

ACKNOWLEDGMENTS

This report is dedicated to the 81 babies that died in Broward County from 2006-2010 while in unsafe sleep environments or unsafe sleep positions. While their cries may now be silent, their voices will be heard....

Special thanks to Dr. Khalil Wardak, Sherri Baker and Nicholas Polizos of the Broward County Medical Examiner's office; Marsha Mullings of the Broward County Health Department, the FIMR case review team and the FIMR department of Healthy Mothers, Healthy Babies Coalition of Broward.

A special acknowledgement goes out to Jennifer Combs, MSN, ARNP who prepared the findings for this important report to the community.



“Infant mortality is not a health problem. Infant mortality is a social problem with health consequences.”

(Marsden Wagner, JPH Policy, 1988)



Table of Contents

Introduction.....	3
SIDS/SUID.....	4-6
Broward County Overview.....	6
County Comparisons.....	7-8
Data and Statistics.....	9-17
Summary of Findings.....	18
Current Efforts in Broward County.....	18-19
Recommendations.....	19-20
Conclusion.....	21
“Through my Eyes” by Jennifer Combs, MSN, ARNP..... A Testimonial by FIMR Medical Abstractor Healthy Mothers, Healthy Babies of Broward	22-23
Resources for learning more about infant safe sleep.....	24



Introduction

Imagine the cries of a baby. Now, imagine not the cry of a baby, but rather the cries of the grieving family that has just lost their baby. Each year approximately 100 babies under one year of age die in Broward County with an additional 200 fetal deaths. That averages to over five deaths per week, five funerals a week and five grieving families a week. Although fetal and infant mortality rates are lower in Broward County than in the state of Florida as a whole, it is estimated that up to 40% of these deaths are preventable. Of these deaths, accidental sleep related infant deaths are the most preventable. The purpose of this report is to look at this problem that is affecting our county.

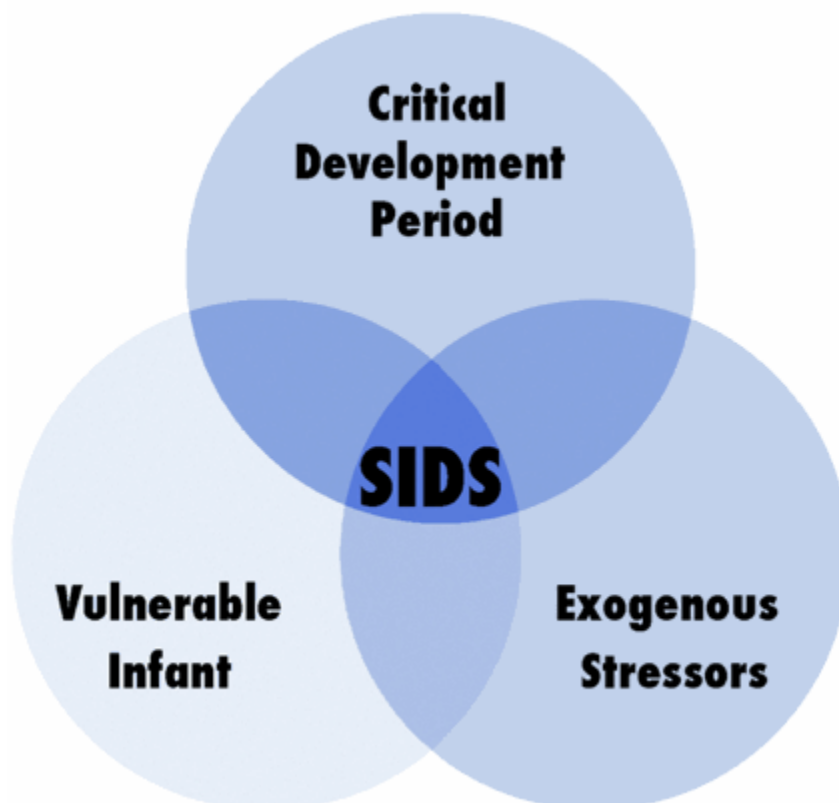
The Fetal & Infant Mortality Review (FIMR) is a partnership between the medical community and social service professionals who engage in intensive reviews of fetal and infant deaths in an effort to identify trends that can be addressed by agencies within the community. Funded by Children's Services Council of Broward and the Broward Healthy Start Coalition, FIMR looks behind the numbers to discover what is happening on a personal, as well as institutional level, with the goal of enhancing the health and well-being of infants and their families through improved community resources and same delivery systems. It is through the Case Review Team's (CRT) recommendations to the Community Action Group (CAG), new initiatives are created to improve all systems available to women, infants and families. The Broward County Fetal Infant Mortality Review (FIMR) is dedicated to reducing infant mortality rates in our county by providing awareness, education, and resources to women and families. It is through FIMR methodology that the data for this report was collected. Communities can play an important role in efforts to reduce infant mortality by creating preventative programs targeting at risk populations. Florida's Fetal and Infant Mortality Review projects are organized under Florida Statute Section 766.101, utilizing the National Fetal and Infant Mortality Review (NFIMR) guidelines. Through FIMR, a wide array of social, economic, health and environmental issues are investigated as they relate to fetal and infant loss on a local level. A community's infant mortality rates are a reflection of the health of the community as a whole.



SIDS and SUID

To understand the issue of accidental sleep related infant death, one must first understand SIDS and SUID (Sudden Unexpected Infant Death).

SIDS is the leading cause of death among infants aged 1–12 months, and is the third leading overall cause of infant mortality in the United States. SIDS is defined as “the sudden death of an infant less than one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history of the infant”. Although the overall rate of SIDS in the United States has declined by more than 50% since 1992, rates for non-Hispanic black and American Indian/Alaska Native infants remain disproportionately higher than the rest of the population. The most commonly accepted theory about SIDS is the Triple Risk Model.



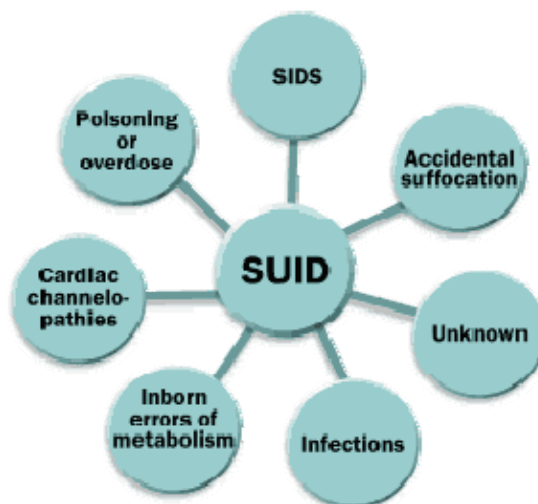


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1. **Vulnerable Infant.** An underlying defect or brain abnormality makes the baby vulnerable. In the triple risk model, certain factors, such as defects in the parts of the brain that control respiration or heart rate, or genetic mutations, confer vulnerability.
 2. **Critical Developmental Period.** During the infant's first six months of life, rapid growth phases and changes in homeostatic controls occur. These changes may be evident (e.g., sleeping and waking patterns), or they may be subtle (e.g., variations in breathing, heart rate, blood pressure, and body temperature). Some of these changes may temporarily or periodically destabilize the infant's internal systems.
 3. **Outside Stressor(s).** Most babies encounter and can survive environmental stressors, such as soft bedding, loose bedding/objects in the crib, bed sharing, secondhand tobacco smoke, overheating, a stomach sleep position, side sleeping position or an upper respiratory infection. However, an already vulnerable infant may not be able to overcome them. Although these stressors are not believed to single handedly cause infant death, they may tip the balance against a vulnerable infant's chances of survival.

According to the triple risk model, all three elements must be present for a sudden infant death to occur:

1. The baby's vulnerability is undetected;
2. The infant is in a critical developmental period that can temporarily destabilize his or her systems; and
3. The infant is exposed to one or more outside stressors that he or she cannot overcome because of the first two factors.

What is SUID? SUID is the sudden and unexpected death of an infant in which the manner and cause of death are not immediately obvious prior to investigation. How are SUID and SIDS different? SUID can be caused by metabolic disorders, hypothermia or hyperthermia, neglect or homicide, poisoning, or accidental suffocation. Some SUID cases are attributed to SIDS. Sometimes the cause is unknown. In 2004, about 4,600 U.S. infants died suddenly of no immediately obvious cause, and nearly half of these SUID deaths were attributed to SIDS.



The SIDS rate has been declining significantly since the early 1990s. However, CDC research has found that the decline in SIDS since 1999 corresponds to an increase in SUID rates (e.g., deaths attributed to overlaying, suffocation, and wedging) during the same period. This change in the classification of SUID can be explained by changes in how investigations are conducted and how SUID is diagnosed.

Broward County

In Broward County from 2006-2010, there were 601 infant deaths. Of those 601, 81 of those deaths occurred while the baby was in an unsafe sleep environment or unsafe sleep position. These 81 deaths account for 13% of the infant deaths from 2006-2010. The data collected supports the need not only for revitalizing the “Back to Sleep” message, but for also expanding the scope to include other safe sleep messages. Reducing SIDS and sleep-related infant deaths has been identified as a priority goal of the Broward County Fetal and Infant Mortality Review (FIMR) Project and its Case Review and Community Action Teams. FIMR hopes that this report will serve as a call to action for policy makers, health and social service agencies and other community leaders to come together and develop strategies to reduce sleep-related infant mortality in Broward County. FIMR also hopes that the information contained in this report will raise awareness among parents and caregivers about the importance of a safe sleep environment, and will empower parents to make informed decisions. FIMR’s ultimate goal with this report is that all babies in Broward County will be put to sleep each and every time in a safe sleep environment.



County Comparisons

Table 1: Total Deaths from SIDS Ranks, 2007-2009

County/Area	Rank		
	2007	2008	2009
Broward	3	3	3
Miami-Dade	5	5	5
Hillsborough	2	2	2
Orange	1	1	1
Palm Beach	4	4	4

Table 2: Total Deaths from SIDS Rates, 2007-2009

County/Area	Rates		
	2007	2008	2009
Broward	27.3	26.2	21.0
Miami-Dade	8.0	9.8	12.0
Hillsborough	38.3	37.8	36.4
Orange	49.6	53.6	51.2
Palm Beach	17.2	15.0	15.6



Table 3: Total Infant Mortality Ranks, 2007-2009

County/Area	Rank		
	2007	2008	2009
Broward	3	4	4
Miami-Dade	3	3	5
Hillsborough	1	2	1
Orange	2	1	2
Palm Beach	3	4	3

Table 4: Total Infant Mortality Rates, 2007-2009

County/Area	Rates		
	2007	2008	2009
Broward	6.1	5.9	5.8
Miami-Dade	6.1	6.0	5.7
Hillsborough	8.4	8.1	8.7
Orange	7.8	8.2	7.5
Palm Beach	6.1	5.9	6.1

Note: SIDS rates are measured per 100,000 population. Infant mortality rates are per 1,000 live births. Broward was compared to Miami-Dade, Hillsborough, Orange, and Palm Beach Counties. These were chosen because they are closest in population size and demographic characteristics to Broward County.



Data and Statistics

Case Definition

This report provides information on a review of all known infant deaths between 2006-2010 in Broward County that were related or possibly related to the infant's sleep environment and/or sleep position. This includes Sudden Infant Death Syndrome or SIDS, accidental asphyxiation or suffocation, SUID and undetermined causes. A case was included in the report if available documentation (ambulance records or police reports, autopsy report, Medical Examiner investigative report, FIMR review report, Pediatric Autopsy Project Report, SUID report and/or death certificate) indicated that the infant's sleep environment (sleep position, arrangement, location and/or bedding materials) was a definite or possible contributor to the death.

Data from the Death Certificate:

Manner of Death, Cause of Death and Other Significant Medical Conditions

Manner of Death on a death certificate describes how the cause of death arose and is determined by the pathologist or medical examiner. The options for manner of death are: natural, accident, homicide, suicide and undetermined. The *Cause of Death* is the pathologist or medical examiner's finding of what ultimately caused the person to die. There is also a field on the death certificate for *Other Significant Medical Conditions* where the pathologist or medical examiner can choose to include other factors he or she believes may have played a part in the person's death such as the presence of an illness, injury, or environmental conditions.

Manner of Death, Unsafe Sleep Environment and/or Position, 2006-2010

Manner of Death	Total Number	Percentage
Natural	30	37%
Undetermined	27	33%
Accidental	24	30%

- The most common manner of death was natural (30 cases) followed by undetermined (27 cases) and accidental (24 cases).
- Of the 13 SIDS cases, 11 had the manner of death listed as natural and 2 were listed as undetermined manner of death.
- Of the 24 accidental deaths, 23 had the cause of death listed as asphyxia or positional asphyxia (these deaths resulted from either wedging, entrapment, pillows, soft bedding and/or overlaying by an adult or child)



Other Significant Medical Conditions

- Of the 81 total deaths, 19 babies (23%), had a cause of death other than a sleep related death cause listed on the death certificate.
- Of these 19 babies, 100% were in an unsafe sleep environment or unsafe position at the time of death.
- Eleven of the 19 babies (13.5%) were bed sharing with an adult and/or another baby at the time of death.
- Some of the causes of death on the death certificates included: interstitial pneumonitis, pneumonia, bronchopneumonia, congenital heart defects (PDA, PFO and ASD) and oxycodone toxicity.

Data from Other Documentation:

Sleeping Position, Arrangement, Location and Bedding Material

In cases of sleep-related or possible sleep-related infant death, it is important to know about all the factors related to the infant's sleep environment including whether the baby was put to sleep on its back, side or stomach ("sleep position"); with whom the baby was sleeping ("arrangement"); where the baby was sleeping ("location"); and presence, type and location of bedding materials. This information is typically obtained during the scene investigation which includes an interview with at least one parent or adult present at the time and is subsequently documented by police along with photographs of the scene of the baby's death. The Medical Examiner's office should conduct a scene reenactment, using a doll, with the person or persons that were caring for the baby at the time of death. This reenactment is also photographed. However, once the infant's body is removed from the scene, the caretakers do not have to consent to allowing the Medical Examiner to perform a reenactment. This can severely limit the amount of information that is obtained. A SUID form, that is available from the CDC, should also be completed for these deaths. Occasionally the emergency first responders (fire rescue and or EMS), document what the parent said in their records. The information may also be found in the investigator notes in the Medical Examiner records, but not always. For this report, all of the above resources were utilized along with FIMR reports and Pediatric Autopsy Project information.

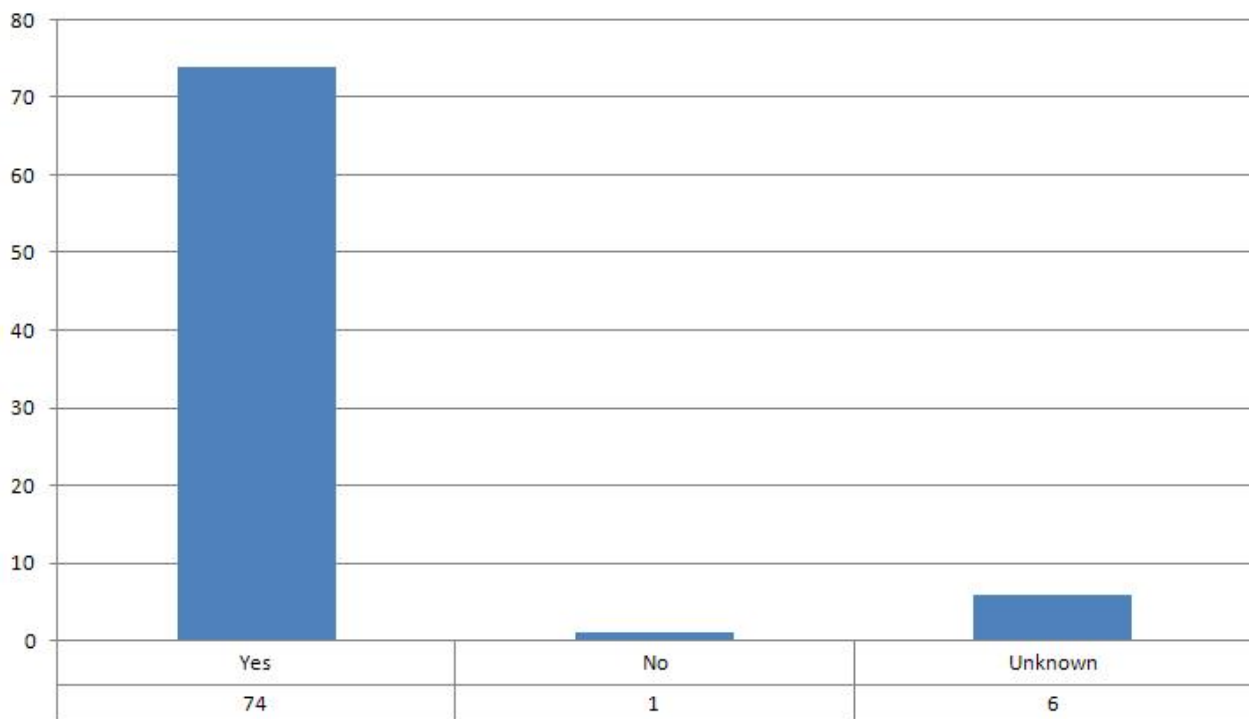


Sleep Arrangement and Location

- 66 of the 81 cases (81%) had documented information on the infant’s sleeping arrangement and location at time of death.
- 52% of the infants were found in an adult bed and bed sharing with an adult and/or another child and/or other children.
- Four of the infants were sharing a crib with another baby at the time of their death.
- Two infants were placed to sleep alone on couches and one was alone on a recliner.
- Four infants (5%) died while sharing a couch with an adult caretaker.



Presence of soft bedding/loose objects documented in sleep related infant death cases



- **Of the 81 cases, 74 had documentation that indicated the presence of pillows, soft or loose bedding, stuffed animals, toys or other loose objects near or on the baby’s body or face.**



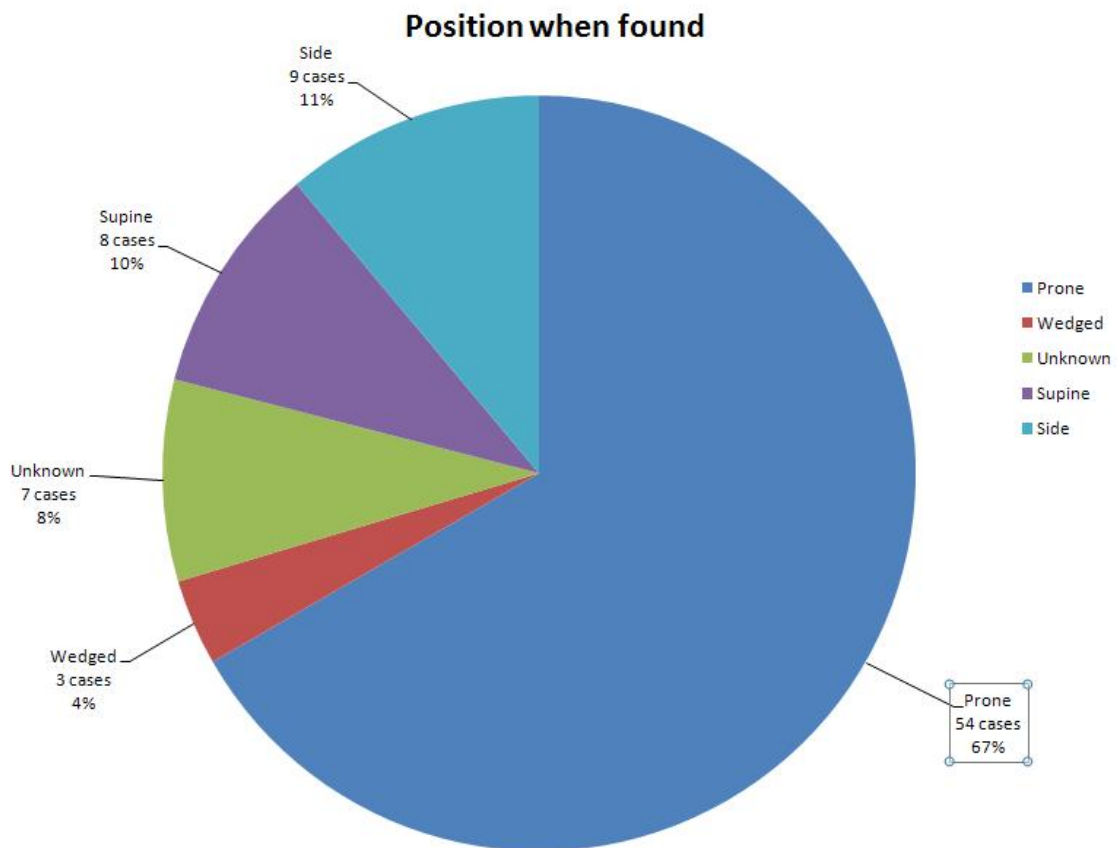
Sleep Positioning

For the purposes of the next section, the following terms are defined as follows: prone= stomach and supine= back.

Sleep Position When Put to Sleep

Position when Put to Sleep	Total	Percentage
Prone	37	45%
Side	15	19%
Unknown	15	19%
Supine	14	17%

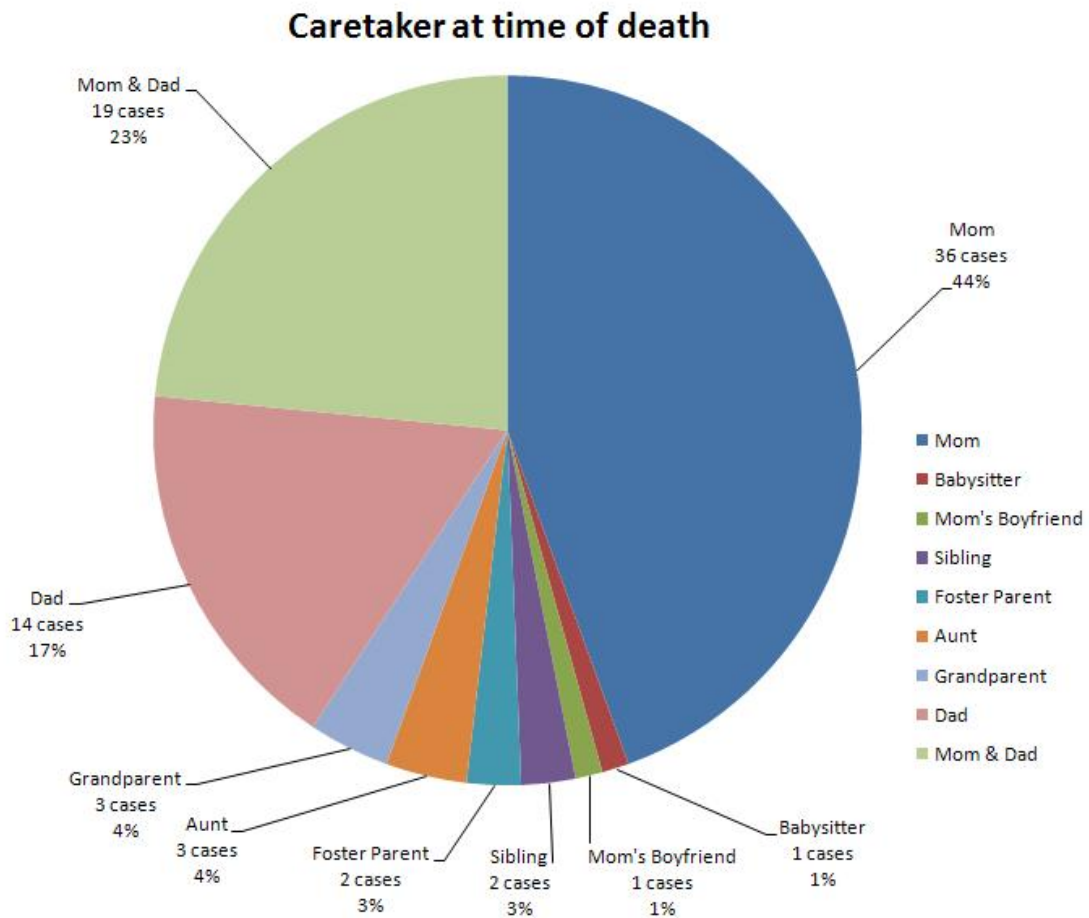
- The majority of the infants, 37 (45%) were placed in a prone position at the time of sleep.
- Only 14 infants (17%) were placed in a supine position for sleep.
- The position of 15 of the babies was not documented in any records.



- **67% of babies were found in a prone position**
- **10% were found on their backs.**



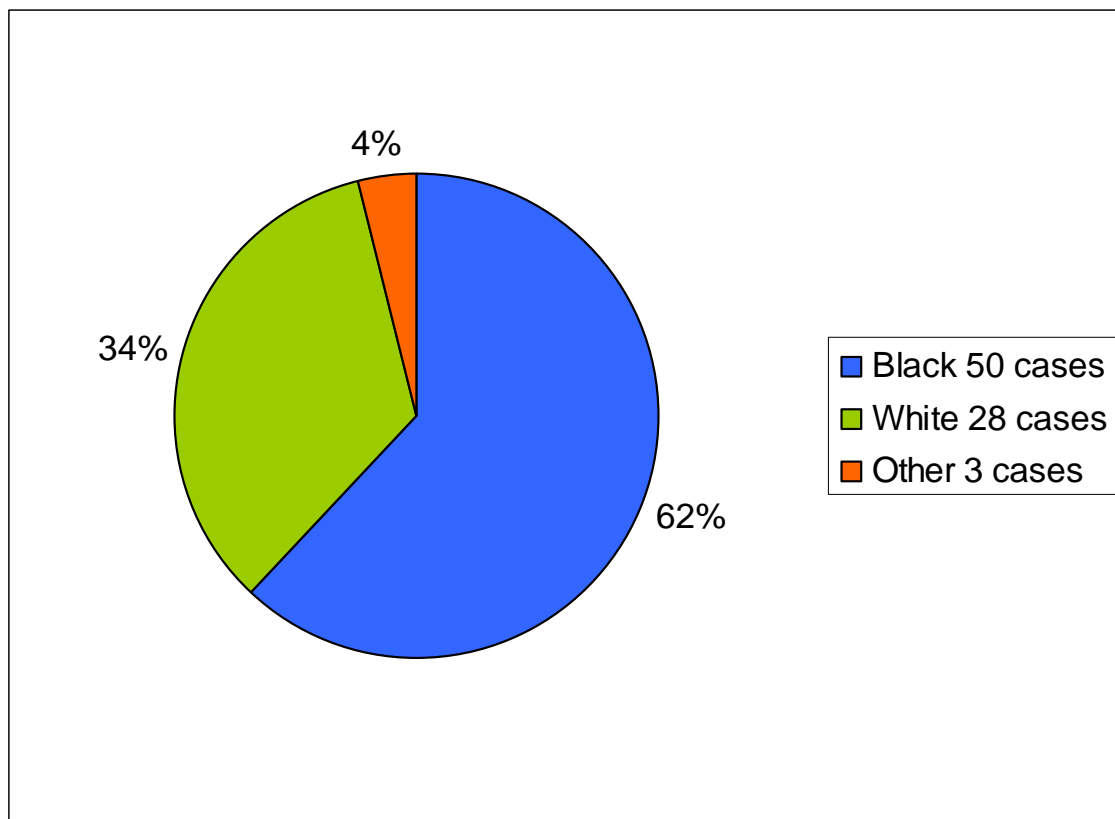
The following chart reflects who was caring for the baby at the time of the death.



- While the majority of babies were in the sole care of the mother at the time of the death, it is clear from the above graph that these deaths can happen when in the care of anyone.



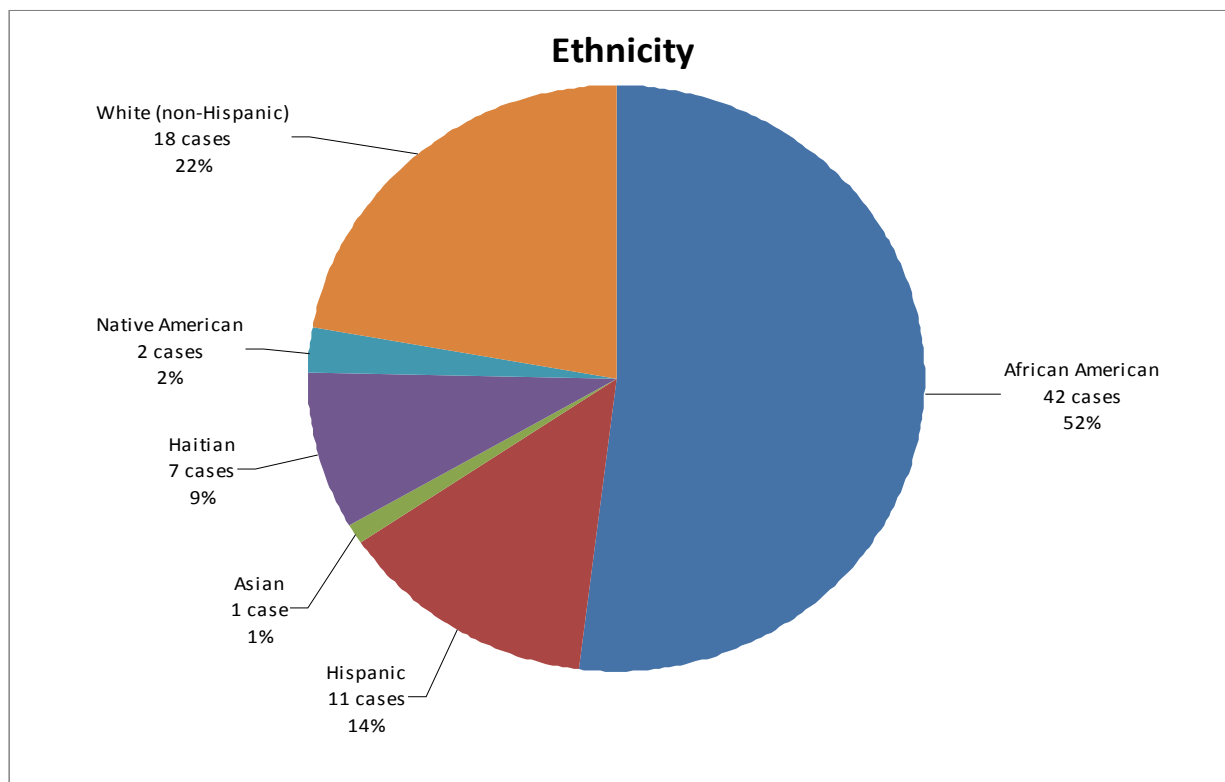
Race



- **The majority of the deaths, 62% (50 babies), were black babies.**
- **This reinforces the fact that there still exists a disparity between the infant mortality rates of black babies versus white babies in Broward County. Black babies in Broward are twice as likely to die as a white baby.**



Ethnicity



- **52% of the cases involved African American babies**
- **The next group with the highest number of deaths was the white/non-Hispanic group with 18 deaths.**



Summary of Findings

- From 2006-2010, 81 Broward County babies died while in an unsafe sleep environment or unsafe sleep position.
- The 81 deaths account for 13% of the total number of infant deaths in the time period of 2006-2010.
- The most common sleep environment was bed sharing with adult and/or other children in an adult bed (52%).
- The second most common sleep environment was sleeping alone in a crib, bassinet or pack-n-play (28%).
- There was the presence of loose bedding, soft bedding, pillows and/or toys in 91% of the deaths.
- 45% of the babies were placed in a prone position when placed to sleep.
- 67% of the babies were in a prone position when found.

Current Efforts to Decrease the Number of Sleep Related Deaths

- Broward County Community Partnerships Division and Healthy Mothers, Healthy Babies Coalition of Broward launched “Best for Broward Babies” on October 1, 2010. Based on FIMR data and Pediatric Autopsy Project Data, it was found that 40% of all fetal and infant deaths in the county are preventable.
- The programs of “Best for Broward Babies” include “Model Behavior”, Fatherhood Mentorship Program and Community Voice. While these are three different programs, they all have one thing in common: they all have a safe sleep component.
- “Model Behavior” is a curriculum from First Candle that is a proven best practice on a national level.
- This comprehensive continuing education initiative provides guidelines to inform neonatal, pediatric and obstetrical nurses about the importance of infant safe sleep practices in preventing accidents and suffocations during sleep and reducing the risk of SIDS.
- It is the ultimate goal of the campaign to ensure that every parent/caregiver leaving the hospital with a newborn is aware and prepared to adopt safe sleep messages as recommended by the American Academy of Pediatrics.
- “Model Behavior” has been successfully implemented at Broward General/Chris Evert Children’s Hospital, Memorial Regional/Joe DiMaggio Children’s Hospital and Plantation General Hospital by the educators at Healthy Mothers, Healthy Babies of Broward.
- The “Cribs for Kids” (CFK) program at Healthy Mothers, Healthy Babies was the first CFK chapter in Florida. Hundreds of Graco Pack N’ Play cribs are given out each year infants whose families are unable to afford them. The caregiver also receives vital safe



sleep information. These cribs provide a safe sleep environment for the baby for the first year of life.

- The Mahogany Project is a community-based project targeting pregnant high-risk women in the 33311 area. The program provides intensive case management services including childbirth education, nutrition, breastfeeding and infant care to high-risk mothers. Part of the Mahogany Project is a weekly support group called “Mocha Milk”. This group is a breastfeeding support group designed to not only increase the number of African American women who initiate breastfeeding, but to increase the duration of how long they breastfeed for. Breastfeeding is now a proven way to reduce the risk of SIDS.
- The Healthy Start Coalition of Broward has developed a community campaign called Safe Baby to educate and empower parents. The goal is to teach parents how to choose a safe caregiver for their children, prevent Shaken Baby Syndrome, and promote safe sleep. The Safe Baby information is disseminated by Healthy Start Screeners in the hospital and clinic settings and in Obstetrician’s offices. The ultimate goal is to prevent infant mortality and protect our community’s children.

Recommendations

It is imperative that Broward County communities understand the magnitude of sleep-related infant death. From 2006-2010, 81 Broward County babies died in unsafe sleep environments or unsafe sleep positions. Based on the findings of this review, the Broward County FIMR Case Review Team, Community Action Team and Healthy Mothers, Healthy Babies Coalition of Broward make the following recommendations:

More Public Awareness and Education

- This review reveals a continuing need for public awareness and education encouraging infant safe sleep practices for parents, other infant caregivers, hospitals, clinics, obstetricians and pediatricians. It is recommended that a public awareness and education campaign be implemented in Broward County that would focus on *all* elements of infant safe sleep as recommended by the American Academy of Pediatrics and the National Institute of Child Health and Human Development. The campaign should revitalize the “Back to Sleep” message **but also include other key messages** such as the risks associated with babies sleeping on adult beds, parents sleeping with their baby or allowing their baby to sleep with another adult and/or child, soft bedding materials in the sleep space, and exposing an infant to prenatal or secondhand tobacco smoke. These efforts would need to target all persons who care for infants including expectant and new mothers and fathers, childcare providers, grandparents, extended family members, baby sitters, and siblings. It is recommended that all healthcare providers, social service providers, child care providers and others who routinely interact with and serve expectant and new parents collaborate in an effort to every opportunity to visually demonstrate safe sleep practices for parents and other care givers.
- It is also recommended that all hospitals that deliver babies model safe sleep practices,



provide education to new parents on infant safe sleep, and help parents obtain resources such as a crib if they do not have one. This could be accomplished in part through adopting a safe sleep policy; for example the Model Behavior materials available from First Candle.

Consistent and Thorough Scene Investigation

In this review, documentation of the infant's sleep position was available in the reports of first responders, medical examiner's investigative reports or FIMR reports for 81% of the cases. In addition, the availability, quality and location of information about the infant's sleeping environment was inconsistent. Similarly, it was clear that scene investigations and interviewing procedures were not consistent among similar cases.

- It is recommended that **ALL** Broward County investigators and first responders adopt a scene investigation tool such as the Sudden Unexplained Infant Death Initiative Reporting Form.
- It is recommended that this tool be used for **100%** of all sudden and unexpected infant deaths and that it be **completely** filled out. This will allow for better understanding of circumstances surrounding sleep-related infant deaths which will lead to better preventative efforts.

Accurate and Consistent Procedures in Assigning and Documenting SIDS as Cause of Death

In this review, there were 13 cases found by the Medical Examiner's office to be caused by Sudden Infant Death Syndrome (SIDS) or possible SIDS. However, most had additional documentation indicating an unsafe sleep environment or overlay due to risky sleep environment, or other illness or medical condition.

- We recommend that the SIDS only be assigned as *Cause of Death* if the medical examiner can completely rule out possible suffocation, asphyxia or overlay due to risky sleep environment, or other illness or medical condition.

Accurate and Consistent Documentation of Unsafe Sleep Environment on the Death Certificate

- It is recommended that in cases of sleep or possible sleep-related infant death where the investigative report, first responder records or the hospital records contain information about the definite or possible role of a unsafe sleep environment, that the Medical Examiner's Office adopts a procedure resulting in consistent documentation of unsafe sleep environment or unsafe sleep positioning in the *Other Significant Conditions Contributing to death* field. Consistency in recording unsafe sleep conditions in the *Other Significant Conditions Contributing to Death* field would result in better public health data that could lead to the development of preventative strategies in Broward County.



Conclusion

The findings of this report demonstrate the real problem of sleep related infant death that is occurring in Broward County. It is vital that healthcare and social service professionals, law enforcement, the Medical Examiner's office as well as first responders be consistent in the spreading the message and work together to address this county wide problem. Members of the community need to share the facts about the risk factors associated with sleep related deaths with friends and family. As a community, Broward County must come together to tackle this problem head on. The joining of resources and ideas is just the first step in the journey of helping our smallest citizens.



A
Testimonial by
FIMR Medical Abstractor

Jennifer Combs, MSN, ARNP



Through my Eyes....

By

Jennifer Combs, MSN, ARNP

Ah, the sweetness of sleep. Who doesn't love the thought of a restful and peaceful slumber awaiting them after a long hard day? Sleep is necessary for all, a luxury for some and sometimes even deadly to others. You may be wondering how could sleep be deadly? Well, quite easily actually, especially if you are a baby. And that is the case that I have seen unfolding on a more regular basis over the last year in Broward County. As the abstractor for the FIMR project in Broward County, I personally abstract the records of the babies that have been selected for review and it is through this abstraction process, that we have seen more babies dying of preventable sleep related accidents. The tragedy is doubly hard to endure because, yes a baby has died, but just as tragic is that these deaths are 100% preventable.

The abstractions are revealing more babies are co-sleeping with adults and other children and that babies are being placed to sleep in unsafe sleep environments. What exactly is an unsafe sleep environment? According to the American Academy of Pediatrics, infants should room share not bed share, the crib should have a firm mattress, a tight fitting crib sheet, be free of toys, loose bedding and no pillows. Just the baby, alone in the crib, on their back for each and every sleep. The abstractions of these deaths reveal babies suffocating on stuffed animals, babies entrapped between adult mattresses and walls, babies suffocated on pillows, babies dying after the parent or sibling has overlaid on them during the night. Reviewing these records gives me glimpses into the lives that these babies lived. The pieces of the puzzle are all there. I simply methodically put the pieces all together. But, even when all the pieces are put together, one may not have a true sense of what really happened to the baby. Why did the caretaker make the choice about how the baby would sleep? Was it a matter of lack of resources? Or perhaps, a lack of education? Or, was it merely their personal choice? Sometimes we never know the answer of why, but we do know the answer of how; how the death occurred.

For me as an abstractor, I see details. The tiniest of details and sometimes it is these details that will lead to the reality of what happened to the baby. And in the end, it is that truth that I seek. For, it is through my eyes, that I see how the life and death unfolded. These are not just case numbers, they are real human beings. They were someone's son, someone's daughter. And it is for them that I speak. I am the voice for them, the voice that was silenced in just a brief moment. But as a community, we may mourn, but we must also rise above our pain and soldier on in our battle against infant mortality. Because in the end, it is all about the babies!



Resources for Learning about Infant Safe Sleep

The American Academy of Pediatrics

<http://www.aap.org>

Centers for Disease Control and Prevention

<http://www.cdc.gov>

The National Institutes of Health, Back to Sleep Campaign

<http://www.nichd.nih.gov/sids>

This website describes the NIH Back to Sleep Campaign and provides a link to ordering high-quality, free materials in English and Spanish.

First Candle - Helping Babies Survive and Thrive

<http://www.firstcandle.org>

First Candle promotes safe pregnancies and the survival of babies through the first years of life.

National Sudden and Unexpected Infant/Child Death and Pregnancy Loss Resource Center

<http://www.sidscenter.org>

The National Sudden and Unexpected Infant/Child Death Resource Center serves as a central source of information on sudden infant death and on promoting healthy outcomes through the first year of life and beyond.

The Association of SIDS and Infant Mortality Programs

<http://www.asipl.org>

Promoting leadership in bereavement services and maternal and child health since 1987.

Project Impact: Infant Mortality Policy and Communication Tools

<http://www.sidsprojectimpact.org>

The National Sudden and Unexpected Infant/Child Death and Pregnancy Loss Project IMPACT supports state and local infant and child death programs through sharing information, promoting policy and legislative changes, building upon resources, and fostering partnerships and communication.

CJ Foundation for SIDS

<http://www.cjsids.org>

The CJ Foundation for SIDS is a national charitable organization dedicated to recognizing the special needs of the SIDS community through funding SIDS research, support services and public awareness programs.

Healthy Childcare America Back to Sleep Campaign

<http://www.healthychildcare.org/sids.html>

This project aims to promote the health and safety of infants in child care settings by providing education and outreach to child care providers regarding safe sleep recommendations.