislature Passes Infant Safe Sleep Awareness and Education Act

In 2014, Governor Snyder signed the Infant Safe Sleep Act into law. This law requires hospitals to provide educational materials to parents regarding infant safe sleep free of charge and includes brochures, posters, decals and DVDS. In addition to hospitals, MDHHS provides materials to health care providers, child care providers, state and local organizations and individuals around the state to increase education and awareness around protecting babies while they sleep. In FY 2016, 339,007 total materials were distributed.



'Protect Me While I Sleep' campaign materials are available in a poster, decal, and brochure. MDHHS also offers a video on infant safe sleep featuring parents who have lost a child due to an unsafe sleep environment.

Professionals Increase Knowledge Related to Infant Safe Sleep

Just as we strive to educate families about keeping their babies safe while sleeping, we also continuously provide education to professionals in order to enhance their skills and provide them with new tools and resources. Trainings include the scope of the problem of sleep-related infant deaths, a thorough understanding of the AAP guidelines, and strategies and tools for working with specific subgroups of parents, caregivers and other key individuals in the family on this issue. MDHHS offers a variety of trainings to professionals in order to increase their knowledge and understanding of infant safe sleep. In FY 2016:

- 1,216 individuals completed a voluntary health care provider online training.
- 1,239 child welfare staff completed the MDHHS Infant Safe Sleep training.
- 5,174 individuals completed a voluntary child care provider online training.

MDHHS Programs and Partners

MDHHS offers a wide variety of programs and partnerships across the state to create awareness, provide education, outreach and services for families related to infant safe sleep. A main component of our efforts is to begin to move toward systems integration with all of our partners which will ensure sustainability beyond the individual programs and outreach. The systems work, though challenging, will ensure sustainability of key issues surrounding sleep-related deaths.



In FY 2016, local funded program efforts contributed to countless educational and outreach activities in communities across the state. MDHHS provides mini-grants to local public health departments and organizations to conduct infant safe sleep education, awareness, and outreach activities in 16 communities. These communities experience some of the highest rates of sleep-related deaths in Michigan. In FY 2016:

- 3,390 individuals received safe sleep education in a one-to-one or group setting.
- Over 15,000 people were reached with safe sleep information at community events.



Children's Trust Fund

The Children's Trust Fund (CTF) serves as a voice for Michigan's children and families and promotes their health, safety and welfare by funding local programs and services. Local prevention councils serve all of Michigan's 83 counties and are mandated to spend 15% of their grant funds on infant safe sleep education and awareness activities. In FY 2016:

- 56,701 new parent packets were distributed by CTF Local Councils. These packets included safe sleep education materials.
- 10,969 safe sleep educational items were distributed during the year. These items include pack-n-plays, cribs, sleep sacks, onesies with messaging, crib sheets and other items.
- No less than 2,674 specifically stated safe sleep education sessions took place serving 6,338 adults. In addition, 162 Happiest Baby sessions for 267 adults were held that included safe sleep curriculum.

Home Visiting Programs

The Maternal and Infant Health Program (MIHP) is Michigan's largest home visiting program for Medicaid-eligible pregnant women and infants. Each MIHP agency works to support healthy pregnancies, positive birth outcomes, as well as healthy infants. It provides home visitation support and care coordination for pregnant women and infants on Medicaid to promote healthy pregnancies, positive birth outcomes and healthy infant growth.

In addition to MIHP, there are many other home visiting programs throughout the state that work to improve maternal and infant healthcare utilization and health outcomes beginning during pregnancy, continuing at birth, and sustained through the first year of life.

All of these programs work with families to ensure their baby sleeps safely and helps them to put together a plan in order to make this happen.

Medicaid Health Plans

All health care providers that accept Medicaid are required by the Medicaid Health Plan to discuss infant safe sleep at certain points when providing prenatal care to pregnant women and when providing care to infants.

Child Welfare Staff

Safe sleep training is designed to raise awareness among child welfare staff to assess and address safe sleep with parents/caregivers and to engage them in putting the safe sleep education message in to practice. In 2014, through a contract with the Michigan Public Health Institute (MPHI), infant safe sleep trainings began to be provided to staff. Participants involved in the trainings include: MDHHS Child Welfare Staff, Private Agency Child Welfare Staff, Central Office Managers/Staff, MDHHS County Directors, Centralized Intake workers, Family Preservation staff, Eligibility Specialists, foster parents, and Pathways to Potential staff. In FY 2016, 1,239 child welfare staff completed the mandated MDHHS Infant Safe Sleep training at 39 locations throughout the state. In addition, the same training has been provided to other home visitors, school personnel, hospital staff, law enforcement agencies, and local health department staff.



This training is approximately 1.5 hours in length and is designed to raise awareness among child welfare staff and others regarding the importance of engaging parents and caregivers in following safe sleep guidelines. This training provides staff with knowledge surrounding safe sleep practices, an understanding of

policy as it relates to safe sleep, how to reduce infant deaths due to unsafe sleep, and how to engage families in discussion regarding the importance of safe sleep practices. Staff are provided with materials to bring to their clients.

In addition to the training, policy for the Children's Protective Services and Children's Foster Care programs requires caseworkers to observe the sleep environment for any case involving a child under age one, provide infant safe sleep education with those families, and assist them in obtaining a crib or pack-n-play if they don't have one. Many local MDHHS offices have an identified safe sleep support person.

Regional Perinatal Quality Collaboratives

Regional Perinatal Quality Collaboratives are being initiated in regions across the state. These collective efforts serve to improve perinatal outcomes through quality improvement. The collaboratives serve as an excellent mechanism of connecting and collaborating with community partners for public health campaigns and projects. Regional Perinatal Quality Collaboratives have been launched in Prosperity Regions 1 (Upper Peninsula), 2 & 3 (Northern Lower), 4 (West), 8 (Southwest) and 10 (Southeast).

Child Death Review

Child Death Review (CDR) is a county-level, multidisciplinary process that reviews the circumstances surrounding a child's death in an attempt to understand how and why the child died. There are currently 75 teams, covering all 83 counties in Michigan. The goals are to influence policy and practice at the state and local levels that: improve our response to child deaths, improve the delivery of services to families and ultimately to prevent future fatalities. In their annual reports, the Child Death State Advisory Team makes recommendations to prevent sleep-related infant deaths in Michigan. The CDC's SUID Case Registry project was layered onto the CDR process in all of the states in which it was funded, to collect more in-depth information in cases of sudden and unexpected infant death. The Case Reporting System hosted by the National Center for Fatality Review and Prevention contains all of the variables collected for the purposes of the SUID Case Registry. Local teams input those variables based on their review of the cases at their team meetings. Data is cleaned and any gaps are filled by specialized program staff at MPHI.

Fetal Infant Mortality Review

Michigan's Fetal Infant Mortality Review (FIMR) network consists of local FIMR teams who function to address infant mortality in a continuous quality improvement (CQI) model. Through de-identified case reviews, case review teams (CRTs) examine factors that were present and contributing to an infant death, and make recommendations to improve relevant systems at the local level. The recommendations are provided to a community action team (CAT) to implement system improvements to support families and help infants to thrive. Through continuing case review, communities are able to assess if systems improvements provide meaningful support to families in the future.

FIMR and CDR teams have similar review processes, both with an outcome of identifying prevention strategies. However, these processes differ in two significant ways. In CDR, team members are told ahead of time which cases will be reviewed and each team member brings their records to the table, sharing information at the meeting. In FIMR, a primary abstractor gathers information from relevant sources, summarizes them and provides a de-identified summary to the team in advance of the meeting. In addition, FIMR review may include an interview with the mother and/or other close family.

As the time of this report, there were active FIMR teams in Berrien County, Calhoun County, the City of Detroit, Ingham County, the Inter-Tribal Council of Michigan, Jackson County, Kalamazoo County, Kent County,

Macomb County, Oakland County, and Saginaw County. This means FIMR teams are in communities that experience about 65% of infant deaths in Michigan and about 82% of the black infant mortality in the state (Division for Vital Records & Health Statistics, MDHHS, 2012-2014).

Sleep-related infant deaths are among the most frequently reviewed perinatal losses by local FIMR teams. Of 289 cases reviewed by Michigan’s local FIMR teams between January 2015 and May 2017, 58 were sleep-related, or positional asphyxias. Data from sleep-related FIMR cases cannot be generalized to represent all sleep-related infant deaths in the state due to diverse case selection methods and not all cases are reviewed.

Local Community Efforts to Increase Safe Sleep Awareness

Local organizations from around the state are partnering together to educate their communities about the importance of infant safe sleep and decreasing the number of sleep-related deaths. Highlighted below are initiatives from several of our local partners. To obtain additional information about any of the local initiatives summarized below, contact Colleen Nelson at nelsonc7@michigan.gov or 517-335-1954.

The Family Support Center of Barry County Answers the Need for Safe Sleep



Barry County displays their infant safe sleep materials to bring more awareness to county residents.

fitting mattress, two crib sheets (one for the bed and one for the wash), a handmade “tummy time” quilt, and literature about safe sleep, car seats, immunization, and other community resources and information about child development to all families who are in the program. They also provide a follow-up form to the referring agency so that they will know whether the CRIB referral has been filled or denied.

In 1999, at the recommendation of the Infant Death Review, the Barry Council established the Crib Resource in Barry (CRIB) program. The Infant Death Review investigations showed that a number of infant deaths were caused by unsafe sleeping conditions. The program is funded through the Barry County United Way.

CRIB receives referrals of families who need a crib set, but cannot afford one. The agency provides a crib, well-



The Crib Resource in Barry Program restocking their inventory of crib mattresses for families in need of a safe sleep environment.

Since the CRIB program began, Barry County has seen a significant decrease in the number of infant deaths attributed to inappropriate sleeping environments. The expectation of the CRIB program is to place an additional 25 cribs, 10 toddler beds and 10 pack-n-plays in homes each year.

Calhoun County Pack-n-Play Program

Providing education on infant safe sleep practices is an important component to the Pack-n-Play Program in Calhoun County. Through a collaborative effort, the Calhoun County Public Health Department (CCPHD), Bronson Battle Creek, Oaklawn Hospital, and the Calhoun County MDHHS/CPS provide education and distribute pack-n-plays to clients in need.

Throughout pregnancy, clients are educated on the importance of having a safe place for their babies to sleep, so that parents can plan for the purchase of a crib/pack-n-play. In the last month of pregnancy, if the client cannot afford a crib or pack-n-play, a referral can be made to this program. Referrals are made through

local agencies or via 211. All parents must receive safe sleep education in order to receive a pack-n-play. The program also has a unique feature where there is 24/7 immediate access to pack-n-plays for emergency child removals or home visits where there are concerns for a child's safety. The program typically delivers 20–30 pack-n-plays per month.



In 2016, Calhoun County had zero sleep-related infant deaths!

The Maternal and Infant Health Commission is also working to increase awareness in the community through group presentations, community events, distribution of informational materials, advertising, and separate fundraising using their Infant Safe Sleep Coalition.

These collaborative efforts have helped raise awareness in the community and contributed to Calhoun County having no sleep-related deaths in 2016!

Ottawa County Safe Sleep Collaborative

The Ottawa County Safe Sleep Collaborative was established in August 2015 so that MDHHS could promote safe sleep awareness and education throughout the county. Since the collaborative was formed, a number of key players were brought to the table including Ottawa County MDHHS, Stop Child Abuse and Neglect Council (SCAN), North Ottawa Community Hospital, Holland Community Hospital, Spectrum Zeeland Hospital, Positive Options, The Salvation Army, Maternal Infant Health Program, Beacon Ministries, Haddie's Calling, Nestlings, Help Me Grow, child care licensing and many more.

Some of the initiatives that this collaborative have accomplished include:

- Making sleep sacks available in MDHHS offices for staff to take out to families in need
- Promoting community involvement with sewing groups to make infant sleep sacks
- Having cribs and pack-n-plays available so that MDHHS workers can immediately take them out when the lack of a safe sleep environment is identified

- Partnering with *Haddie's Calling* to provide a heartfelt and meaningful story regarding the loss of an infant
- Creating an Ottawa County Safe Sleep Resource List and central Safe Sleep Hotline
- Reaching out to licensed child care providers to remind them of safe sleep guidelines and where to go in Ottawa County to obtain free sleep sacks
- Collaborating with Help Me Grow and SCAN to bring Direct On-Scene Education (D.O.S.E.) to Ottawa County
- Working with the Great Start to Quality Western Resource Center to provide between 1.5 – 3 hours of Safe Sleep Training credit. The training is designed to help child care providers have conversation starters for the parents they interact with in order to help them understand the importance of safe sleep
- Promoting free sleep materials from www.healthymichigan.com

Berrien County Reaches Youth and Senior Residents in their Efforts to Educate on Infant Safe Sleep

For the past few years, Berrien County has participated in *Babysitting with Confidence* classes put on by the local hospital. These classes are held three times each spring and are spread throughout the county for maximum attendance. The hospital staff that teaches the classes have been trained in infant safe sleep and provide “props” (safe sleep vs unsafe sleep set ups, sleep sacks, etc.) and written materials, magnets, etc. to educate the babysitters on safe sleep practices. In the coming year, they hope to expand their classes to other organizations who already offer babysitting classes, such as the Boys and Girls Club and the YMCA, so safe sleep will be part of their curriculum. In 2016, 140 total attendees participated in these classes.

In 2016, as part of a collaborative effort with the community, parish nurses, the local hospital, and the local health department participated in the Senior Expo and featured an infant safe sleep display. This event brought together over 1,000 senior citizens/grandparents from the community. A specific brochure that was designed for grandparents was distributed at the event, along with a magnet, as well as a “second package of info” to give to another family member to spread the message of infant safe sleep.

Yellow Shawl Gathering Inter-Tribal Council of MI, Inc.



The Yellow Shawl Gathering is modeled after the CDC-endorsed 1,000 Grandmothers Project. These gatherings, held by the Inter-Tribal Council of Michigan, use traditional cultural teaching methods to integrate infant safe sleep messaging with breastfeeding education and healing from domestic violence. Importantly, the gatherings center on intergenerational cooperation and focus

2017 Babysitting with Confidence



Created specifically for adolescents, this course covers a variety of topics intended to give participants the confidence and knowledge for caring for small children, including:

- Questions to ask before taking a job
- Expectations of a baby-sitter
- Telephoning in an emergency
- Home and fire safety
- Infant and toddler care
- First aid and choking
- Discipline
- Food preparation

Participants must be in the fifth grade or 11 years of age or older to register. Reservations are required, and class size is limited.

Saturday, March 18, 2017
8:30 a.m. to 12:30 p.m.
Lakeland Hospital, Niles

Saturday, May 20, 2017
8:30 a.m. to 12:30 p.m.
Lakeland Hospital, Watervliet

Saturday, June 17, 2017
8:30 a.m. to 12:30 p.m.
Lakeland Medical Center, St. Joseph
Frederick S. Upton Education Center

For more information or to register for this free class, call (269) 556-2808 or (866) 260-7544
www.lakelandhealth.org



Berrien County *Babysitting with Confidence* class teaches youth how to protect babies while sleeping.

specifically on the voices of trusted tribal elders to “bridge the gap” between current knowledge and safe sleep practices for young parents and adults.

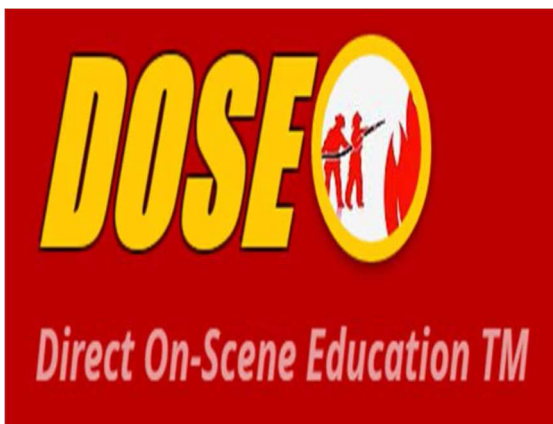
The Yellow Shawl represents prayer, protection, and love. Participants who create a Yellow Shawl to keep or gift to a loved one not only receive education on infant safe sleep and other health topics; they receive support from the entire community to care for themselves and their families in a positive way. The Yellow Shawl Gathering has reached over one hundred people across the state. Preliminary evaluation of this project has revealed positive change toward practicing infant safe sleep among individuals who attended a gathering.



Yellow Shawl Gatherings have taken place in 10 tribal communities in the past two years. The Yellow Shawl represents prayer, protection, and love.

DOSE Training Comes to Michigan

In an effort to prevent infant deaths due to an unsafe sleep environment, Lieutenant James Carroll and Jennifer Combs have created a program called Direct On-Scene Education (DOSE™). DOSE™ is a comprehensive program that trains Firefighters, EMS, and other First Responder personnel to recognize and correct unsafe sleep environments during routine emergency and non-emergency calls. An informational kit on safe sleep is given to residents who have a baby in the home or who are expecting a child. When an unsafe sleep environment is recognized by First Responders, the situation is corrected and the parents or caregivers are instructed on safe sleep practices going forward. In situations where the families can't afford a safe sleeping arrangement for their baby, First Responders have a limited number of pack-n-plays, which can be donated to the family.



Here in Michigan we are expanding DOSE™ throughout the state in an effort to reduce sleep-related infant deaths. DOSE™ is now being taught in every EMT-Basic and EMT-Paramedic course throughout the state. Thus far, 120 trainings have been held in 39 counties across the state and have trained approximately 1,239 staff. With help from funding from the EMS for Children program, agencies trained in DOSE™ will have access to portable cribs to donate to families who can't afford them on their own. Currently 159 pack-n-plays have been shipped to fire departments, EMS agencies, and local health departments. In addition, 86 pack-n-plays have been donated to families that have been identified as having an unsafe sleep environment. If you are interested in getting involved with the DOSE™ program

in your community, please contact the MDHHS EMS Department at 517-335-1825.

Cradle Kalamazoo Promotes Safer Sleep for Infants

In Kalamazoo County, black infants are four times more likely to die before their first birthday than white infants. This disparity occurs regardless of their family's income. Cradle Kalamazoo, a multi-agency community initiative led by the Young Women's Christian Association (YWCA) Kalamazoo, aims to identify and implement evidence-based and holistic interventions in order to reduce infant deaths and promote respect for families, women and their children. Since 2013, when this initiative began, twenty-nine community organizations have joined together to help define the problem of racial disparities in infant mortality and to identify community-wide solutions for infant mortality reduction.



Cradle Kalamazoo identified five main goals for the coalition, one that solely focuses on reducing the death rate from unsafe sleep practices within the intended population by promoting safer infant sleep practices. Among the objectives related to this goal, Cradle Kalamazoo will:

- Design and implement a safe sleep toolkit
- Design and implement a safe sleep marketing campaign
- Implement safe sleep policy interventions
- Build a safe sleep network

The City of Detroit Partners with the Local Faith-Based Community to Spread the Message

The Detroit Health Department, working in collaboration with MDHHS, began a faith-based initiative in the City of Detroit to engage clergy and parishioners on infant safe sleep. They identified and built relationships with 5 churches in the city and designated a safe sleep champion at each site who assisted in providing safe sleep educational sessions and awareness opportunities.

Each of these churches are designated as a safe sleep hub and will provide support and assistance to other churches in the area who are interested in providing safe sleep education/outreach. The pastors are committed to this initiative and will continue to reach out to their colleagues in other churches. They will also continue to provide education and outreach to their community and include safe sleep at their health fairs and related ministries. Some of the churches have even designated special prayer times for infants in their parish.

A wide variety of people were reached through these efforts including young moms, men, grandparents, and other caregivers. To celebrate these efforts, the Detroit Health Department hosted an Infant Safe Sleep Awareness Prayer Luncheon for safe sleep month. The luncheon brought together over 40 leaders from local faith based organizations to raise awareness about infant safe sleep practices.



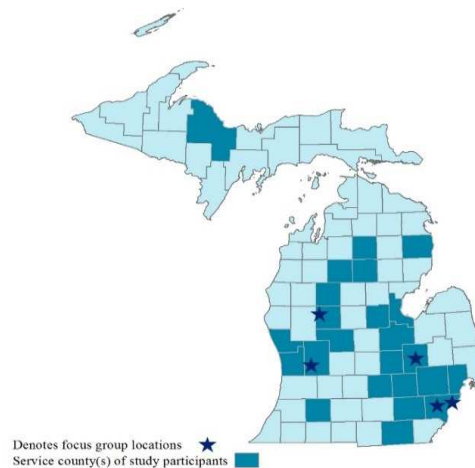
The Detroit Health Department Healthier Beginnings and The Detroit Safe Sleep Coalition in collaboration with the State of Michigan Faith-Based Initiative held a Prayer Luncheon to honor faith-based organizations who partnered with them and strive to spread the news about the ABCs of safe sleep and acknowledge new partners who are pledging their commitment to spread the safe sleep message.

Moving Forward to Improve Adherence to Safe Sleep

2016 Focus Group Recommendations

In 2016, MDHHS and MPHI worked together to conduct focus groups aimed at examining the perspectives and experiences of public health and child welfare professionals who provide infant safe sleep messaging to families. During July and August of 2016, MPHI staff conducted seven focus groups with 90 home visiting and child welfare professionals throughout Michigan.²¹ Focus group locations were selected with respect to the raw number of unsafe sleep deaths, the sleep related infant death rate, and geographic location. Participants in the groups reported that they conducted services in 24 of the 83 counties in Michigan (Figure 14).

Figure 14. Service Counties of Study Participants, 2016



In an effort to determine what resources would be most helpful to facilitate effective safe sleep education in the home visiting and child welfare contexts, a qualitative evaluation of these professionals' identified needs, barriers, and recommendations was completed in the fall of 2016. These professionals' family interactions are seen as front-line prevention of sleep-related infant deaths. These participants provided insights that have informed a report and a set of recommendations to be used in the revision of educational resources, in an effort to create consistency among the multiple safe sleep messages that exist statewide, and to craft more culturally-responsive safe sleep messages.

In order to improve safe sleep practices and reduce racial/ethnic disparities in Michigan, MDHHS and MPHI propose several recommendations that are divided into three strategies: 1) Enhanced Trainings and Tools, 2) Improving Engagement with Caregivers, and 3) Establishing a Consistent Vision and Strategic Direction that Identifies Safe Sleep as a Public Health Priority. The figure below illustrates the recommendations from the focus groups (Figure 15). To view the full report, visit

http://www.michigan.gov/documents/mdhhs/2016_ISS_Focus_Groups_Professionals_600661_7.pdf.

Figure 15. 2016 Focus Group Recommendations

<p>ENHANCED TRAININGS & TOOLS</p>	<p>IMPROVING ENGAGEMENT WITH CAREGIVERS</p>	<p>ESTABLISH CONSISTENT VISION & STRATEGIC DIRECTION IDENTIFYING SAFE SLEEP AS A PUBLIC HEALTH PRIORITY</p>
<ul style="list-style-type: none"> • Provide a standardized toolkit to all providers, including medical providers. • Increase the level of support for safe sleep teaching at birthing hospitals. • Include incidence of sleep-related infant death occurrence into educational campaigns. • Eliminate any teaching tools that use the term SIDS; increase the use of the word suffocation. • Put a stronger emphasis on room-sharing to encourage both breastfeeding and safe sleeping. • Include discussion of infant comfort and development in safe sleep teaching. • Encourage all staff who interact with families to participate in safe sleep trainings. • Update the safe sleep message to be more culturally responsive and sensitive. 	<ul style="list-style-type: none"> • Assist clients in meeting their basic needs so that they can focus on safe sleep. • Empower caregivers to teach the message to their family members and other providers. • When providing safe sleep education, workers should utilize a variety of different risk management and reduction techniques and behavioral change methods, including modeling and safe sleep plans. • Develop and implement supportive resources for parents at all hours of the night, when they are most in need. • Educate providers on how to build working relationships with caregivers. • Explore ways to ensure retention of home visitors and CPS workers. • Provide the message earlier and by various professionals. 	<ul style="list-style-type: none"> • Adopt a two-tiered approach to eliminating sleep related deaths. • Acknowledge the efforts of workers in the field to increase morale. • Saturate the market to demonstrate the seriousness and scope of the issue. • Pack-n-plays need to be more readily available with a simplified procurement process and shorter turn-around time. • Allow room for innovation.

Michigan Health Endowment Fund Grant

In December 2016, MDHHS received funding from the Michigan Health Endowment Fund to work toward reducing sleep-related infant deaths and disparities in these deaths in Michigan. MDHHS will use this funding to initiate the process of leveraging current healthcare and community resources to improve the effectiveness of infant safe sleep messaging for diverse populations and to expand the touch points across professional and community partners where those messages are shared and supported. In an effort to significantly decrease the number of infants that die in Michigan as the result of unsafe sleep environments, this project will leverage healthcare and community partnerships to provide education and support services for families. Effective systems changes provide the infrastructure support and resources necessary for sustainable impact.

The overall project will take a multi-pronged approach that focuses on the following objectives:

1. Develop and implement more effective messages and methodologies that are best-practice driven, reflect the needs and choices of families, align safe sleep implementation within a real-life context, and provide messaging that is appropriate and relevant to diverse target population groups. Improved messaging and methodologies will translate to increased use of safe sleep practices among high risk populations;
2. Increase the number of trained partners who provide safe sleep education, in all facets of family interaction, both in clinical and community settings, so that parents and caregivers are better informed, equipped, and supported in the implementation of safe sleep practices;
3. Develop and implement a continuous quality improvement process as part of the ongoing system infrastructure which evaluates impact and drives ongoing improvement. Results will indicate the effectiveness of strategies and point to project components that will be integrated throughout the system across the state as part of the ongoing functioning and funding currently supporting high risk families; and
4. Impact existing infrastructure resources to address infant safe sleep in the developing statewide community integrated health care system in such a way as to support sustainable change.

This project will partner with current systems, such as Medicaid Health Plans and the developing regional perinatal care systems, to identify and implement means to strengthen the delivery of the safe sleep message within each particular system. Beyond the provision of effective training and tools as described above, the goal is to have the message consistently delivered by all professional and community points of contact throughout the preconception, prenatal and perinatal periods. To achieve this, the project will work within the system infrastructure to impact policies, protocols and guidelines that support the delivery of the message in a consistent, planned manner. Evident areas that can be addressed with the greatest initial impact are the following clinical service providers: obstetricians and gynecologists, pediatricians, family practice providers and birthing hospitals. Others will be determined after thorough assessment of points of contact with families during the preconception, perinatal period and early childhood phase. At the end of the two year grant period, the delivery of safe sleep messaging, the methodologies used and the network of community and professional contacts delivering the message will be much stronger than currently exists. Sustainability will be achieved by changes in policies and protocols, as well as MDHHS' commitment of resources and support to maintain and expand the project's goals beyond the two-year grant period.

What You Can Do To Help

Every year in our state, nearly 150 infants die from being placed in an unsafe sleep environment. That means nearly every other day another Michigan infant dies a death that could be prevented. You can help change this by working with us to end these deaths by educating parents and other caregivers about safe sleep practices. You can begin to help by visiting our website to learn more about safe sleep strategies at www.michigan.gov/safesleep. You will find information related to infant safe sleep, learn more ways to [get involved](#) and also [order free safe sleep materials](#) to share with your family, friends and colleagues.

The death of any infant is tragic, but it's especially tragic when the majority of these deaths are preventable. Between 2010 and 2015, 871 babies in Michigan died from a sleep-related death. Join us and commit to helping spread the message and reduce this number to zero.

Summary

While the causes of infant mortality are many and complex, the number of babies who die due to an unsafe sleep environment can be reduced. For real change in Michigan, collaboration and coordination of educational efforts to increase awareness surrounding infant safe sleep must occur.

Sleep-related infant deaths can be prevented. A better understanding of the circumstances and events associated with sleep-related infant deaths may help to reduce future deaths. Michigan's participation in the CDC SUID Case Registry, FIMR and PRAMS are steps toward gaining a richer understanding of the circumstances around these deaths. This report marks the first time that Michigan has compiled all of this data into one comprehensive document to learn more and help us move forward. The combined data and focus group recommendations highlighted in this report emphasize the need for continued education, outreach, and policy and systems change for all of those who work with families and caregivers of infants.

The local and statewide initiatives represented in this report illustrate some of the innovative programs that are happening in communities across our state. MDHHS is well aligned with these efforts to educate and support professionals and caregivers to reduce sleep-related infant deaths by improving safe sleep practices. We must continue to collaborate with one another and combine resources if we want to see changed behavior and a reduction in the infant mortality rate.

Looking toward the future, the opportunity provided by the Michigan Health Endowment Fund allows strengthening the work by moving toward a systems approach, which will result in the capitalization of programmatic and systems strengths through the enhancement of infant safe sleep messaging, education, training and support services. Michigan is identifying and implementing means to strengthen the delivery of the safe sleep message within each particular system. We are beginning to work within the system infrastructure of our partners to impact policies, protocols and guidelines that support the delivery of the message in a consistent, planned manner at different points of contact with families during the preconception, perinatal period and early childhood phase. As the Michigan Infant Mortality Reduction Plan of 2016-2019 sunsets, achievable and measurable goals and outcomes to decrease the number of sleep-related infant deaths will be devised.

The loss of a baby due to an unsafe sleep environment is an indescribable, preventable tragedy. As advocates for maternal and infant health, we not only can do better, but must do better.

Acknowledgements

The Michigan Department of Health and Human Services works collaboratively with our partners to raise awareness of the important steps parents, caregivers, child care providers and health professionals can take to reduce sleep-related infant deaths and disparities in these deaths. We deeply appreciate all the local public health departments, birthing hospitals, community partners, and families for working with us to ensure infants sleep safely in Michigan. Special thanks to our partner organizations who helped contribute to this publication:

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MDHHS Children’s Foster Care Program

Inter-Tribal Council of Michigan

Michigan Children’s Trust Fund

Michigan Department of Education

Michigan Department of Licensing and Regulatory Affairs

Michigan Infant Safe Sleep Advisory Committee

Michigan Public Health Institute

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Appendix

Sources of Data on Infant Sleep Behaviors and Sleep-Related Deaths

Effective intervention efforts require a clear understanding of the scope and facets of a problem. Infant safe sleep and sleep-related infant death are no different. Accurate and broad-based measurement of risk factors and outcomes is vital to tailor the efforts of public health and human services partners across the state to address the barriers to infant safe sleep. Data-driven decision making facilitates ongoing understanding of evaluation intervention efforts and infant safety.

Relevant data come from a number of sources—surveys, birth and death certificates, and in-depth investigations. Each source adds another piece to the puzzle of safe sleep practice in Michigan. The following sections highlight relevant indicators from the variety of data sources available within our state, including Vital Records birth and death certificates, Pregnancy Risk Assessment Monitoring System (PRAMS), and Sudden Unexpected Infant Death (SUID) Case Registry data.

Vital Records

Michigan's Vital Records data is drawn from the state's birth and death certificates filed with the state as early as 1867, with statistical death files dating back to 1970. Death records collect data on demographics and circumstances that may have led to the individual's death. Birth records collect data on demographics and circumstances related to pregnancy/birth and the infant's health status. These data are used for many statewide public health surveillance measures such as measuring infant mortality rates. Sudden unexplained infant deaths (SUID) are identified using Vital Records data through cause of death codes using the 10th revision to the International Classification of Diseases (ICD-10). After 1999, deaths were classified according to the following ICD-10 codes: R95 for Sudden Infant Death Syndrome (SIDS), W75 for Accidental Suffocation & Strangulation in Bed (ASSB), and R99 for unknown cause of death. An important change in SUID death-scene guidelines and reporting instructions in 1996 shifted how SIDS and ASSB deaths were coded on death certificates. Therefore, some deaths that were coded as SIDS before 1999 were thus classified as ASSB after 1999. Another limitation to using these data to identify SUID is that the National Center for Health Statistics' nosology program automatically codes causes of death based on information on the death certificate. This has resulted in deaths due to suffocation being miscoded as other causes of infant death, leading to a lower than expected number of cases being identified as SUID. The Vital Records and Health Statistics Division at the Michigan Department of Health and Human Services (MDHHS) has been working to correct these death certificates to accurately identify SUID in Michigan. Birth and death files compiled for the state require time to be considered complete, including waiting for submission from out-of-state births and deaths, and corrections made by medical examiners and the Vital Records office.

Pregnancy Risk Assessment Monitoring System (PRAMS)

The Pregnancy Risk Assessment Monitoring System (PRAMS) is a national surveillance project established by the Centers of Disease Control and Prevention (CDC) to improve the health of mothers and infants by reducing adverse outcomes. Forty-seven states and several cities and territories across the United States currently participate in PRAMS. Michigan PRAMS has been studying Michigan's mothers for 30 years. PRAMS is a population-based survey that assesses the experiences and behaviors of mothers before, during, and after pregnancy, as well as experiences of their babies. Michigan PRAMS employs a stratified random sample of live birth certificates and surveys approximately 1% of resident mothers in Michigan who have recently given birth

during the calendar year. Data from the surveys are submitted to the CDC and appropriately weighed and cleaned before sending back to states. Data is used to monitor progress towards national and statewide pregnancy-related health objectives, including reducing infant mortality, low birth weight infants, and the disparities that exist in these outcomes between racial groups. These data are used for public health program planning and intervention design, as well as to inform policies at the state and national levels.

Several questions on the survey address infant sleep behaviors such as sleep position and sleep surface. Responses to these questions are used to help monitor infant sleep behaviors in Michigan, in an effort to reduce infant deaths due to unsafe sleeping conditions. Questions have remained fairly consistent over the years, however small changes are made every few years to improve the quality of data collection on the survey. In the Phase 6 PRAMS survey, administered from 2009-2011, one question asked mothers whether their baby usually sleeps with another person. This question was further refined in the Phase 7 PRAMS survey (2012-2015), asking if the new baby sleeps with his/her *mother* or another person. Due to this change in wording, results for this question may not be accurate to compare across survey phases. For this report, several factors were examined for infants that sleep in ideal sleep environments compared to infants sleeping in less than ideal sleep environments. Evaluation of this variable was based on adherence to American Academy of Pediatrics' Recommendations for a Safe Infant Sleeping Environment.⁴ A safe sleep environment was defined as mothers that indicated that their babies usually sleep on their backs, in a crib or portable crib, on a hard mattress, and without the following: pillows, bumpers, blankets, stuffed toys, infant positioners, or anyone else in the sleep space.

Sudden Unexpected Infant Death (SUID) Case Registry

The Sudden Unexpected Infant Death (SUID) Case Registry is supported by the Centers for Disease Control and Prevention (CDC) and was developed to aid states in local and statewide prevention efforts to reduce sleep-related infant deaths. Michigan's data is generated from the local Child Death Review (CDR) teams which consist of a multidisciplinary group of volunteers who meet regularly to conduct a thorough review of each death. Data from various sources are used in the case reviews to identify the events and situations surrounding the death. Following the review, the local CDR teams work with the CDR program office at MPH to enter their findings into the SUID Case Registry database. The SUID Case Registry database tracks sleep-related deaths in all 83 counties in Michigan and contains comprehensive information about the circumstances associated with sleep-related infant deaths, including information about the case investigation. Local fact sheets using SUID Case Registry data can be found at http://www.keepingkidsalive.org/data-publications/child_mortality_data/fact_sheets.html.