Reducing Maternal Mortality in Georgia

2013

Case Review Update

November 2017

Georgia Department of Public Health

Reducing Maternal Mortality in Georgia

Update on 2012 Georgia Maternal Mortality Cases

AFTER THE GEORGIA MATERNAL MORTALITY 2012 Case Review Report was published in June 2015, one additional case was identified and reviewed by the Georgia Maternal Mortality Review Committee (MMRC). The death was determined to be pregnancy-related. Based on the revised findings, 86 maternal deaths were identified, of which 26 (30%) deaths were pregnancy-related and 60 (70%) deaths were pregnancy-associated, not related.

THE RELEASE OF THE FIRST REPORT of the Georgia MMRC included numerous recommendations and opportunities for prevention. Although work has begun on a number of the 2012 recommendations, additional focus and development is needed in each category addressed. Many issues identified in the 2012 cases are reoccurring issues identified in 2013 and further validate the work of the committee and the need for action.

Update on 2012 Recommendations

CLINICAL PRACTICE AND EDUCATION

There is a continued need for education of both clinicians and patients regarding the use of prescription medications, nonprescription and illicit drugs both during pregnancy and the postpartum period.

THE FOCUS SHOULD CONTINUE ON:

- Appropriate use of medications for chronic medical conditions; especially cardiomyopathies and cardiac conditions, and anxiety and depression
- Education and counseling of women on maintenance medications
- Follow-up care for pregnancy and postpartum and intra pregnancy care for women with chronic medical conditions

PUBLIC HEALTH/VITAL STATISTICS

The pregnancy checkbox on death certificates is an opportunity to help identify pregnancy-associated deaths. The review of 2012 cases identified checkbox errors which resulted in non-pregnant women being referred to the Georgia MMRC. A 2012 report recommendation included identifying opportunities for the timely identification and correction of errors on death certificates related to the pregnancy checkbox. The Georgia MMRC worked closely with the Georgia Office of Vital Records and the CDC Division of Reproductive Health to develop a process of identifying death certificates with potential checkbox errors, and making timely corrections. Georgia implemented the process in 2016 to improve the accuracy of information included on the death certificate pregnancy checkbox.

GEORGIA MMRC COMMITTEE DEVELOPMENT:

Due to improved case identification and abstraction processes, chart reviews have increased in efficiency. The Georgia MMRC has five part-time abstractors trained and strategically placed around the state to facilitate case reviews. This allows the Georgia MMRC Committee Coordinator to more efficiently delegate and carry out the work of the committee. The Georgia MMRC utilizes the CDC's latest case abstraction system for data collection.

The Georgia MMRC collaborated with the CDC on development of a policy and interview guide for family/relative interviews which is in practice now.

THE GEORGIA MATERNAL MORTALITY

Review of 2013 Georgia Maternal Mortality Cases

THE GEORGIA MATERNAL MORTALITY Review Committee (MMRC) consists of approximately 45 members. The members represent various geographic locations, specialties, facilities, and systems that interact with, and impact maternal and child health.

The mission of the Georgia MMRC is to "identify pregnancy-associated deaths, review those caused by pregnancy complications and other selected deaths, and identify problems contributing to these deaths and interventions that may reduce these deaths." The processes used for identification and review of 2013 maternal deaths in Georgia were consistent with the processes used for the 2012 case review.

Please reference the 2012 Case Review report via the following link for a detailed description:
https://dph.georgia.gov/sites/dph.georgia.gov/files/MCH/MMR_2012_Case_Review_June2015_final.pdf

MATERNAL MORTALITY CASE DEFINITIONS

In 2013, the Georgia MMRC identified 79 pregnancy-associated deaths overall (deaths during pregnancy or within one year of pregnancy from any cause), which will be referred to as total maternal deaths in this report. Upon review by the Georgia MMRC, the maternal deaths were grouped into two mutually exclusive categories: pregnancy-associated, not related deaths and pregnancy-related deaths, which are defined below.

PREGNANCY-ASSOCIATED, NOT RELATED DEATHS

The death of a woman while pregnant or within one year of the end of pregnancy, due to a cause unrelated to pregnancy (e.g. motor vehicle crash, homicide or cancer, as determined by the Georgia MMRC).

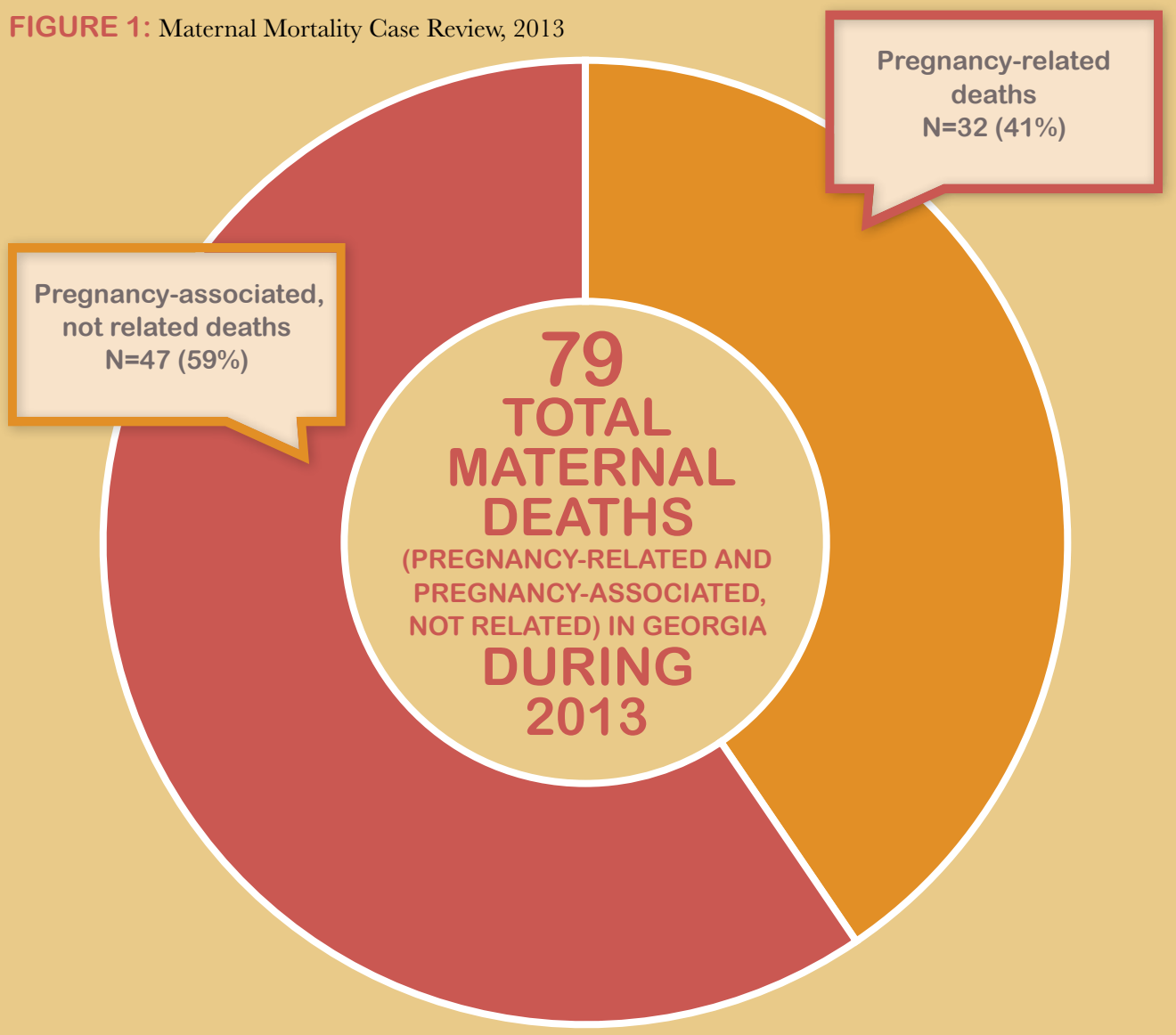
PREGNANCY-RELATED DEATHS

The death of a woman while pregnant or within one year of the end of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by her pregnancy or its management, but not from accidental or incidental causes.

OVERVIEW OF 2013 GEORGIA MATERNAL MORTALITY CASES

Multiple strategies of case identification yielded *79 total maternal deaths (pregnancy-related and pregnancy-associated, not related)* in Georgia during 2013 compared to 86 deaths in 2012. Forty-seven deaths (59 percent) occurred while pregnant or within one year of the end of pregnancy, due to a cause unrelated to pregnancy (pregnancy-associated, not related). Thirty-two deaths (41 percent) were found to be related to or aggravated by the cause of pregnancy or its management (pregnancy-related) (Figure 1).

FIGURE 1: Maternal Mortality Case Review, 2013



Preventability and Chance to Alter the Outcome

ONE OF THE UNIQUE AND CRITICAL roles of the Georgia MMRC is to determine actionable items that can eliminate preventable maternal deaths. The Centers for Disease Control and Prevention (CDC) has defined preventability for the case review process as: "A death is considered preventable, if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, community, provider, facility, and/or systems factors."[1]

Specifically, the Georgia MMRC answers the following questions to determine preventability:

1 | Was this death preventable?
2 | Was there any chance to alter the outcome?

In Georgia during 2013, sixteen (50 percent) of the 32 *pregnancy-related deaths* were determined by the MMRC to be preventable (Table 1).

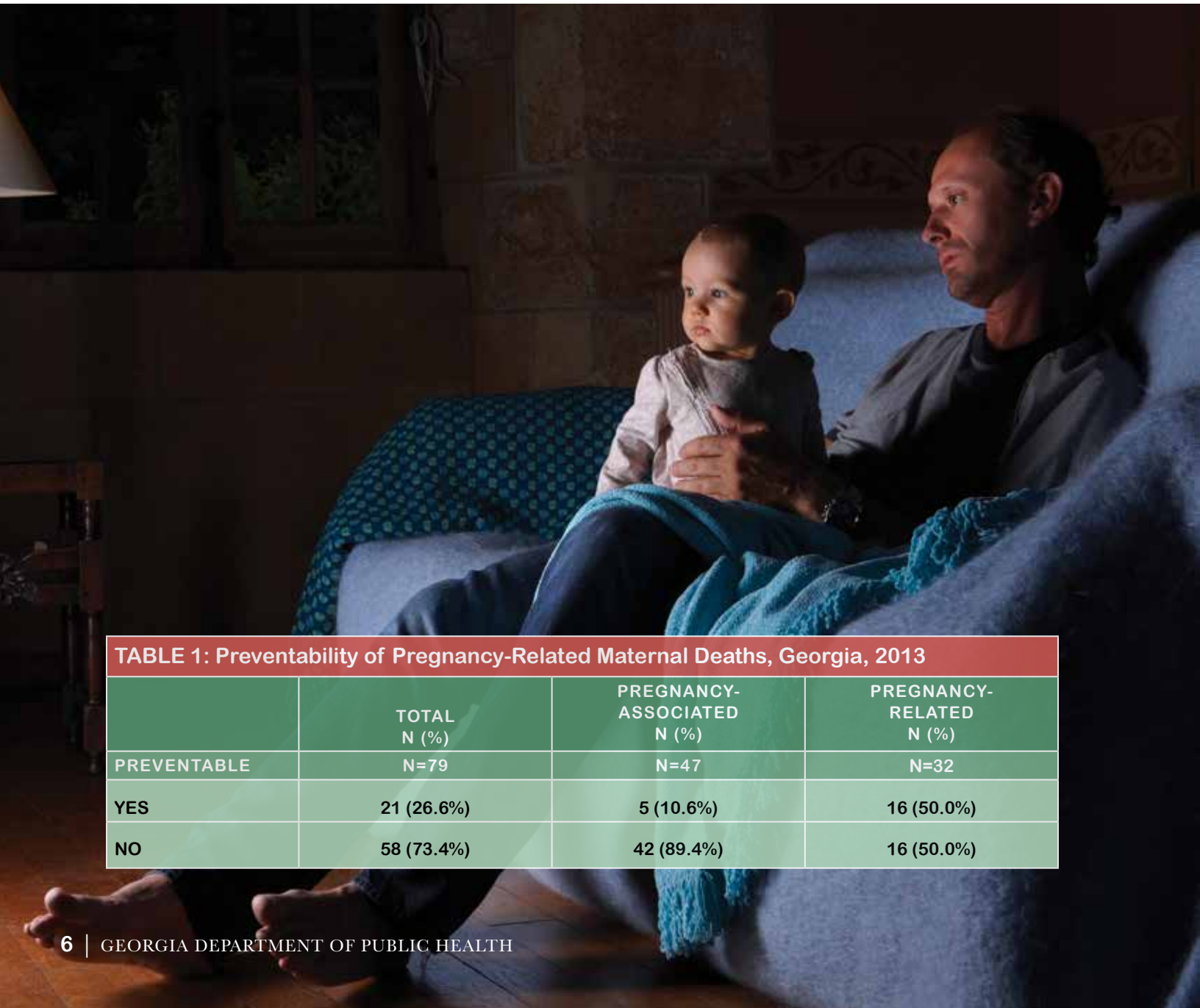


TABLE 1: Preventability of Pregnancy-Related Maternal Deaths, Georgia, 2013

	TOTAL N (%)	PREGNANCY-ASSOCIATED N (%)	PREGNANCY-RELATED N (%)
PREVENTABLE	N=79	N=47	N=32
YES	21 (26.6%)	5 (10.6%)	16 (50.0%)
NO	58 (73.4%)	42 (89.4%)	16 (50.0%)

60% OF THE PREGNANCY-RELATED DEATHS OCCURED WITHIN THE FIRST **42** DAYS AFTER THE END OF PREGNANCY

Demographics

AS SHOWN IN TABLE 2 (following page), the majority (79 percent) of the *pregnancy-associated*, not related deaths occurred more than 42 days post-partum. However, 60 percent of the *pregnancy-related* deaths occurred within the first 42 days after the end of pregnancy.

Approximately, 50 percent of the 79 total *maternal deaths* occurred among women 29 years of age and younger, with the youngest death occurring to a 15 year-old and the oldest death occurring to a 45 year- old woman. Of the 79 maternal deaths reviewed, a greater proportion of the women with advanced maternal age (35 years and older) died of *pregnancy-related causes* (60 percent) versus *pregnancy-associated, not related causes* (40 percent).

Non-Hispanic Black/African-Americans and Non-Hispanic White/Caucasians accounted for 47 percent and 43 percent, respectively, of the total *maternal deaths*. However, racial/ethnic disparities existed among the proportion of *pregnancy-related* and *pregnancy-associated, not related deaths*, not related cases. For example, of the 32 *pregnancy-related deaths*, Black/African-American was the most predominant racial/ethnic group (66 percent), while for the 47 *pregnancy-associated, not related deaths*, White/Caucasian was the most predominant racial/ethnic group (60 percent).

Nearly half (48 percent) of the 79 *total maternal deaths* occurred among women that were never married. The highest level of education attained by more than 80 percent of the 79 *total maternal deaths* was a high school diploma or less. Seventy-three percent of the *total maternal deaths* occurred among residents of an urban setting (any Georgia county with 35,000 or more total population per year by the 2000 Census)

Demographic Factors

TABLE 2: Demographic Factors Associated With Maternal Deaths, Georgia, 2013			
	TOTAL N (%)	PREGNANCY-ASSOCIATED N (%)	PREGNANCY-RELATED N (%)
TIMING OF DEATH	N=79	TOT	N=32
While pregnant	16 (20.3%)	8 (17.0%)	8 (25.0%)
Less than one day	4 (5.1%)	0 (0.0%)	4 (12.5%)
1-42 days postpartum	12 (15.2%)	2 (4.3%)	10 (31.3%)
43+ days postpartum	47 (59.5%)	37 (78.7%)	10 (31.3%)
AGE	N=79	N=47	N=32
<20	5 (6.3%)	3 (6.4%)	2 (6.3%)
20-24	20 (25.3%)	10 (21.3%)	10 (31.3%)
25-29	17 (21.5%)	13 (27.7%)	4 (12.5%)
30-34	23 (29.1%)	16 (34.0%)	7 (21.9%)
35-39	7 (8.9%)	4 (8.5%)	3 (9.4%)
40+	7 (8.9%)	1 (2.1%)	6 (18.8%)
RACE/ETHNICITY	N=79	N=47	N=32
Black or African American	37 (46.8%)	16 (34.0%)	21 (65.6%)
White or Caucasian	34 (43.0%)	28 (59.6%)	6 (18.8%)
Hispanic	6 (7.6%)	2 (4.3%)	4 (12.5%)
Asian	2 (2.5%)	1 (2.1%)	1 (3.1%)
Marital Status	N=79	N=47	N=32
Married	34 (43.0%)	19 (40.4%)	15 (46.9%)
"Married, but separated"	4 (5.1%)	3 (6.4%)	1 (3.1%)
Never married	38 (48.1%)	23 (48.9%)	15 (46.9%)
Divorced	2 (2.5%)	2 (4.3%)	0 (0.0%)
Widowed	1 (1.3%)	0 (0.0%)	1 (3.1%)
HIGHEST LEVEL OF EDUCATION ATTAINED	N=79	N=47	N=32
No High School Diploma	24 (30.4%)	14 (29.8%)	10 (31.3%)
High School Diploma	41 (51.9%)	24 (51.1%)	17 (53.1%)
Associate's Degree	5 (6.3%)	3 (6.4%)	2 (6.3%)
Bachelor's Degree	5 (6.3%)	3 (6.4%)	2 (6.3%)
Master's Degree	3 (3.8%)	2 (4.3%)	1 (3.1%)
Doctorate or Professional Degree	1 (1.3%)	1 (2.1%)	0 (0.0%)
GEOGRAPHY (PLACE OF RESIDENCE)	N=79	N=47	N=32
Urban	58 (73.4%)	34 (72.3%)	24 (75.0%)
Rural	21 (26.6%)	13 (27.7%)	8 (25.0%)

SLIGHTLY OVER HALF (53%) OF THE 47 PREGNANCY-ASSOCIATED, NOT RELATED DEATHS WERE AMONG WOMEN WITH A GRAVIDA OF 1 TO 2

Pregnancy Factors

GRAVIDITY REFERS TO the number of pregnancies, current and past, a woman has had regardless of the outcome.[2] Slightly over half (53 percent) of the 47 *pregnancy-associated, not related* deaths were among women with a gravida of 1 to 2, compared to the 10 pregnancy-related deaths (31 percent) with a gravida of 1 to 2, and 10 *pregnancy-related deaths* (31 percent) with a gravida of 5 or more. Parity refers to the number of pregnancies a woman has had that reached viability (20 weeks gestation), regardless of the number of fetuses or outcomes.[2] Among the 47 *pregnancy-associated, not related* deaths, there was an almost even distribution of parity categories: nulliparous (34 percent), primiparous (26 percent) and multiparous (23 percent). Forty-one percent of the 32 *pregnancy-related deaths* occurred among multiparous women (Table 3).

Information on the inter-pregnancy interval was missing for a high proportion of the 44 maternal deaths with a previous live birth (34 percent). However, among these 44 women that had a previous live birth, 22 (50 percent) of the pregnancies were conceived based on the recommended birth spacing guideline (18 months or more).[3]

TABLE 3: Pregnancy Factors Associated With Maternal Mortality, Georgia, 2013

	TOTAL N (%)	PREGNANCY-ASSOCIATED N (%)	PREGNANCY-RELATED N (%)
GRAVIDA	N=79	N=47	N=32
1 to 2	35 (44.3%)	25 (53.2%)	10 (31.3%)
3 to 4	20 (25.3%)	12 (25.5%)	8 (25.0%)
5+	12 (15.2%)	2 (4.3%)	10 (31.3%)
Unknown	12 (15.2%)	8 (17.0%)	4 (12.5%)
PARITY	N=79	N=47	N=32
Nulliparous	23 (29.1%)	16 (34.0%)	7 (21.9%)
Primiparous	20 (25.3%)	12 (25.5%)	8 (25.0%)
Multiparous	24 (30.4%)	11 (23.4%)	13 (40.6%)
Unknown	12 (15.2%)	8 (17.0%)	4 (12.5%)
INTERPREGNANCY INTERVAL	N=44	N=23	N=21
<18 months	7 (15.9%)	3 (13.0%)	4 (19.0%)
18+ months	22 (50.0%)	15 (65.2%)	7 (33.3%)
Unknown	15 (34.1%)	5 (21.7%)	10 (47.6%)

MORE THAN TWO-THIRDS (69%) OF 32 PREGNANCY-RELATED DEATHS HAD A PRE-EXISTING MEDICAL CONDITION

INFORMATION ON PRE-PREGNANCY weight and pre-existing medical conditions was missing for 28 percent of the 79 *total maternal deaths*. Fourteen *pregnancy-related deaths* (44 percent) had at-risk pre-pregnancy weights (overweight, obese, or morbidly obese) compared to 21 *pregnancy-associated, not related deaths* (45 percent) classified as having at-risk pre-pregnancy weights (Table 4). More than two-thirds (69 percent) of 32 *pregnancy-related deaths* had a pre-existing medical condition. A pre-existing medical condition includes, but is not limited to, hypertension, diabetes, or asthma. Information on the trimester in which prenatal care was initiated was missing for 25 percent of the 79 total maternal deaths. However, more than half of the women that died of *pregnancy-associated, not related causes* (55 percent) and *pregnancy-related causes* (50 percent) began prenatal care in the first trimester.

Of the 79 *total maternal deaths*, 63 resulted in a delivery (live birth or fetal death). Twenty-four of the 63 maternal deaths that resulted in a delivery were found to be *pregnancy-related deaths*. Among the 24 *pregnancy-related deaths*, ninety-six percent had a Medical Doctor (MD) or Doctor of Osteopathic Medicine (DO) attend the labor and delivery, 50 percent delivered at a facility with a Level I and II perinatal care level (Table 4), and 71 percent delivered by Cesarean (Figure 2).

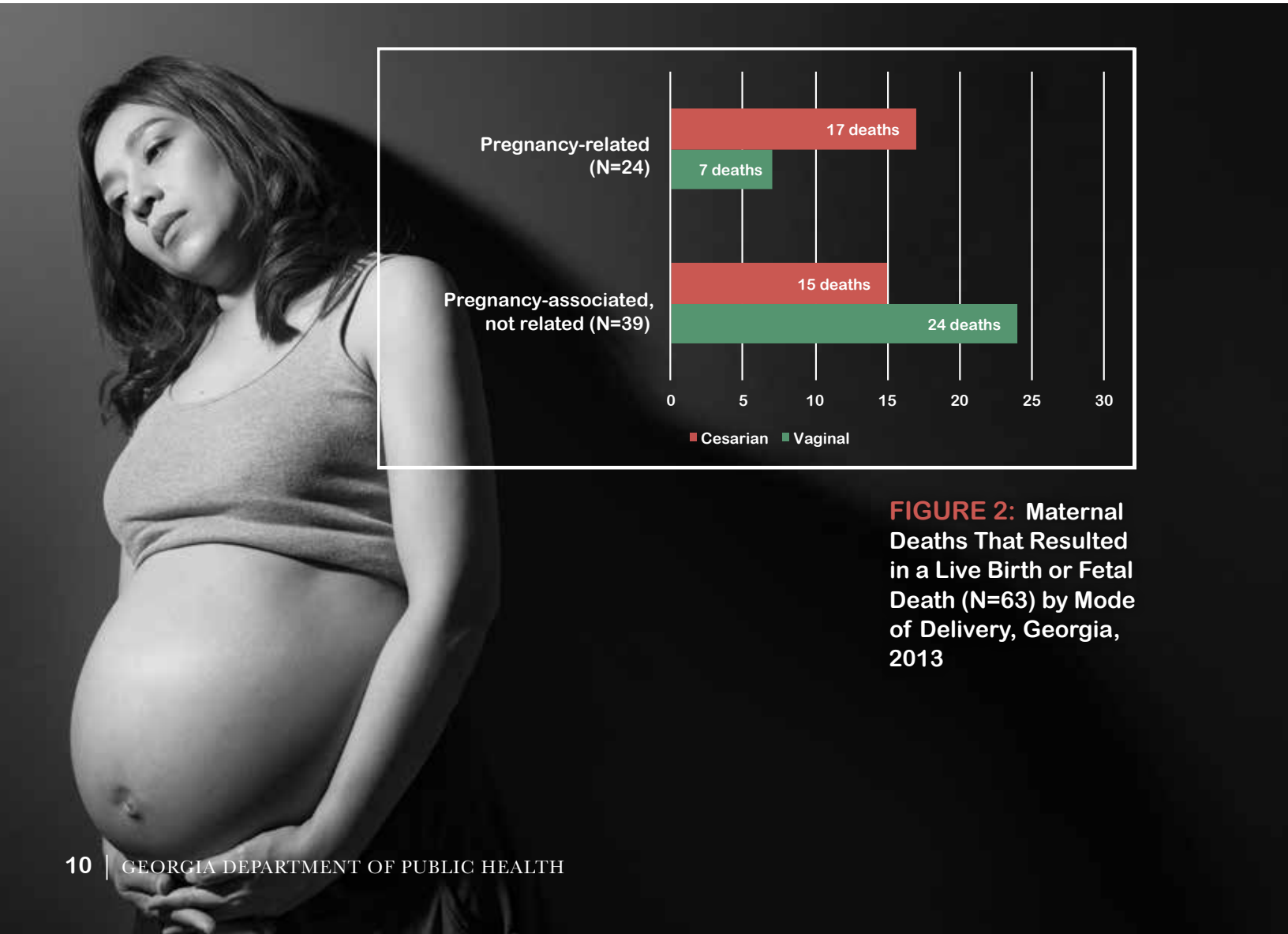


FIGURE 2: Maternal Deaths That Resulted in a Live Birth or Fetal Death (N=63) by Mode of Delivery, Georgia, 2013

INFORMATION ON THE TRIMESTER IN WHICH PRENATAL CARE WAS INITIATED WAS MISSING FOR 25% OF THE 79 TOTAL MATERNAL DEATHS

TABLE 4: Prenatal/Intrapartum Factors Associated With Maternal Mortality, Georgia, 2013			
	TOTAL N (%)	PREGNANCY-ASSOCIATED N (%)	PREGNANCY-RELATED N (%)
PRE-PREGNANCY WEIGHT	N=79	N=47	N=32
Underweight (BMI: less than 18.5)	3 (3.8%)	3 (6.4%)	0 (0.0%)
Normal Weight (Bmi: 18.5-24.9)	19 (24.1%)	13 (27.7%)	6 (18.8%)
Overweight (BMI: 25.0-29.9)	16 (20.3%)	12 (25.5%)	4 (12.5%)
Obese (BMI: 30.0-39.9)	11 (13.9%)	6 (12.8%)	5 (15.6%)
Morbidly obese (BMI: 40.0 or greater)	8 (10.1%)	3 (6.4%)	5 (15.6%)
Unknown	22 (27.8%)	10 (21.3%)	12 (37.5%)
PRE-EXISTING MEDICAL PROBLEMS	N=79	N=47	N=32
Yes	45 (57.0%)	23 (48.9%)	22 (68.8%)
No	12 (15.2%)	9 (19.1%)	3 (9.4%)
Unknown	22 (27.8%)	15 (31.9%)	7 (21.9%)
TRIMESTER PRENATAL CARE BEGAN	N=79	N=47	N=32
First trimester	42 (53.2%)	26 (55.3%)	16 (50.0%)
Second trimester	12 (15.2%)	8 (17.0%)	4 (12.5%)
Third trimester	3 (3.8%)	0 (0.0%)	3 (9.4%)
None	2 (2.5%)	0 (0.0%)	2 (6.3%)
Unknown	20 (25.3%)	13 (27.7%)	7 (21.9%)
LABOR AND DELIVERY PRACTITIONER	N=63	N=39	N=24
MD/DO	60 (95.2%)	37 (94.9%)	23 (95.8%)
CNM/CM	2 (3.2%)	1 (2.6%)	1 (4.2%)
Unknown	1 (1.6%)	1 (2.6%)	0 (0.0%)
MODE OF DELIVERY	N=63	N=39	N=24
Vaginal	31 (49.2%)	24 (61.5%)	7 (29.2%)
Cesarean	32 (50.8%)	15 (38.5%)	17 (70.8%)
PERINATAL LEVEL OF CARE OF DELIVERY FACILITY	N=63	N=39	N=24
Basic (Level I)	7 (11.1%)	4 (10.3%)	3 (12.5%)
Specialty (Level II)	17 (27.0%)	8 (20.5%)	9 (37.5%)
Subpecialty (Level III)	24 (38.1%)	17 (43.6%)	7 (29.2%)
Regional center (Level IV)	15 (23.8%)	10 (25.6%)	5 (20.8%)

Additional Factors

INFORMATION REGARDING the participation of women in the Georgia Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was missing for twenty-nine percent of the 79 *total maternal deaths*. However, thirty-eight women (48 percent) participated in WIC. Among the 79 total maternal deaths, 52 percent were Medicaid recipients, 18 percent received private insurance, and payor informations was not available for 23 percents of total deaths (Table 5). Information about the presence of social or psychological issues was missing for a high proportion of the total maternal deaths (43 percent). Particularly as it relates to substance abuse, incarceration, social or emotional stress, or homelessness, where noted in the data gathered through abstraction, 14 (18 percent) of the 79 total maternal deaths did not have a social or emotional issue.

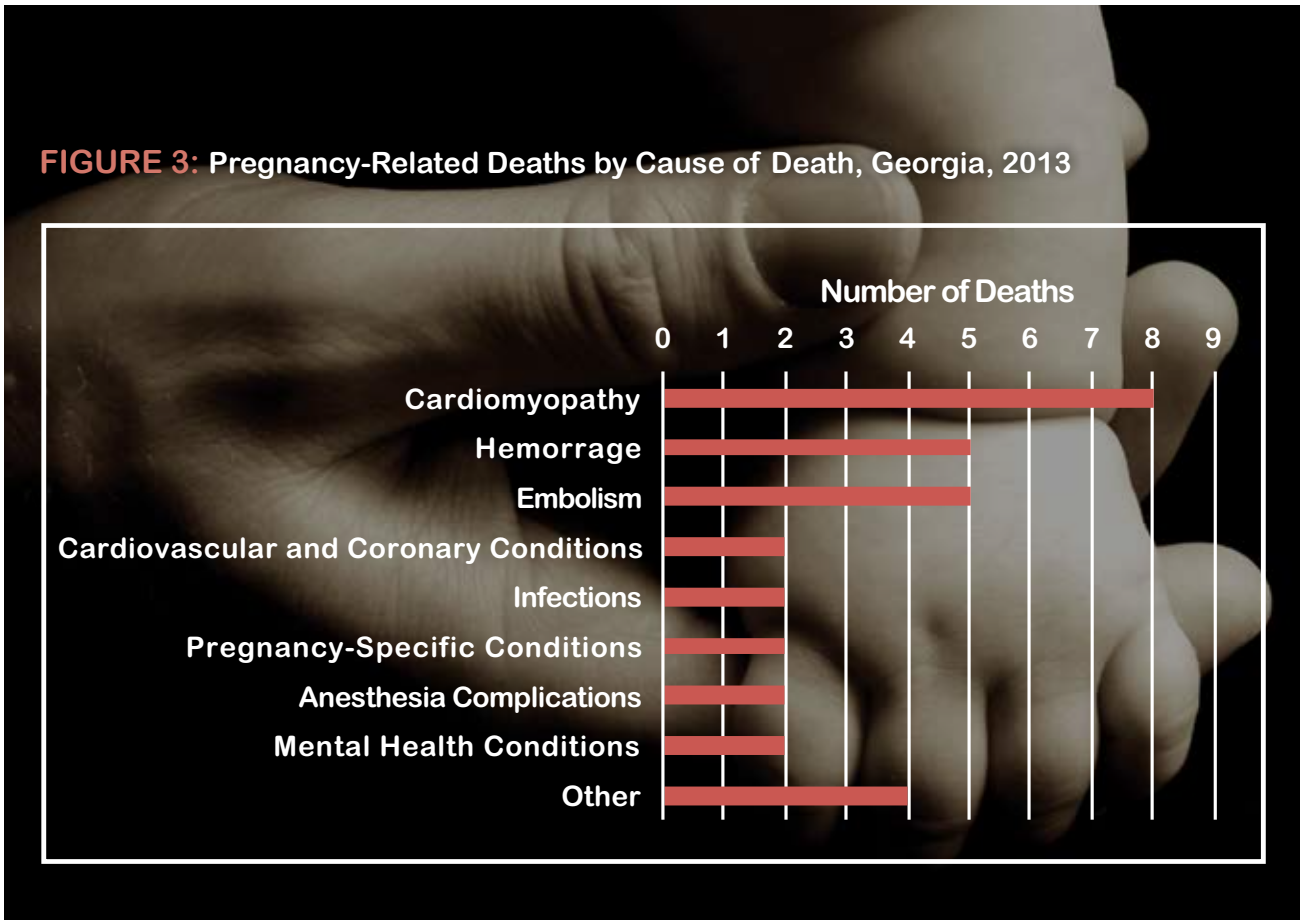
TABLE 5: Other Public Health Factors Associated With Maternal Mortality, Georgia, 2013

	TOTAL N (%)	PREGNANCY-ASSOCIATED N (%)	PREGNANCY-RELATED N (%)
WIC PARTICIPANT	N=79	N=47	N=32
Yes	38 (48.1%)	26 (55.3%)	12 (37.5%)
No	18 (22.8%)	11 (23.4%)	7 (21.9%)
Unknown	23 (29.1%)	10 (21.3%)	13 (40.6%)
SOCIAL OR PSYCHOLOGICAL ISSUE PRESENT*	N=79	N=47	N=32
Yes	14 (17.7%)	7 (14.9%)	7 (21.9%)
No	31 (39.2%)	17 (36.2%)	14 (43.8%)
Unknown	34 (43.0%)	23 (48.9%)	11 (34.4%)
PAYOR	N=79	N=47	N=32
Medicaid	41 (51.9%)	25 (53.2%)	16 (50.0%)
Private	14 (17.7%)	9 (19.1%)	5 (15.6%)
Other	3 (3.8%)	2 (4.3%)	1 (3.1%)
Self-pay	3 (3.8%)	1 (2.1%)	2 (6.3%)
Unknown	18 (22.8%)	10 (21.3%)	8 (25.0%)

*Substance abuse, incarceration, social or emotional stress or homelessness

THE GEORGIA MMRC IDENTIFIED **32** DEATHS, THAT WERE PREGNANCY-RELATED, WITH CARDIOMYOPATHY BEING THE LEADING CAUSE **(25%)**.

Cause of Death



PREGNANCY-RELATED DEATHS BY CAUSE OF DEATH

THE GEORGIA MMRC identified 32 deaths that were *pregnancy-related*. Cardiomyopathy was the leading cause of *pregnancy-related deaths*, which accounted for one-quarter of the 32 *pregnancy-related deaths*. Four of these eight cases had post-partum/peripartum cardiomyopathy. The second-leading cause of *pregnancy-related deaths* were hemorrhage (16 percent) and embolism (16 percent). Two of the five (40%) maternal deaths due to hemorrhage involved obstetric hemorrhages and two of the five (40%) deaths due to embolism involved amniotic fluid embolisms. Other causes of pregnancy-related deaths, included cardiovascular and coronary conditions (6 percent), infections (6 percent), conditions unique to pregnancy (e.g. gestational diabetes, hyperemesis, liver disease of pregnancy) (6 percent), anesthesia complications (6 percent), and mental health conditions (6 percent). The two maternal deaths due to mental health conditions were related to depression/suicide, and was determined to be pregnancy-related by the Georgia MMRC. Four (13 percent) of the 32 *pregnancy-related deaths* were classified as having "Other" causes of death, which included pre-eclampsia, pulmonary disorders, autoimmune disease, and unintentional injuries (Figure 3). The unintentional injury was a motor vehicle crash that was determined to be pregnancy-related by the Georgia MMRC.

THE GEORGIA MMRC IDENTIFIED 47 DEATHS THAT WERE PREGNANCY-ASSOCIATED, NOT RELATED, WITH MOTOR VEHICLE CRASHES AS THE MOST FREQUENT CAUSE

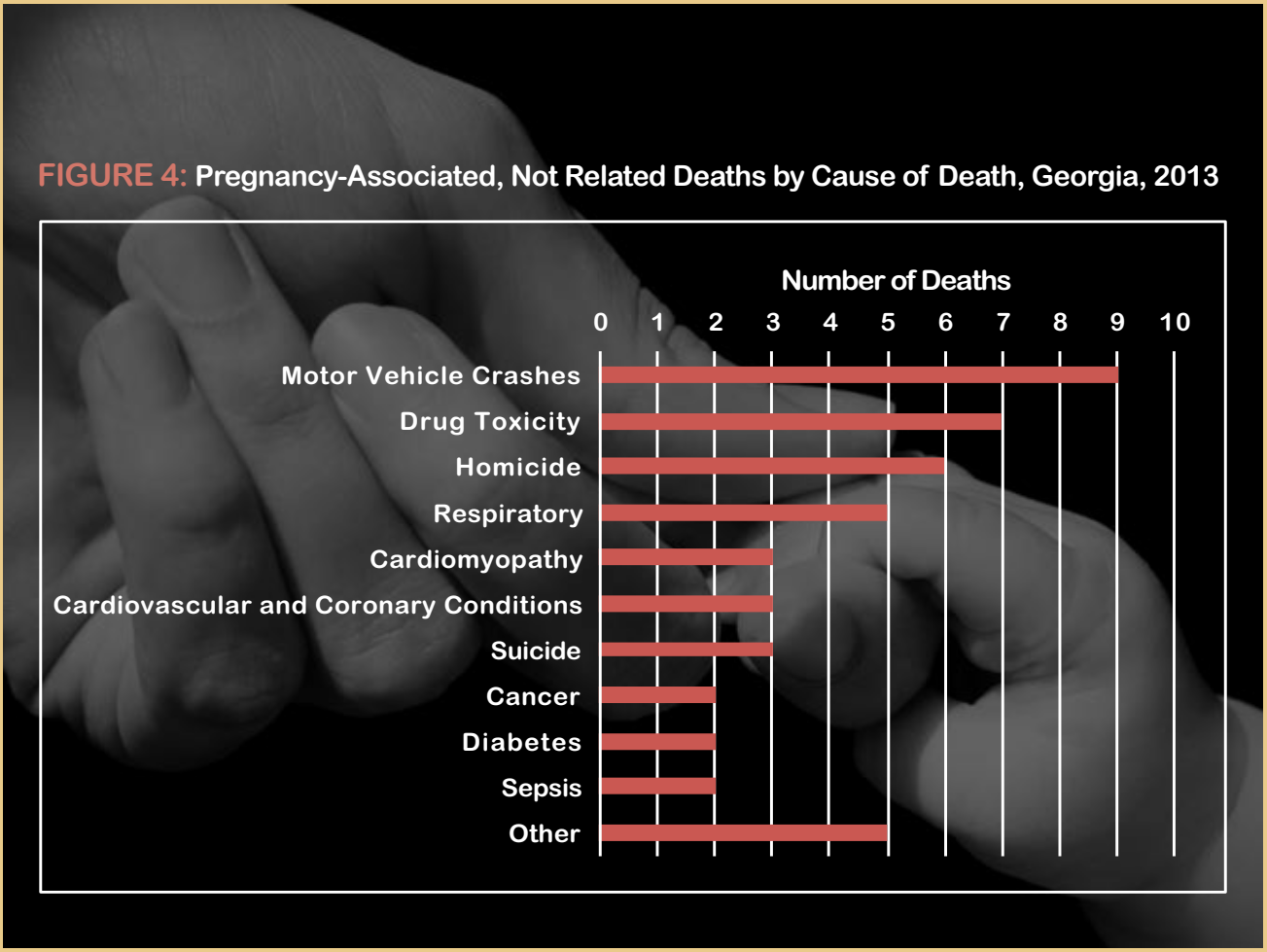
PREGNANCY-RELATED DEATHS BY CAUSE OF DEATH AND TIMING OF DEATH

EMBOLISM (13 percent) and conditions unique to pregnancy (e.g. gestational diabetes, hyperemesis, liver disease of pregnancy) (6 percent) were the leading causes of pregnancy-related deaths that occurred while the decedent was pregnant or within one day postpartum. Between 1 to 42 days postpartum, the leading causes of pregnancy-related deaths were cardiomyopathy/cardiovascular (6 percent) and coronary conditions (6 percent). The leading causes of pregnancy-related deaths that occurred between 43 to 364 days postpartum were cardiomyopathy (16 percent) followed by hemorrhage (6 percent).

PREGNANCY-ASSOCIATED, NOT RELATED DEATHS BY CAUSE OF DEATH

THE GEORGIA MMRC identified 47 deaths that were pregnancy-associated, not related. The seven most- frequent causes were motor vehicle crashes (19 percent), drug toxicity (15 percent), homicide (13 percent), respiratory conditions (11 percent), cardiomyopathy (6 percent), cardiovascular and coronary conditions (6 percent), and suicide (6 percent). The pregnancy-associated, not related deaths classified with "Other" causes of death included, but were not limited to, deaths caused by cancer, diabetes, sepsis, and seizures (Figure 4).

FIGURE 4: Pregnancy-Associated, Not Related Deaths by Cause of Death, Georgia, 2013



Key Opportunities for Prevention:

AFTER A SECOND FULL YEAR of reviewing maternal deaths in the state of Georgia, the Georgia MMRC has found many opportunities for prevention. These opportunities fall in to two main categories:

- Education of clinicians, patients and the community regarding potential or actual problems that most commonly lead to poor maternal outcomes and potential deaths
- Early identification of risk factors associated with maternal mortality, and then appropriate follow-up of these problems.

2013 Case Findings:

THE AREAS OF HIGHEST CONCERN that most frequently result in poor outcomes in Georgia are:

- **Cardiomyopathies and cardiovascular conditions such as hypertension**
  - Risk factors and symptoms of cardiomyopathy not recognized or assessed by patient or provider
  - Inadequate follow-up of cardiovascular symptoms or chronic cardiac disease
- **Hemorrhage**
  - Delayed recognition and treatment of hemorrhage in post-partum women by both patients and clinicians
- **Anxiety/Depression**
  - Inadequate screening of pregnant and postpartum women for depression and other mental health issues
  - Possible lack of access to mental health services
  - Potential lack of awareness by patients or providers of benefits and safety of antidepressant therapy during pregnancy and post-partum

ADDITIONAL KEY FINDINGS:

- **Obesity**

  Fifty eight percent of the reviewed maternal mortality cases were documented as morbidly obese with a BMI of greater than 30. Obesity coexisted with medical problems such as cardiovascular disease, hypertension, diabetes and postpartum complications.
  - Inadequate assessment or monitoring of obese pregnant and postpartum women
  - Lack of referral to a maternal fetal medicine specialist or cardiologist for morbid obesity
  - Lack of calculated BMI or height and pre-pregnant weight
  - Inadequate embolism prophylaxis for obese patients on bedrest or with decreased mobility
- **Chronic Medical Conditions**
  - Women with chronic medical conditions not receiving referrals or interconceptual care to treat those chronic conditions during pregnancy
  - Women with high risk or chronic conditions possibly not receiving preconceptual or early pregnancy counseling on the increased risk for them during pregnancy
- **Drugs in Pregnancy**
  - Inappropriate usage of prescription, nonprescription and illicit drugs during pregnancy and post-partum
  - Lack of prescription history being available to the provider
  - Inappropriate mixing or adding of medications to those prescribed
  - Lack of screening for prescription and/or illegal substance abuse
- **Availability of high risk care**
  - Lack of transfer or referral to a higher level of care
  - Inability of incarcerated pregnant women to get the appropriate level of care
  - Lack of standardization for treatment and referral of high risk pregnancies

Recommendations based on 2013 Case Review

THE GEORGIA MMRC believes that through a multidisciplinary effort, Georgia can bring to fruition the opportunities for prevention of maternal deaths. State-wide action is recommended to bring about the education that is needed. Three main areas are included in our recommendations: Medical Education, Community Education and Policy-

Medical Education Opportunities:

- Partner with the Georgia Perinatal Quality Collaborative (GaPQC) to implement Alliance for Innovation for Maternal Health (AIM) patient safety bundles related to cardiovascular disease and hemorrhage in pregnancy
- Encourage a complete medical history including height, weight, pre-pregnant weight and BMI
- Consider cardiovascular, Maternal Fetal Medicine (MFM) and/or telemedicine consults for morbidly obese pregnant women whenever possible
- Encourage depression screening during pregnancy and during post-partum period
- Utilize mental health treatment protocols, and refer appropriately depending on results. Consider telemedicine referral
- Encourage patients to take prescribed medications. If patient has not been taking her medications, inquire as to why, and try to resolve the problem
- When appropriate try to prescribe generic medications, especially those supported by Medicaid formulary and those offered through free or discounted medication programs
- Publicize the importance of following provider recommendations to ensure a healthy pregnancy
- Encourage interconceptual and post-partum follow-up and care

Community Education Opportunities:

- Partner with Department of Community Health and other community agencies to promote prenatal care throughout pregnancy including evidence-based programs such as centering pregnancy
- Publicize the importance of following health care provider recommendations to ensure a healthy pregnancy
- Publicize healthy eating habits and weights
- Continue contraception education, especially LARCs for at risk women, to facilitate best pregnancy outcomes
- Publicize dangers of smoking during pregnancy and promote smoking cessation resources, including the Georgia Tobacco Quit Line
- Promote the regional perinatal system for referral and treatment of high risk pregnancies

Policy Recommendations:

- Support legislation that will preserve the women's health care system including rural Labor and Delivery units, so that all expectant mothers have access to care within a reasonable distance.
- Funding for Public Health departments should be maintained and increased when possible to meet the demand for women's health care services
- Work to extend insurance coverage into the months after delivery to treat and manage high-risk co-morbidities such as hypertension, cardiac disease and obesity

Georgia Maternal Mortality Review Committee Development:

- Currently there are 4 part-time abstractors working with the MMRC, and one full time Coordinator. Additional abstraction support is needed to facilitate the volume of case reviews, and a state-wide education coordinator is needed to develop education and improvement initiatives
- Continue to evaluate maternal death and work to make recommendations regarding clinical care, patient education and legislative action to help significantly decrease the rate of maternal death in Georgia
- Integrate Regional Perinatal Centers and clinicians in the state of Georgia to improve care for women with chronic disease and high-risk conditions
- Incorporate the new CDC abstraction tool, MMRIA, into daily use when it is available
- Allow fax or electronic transfer of medical records to expedite MMRC abstraction

Reference

[1]The Centers for Disease Control and Prevention Foundation. Report from Maternal Mortality Review Committees: A View Into Their Critical Role; retrieved on March 13, 2017 from: http://www.cdcfoundation.org/sites/default/files/upload/pdf/MMRIAReport.pdf

[2] The American Congress of Obstetricians and Gynecologists, Obstetric Data Definitions (version 1); retrieved on March 16, 2017 from: https://www.acog.org/-/media/Departments/Patient-Safety-and-Quality-Improvement/2014reVITALizeObstetricDataDefinitionsV10.pdf

[3]Healthy People 2020, Family Planning; retrieved on March 16, 2016 from: https://www.healthypeople.gov/2020/topics-objectives/objective/fp-5

2013 ANNUAL REPORT CASE REVIEW UPDATE

Reducing Maternal Mortality in Georgia

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