



*House of Representatives
Study Committee on Maternal Mortality*

Final Report

**Co-Chairman Sharon Cooper
Representative, 43rd District**

**Co-Chairman Mark Newton
Representative, 123rd District**

**The Honorable Chuck Efstration
Representative, 104th District**

**The Honorable Carolyn Hugley
Representative, 136th District**

**The Honorable Deborah Silcox
Representative, 52nd District**

**The Honorable Valencia Stovall
Representative, 74th District**

**The Honorable Darlene Taylor
Representative, 173rd District**

**Jane Ellis, MD, PhD
Medical Director, Emory Regional Perinatal Center**

**Chad Ray, MD
Associate Professor, Medical College of Georgia**

2019

Prepared by the House Budget & Research Office

Introduction

The House Study Committee on Maternal Mortality was created by House Resolution 589 during the 2019 Legislative Session of the Georgia General Assembly. HR 589 acknowledges that women in the United States are more likely to die from childbirth or pregnancy-related causes than women in other high-income countries, and furthermore, Georgia is among the top 10 states with the highest maternal death rate. The resolution also recognizes that maternal deaths are a serious public health concern and have tremendous family and social impacts that affect diverse populations.

HR 589 acknowledges that the Georgia Maternal Mortality Review Committee has reviewed three years of maternal death data in the state, and the data suggests that 60 percent of these deaths were preventable. Continued review of maternal deaths is recommended to understand the trends in the data, and there is a need to develop strategies and institute systemic changes to decrease and prevent maternal deaths in Georgia.

House Resolution 589 provides for the membership of the committee, consisting of seven members of the House of Representatives, a minimum of two of whom shall be African American female legislators, and two members of the Georgia Maternal Mortality Review Committee appointed by the speaker of the House of Representatives. The speaker appointed the following members: Representative Sharon Cooper, Co-Chair; Representative Mark Newton, Co-Chair; Representative Chuck Efstraction; Representative Carolyn Hugley; Representative Deborah Silcox; Representative Valencia Stovall; Representative Darlene Taylor; Dr. Jane Ellis; and Dr. Chad Ray.

The study committee held five public meetings at the State Capitol during 2019, occurring on September 19th, October 17th, November 7th, November 21st, and December 3rd. During these meetings, the committee heard testimony from multiple agencies and organizations involved in maternal health, prenatal care, and postnatal care in Georgia, as listed below. This report provides an overview of the issues discussed by the individuals listed below by meeting.

Thursday, September 19, 2019 – Coverdell Legislative Office Building (Atlanta, GA)

Michael Lindsay, MD – *Maternal Mortality Review Committee Co-Chair*

Michael Bryan, PhD – *Director of Maternal and Child Health Epidemiology, DPH*

Chris Tice, CNM – *Maternal Mortality Review Coordinator, Georgia OBGYN Society*

Melissa Kottke, MD – *Georgia Perinatal Quality Collaborative*

Thursday, October 17, 2019 – Coverdell Legislative Office Building (Atlanta, GA)

[Mercer University](#)

Jean R. Sumner, MD – *Dean of the School of Medicine*

Jacob C. Warren, PhD, MBA – *Rufus C. Harris Endowed Chair; Director of the Center for Rural Health and Health Disparities; Associate Professor, Community Medicine*

Morehouse School of Medicine

Valerie Montgomery Rice, MD, FACOG – *President and Dean of Morehouse School of Medicine*

Medical College of Georgia at Augusta University

Chad Ray, MD – *Interim Section Chief, OBGYN; Associate Professor*

Doug Miller, MD – *Vice Dean; Professor*

Emory University

Denise J. Jamieson, MD, MPH – *Chair of the Department of Gynecology and Obstetrics for Emory Healthcare*

Thursday, November 7, 2019 – Coverdell Legislative Office Building (Atlanta, GA)

Dianne Durrence – *Women’s Health Director, Georgia Department of Public Health*

Jaimie Chausmer, FNP-C – *Northside Hospital Cardiovascular Care*

Gina Price Lundberg, MD – *Clinical Director of Emory Women’s Cardiovascular Health Center*

Diogo Haussen, MD – *Neurologist, Grady Health*

Siddarth Satish – *Chief Executive Officer, Gauss Surgical*

Thursday, November 21, 2019 – Coverdell Legislative Office Building (Atlanta, GA)

Jennifer Barkin, MS, PhD – *Associate Professor of Community Medicine and Obstetrics and Gynecology, Mercer University*

Toby Goldsmith, MD – *Director of the Emory Women’s Mental Health Program*

Anne Patterson, MD – *Women’s Telehealth*

Mary Catherine Moffett, Ashunti Duncan, and TeQuiera Wolfolk – *Nurse-Family Partnership*

Kenneth Braunstein, MD – *Hematologist, Northside Hospital*

Tuesday, December 3, 2019 – Coverdell Legislative Office Building (Atlanta, GA)

Naima Joseph, MD, MPH – *Maternal Fetal Medicine Fellow, Emory University*

Alexis Dunn, PhD, CNM and Kate Woeber, PhD, CNM, MPH – *Georgia Nurses Association*

Umm Salaamah Abdullah Zaimah – *Community Midwives National Alliance*

Danielle Rodriguez – *SisterSong*

“Able” Mable Thomas – *State Representative, District 56*

Committee Findings

Background and Data

In 2010, a study by Amnesty International ranked Georgia 50th in maternal mortality in the United States. An advisory committee was created by the Georgia Department of Public Health (DPH), the Emory University Department of Gynecology and Obstetrics, and the Georgia Obstetrical and Gynecological Society to determine a methodology for identifying and reviewing maternal death cases in Georgia in order to identify the causes and potential solutions to Georgia's high maternal mortality rates. During the 2014 Legislative Session, the Georgia General Assembly passed Senate Bill 273 to establish the Georgia Maternal Mortality Review Committee (MMRC) and strengthen DPH's authority to obtain the records needed for case review. The first MMRC report analyzed 85 maternal death cases from 2012 and was published in June 2015. Since then, the MMRC has released reports for the cases that occurred in 2013 and 2014.

A "maternal death" is defined as the death of a woman while pregnant or within one year of the end of a pregnancy. There are two types of maternal death: pregnancy-associated and pregnancy-related. Pregnancy-associated are deaths due to a cause unrelated to pregnancy, and pregnancy-related deaths are deaths due to any cause related to or aggravated by pregnancy or its management. There are various data sources that track maternal deaths, such as the National Center for Health Statistics and the Pregnancy Mortality Surveillance System on the national level and the Online Analytical Statistical Information System and the Maternal Mortality Review Information App on the state level for Georgia. These data sources all differ in purpose, methodology, and measures. As Georgia's MMRC began its own data collection process, it identified key ways to identify maternal death cases in the state, such as through the report of a notifiable condition, the pregnancy checkbox on Georgia's death certificate, ICD-10 "O codes", death certificates linked to birth or fetal death certificates, and obituaries and news searches.

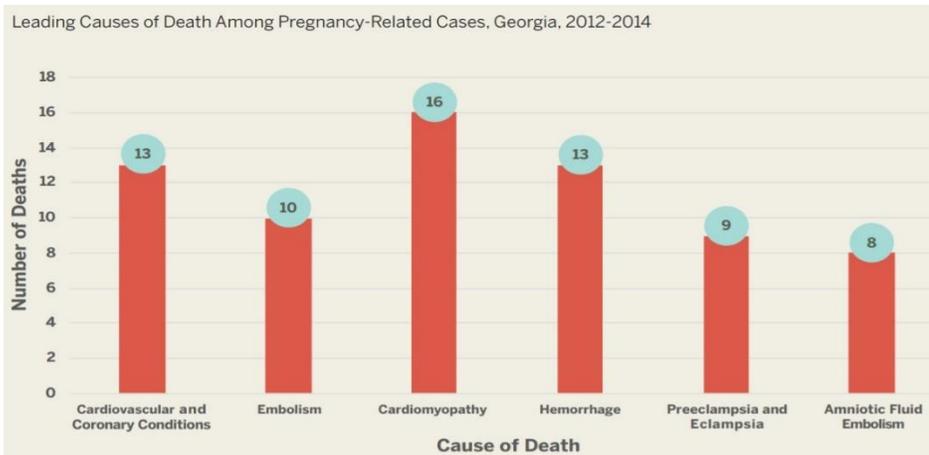
For each maternal death, the MMRC searches for the following reports and records: autopsy, prenatal care history; emergency room visits; hospitalizations; medical transports; informant interviews; public health records; medical examiner report or investigation; subspecialty consults and visits; mental health care; law enforcement records; coroner report and investigation; and reports and investigations from the Georgia Division of Family and Children Services (DFCS). The collected information is analyzed in a case abstraction performed by trained individuals that have an obstetrics background as either a registered nurse, an advanced practice registered nurse, or a doctor, and abstractors work alongside DPH epidemiology staff to review all potential maternal death cases. Each case takes an average of 20 hours to fully abstract after the medical records are received, making the case review

process long and time-consuming. The MMRC meets quarterly to discuss case findings and make final case decisions, such as the determination of whether the death was pregnancy-related, whether it was preventable, what the factors were that contributed to the death, and what the recommendations and actions should be to address the contributing factors.

A total of 250 maternal death cases were reviewed for the 2012 through 2014 time period, of which 101 cases, or 40 percent, of the maternal deaths were determined to be pregnancy-related deaths. It is estimated that 62 of these pregnancy-related deaths, or approximately 60 percent, were preventable. These numbers equate to Georgia having a pregnancy-related maternal mortality ratio of 25.9 pregnancy-related deaths per 100,000 live births, which is high compared to the United States' national ratio of 17 pregnancy-related deaths per 100,000 live births for this same three-year time period.

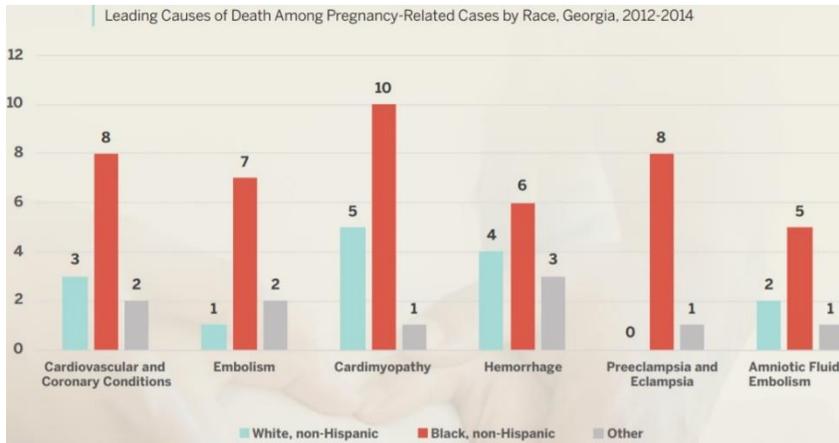
A significant variation found in Georgia's data is the difference in pregnancy-related mortality ratios when classifying the deaths by race. While the ratio for white, non-Hispanic women was 14.3 deaths per 100,000 live births, the ratio for black, non-Hispanic women was 47 deaths per 100,000 live births, which is three to four times higher. Variations in the ratios are also seen when classifying the pregnancy-related maternal deaths by age groups, with a ratio of 52.2 deaths per 100,000 live births for women over the age of 35, compared to 17.5 deaths per 100,000 live births for women under the age of 25.

The leading causes of pregnancy-related deaths in Georgia from 2012 to 2014 were cardiomyopathy, hemorrhage, cardiovascular and coronary conditions, embolism, preeclampsia and



Source: [Maternal Mortality Review Report, 2014](#)

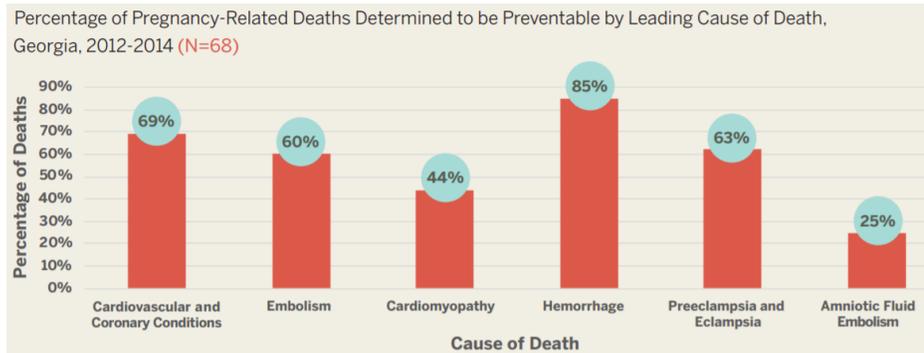
eclampsia, and amniotic fluid embolism. These causes accounted for 68 percent of the 101 pregnancy-related maternal deaths during this time period. Other causes of death during these years include: anesthesia complications; autoimmune disease; blood disorders; cerebrovascular accidents; conditions unique to pregnancy; homicide; infection; liver/gastrointestinal conditions; malignancies; mental health conditions; metabolic/endocrine conditions; pulmonary conditions; seizure disorder; and unintentional injury.



Source: Maternal Mortality Review Report, 2014

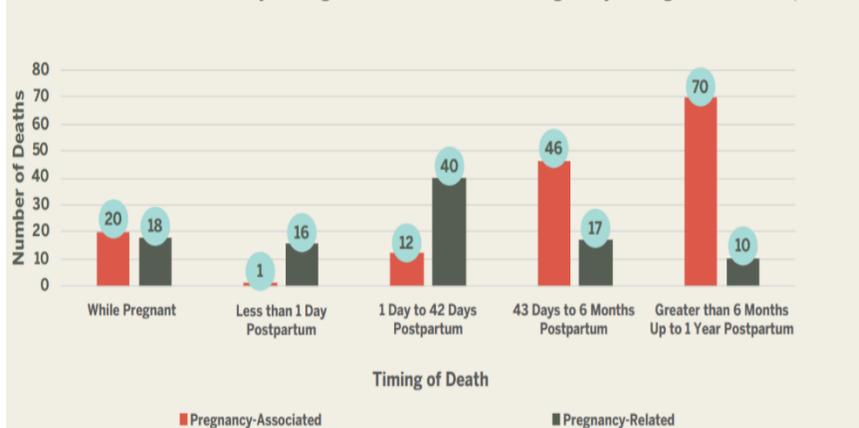
When breaking down the leading causes of pregnancy-related deaths by race for 2012 to 2014, disparity is seen between white, non-Hispanic women and black, non-Hispanic women, such as in the significantly higher rate of preeclampsia and eclampsia in black, non-Hispanic women.

The MMRC deemed that approximately 60 percent of the pregnancy-related deaths from 2012 to 2014 were preventable; however, this rate varies depending on the leading causes of death. While 11 of the 13 hemorrhaging deaths were deemed preventable, only two of the eight amniotic fluid embolism deaths were estimated to be preventable.



Source: Maternal Mortality Review Report, 2014

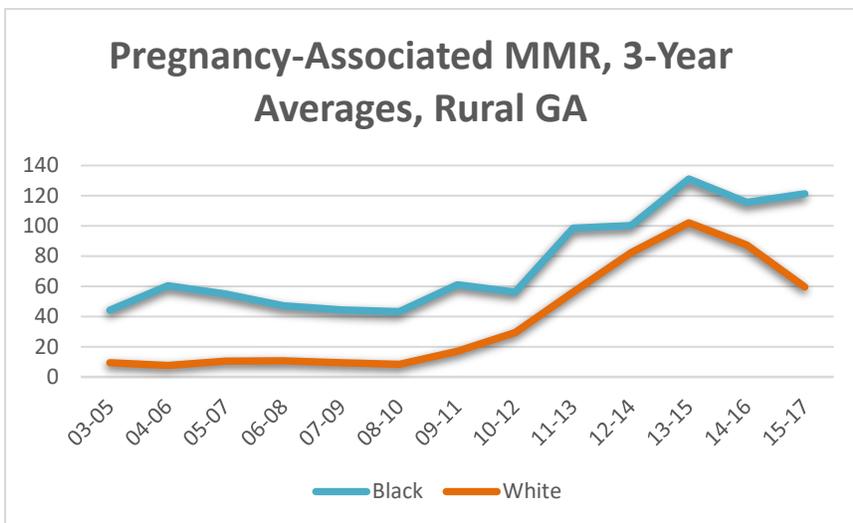
Number of Maternal Deaths by Timing of Death in Relation to Pregnancy, Georgia, 2012-2014 (N= 250)



Source: Maternal Mortality Review Report, 2014

When the data from 2012 to 2014 is broken down by the timing of the maternal death, from pregnancy up to a year postpartum, the breakdown shows that 73 percent of the pregnancy-related maternal deaths occurred either during pregnancy or in the first 42 days postpartum.

When looking at the data from a rural versus urban aspect, it is apparent that rural Georgia women have a significantly higher maternal mortality rate than women in urban Georgia. Rural African American women have double the maternal mortality rate of rural white women. Additionally,



rural African American women have a 30 percent higher maternal mortality rate compared to their urban African American counterparts, and rural white women have a 50 percent higher maternal mortality rate than their urban white counterparts. For these rural populations, the risk associated with demographics are layered, interconnected, and complex and relate back to the fundamental barriers to healthy outcomes that rural women face. These barriers include the availability of transportation, supportive organizations, and social services.

Access to care remains a central problem for rural women. A total of 93 rural counties have no hospital with a labor and delivery unit, two-thirds of rural births in Georgia occur outside of the mother’s home county, and there are no rural counties in the state with a maternal-fetal medicine specialist. These statistics represent direct barriers to rural women receiving prenatal care, high-risk obstetrics services, and postpartum care. With over 50 percent of the births in Georgia covered by Medicaid, limited postpartum Medicaid coverage is also an access-to-care issue. Right from the Start Medicaid pays for medical care for pregnant women until 60 days after they give birth; however, this does not cover all the needs of a pregnant woman postpartum. Additionally, social determinants of health, such as economic stability, education, social and community context, health care, and neighborhood environment, more heavily impact rural women and cause additional access-to-care issues.

Current Programs and Initiatives

AIM Bundles

The committee heard from numerous organizations and entities that are working around the state to lower Georgia’s maternal mortality rate. Many of these programs work in conjunction with one another to implement broad-reaching projects. An example of this is the Georgia Perinatal Quality Collaborative (GaPQC) and its partnership with DPH. GaPQC engages its stakeholders in implementing equitable, evidenced-based perinatal care through a robust data-

driven quality improvement collaborative, and the organization works with DPH to implement Alliance for Innovation in Maternal Health (AIM) bundles in Georgia. AIM bundles are sets of best practices for maternal care that include recommendations for hospital-based protocols, policies, practice charges, drills, and system of data tracking. Georgia became the thirteenth state to implement AIM bundles when it was awarded funding from the Centers for Disease Control and Prevention in 2017.

GaPQC launched the Obstetric Hemorrhage bundle in April 2018 and the Severe Hypertension in Pregnancy bundle in June 2019. As of September 2019, 62 Georgia hospitals are participating in the bundles, representing 80 percent of the birthing hospitals in Georgia and an impact on 87 percent of all Georgia births. Of these 62 hospitals, 44 hospitals are implementing the Obstetrical Hemorrhage bundle and 36 hospitals are implementing the Severe Hypertension in Pregnancy bundle. Additionally, 47 hospitals are implementing a Neonatal Abstinence Syndrome program. The participating hospitals are spread throughout the state, with the distribution shown in the following table.

Perinatal Region	Number of GaPQC Hospitals	Percent of Region*
Albany	5	71%
Atlanta	26	84%
Augusta	4	67%
Columbus	9	100%
Macon	11	100%
Savannah	7	64%

With supportive funding of \$2 million from the Georgia General Assembly, GaPQC also implemented a Rural Hospital Initiative to support smaller rural hospitals implement the AIM bundles. Currently, 16 rural hospitals are implementing the Obstetrical Hemorrhage bundle, 10 hospitals are implementing the Severe Hypertension in Pregnancy bundle, and 14 are implementing the Neonatal Abstinence Syndrome program.

University-Based Programs

A great deal of work is also being done by researchers and institutions across the state to address Georgia’s maternal mortality rate. The committee heard from Mercer University, Morehouse School of Medicine, the Medical College of Georgia at Augusta University, and Emory University about each institution’s programs.

Mercer School of Medicine has opened two rural health clinics, in Sumter County and Peach County, to provide quality primary care, behavioral health services, telehealth support, basic diagnostics, and women’s health services. A third clinic site will open at the beginning of 2020 in Clay County. Mercer is focusing on maternal mental health by providing mental health first aid courses to communities across Georgia at no charge. The university also houses the newly-

created Georgia Rural Health Innovation Center, which is focused on training, research, and data collection in order to directly address the health issues facing Georgia's rural areas.

Mercer University is beginning the South Georgia Healthy Start project, which is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services as part of a \$5.58 million grant. The goal of the project is to eliminate disparities in maternal and infant mortality in the following seven rural Georgia counties: Appling; Bulloch; Candler; Emanuel; Jenkins; Tattnall; and Toombs. The project will serve 700 people per year for up to three years and will support pregnant women and their families from pre-conception through 18 months postpartum, with a focus on clinical care, case management, health education, community engagement, workforce development, policy change, and research.

The Morehouse School of Medicine (MSM) is developing the Center of Excellence on Maternal Mortality, which was funded by the General Assembly in FY 2020 with \$500,000. The Center of Excellence's goal is to prevent maternal deaths by advancing scientific research, developing strategies, and instituting systematic changes through an integrated approach. The center will have three components to achieve this goal: research; training; and community engagement. MSM will be studying the disparities that exist between black and white women to understand the parallels between maternal outcomes and other non-maternal health risks. Furthermore, MSM will work to understand the social determinants of health that are at play, acknowledge and address unconscious biases, educate and train providers to increase cultural competency, and engage the community.

The Medical College of Georgia at Augusta University has been focusing its maternal health initiatives on health disparities, workforce, cardiovascular disease and obesity research, clinical care partnerships, and rural health partnerships and education. In 2016, with funding from the General Assembly, the Georgia Center for Obstetrics Re-Entry Program was started with the goal of alleviating obstetric care workforce shortages in Georgia by facilitating a re-entry option. Applicants to the program must: be OB/GYN or family practice board-certified; have an unrestricted Georgia license for medicine and surgery; and have voluntarily left the practice of obstetrics. Since 2016, the program has had seven participating physicians graduate the program and start delivering babies again in Georgia. Augusta University is also working with its rural partners to create a hub and spoke model for obstetric care, including partnerships with local family medicine physicians and county health departments. These programs allow for greater maternal health services as well as training opportunities for Augusta University's residents.

Emory University, in partnership with Grady Hospital in Atlanta, is responsible for a great deal of perinatal care and training. Emory has developed a Multidisciplinary Obstetrics Emergency

Simulation program to provide training at Grady. Additionally, Emory University has Georgia's only Certified Nurse Midwife (CNM) training program. The program has trained more than 400 CNMs, with many of these graduates remaining in Georgia. It is estimated that CNMs attend over 20 percent of vaginal deliveries in Georgia. With funding provided by the General Assembly in FY 2020, the university is also partnering with DPH to address perinatal mental health by providing a telepsychiatry line specifically for women who are currently pregnant or are within one year of delivery in order to treat symptoms as well as prevent the onset of known psychiatric illness during and after pregnancy.

Provider-Based Programs

Numerous providers and organizations testified to the committee about the work they are doing at hospitals and in communities to prevent maternal deaths in Georgia. An example of this is Women's Telehealth, a company based in Sandy Springs, Georgia that specializes in maternal-fetal medicine telehealth. The company's mission is to bring subspecialty high-risk obstetrics and women's services to patients and clients where needed through telehealth technologies. They provide maternal-fetal consultations, teleradiology ultrasounds, and long-distance learning programs for ultrasound and high-risk obstetrics care. Women's Telehealth is also partnering with DPH in Albany, Georgia to address Georgia's worst maternal and infant mortality areas through an innovative program that combines group prenatal care at the public health department with the telemedicine support.

Another program that presented to the committee is the Nurse-Family Partnership, which is an evidence-based, community health program targeted for new moms. The program has specially-trained nurses who regularly visit young, first-time moms-to-be, starting early in the pregnancy and continuing through the child's second birthday. The goals of the program are to improve pregnancy outcomes by helping women engage in good preventive health practices, improve child health and development by helping parents provide responsible and competent care, and improve the economic self-sufficiency of the family by helping parents develop a vision for their own future, plan future pregnancies, continue their education, and find work. Studies have shown this program's effectiveness in improving maternal health, finding that Nurse-Family Partnership results in 35 percent fewer cases of pregnancy-induced hypertension, 18 percent fewer pre-term births, a 79 percent reduction in pre-term delivery among women who smoke cigarettes, and a 31 percent reduction in subsequent pregnancies being spaced less than six months apart.

The committee learned about developing medical technology that can potentially reduce negative maternal outcomes in the delivery room. Gauss Surgical provided a demonstration of its FDA-cleared Triton technology, an artificial intelligence-enabled mobile application for monitoring surgical blood loss in real time. The application allows for real-time data, which

enables an early recognition of hemorrhaging. The technology can also reduce unnecessary blood transfusions, improve post-operation stability, and reduce the average length of stay in the hospital. Triton has been adopted by over 75 hospitals and used in 250,000 cases.

The committee also heard a large amount of educational testimony from providers in order to understand and dive deeper into the medical causes of maternal mortality. These presentations focused on the maternal health aspects of heart disease, preeclampsia, cardiomyopathy, stroke, hemorrhage, and maternal mental health and wellbeing. The innovative work being done in hospitals across the state will be a direct contributor to reducing Georgia's maternal mortality rate.

Committee Recommendations

Upon review of the information presented, the House Study Committee on Maternal Mortality recommends the following:

1. Extend Georgia's Medicaid coverage for eligible pregnant women to one-year postpartum to allow for continued access to health care services.
2. Pass legislation mandating a postmortem examination for any maternal death, defined as the death of a woman while pregnant or up to one year following pregnancy, to allow for the most accurate data for the Georgia Maternal Mortality Review Committee.
3. Encourage the Department of Public Health to develop a model for prenatal care in county health departments that includes prenatal and postpartum onsite care, as well as telehealth services.
4. Continue all support that the state is already funding, including the Maternal Mortality Review Committee, the Georgia Perinatal Quality Collaborative, the Maternal and Neonatal Center Designation program, implementation of the AIM bundles in Georgia's birthing hospitals, and the programs at the state's medical school and universities targeting maternal health outcomes.
5. Support and encourage the continued development of group prenatal care models across the state to provide increased access to prenatal care.
6. Support and encourage efforts to combat the obesity epidemic in Georgia, which contributes directly and indirectly to a broad range of co-morbid conditions that affect pregnancy outcomes, including hypertension and diabetes.
7. Support nurse or community health worker home visit programs for prenatal and postnatal care that provide education, home checks, and connection to resources.
8. Continue to fund and support innovative programs focused on increasing Georgia's rural healthcare workforce, including medical education programs at the state's medical schools and loan repayment programs.
9. Encourage the Department of Public Health and Georgia Gateway to look into simplifying and streamlining the process for eligible pregnant women on Georgia's Medicaid program to be enrolled in the Women, Infants, and Children (WIC) program.
10. Encourage continued research on racial disparity, social determinants of health, and genetics to further understand and prevent maternal mortality.
11. Expand telemedicine for specialty services, such as cardiology and psychiatry, by providing incentives that prevent telemedicine from being a money-loser for providers who want to set-up and maintain a telemedicine practice for treating pregnant and postpartum women.
12. Encourage postpartum access to long-acting reversible contraceptives (LARCs) at postpartum visits, if desired by the patient, and ensure adequate Medicaid reimbursement to allow providers to continue offering LARCs.
13. Support public health awareness campaigns focused on women's health, including: information on healthy pregnancy; pregnancy and postpartum warning signs of possible

complications; LARCs; vaccinations during pregnancy; and breastfeeding, as well as support health education in schools on basic health decisions and issues.

14. Strongly encourage all hospitals to have a hemorrhaging bundle cart and explore ways to assist small hospitals with the cost of training.
15. Encourage hospitals and medical societies to provide training for physicians, nurses, or any healthcare personnel on racial sensitivity.
16. Support the expansion and efficient functioning of emergency medical services (EMS) statewide in order to reduce the incidence of EMS delay or unavailability causing negative maternal outcomes.
17. Encourage and support the collection and analysis of pregnancy and postpartum data that can be used to inform and guide fiscal policy and program decisions at the state level.
18. Encourage hospitals and physicians to consider the use of FDA-regulated technology to monitor real time blood loss in deliveries to detect and avoid hemorrhages, which are a leading cause of preventable maternal mortality.
19. Evaluate and explore options for detailed death certificate reporting in order for more specific causes of death to be indicated.

Mr. Speaker, these are the findings and recommendations of the Study Committee on Maternal Mortality.

Respectfully Submitted,



**The Honorable Sharon Cooper,
Representative, 43rd District,
Co-Chairman**



**The Honorable Mark Newton,
Representative, 123rd District,
Co-Chairman**

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