GEORGIA PERINATAL QUALITY COLLABORATIVE

# Maternal Mortality and Social Determinates of Health


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Atlanta Gynecology & Obstetrics, Partner
Georgia Maternal Mortality Review Committee, Member
Decatur, GA

# Objectives

- Understand the mission and history of GA MMRC
  - Recognize significance of “preventability” of maternal deaths
  - Review implementation of key informant interviews

- Understand the causes of pregnancy-related deaths in Georgia

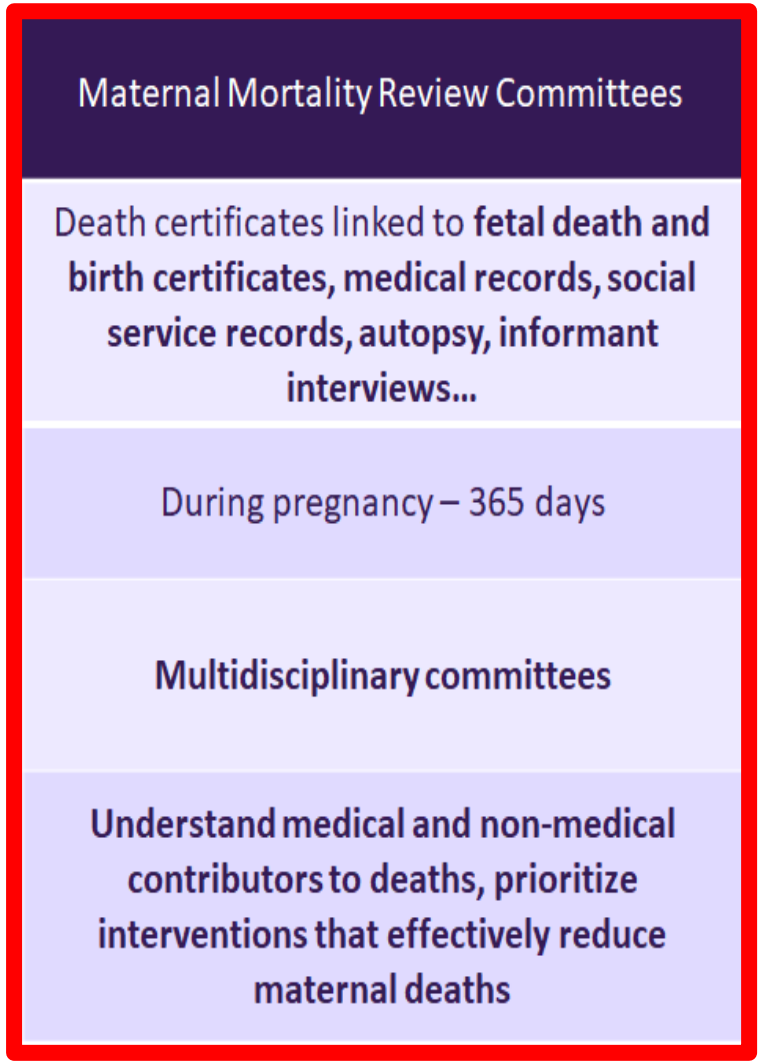
- Review  social determinants of health and how they impact pregnancy-related deaths

- Identify recommendations to prevent pregnancy-related deaths

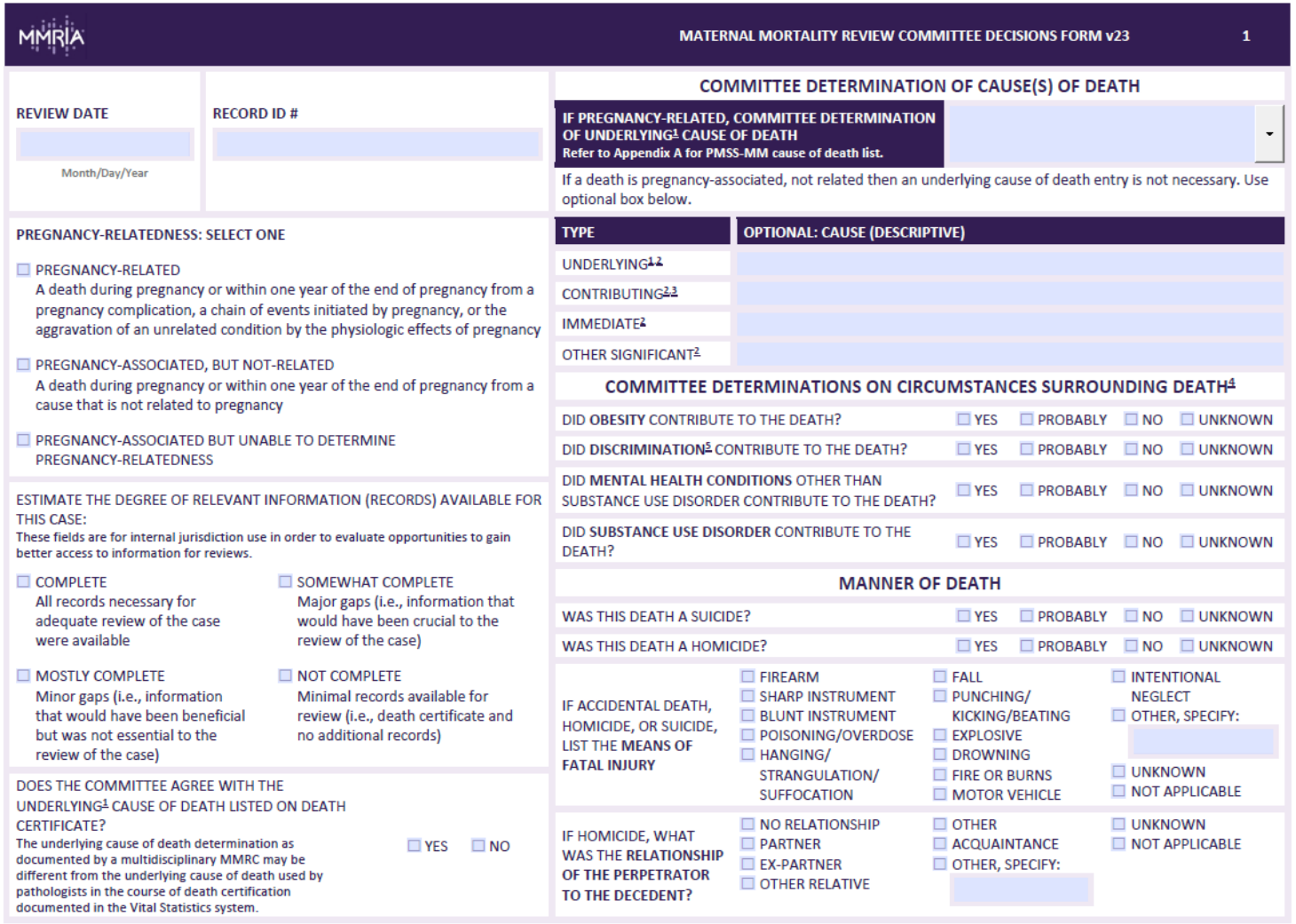
# Understand the mission and history of GA MMRC

# MMRC Overview

- Led by the Georgia Department of Public Health
- Established in 2012
  - Completed case review from 2012-2021
  - Key Informant Interviews implemented 2020 (with cases from 2017)
    - 64% of cases
- Committee Members
  - 30+ committee members
  - 40% nonclinical
  - Includes members representing communities disproportionately affected by pregnancy-related deaths



# Committee Decisions Form



MMRIA

MATERNAL MORTALITY REVIEW COMMITTEE DECISIONS FORM v23 1

REVIEW DATE

Month/Day/Year

RECORD ID #

PREGNANCY-RELATEDNESS: SELECT ONE

- ☐ PREGNANCY-RELATED
  A death during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy
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ESTIMATE THE DEGREE OF RELEVANT INFORMATION (RECORDS) AVAILABLE FOR THIS CASE:
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- ☐ COMPLETE
  All records necessary for adequate review of the case were available
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  Major gaps (i.e., information that would have been crucial to the review of the case)
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DOES THE COMMITTEE AGREE WITH THE UNDERLYING[1] CAUSE OF DEATH LISTED ON DEATH CERTIFICATE?
The underlying cause of death determination as documented by a multidisciplinary MMRC may be different from the underlying cause of death used by pathologists in the course of death certification documented in the Vital Statistics system.
☐ YES ☐ NO

## COMMITTEE DETERMINATION OF CAUSE(S) OF DEATH

**IF PREGNANCY-RELATED, COMMITTEE DETERMINATION OF UNDERLYING[1] CAUSE OF DEATH**
**Refer to Appendix A for PMSS-MM cause of death list.**

If a death is pregnancy-associated, not related then an underlying cause of death entry is not necessary. Use optional box below.

| TYPE | OPTIONAL: CAUSE (DESCRIPTIVE) |
|---|---|
| UNDERLYING[1,2] | |
| CONTRIBUTING[2,3] | |
| IMMEDIATE[2] | |
| OTHER SIGNIFICANT[2] | |

## COMMITTEE DETERMINATIONS ON CIRCUMSTANCES SURROUNDING DEATH[4]

| | | | | |
|---|---|---|---|---|
| DID **OBESITY** CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| DID **DISCRIMINATION**[5] CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| DID **MENTAL HEALTH CONDITIONS** OTHER THAN SUBSTANCE USE DISORDER CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| DID **SUBSTANCE USE DISORDER** CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |

## MANNER OF DEATH

| | | | | |
|---|---|---|---|---|
| WAS THIS DEATH A SUICIDE? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| WAS THIS DEATH A HOMICIDE? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |

IF ACCIDENTAL DEATH, HOMICIDE, OR SUICIDE, LIST THE **MEANS OF FATAL INJURY**

- ☐ FIREARM
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- ☐ FIRE OR BURNS
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- ☐ INTENTIONAL NEGLECT
- ☐ OTHER, SPECIFY:
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- ☐ NOT APPLICABLE

IF HOMICIDE, WHAT WAS THE **RELATIONSHIP OF THE PERPETRATOR TO THE DECEDENT?**

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- ☐ PARTNER
- ☐ EX-PARTNER
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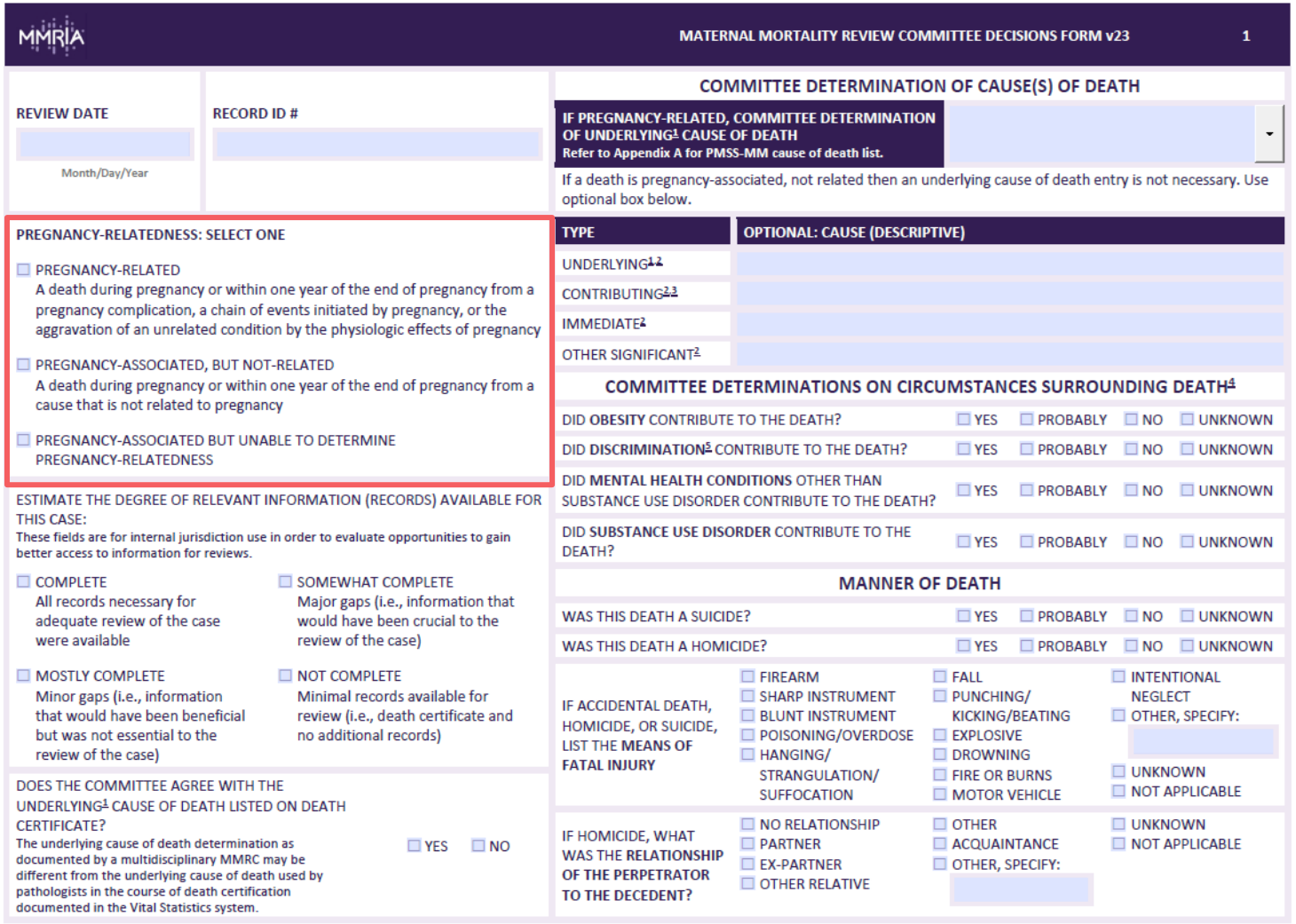

MMRIA

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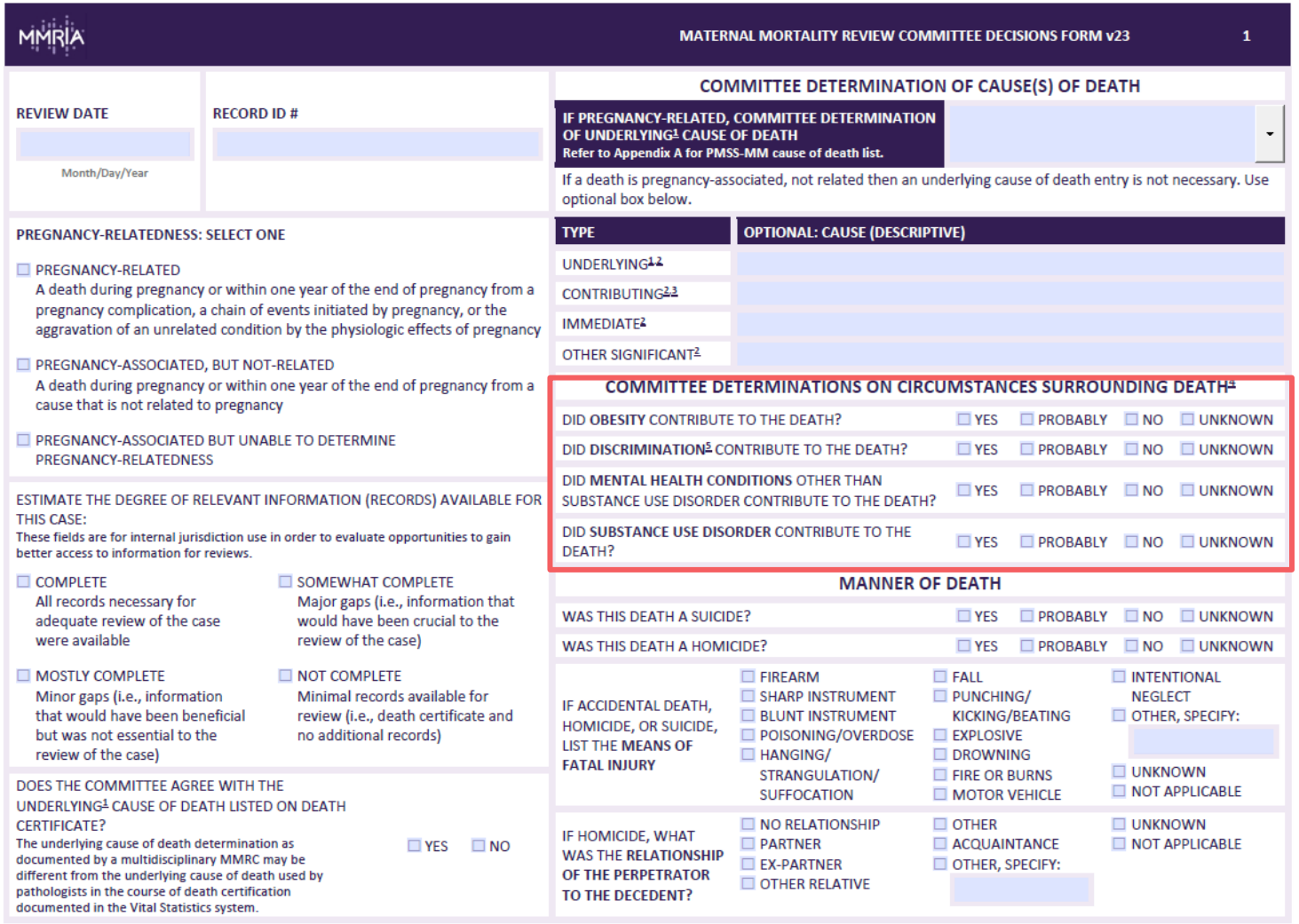

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# Value of Interviews in Maternal Deaths

| Filling information and gaps in records | Enhancing recommendations |
| --- | --- |
| Informants can provide the names of providers or agencies where services were received.<br><br>This facilities request and receipt of missing records and a more comprehensive MMRC case review. | Informants provide details on contributing factors and the chain of events leading up to a death.<br><br>Based on lived experience, they share what would have been helpful in preventing their loved one's death or in preventing future deaths. |

# Informant Feedback

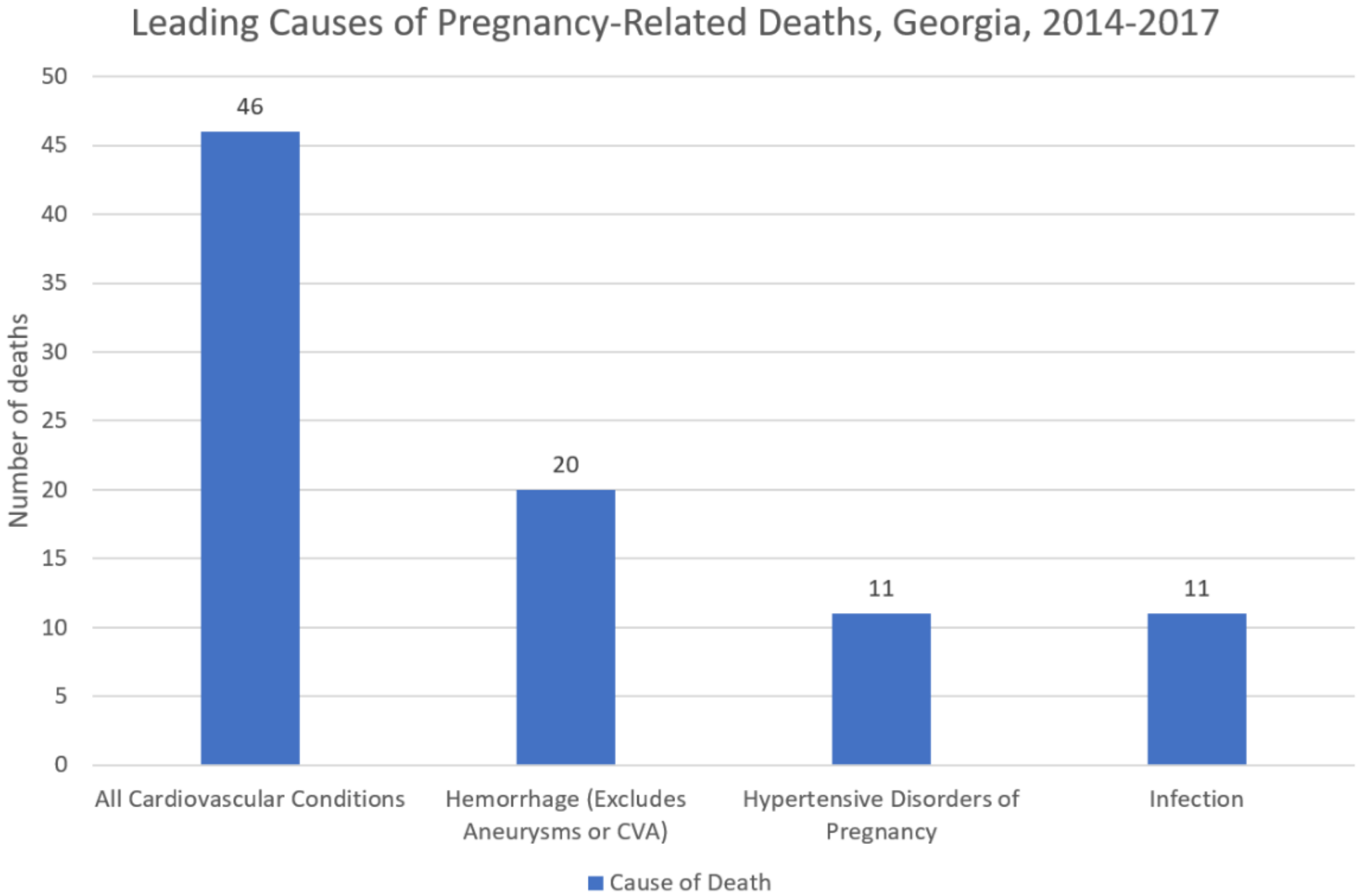
*"I can't even explain the happiness I felt when I received your letter and call. To finally know that even one person cares means so much."*

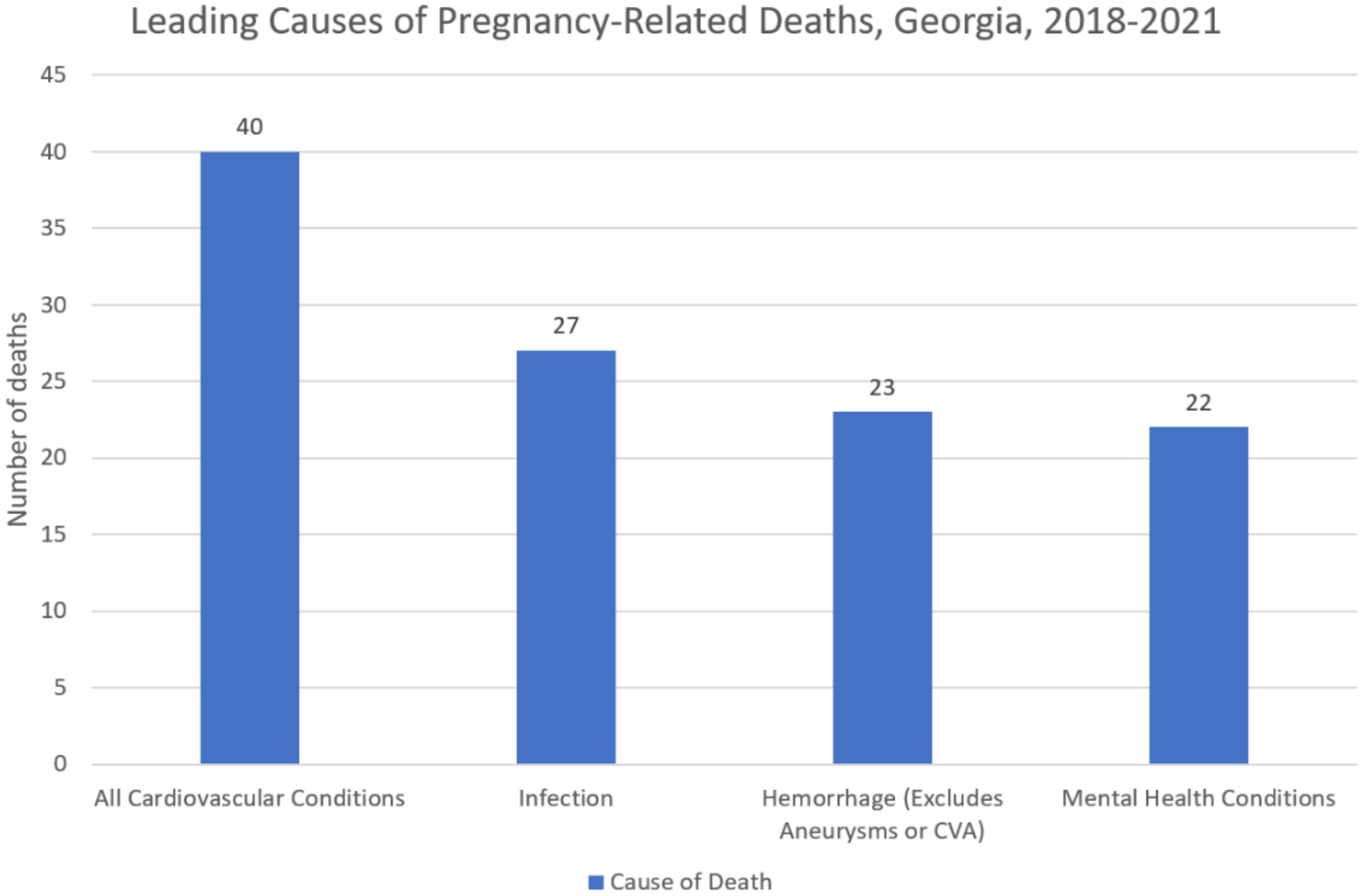
*"I want to tell you how much I appreciate being able to have this conversation. On behalf of my whole family, it's important for us to know that Georgia really does care."*

*"I am grateful for the opportunity to share her story if it can help other women and save lives."*

- Honors their loved one
- Instills a sense of purpose in their loss
- Empowers families
- Educates families and communities on maternal mortality
- Provides linkage to needed community resources

# Understand the causes of pregnancy-related deaths in Georgia


Leading Causes of Pregnancy-Related Deaths, Georgia, 2014-2017
Number of deaths
50
45
40
35
30
25
20
15
10
5
0
46
20
11
11
All Cardiovascular Conditions
Hemorrhage (Excludes Aneurysms or CVA)
Hypertensive Disorders of Pregnancy
Infection
Cause of Death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Mental Health Conditions
Cause of Death

Review  social determinants of health and how they impact pregnancy-related deaths

Identify recommendations to prevent pregnancy-related deaths


Neighborhood and Built Environment
Health Care and Quality
Social and Community Context
Education Access and Quality
Economic Stability

# Case Studies

# Leia: Background

29-year-old G3 P2002 with a history of two 2 vaginal deliveries (2020, 2023). Her delivery in 2023 was complicated by preeclampsia and she was induced at 37 weeks. Her past medical history was significant for Hypertension (no current medications), Obesity (weight: 210lbs, height: 5'6, BMI: 33.9), and Asthma (rare inhaler use).

She entered prenatal care at 10 weeks gestation and was referred to Maternal Fetal Medicine. She had a total of 8 prenatal care visits at an office with OBs and CNMs but missed at least 2 appointments.

- Baseline preeclampsia labs were ordered at her first prenatal visit and were normal along with all routine prenatal labs.
- At most of her visits after 24 weeks she reported shortness of breath with activity and her prenatal providers documented counseling her on asthma symptoms, prescribed daily asthma medications, and gave her information on danger signs for preeclampsia.

At 34 weeks she presented to Labor & Delivery reporting severe swelling of her legs over the last two days and shortness of breath with activity. BP 138/88, HR 105, Oxygen Saturation 96%. Fetal monitoring was normal, and she was screened for deep vein thrombosis. All imaging results were normal. EKG showed mild tachycardia and "non-specific T-wave abnormalities". No cardiac labs are documented for this visit. She was discharged home with Preeclampsia counseling.

At her 36-week visit her blood pressure was 160/110 and she gained 6 pounds. She reported a headache and chest pain over the previous two days. She was sent directly to Labor & Delivery at a Level II facility for induction of labor.

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She entered prenatal care at 10 weeks gestation and was referred to Maternal Fetal Medicine. She had a total of 8 prenatal care visits at an office with OBs and CNMs but missed at least 2 appointments.

- **Baseline preeclampsia labs** were ordered at her first prenatal visit and were normal along with all routine prenatal labs.
- At most of her visits after 24 weeks she reported **shortness of breath** with activity and her prenatal providers documented counseling her on asthma symptoms, prescribed daily asthma medications, and gave her information on **danger signs for preeclampsia.**

At **34 weeks** she presented to Labor & Delivery reporting **severe swelling of her legs over the last two days and shortness of breath with activity.** BP 138/88, HR 105, Oxygen Saturation 96%. Fetal monitoring was normal, and she was screened for deep vein thrombosis. All imaging results were normal. EKG showed mild tachycardia and "non-specific T-wave abnormalities". No cardiac labs are documented for this visit. She was discharged home with **Preeclampsia counseling**.

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# Leia: Delivery & Postpartum

When she was admitted for her induction, her BP was 150/90. Her bloodwork showed elevated liver enzymes and low platelets. She had a Pitocin induction and delivered a 6lb 8oz infant within 12 hours of her admission via uncomplicated vaginal delivery.

A few hours postpartum she reported chest pain, and her BP was documented as 170/110. She was treated with oral blood pressure medication, and it was documented her pain improved.

For the rest of her admission, she continued to report mild chest pain rated 4-5/10, shortness of breath, and dry cough. COVID-19 screening was negative and she did not show signs of a fever. Her blood pressures ranged 130s-140s/90s. Her discharge prescriptions included Labetalol 100mg daily (for blood pressure). She was instructed to follow up for a blood pressure check in 1 week.

On Postpartum Day 6 her family called an ambulance after she collapsed at home. She was transported in cardiac arrest,  intubated in the Emergency Room, and placed on a ventilator.  Cardiac labs were ordered and her B-type Natriuretic Peptide (BNP), was found to be 1,500 micrograms/mL.  Echocardiogram was performed showing her left ventricle was enlarged, and her left ventricular ejection-fraction was noted to be 20-25%.  She began to exhibit signs of neurologic injury from her resuscitation, including brain swelling on CT.

Her family was counseled on her poor prognosis and made the decision to make her do not resuscitate. Her death was declared around *10:00am* on Postpartum Day 8 with her extended family at her bedside.

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# Leia: Narrative with Key Informant Interview

Leia was a 29-year-old mother of 2 young children (ages 4 and 1). Her partner described her as a quiet person who loved to cook and care for others. She had an associate degree and worked as a caregiver for seniors. Her partner worked nights, they shared one car, and they were struggling financially. They had limited resources in place in their rural community.

Leia's medical history included high blood pressure (no current medications), obesity (weight: 210lbs, height: 5'6, BMI: 33.9), and asthma (rare inhaler use). During her pregnancy with her second child, she had developed preeclampsia, and her labor was induced at 37 weeks. Her 4-year-old child was being evaluated for autism and required multiple visits to a distant regional center.

According to her partner, she was often worried about how to balance taking care of her children and her own needs. He stated she was always juggling work and appointments and often snacked and ate prepackaged foods to save time. Because finances were challenging, she did not buy fresh fruits or vegetables.

She was surprised when she became pregnant 18 months after her 2nd child was born as she did not intend to have more children.

She entered prenatal care at 10 weeks gestation and was referred to Maternal Fetal Medicine. She had a total of 8 prenatal care visits at an office with OBs and CNMs but missed at least 2 appointments. Baseline preeclampsia labs were ordered at her first prenatal visit and were normal along with all routine prenatal labs.

At most of her visits after 24 weeks she reported shortness of breath with activity and her prenatal providers documented counseling her on asthma symptoms, prescribed daily asthma medications, and gave her information on danger signs for preeclampsia.

At 34 weeks she presented to Labor & Delivery reporting severe swelling of her legs over the last two days and shortness of breath with activity. She stated that over the last week she always had to pause when climbing the stairs to her children's bedrooms and could no longer carry a laundry basket into her living room without becoming short of breath. BP 138/88, HR 105, Oxygen Saturation 96%. Fetal monitoring was normal, and she was screened for deep vein thrombosis. All imaging results were normal. EKG showed mild tachycardia and "non-specific T-wave abnormalities". No cardiac labs are documented for this visit. She was discharged home with Preeclampsia counseling.

Her partner stated he was very worried and felt that her concerns were being dismissed. He encouraged to see a different provider but stated she did not want to travel out of the area and her current OB was closest to their home.

At her 36-week visit her blood pressure was 160/110 and she gained another 6 pounds. She reported a headache and chest pain over the previous two days but according to her partner she waited for her regular visit versus going to the hospital due to lack of childcare. She was sent directly to Labor & Delivery for induction of labor.

# Leia: Narrative with Key Informant Interview

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At 34 weeks she presented to Labor & Delivery reporting severe swelling of her legs over the last two days and shortness of breath with activity. She stated that over the last week she always had to pause when climbing the stairs to her children's bedrooms and could no longer carry a laundry basket into her living room without becoming short of breath. BP 138/88, HR 105, Oxygen Saturation 96%. Fetal monitoring was normal, and she was screened for deep vein thrombosis. All imaging results were normal. EKG showed mild tachycardia and "non-specific T-wave abnormalities". No cardiac labs are documented for this visit. She was discharged home with Preeclampsia counseling.

Her partner stated he was very worried and **felt that her concerns were being dismissed**. He encouraged to see a different provider but stated she did not want to travel out of the area and her current OB was **closest to their home.**

At her 36-week visit her blood pressure was 160/110 and she gained another 6 pounds. She reported a headache and chest pain over the previous two days but according to her partner **she waited for her regular visit versus going to the hospital due to lack of childcare.** She was sent directly to Labor & Delivery for induction of labor.

# Leia: Delivery & Postpartum Narrative with Key Informant Information

When admitted for induction, her BP was 150/90. Her bloodwork showed elevated liver enzymes and low Platelets. A Pitocin induction was started, and she delivered a 6lb 8oz infant within 12 hours of her admission via uncomplicated vaginal delivery.

A few hours postpartum she reported chest pain, and her BP was documented as 170/110. She was treated with oral blood pressure medication, and it was documented her pain improved.

For the rest of her admission, she continued to report mild chest pain rated 4-5/10, shortness of breath, and dry cough. COVID-19 screening was negative and she did not show signs of a fever. Her blood pressures ranged 130s-140s/90s. Her discharge prescriptions included Labetalol 100mg daily (for blood pressure). She was instructed to follow up for a blood pressure check in 1 week.

On Postpartum Day 6 her partner called an ambulance after she collapsed at home. She was transported in cardiac arrest,  intubated in the Emergency Room, and placed on a ventilator.  Cardiac labs were ordered and her B-type Natriuretic Peptide (BNP), was found to be 1,500 micrograms/mL. Echocardiogram was performed showing her left ventricle was enlarged, and her left ventricular ejection-fraction was noted to be 20-25%.  She began to exhibit signs of neurologic injury from her resuscitation, including brain swelling on CT.

Her partner shared that lack of transportation, childcare, and difficulty getting time off work made it difficult for Leia to attend all her prenatal care appointments and make trips to the hospital when she was not feeling well.  He believes her complaints were ignored and she would have benefited from access to more healthcare providers/facilities.  He stated there also needs to be more public education on warning signs about heart disease for women that would encourage them to take care

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# PEACH

## Pregnant and Postpartum Heart Disease Warning Signs

GaPQC
GEORGIA PERINATAL QUALITY COLLABORATIVE

**P** alpitations
Heart beating too fast or skipping beats

**E** dema
Swelling in your hands or feet

**A** bnormal Breathing
Hard time catching your breath

**C** hest Pains

**H** igh Blood Pressure

Georgia cares about the heart health of pregnant and postpartum people. Look out for the **PEACH** heart warning signs that something might be seriously wrong.

Pregnancy can impact your heart health for up to a year after the pregnancy ends. Not all doctors will know that you were pregnant. Remember to say ***"I was pregnant this past year and now I am having..."***

Use this QR code to get more information about heart health warning signs.

# Sabine: Background and Delivery

24-year-old G2 P0101. Her Obstetric history was significant for a c-section delivery at 28 weeks for PPROM. She had no significant medical history, but record review noted she had a history of depression prior to her sentinel pregnancy. She had no surgical history noted other than her c-section. She was on no documented daily medications other than prenatal vitamins in her pregnancy.

She entered prenatal care at 16 weeks gestation at an OB clinic. She was referred to a Maternal-Fetal Medicine practice at her first visit for her history of preterm delivery and had 3 visits there. She had a total of 5 Prenatal visits during her pregnancy with missed visits at 24, 32, and 34 weeks. All vital signs, imaging, and labs (including an initial urine drug screening) were normal during her prenatal care.

At 36 weeks she arrived to a Level II hospital reporting painful contractions and was found to be in labor. She delivered a 2299g (5#1) infant by repeat c-section under epidural anesthesia and her postpartum recovery was uncomplicated.  She was discharged on postpartum day 2.

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# Sabine: Postpartum

At her 2-week postpartum visit she reported feeling “very stressed” caring for her 2-year-old and newborn and managing her physical pain from her cesarean.  Her Edinburgh Postnatal Depression Screen (EPDS) score was 17 and she was offered a prescription for Zoloft, which she declined (reason not documented). She requested a refill on her pain medication, but this was not given. She was instructed to return to the office in 4 weeks (not kept).

*She had no further documented healthcare encounters after this visit.

At 5 months postpartum, she was found unresponsive by an acquaintance at a mutual friend’s home. EMS was called and she was pronounced dead at the scene. Toxicology found that she had a fatal blood level of Fentanyl and Methamphetamine.

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Sabine was a 24-year-old woman who was described by her sister as “kind, loving, and an extremely hard worker”. She was the mother of a 2-year-old that had been born at 28 weeks via c-section due to her water breaking prematurely. She was a single mom who had recently moved to Georgia to be closer to family for support getting her first child to frequent medical and physical therapy visits. She worked in retail and had her own apartment and transportation.

Her medical history was uncomplicated, but record review noted she had a history of depression prior to her sentinel pregnancy. She had no surgical history noted other than her c-section. She was on no documented daily medications other than prenatal vitamins in her pregnancy.

Her sister reported that the sentinel pregnancy was a “shock” to her, and she contemplated termination. She knew that her sister was overwhelmed by caring for her older child and did not want more children. Her sister reported that she had struggled with depression “most of her

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Her sister reported that the sentinel pregnancy was a "shock" to her, and she contemplated termination. She knew that her sister was **overwhelmed** by caring for her older child and did not want more children. Her sister reported that she had **struggled with depression "most of her life"** due to a history of sexual abuse and a traumatic car accident when she was a teenager. After the accident, **she overused her prescription pain medication,** and she **completed a treatment program** when she was 19.

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Her sister shared that she was "overwhelmed" after her delivery. She expressed feelings of regret about the baby, and believed she was a bad mom. Family members encouraged her to seek out counseling, but there were no therapists accepting Medicaid in her area and the waitlist for teletherapy was 6 weeks.

Her family became increasingly concerned when her children began to miss scheduled medical appointments. Her sister decided to take the children for a few weeks to given her a break.

Her sister stated that "everything went downhill after that". She distanced herself from family and they suspected she had begun using "taking pills" again.

Her family encouraged her to visit her children and to get help. Her sister convinced her to go to a Level II ED to and "to find help". She was assessed and discharged with the recommendation to find outpatient drug treatment. Her family attempted to call several locations on a list they had been given by ED staff, but each had extensive waiting lists or did not take her insurance.

At 5 months postpartum, she was found unresponsive by an acquaintance at a mutual friend's home. EMS was called and she was pronounced dead at the scene. Toxicology found that she had a fatal blood level of Fentanyl and Methamphetamine.

Her sister stated that she feels her death could have been prevented if her family had better guidance about how to help her find treatment. They felt "on their own" with trying to find accessible programs to treat her substance use and depression.

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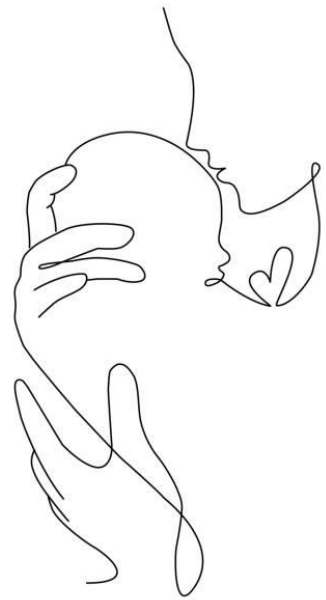
# Value of Interviews in Mental Health-Related Deaths

| Filling information and gaps in records | Capturing the decedent's feelings and experiences | Enhancing recommendations |
|---|---|---|
| Informants can provide the names of mental health providers or agencies where services were received.<br><br>This facilities request and receipt of missing records and a more comprehensive MMRC case review. | Informants speak directly about the decedent's thoughts and feelings prior to, during, or after pregnancy.<br><br>Knowledge of specific statements or actions of a decedent can assist the MMRC in determining whether the death was pregnancy related. | Informants provide details on contributing factors and the chain of events leading up to a death.<br><br>Based on lived experience, they share what would have been helpful in preventing their loved one's death or in preventing future deaths. |



# THANK YOU