

PAMR



1999-2008 Florida Pregnancy-Related Mortality Report:

Why Are Florida Mothers Continuing to Die?



Pregnancy-Related Mortality Report

Why are Florida Mothers Continuing to Die?

Summary:

Reduction of maternal mortality is a national priority. During 1999 to 2008, Florida's pregnancy-related mortality ratio averaged 17 deaths per 100,000 live births. This ratio is substantially higher than the Healthy People 2010 goal for maternal mortality of less than 3.3 maternal deaths per 100,000 live births. In 1996, the Florida Department of Health established the Pregnancy-Associated Mortality Review (PAMR) to better understand and address the factors and issues related to Florida's high pregnancy-related mortality.

Risk factors significantly associated with pregnancy-related mortality in 1999-2008 were:

- Being obese class III (morbidly obese) (BMI of 40.0 or +) (RR 9.0).
- Not receiving any prenatal care (RR 6.9).
- Having a cesarean delivery (RR 4.6).
- Being 35 years or older (RR 4.1).
- Having less than a high school degree (RR 3.7).
- Black race (RR 3.3).

Another major risk factor or contributor to pregnancy-related mortality is chronic disease including preexisting hypertension, asthma, heart disease, and other conditions. Of 368 pregnancy-related deaths, 358 (97%) had information available on medical problems prior to pregnancy, and 153 (43%) had a history of at least one chronic disease.

The PAMR process has identified priority areas where improvements can be made to reduce the number of pregnancy-related deaths. The identified issues and recommendations are divided into four improvement categories: 1) clinical factors, 2) system factors, 3) death review process factors, and 4) individual and community factors. The goal of the Florida PAMR team is to make improvements in the state's system of care for pregnant and postpartum women through the provision of information that leads to preventive action including the dissemination of this report, other reports, information briefs, and other methods of communication with providers, healthcare entities, and policy makers.

Definitions:

Definitions of maternal mortality vary across the United States as well as at international levels. Florida's PAMR uses the Centers for Disease Control and Prevention's (CDC) and the American Congress of Obstetricians and Gynecologists' (ACOG) expanded maternal mortality definition:

- **Pregnancy-Associated Death:** Death of a woman from any cause, while she is pregnant or within one year of termination of pregnancy, regardless of the duration and site of pregnancy.
- **Pregnancy-Related Death:** A pregnancy-associated death resulting from 1) complications of the pregnancy itself, 2) the chain of events initiated by the pregnancy that led to death, or 3) aggravation of an unrelated condition by the physiologic or pharmacologic effects of the pregnancy that subsequently caused death.
- **Possible Pregnancy-Related Death:** A pregnancy-associated death where determination of the death could not be conclusively classified as either related or not related to the pregnancy.
- **Not Pregnancy-Related:** The death of a woman, while pregnant or within one year of termination of pregnancy, from a cause deemed unrelated to pregnancy.

Process of the Pregnancy-Associated Mortality Review:

Step 1—Identification of Deaths

The PAMR process begins with collecting data for all reported deaths that are associated with pregnancy. The Florida Department of Health implemented database linkages to maximize the identification of pregnancy-associated deaths. Women are included on the surveillance list of pregnancy-associated deaths if any of the following four criteria are met:

1. The response on the death certificate is “yes” to the question, “If female, was she pregnant in the past year?”
2. The ICD-10 (cause of death diagnosis code) indicates a death classified as being due to “Pregnancy, Childbirth, and the Puerperium (Chapter XV O00-O09).”
3. There is a matching birth or fetal death record within 365 days prior to the woman’s death.
4. There is a matching Healthy Start Prenatal Screen (Florida’s universal prenatal screening tool used to identify and assess pregnant women at risk for adverse birth outcomes) within 365 days prior to the woman’s death.

The death certificates of all identified pregnancy-associated deaths are reviewed by a multi-disciplinary team consisting of an obstetrician, nurse, and epidemiologist and initially categorized as pregnancy-related, possible pregnancy-related, and not pregnancy-related. All pregnancy-related deaths are selected for review along with a sample of possible and not pregnancy-related deaths.

Step 2—Abstraction

The PAMR abstraction process is modeled after the National Fetal and Infant Mortality Review (NFIMR) process (<http://www.acog.org/departments/nfimr/CommunityGuide.pdf>). Abstraction forms capture information from the medical and social history, prenatal, labor and delivery, postpartum, social services, care coordination, and terminal events records.

Authority to access information for the review is based on sections 395.3025, 405.01, and 405.03 of the Florida Statutes. Cases are selected for abstraction with the goal that all identified pregnancy-related cases and a convenient random selection of possible pregnancy-related and not pregnancy-related cases are thoroughly reviewed.

Step 3—Review of Case Summaries

Case summaries are developed based on the information gathered from available health records with all identifiers of health providers, facilities, and patients excluded. All case-specific information is kept strictly confidential. A multi-disciplinary team meets quarterly with the aim of reviewing 15 cases at each meeting. The team examines trends, common elements and issues, and formulates potential strategies to address these factors. The goal of the review team is to identify gaps in care, systemic service delivery problems, and areas in which linkages between community resources can be improved to facilitate improvements in the system of care.



Step 4—Database

Basic information from the abstraction, the review of case summary, and review team conclusions and recommendations are entered into a de-identified, secured Microsoft Access PAMR database.

Step 5—Reports and Special Studies

Reports are generated each calendar year to summarize PAMR findings for the PAMR committee. The committee establishes potential prevention priorities based on the case reviews and these summarized findings. This leads to periodic published reports, educational briefs, and special PAMR studies that are used to investigate issues, summarize findings, and promote prevention strategies.

Findings:

This report focuses on the first ten years of consistently collected PAMR data on Florida pregnancy-related deaths (1999 to 2008). During this period, the PAMR committee reviewed 538 pregnancy-associated deaths and identified 368 (68%) deaths as pregnancy-related deaths. Of the pregnancy-related deaths, 179 (49%) were Black, non-Hispanic women; 122 (33%) were White, non-Hispanic; 56 (15%) were Hispanic; and 11(3%) were other races.

The Healthy People 2010 goal, as measured by vital records data only, is to reduce maternal mortality to 3.3 maternal deaths per 100,000 live births. Between 1999 and 2008, the pregnancy-related mortality ratio in Florida (based on this enhanced reporting) fluctuated from 20.3 deaths per 100,000 live births in 1999, to a high of 22.9 deaths per 100,000 live births in 2004, and a low of 13.3 in 2005. In 2007 and 2008, the ratios were 15.1 and 14.3 deaths per 100,000 live births, respectively. Ratios by total, race, and ethnicity are shown in Figure 1 and Table 1. The slight downward trends from 1999 to 2008 are not statistically significant. The Black, non-Hispanic-related mortality ratio remains three to four times higher than the White, non-Hispanic mortality ratio.

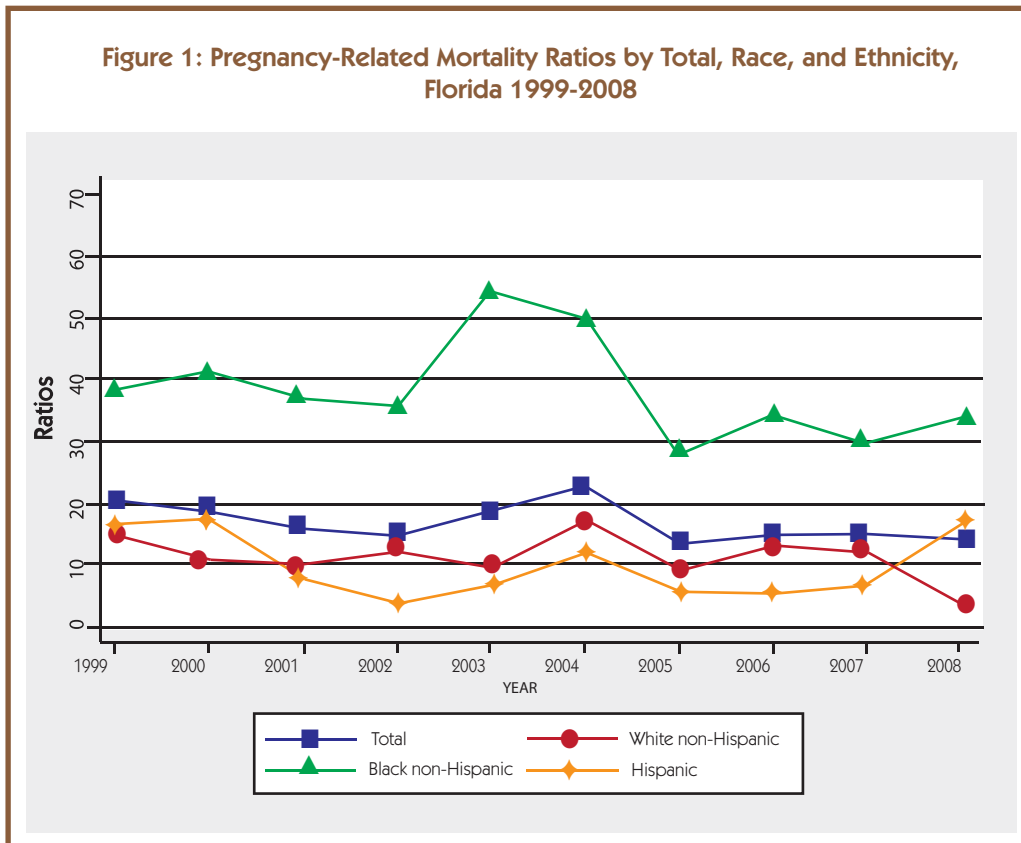
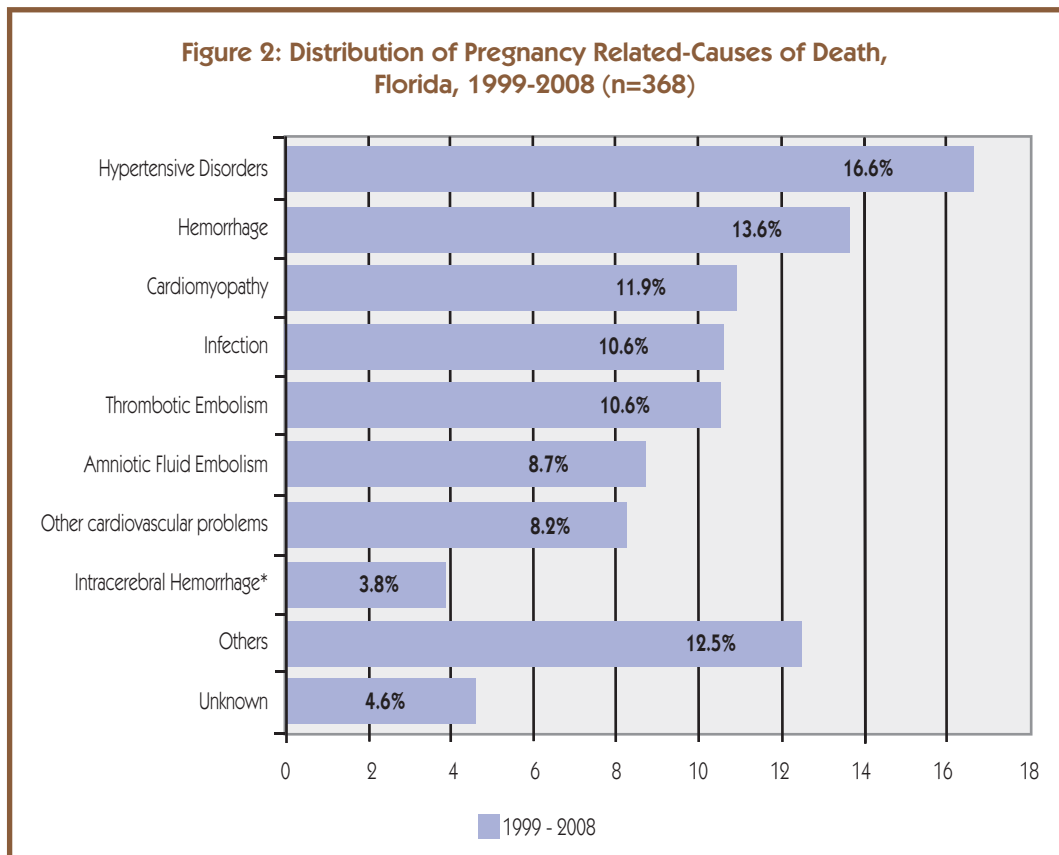


Table 1 Pregnancy-Related Mortality Ratio and 95% Confidence Intervals by Total, Race and Ethnicity, Florida, 1999-2008

| Year | Total | White non-Hispanic | Black non-Hispanic | Hispanic |
|------|------------------|--------------------|--------------------|-----------------|
| 1999 | 20.3 (14.5-27.7) | 15.1 (8.6-24.5) | 38.6 (22.5-61.8) | 16.9 (6.8-34.8) |
| 2000 | 19.1 (13.6-26.1) | 11.3 (5.9-19.8) | 41.2 (24.9-64.3) | 17.5 (7.5-34.4) |
| 2001 | 16.0 (11.0-22.5) | 10.6 (5.3-18.9) | 37.1 (21.6-59.3) | 8.1 (2.2-20.6) |
| 2002 | 15.1 (10.3-21.4) | 12.7 (6.8-21.8) | 35.4 (20.2-57.5) | 3.9 (0.5-14.0) |
| 2003 | 19.3 (13.9-26.2) | 10.6 (5.3-18.9) | 54.1 (35.0-79.9) | 7.3 (2.0-18.7) |
| 2004 | 22.9 (17.0-30.2) | 17.4 (10.3-27.4) | 50.0 (31.7-75.0) | 12.0 (4.8-24.7) |
| 2005 | 13.3 (9.0-18.9) | 9.6 (4.6-17.6) | 27.7 (14.7-47.3) | 6.3 (1.7-16.1) |
| 2006 | 14.8 (5.9-20.5) | 13.2 (7.2-22.2) | 34.2 (19.9-54.8) | 5.7 (1.6-14.6) |
| 2007 | 15.1 (10.5-20.8) | 12.3 (6.5-21.0) | 29.8 (16.7-49.1) | 7.1 (2.3-16.6) |
| 2008 | 14.3 (9.8-20.0) | 3.9 (1.1-9.9) | 33.8 (19.7-54.1) | 16.7 (8.3-29.8) |

Five leading causes accounted for two-thirds of pregnancy-related deaths during the 10-year period: hypertensive disorders (17%), hemorrhage (14%), cardiomyopathy (11%), infection (11%), and thrombotic embolism (11%). Amniotic fluid embolism (9%), other cardiovascular problems (8%), and intracerebral hemorrhage (4%) were the next leading causes (Figure 2 and Table 2). The cause of death category listed as “Other” (12%) is comprised of various causes of death not easily captured in a homogenous category with sufficient numbers such as: hematopoietic problems (8), pulmonary problems (6), gastrointestinal disorders (6), anesthesia (5), metabolic pregnancy-related problems (4), collagen vascular diseases (4), cancer (4), injury (2), multiple organ system failure (1), immune deficiency problems (1), and other conditions not specified (5).

Figure 2: Distribution of Pregnancy Related-Causes of Death, Florida, 1999-2008 (n=368)



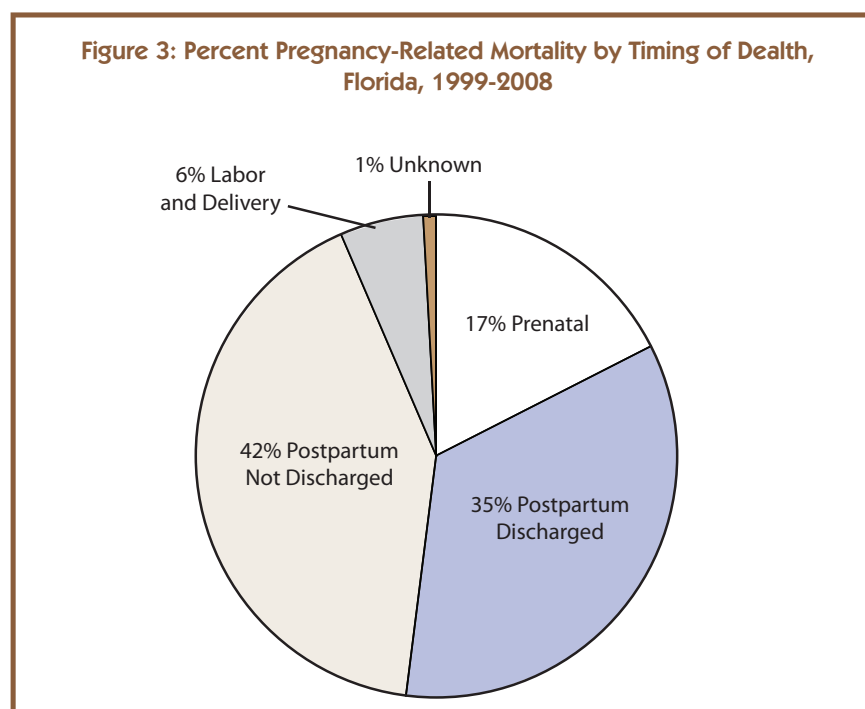
* Intracerebral hemorrhage no known hypertensive disorders

Table 2: Distribution of Causes of Pregnancy-Related Death, Florida, 1999-2008

| Causes | | |
|-----------------------------------------------------------|-----|--------|
| | N | % |
| Hypertensive disorders | 61 | 16.6% |
| Hemorrhage | 50 | 13.6% |
| Cardiomyopathy | 40 | 10.9% |
| Infection | 39 | 10.6% |
| Thrombotic embolism | 39 | 10.6% |
| Amniotic fluid embolism | 32 | 8.7% |
| Other cardiovascular problems | 30 | 8.2% |
| Intracerebral hemorrhage (no known hypertensive disorder) | 14 | 3.8% |
| Others | 46 | 12.5% |
| Unknown | 17 | 4.6% |
| Total | 368 | 100.0% |

The pregnancy-related deaths by timing of death – prenatal, labor and delivery, or postpartum are presented in Figure 3. During 1999-2008, 77% of the deaths occurred during the postpartum period, the period following birth up to one year; 42% occurred in the postpartum period prior to discharge from the delivery hospital; and 35% occurred postpartum after hospital discharge.

The most common causes of deaths occurring during the first six weeks among women who were discharged from the hospital after delivery were infection (19%), cardiomyopathy (19%), and thrombotic embolism (18%). For those women who were not discharged, the most common causes of death were hypertensive disorders (27%), hemorrhage (17%), other causes (16%), and amniotic fluid embolism (15%).



The timing of pregnancy-related deaths varies by the cause of death. Table 3 presents the number of days from date of delivery and mother's death for the five leading causes of death for the 10-year period. Hemorrhage deaths peaked around delivery. More deaths from hypertensive disorders occurred during the 1 to 6 day-period. More deaths from infection and thrombotic embolism occurred during 7 to 42 day-period. And, more deaths from cardiomyopathy occurred in the 42 to 365 day-periods.

Table 3: Five Leading Causes of Pregnancy-Related Death, Florida, 1999-2008

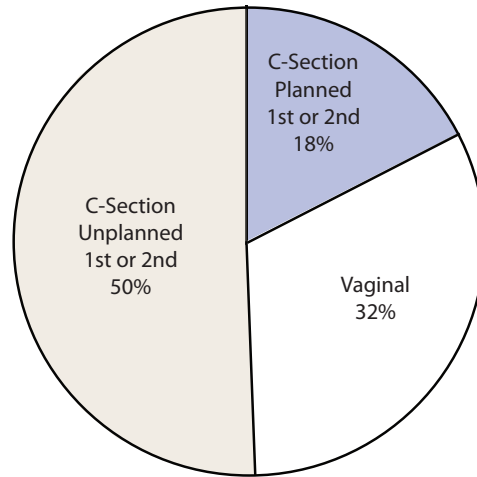
| Cause of Death | Before | | | | | Total |
|------------------------|----------|----------|----------|-----------|----------------|-------|
| | Delivery | < 1 day* | 1-6 days | 7-42 days | 43-365 days ** | |
| Hypertensive disorders | 5 | 12 | 23 | 19 | 2 | 61 |
| Hemorrhage | 17 | 16 | 13 | 4 | 0 | 50 |
| Cardiomyopathy | 1 | 1 | 6 | 13 | 19 | 40 |
| Infection | 4 | 2 | 10 | 16 | 7 | 39 |
| Thrombotic embolism | 7 | 3 | 8 | 15 | 6 | 39 |
| Other | 22 | 37 | 31 | 38 | 11 | 139 |
| Total | 56 | 71 | 91 | 105 | 45 | 368 |

*Two were emergency cesarean deliveries because of mother's deteriorating health.

**The events in this time period need to clearly demonstrate a relationship to pregnancy for inclusion.

The percent of women who died during labor and delivery or postpartum by type of delivery is presented in Figure 4. During 1999-2008, the majority (68%) of these deliveries were cesarean. Of the 205 women who died after cesarean delivery, 54 (26%) were planned cesarean deliveries and 151 (74%) were unplanned cesarean deliveries. Some of these cesarean deliveries occurred in an attempt to save the baby's life due to the mother's rapidly declining health and/or impending demise.

Figure 4: Percent Pregnancy-Related Mortality during Labor or Delivery or Postpartum by Type of Delivery, Florida, 1999-2008



The loss of a woman due to pregnancy is a loss to a family, community, state, and nation.

The number of deaths and the pregnancy-related mortality ratios by demographics and health-related characteristics of women are presented in Table 4.

Table 4: Pregnancy-Related Mortality Ratios (PRMR) and Unadjusted Relative Ratios, Florida, 1999-2008

| | Pregnancy-Related Deaths | | Live Births | | PRMR | Relative Ratios | 95% CI |
|-------------------------------------------|--------------------------|------|-------------|-------------------|------|-----------------|------------|
| | N | % | N | % | | | |
| Race/Ethnicity | | | | | | | |
| White, non-Hispanic | 122 | 33.2 | 1,045,409 | 48.2 | 11.7 | Ref. | |
| Black, non-Hispanic | 179 | 48.6 | 470,892 | 21.7 | 38.0 | 3.3 | 2.59-4.10 |
| Hispanic | 56 | 15.2 | 572,228 | 26.4 | 9.8 | 0.8 | 0.61-1.15 |
| Other | 11 | 3.0 | 81,492 | 3.8 | 13.5 | 1.2 | 0.62-2.14 |
| Age | | | | | | | |
| 19 or younger | 22 | 6.0 | 247,319 | 11.4 | 8.9 | Ref. | |
| 20-24 | 73 | 19.8 | 560,089 | 25.7 | 13.0 | 1.5 | 0.91-2.36 |
| 25-34 | 159 | 43.2 | 1,057,494 | 48.6 | 15.0 | 1.7 | 1.08-2.64 |
| 35+ | 114 | 31.0 | 311,429 | 14.3 | 36.6 | 4.1 | 2.61-6.50 |
| Education | | | | | | | |
| Less than High School | 146 | 40.0 | 446,646 | 20.7 | 32.7 | 3.7 | 2.87-4.87 |
| High School | 131 | 35.9 | 708,438 | 32.8 | 18.5 | 2.1 | 1.61-2.77 |
| More than High School | 88 | 24.1 | 1,006,158 | 46.6 | 8.7 | Ref. | |
| Marital Status | | | | | | | |
| Married | 225 | 61.3 | 1,251,982 | 57.6 | 18.0 | Ref. | |
| Unmarried | 142 | 38.7 | 923,232 | 42.4 | 15.4 | 0.9 | 0.69-1.06 |
| Prenatal Care Entry | | | | | | | |
| 1st Trimester | 150 | 61.0 | 1,662,957 | 81.1 | 9.0 | Ref. | |
| 2nd Trimester | 50 | 20.3 | 297,584 | 14.5 | 16.8 | 1.9 | 1.35-2.57 |
| 3rd Trimester | 28 | 11.4 | 59,791 | 2.9 | 46.8 | 5.2 | 3.47-7.77 |
| None ¹ | 18 | 7.3 | 29,040 | 1.4 | 62.0 | 6.9 | 3.47-7.77 |
| BMI | | | | | | | |
| Underweight (BMI <20) ² | 5 | 3.4 | 54,808 | 5.3 | 9.1 | 1.2 | 0.48-3.07 |
| Normal (BMI 20-24.9) ² | 40 | 27.4 | 531,856 | 51.2 | 7.5 | Ref. | |
| Overweight (BMI 25-29.9) ² | 36 | 24.7 | 250,157 | 24.1 | 14.4 | 1.9 | 1.22-3.00 |
| Obese Class I (BMI 30-34.9) ² | 28 | 19.2 | 119,077 | 11.5 | 23.5 | 3.1 | 1.93-5.07 |
| Obese Class II (BMI 35-39.9) ² | 15 | 10.3 | 50,856 | 4.9 | 29.5 | 3.9 | 2.17-7. |
| Obese Class III (BMI of 40+) ² | 22 | 15.1 | 32,504 | 3.1 | 67.7 | 9.0 | 5.35-15.14 |
| Mode of Delivery | | | | | | | |
| Vaginal | 95 | 31.6 | 1,479,790 | 68.1 | 6.4 | Ref. | |
| C-Section ³ | 206 | 68.4 | 692,957 | 31.9 | 29.7 | 4.6 | 3.63-5.90 |
| Payment Source | | | | | | | |
| Delivery paid by other | 141 | 48.3 | 1,190,373 | 54.7 | 11.8 | Ref. | |
| Delivery paid by Medicaid | 151 | 51.7 | 986,210 | 45.3 ⁴ | 15.3 | 1.3 | 1.29-1.63 |

¹ Include 6 deaths that occurred during the first and second trimester of pregnancy. (Deaths may have occurred prior to 1st prenatal appointment.)

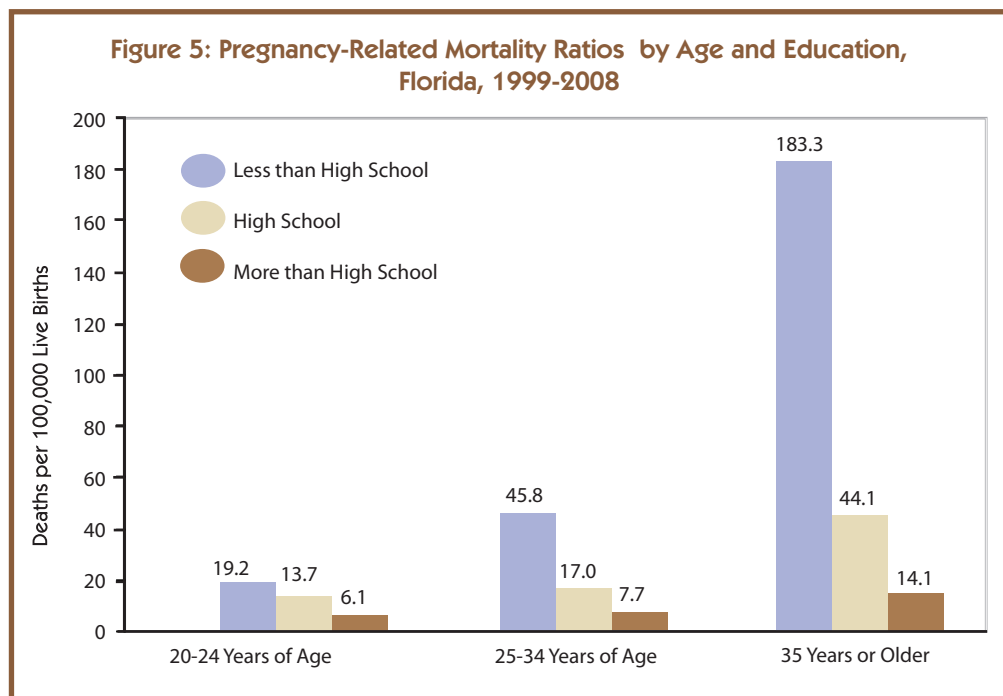
² Include only the period 2004-2008

³ Some C-sections are done due to high risk situations.

⁴ The percent (45.3%) on Medicaid was calculated from PRAMS for the period 2000-2008 and applied to live births for the period 1999-2008.

Women at highest risk of pregnancy-related death were: Black non-Hispanic, 35 or older, less educated, lacking adequate prenatal care, obese or overweight, delivering by C-section, and those whose delivery was paid by Medicaid. Women classified as obese Class III (BMI of 40.0 or more) or considered morbidly obese had nine times the risk of pregnancy-related death than women with normal weight. Women who received no prenatal care or prenatal care only during the third trimester had almost seven and five times, respectively, the risk of pregnancy-related death than women who received prenatal care earlier. Women who had a C-section had almost five times the probability of dying than women who had a vaginal delivery.

The pregnancy-related mortality ratio by age and education level is presented in Figure 5. The analysis was restricted to those women aged 20 years or older, the age at which most women are expected to complete their high school education. For all age groups, women with less than a high school education were more likely to experience a pregnancy-related death. In addition, women with more than a high school education were less likely to experience a pregnancy-related death for every age group.



Issues and Recommendations:

The purpose of PAMR is to identify gaps in care, reveal individual factors and systemic service delivery issues, and make recommendations to facilitate improvements in the overall systems of care. The PAMR process has identified priority areas where improvements can be made to reduce the number of pregnancy-related deaths. The identified issues and recommendations are classified into four improvement categories: clinical factors, system factors, death review factors, and individual/community factors.

Clinical Factors:

Relates to services provided by the health care system.

Issues – A lack of services evidenced by:

- Incomplete assessment.
- Lack of association between a change in mental status and a deteriorating medical condition.
- Lack of follow-up and care coordination for pregnant and postpartum women.
- Inadequate communication between staff and patients.
- Inadequate documentation.

Recommendations:

1. Assessment:

- Assess pregnant and postpartum patients for customs or psychosocial issues that may influence their health and medical decisions.
- Remember – vital signs are vital. Ensure a system is in place to respond to changes. A change in mental status may also indicate a deteriorating physical condition.
- Maintain a level of suspicion of ectopic pregnancy on all women of childbearing age presenting with complaints of abdominal pain.
- Screen prenatal/postpartum women for Healthy Start, substance abuse, domestic violence, or depression, and refer as needed.
- Cardiac evaluation for pregnant/postpartum women with increased swelling and shortness of breath.
- Offer prophylactic treatment for pregnant/postpartum women at risk for venous thrombosis.
- Individualized discharge planning for high-risk, postpartum women.

2. Treatment/Management:

- Develop unit protocols and drills for responding to preeclampsia, obstetric hemorrhage, cardiac disorders, and embolism.
- Incorporate a team approach in the management of postpartum hemorrhage.
- Promote induction of labor for medical reasons only.
- Fully inform women of the risk associated with induction of labor and cesarean delivery with special consideration to co-morbid factors of obesity and chronic illness.
- Schedule routine repeat cesareans after 39 weeks.



3. Communication/Coordination/Follow-up:

- Interprofessional communication and collaboration of care for high-risk women seeing multiple providers.
- Communication between emergency room and obstetrical providers for management of pregnant/postpartum patients presenting for emergent care.
- Post operative women should be assessed by their providers 1-2 weeks after delivery.
- Consider care coordination and guardianship referrals for developmentally-delayed, pregnant women.

4. Education:

- Provide preconception education and counseling for all women of childbearing age at every medical encounter.
- Promote health-seeking behavior in postpartum period including reproductive health planning.
- Discuss family planning options with women who have chronic illness and/or obesity and counsel them on the risks of pregnancy. Include father of the baby in discussions regarding pregnancy risk.
- Provide education and counseling regarding the risks of over-the-counter medications during pregnancy.



System Factors:

A lack of policies and procedures may lend itself to deficient quality of care, potentially affecting a woman's health outcome.

- Issues**
- Lack of a universal policy for prevention and treatment of thrombotic embolism, particularly for pregnant and postpartum women who are obese and/or have delivered by cesarean.
 - Lack of available practice standards for management of term patients with preeclampsia.
 - Postpartum education not inclusive for signs of thrombosis and cardiovascular events.
 - Decreased number of available beds due to limited staff.
 - Decreased access to services due to financial or insurance barriers.

Recommendations: Facilities and providers should continually evaluate standards of care, policies, and procedures to assure access to safe and appropriate care.

1. Establish specific policies and procedures for:

- Risk screening and treatment protocols for obese pregnant and postpartum women.
- Establish guidelines for safe parameters of exercise among morbidly obese patients.
- Prophylactic treatment of thrombotic embolus, with particular regard to the obese and postoperative patients.
- Management of preeclampsia, abruption, and hemorrhage.
- Management of emergent cesarean delivery in emergency departments.
- Management of obstetric patients in Intensive Care Units.
- Prompt transfers to higher level facilities after stabilization.
- Comprehensive and effective delivery of postpartum discharge instructions.
- Ensuring availability of medical consultants for pregnant/postpartum women.
- Psychosocial assessments included for pregnant/postpartum women with frequent emergency room visits.

2. Continual Assessment for Barriers to Quality Care:

- Electronic record systems should not compromise the communication of the patient's progress and plan of care.
- Review facility protocols for obtaining consents for tubal sterilizations, assessing for procedural deterrents or institutional barriers.
- Assure systems are in place to assist with care coordination and follow-up for uninsured patients.



Death Review Factors:

The PAMR process relies on information from death certificates and autopsy reports for the identification and evaluation of pregnancy-related deaths.

- Issues**
- Lack of autopsy on unexplained or inconclusive deaths.
 - Death certificates not always completed accurately.
 - Missing prenatal records in hospital charts.

Recommendations:

1. Request autopsy on pregnant or postpartum women with unknown or unexplained cause of death.
2. Medical providers should communicate directly with the medical examiner to improve the acceptance of cases and accuracy of autopsy findings.
3. Accurately complete death certificates.

Individual and Community Factors:

It has been established that a woman's health prior to her pregnancy can greatly affect the birth outcome as well as the woman's health status after birth. Some deaths may be associated with a woman's personal decision regarding her health and her care. It is important that healthcare providers empower women to make informed decisions.

- Issues**
- Individual health decisions were influenced by stressors and life circumstances.
 - Women presented in pregnancy with pre-existing, chronic medical conditions such as hypertension, obesity, diabetes, and asthma.
 - Lack of evidence in medical documentation regarding individual risk assessment and corresponding patient education and counseling.

Recommendations:

1. Provide Preconception/Interconception Education and Counseling for:
 - All women of childbearing age at every medical encounter.
 - Women with chronic illness with regards to risk of complications in pregnancy.
 - Spouse or support person of women at high risk for pregnancy complications.
 - Obese women inclusive of nutritional counseling and exercise programs.
2. Education and Counseling for Pregnant and Postpartum Women:
 - Establish guidelines for safe parameters of exercise among morbidly obese patients.
 - Include shortness of breath and severe headache in postpartum discharge teaching.
 - Emphasize the importance in seeking medical evaluation for abdominal pain in women of reproductive age.
 - Reinforce seat belt usage particularly in pregnancy.
 - Establish guidelines to address the needs of children left behind after a maternal death.

Conclusion:

The loss of a woman due to pregnancy is a loss to a family, community, state, and nation. The United Nation's World Health Millennium Development **Goal #5 is to improve maternal health** and reduce maternal mortality ratios by three quarters by the year 2015. Florida has been actively conducting ongoing surveillance of maternal mortality cases since 1996. Over 700 cases to date have been reviewed by a multidisciplinary team of maternal child specialists in the PAMR project. Each de-identified case is carefully and respectfully considered by the team before issues are identified and recommendations for action are made. Through the team's dedicated efforts, many of the recommendations have been disseminated to the larger community through publications, presentations, posters, and use of the media. It is hoped that through these efforts, current systems of care for pregnant and postpartum women will be enhanced and fewer mothers will die or suffer injuries related to their pregnancy.



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