

**Fetal and Infant Mortality Review
(FIMR) Project**

**2021 Annual
Deliberations Report**

*A Publication to Review Infant and Fetal Outcomes
Related to Mortality in Leon and Wakulla Counties
Publication Date: August 26, 2022*





Florida Healthy Start

Capital Area Healthy Start Coalition

The Capital Area Healthy Start Coalition (CAHSC) is dedicated to reducing fetal and infant mortality in Leon and Wakulla counties. This mission requires knowing what factors contribute to those heart-breaking outcomes and working hard to mitigate or eliminate them.

The CAHSC facilitates the Capital Area Fetal and Infant Mortality Review (FIMR) Project to identify factors that contribute to our fetal and infant losses in Leon and Wakulla counties. This publication is a compilation and review of 30 cases of fetal and infant deaths reviewed by the FIMR Project as well as some local data on all infant and fetal deaths that occurred in 2021. In 2021, there were 34 infant deaths and 26 fetal deaths in Leon and Wakulla counties. At the time of this publication, data for the State was not available. As this data does become available, a supplemental report will be made available.

While FIMR is a national model, its local success is largely determined by community members who volunteer their time to serve on the local FIMR Case Review Team. The Team has an arduous task of reviewing cases to highlight strengths and challenges while also recommending changes we can make in our community to improve maternal, child, and infant health outcomes. This group is made up of healthcare, social service, academic, government, and community representatives to whom we owe a great deal of gratitude.

The infant mortality rate is a reflection of the overall health of a community. High infant mortality equates to an unhealthy community. The knowledge gained through the FIMR process helps CAHSC focus its resources and efforts to reduce fetal and infant mortality in our local area. We aim to serve the community by using these tragic experiences to improve maternal and child health policies and practices.



*Monica Hayes
President, Board of Directors*



*Chris Szorcsik
Executive Director, CAHSC*



Florida Healthy Start

Capital Area Healthy Start Coalition

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The Capital Area Fetal and Infant Mortality Review (FIMR) Project is dedicated to reducing fetal and infant mortality rates in Leon and Wakulla counties. Fetal mortality, or stillbirth, is defined as the death of an unborn infant that occurs during or after 20 weeks of gestation. Fetal losses that occur prior to 20 weeks are termed as a miscarriage and are not tracked in Florida. In the United States, the definition of a fetal death is expanded to include the absence of breathing, heart rate, pulsation of the umbilical cord, or clear movements of the voluntary muscles at delivery. Infant mortality is the death of an infant who is born alive but dies before their 1st birthday regardless of gestational age at birth.

The infant mortality rate is a reflection of the overall health of a community. High infant mortality equates to an unhealthy community. FIMR is a community-based effort aimed at addressing factors and issues that affect infant mortality and morbidity. The objectives are to examine the significant social, economic, cultural, environmental, and health systems factors associated with fetal and infant mortality through a review of records. It is important to remember that the purpose of the review is not to find fault but to discover patterns of contributing factors and to develop strategies for system and community changes.

The FIMR Process

Fetal or Infant Death: The process begins with the death of a fetus 20 weeks gestation or older or an infant up to 364 days of age. Birth and death certificates are picked up from the Leon County Department of Vital Statistics for the two counties in the FIMR project.

Case Selection: FIMR cases are chosen based on an established set of criteria. SUID (Sudden Unexplained Infant Death), sleeping-related deaths, and cases in which a mother provides an interview are selected first. All other cases are selected using a randomized system.

Data Abstraction: All available medical, hospital, public health, and case management records are reviewed. Autopsy reports, law enforcement records, and EMS records are also reviewed when applicable.

Maternal Interviews: A voluntary interview may be conducted with the mother who has experienced the loss. All mothers are offered an interview.

The Case Review Team (CRT): The CRT is composed of healthcare professionals and community representatives who volunteer their time to meet and review the summaries of the cases that have been selected. The CRT meets ten times a year and deliberates three cases at each meeting. The CRT is looking for the following:

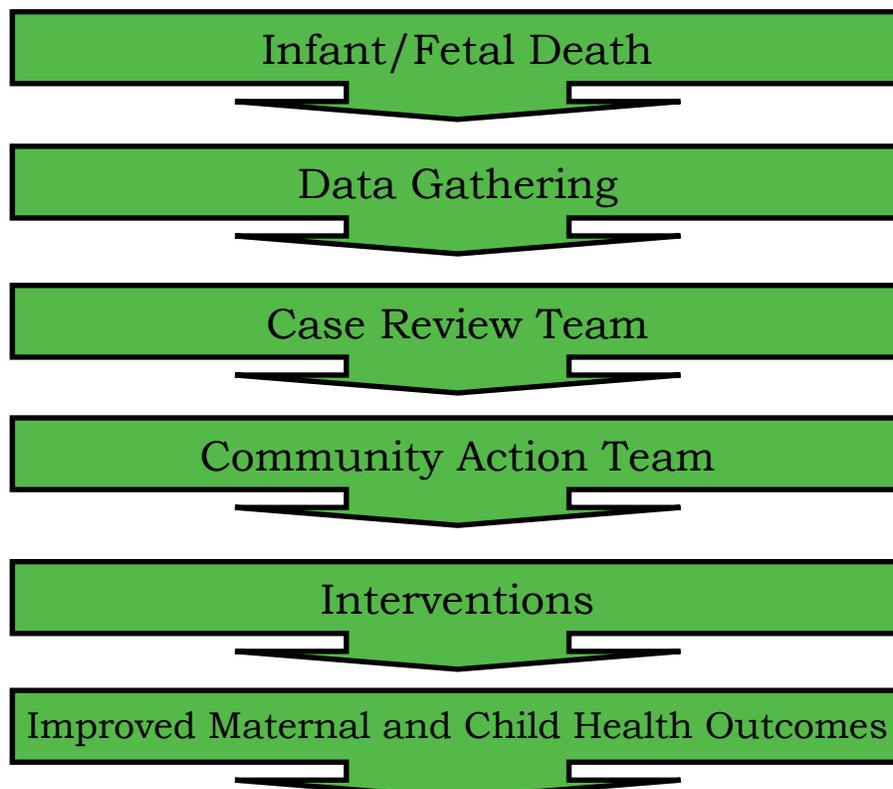
1. *What were this mother's/infant's needs? (social, emotional, cultural, economic, medical)*
2. *What were notable positive elements? (demographic, behavioral, environmental)*
3. *Which of this mother's/ infant's needs were met and which were not met?*

Consider the following:

- ◆ *Challenges faced by the mother/infant*
- ◆ *Systems level challenges*
- ◆ *Circumstantial barriers*

4. *What could have been done differently for this mother/infant?*

Using these guidelines, the team identifies any issues that may have contributed to the poor pregnancy outcome and makes suggestions for interventions to forward to the Community Action Team (CAT). The CAT then reviews the recommendations and selects issues to focus on and address for the upcoming year.





Definitions of Medical Terms Used in Report

Related to Fetal and Infant Deaths

Abruptio Placenta - a premature separation of the placenta from the uterus¹

Accelerated Villous Maturation - premature formation of terminal villi which are an extension of the placental membranes and aid in the passage of fluid and nutrients to the fetus^{4,5}

Acute Pulmonary Hemorrhage - a potentially life-threatening condition involving bleeding from the upper respiratory tract or the endotracheal tube^{8,9}

Anhydramnios – a complete or near-complete lack of amniotic fluid surrounding a fetus⁸

Anencephaly - a serious birth defect in which a baby is born without parts of the brain and skull⁶

Bradycardia - a slow heart rate with less than 60 beats per minute²

Chorioamnionitis – a serious condition in pregnant women in which the membranes that surround the fetus and the amniotic fluid are infected by bacteria³

Coarctation of aorta – a heart defect that causes narrowing of the aorta. The aorta is the artery that carries oxygen-rich blood away from the heart and on to other arteries that distribute it throughout the body²

Hydrops Fetalis - a condition in which abnormal amounts of amniotic fluid build-up in various parts of the body because of heart problems³

Hypoxic Ischemic Injury – a brain injury that happens as a result of a heart attack where oxygen is not reaching the brain ²

Hypoxic Respiratory Failure - low levels of oxygen in the body tissues that results in difficulty breathing and organs shutting down ³

Intrauterine Fetal Demise (IUFD) – medical term for stillbirth, or a baby that dies in utero at 20 weeks gestation or later⁷

Spontaneous Rupture of Membranes – another term for “water breaking” on its own ²

Tight nuchal cord - the term for when the umbilical cord is wrapped around the neck⁶

Preterm Premature Rupture of Membranes - “water breaking” (amniotic sac ruptures) before the baby is full term ^{2,3}

Pulmonary Hypoplasia - a life threatening condition at birth characterized by diaphragmatic hernia and fetal lungs that are too small for babies to breathe on their own²



Medical Conditions of Mothers

Antiphospholipid Syndrome (APS) - An autoimmune disorder in which the immune system mistakenly produces antibodies and attacks the normal proteins in the blood. This results in an increased risk of blood clots in legs, kidneys, lungs, and brain.¹

Bacterial Vaginosis - a condition resulting from an overgrowth of bacteria in the vagina. This causes vaginal discharge with foul smell and itching¹

Deep Vein Thrombosis (DVT) - occurs when a blood clot (thrombus) forms in one or more of the deep veins in the body, usually in the legs²

Group B Strep - a common bacterium often carried in the intestines or lower genital tract. The bacterium is usually harmless in healthy adults. In newborns, however, it can cause a serious illness known as group B strep disease²

Hyperemesis - nausea and vomiting in pregnancy with severe symptoms that may cause severe dehydration or result in the loss of more than 5% of pre-pregnancy body weight²

Incompetent Cervix – when the cervix begins to open too early in pregnancy³

Leukocytosis – another term for high white blood cell count. A high white blood cell count is an increase in disease-fighting cells in the blood²

Myocardial Infarction – another term for heart attack. A heart attack occurs when the flow of blood to the heart is severely reduced or blocked²

Pancreatitis - inflammation of the pancreas. The pancreas is a long, flat gland that sits tucked behind the stomach in the upper abdomen. The pancreas produces enzymes that help digestion and hormones that help regulate the way your body processes sugar (glucose)²

Polycystic Ovary Syndrome (PCOS) - a common hormonal disorder that affects ovaries in women during childbearing years. This results in irregular menstrual cycles¹

Preeclampsia - a condition that develops in pregnant women, it is marked by high blood pressure and the presence of proteins in urine¹

Thoracic Dissection - a tear in the inner layer of the aorta, the large blood vessel of the heart. This may cause severe chest pain and upper back pain. It is an emergency condition and may mimic other heart diseases¹

Ulcerative Colitis - an inflammatory bowel disease (IBD) that causes inflammation and ulcers (sores) in the digestive tract²

Sources cited: 1. Focus Medica 2. Mayo Clinic 3. Cleveland Clinic 4. Merriam Webster 5. Wiley Online Library 6. Centers for Disease Control and Prevention 7. American College of Obstetricians and Gynecologists 8. National Library of Medicine 9. University of California San Francisco

Primary Cause of Infant and Fetal Deaths 2021

FIMR Cases Reviewed – 30

Primary Cause of Death	
Infant Deaths - 19	Number
Severe Prematurity – 17 weeks (1), 20 weeks (3), 22 weeks (1), 24 weeks (1)	6
Premature Rupture of Membranes (2), Preterm Premature Rupture of Membranes (1)	3
Unsafe sleep — Sudden Unexpected Infant Death (SUID) while sleeping in an unsafe environment (1), Positional asphyxiation while bed-sharing (1)	2
Anencephaly	1
Cardiopulmonary Arrest	1
Drowning	1
Terminal Bradycardia due to Hydrops Fetalis	1
Respiratory Arrest	1
Hypoxic Respiratory Failure	1
Hypoxic Ischemic Injury	1
Acute Pulmonary Hemorrhage	1



Data source for pages 8-11 Fetal and infant death certificates

Primary Cause of Infant and Fetal Deaths 2021

FIMR Cases Reviewed – 30

Primary Cause of Death	
Fetal Deaths - 11	Number
Complications of placenta, cord, membranes: Abruption Placenta (2), Chorioamnionitis (1)	3
Complications of placenta, cord, membranes: Abruption Placenta; Fetal Anomaly: Anencephaly	1
Complications of placenta, cord, membranes: Abruption Placenta; Fetal Injury: Motor Vehicle Accident/Blunt force abdominal trauma of mother	1
Fetal Anomaly: Coarctation of Aorta and single kidney	1
Maternal conditions/diseases: Pre-eclampsia with severe features	1
Maternal conditions/diseases: Hepatitis C	1
Maternal conditions/diseases: Hypothyroidism; Complications of placenta, cord, membranes: true knot in cord	1
Maternal conditions/diseases: COVID-19 positive 10 days prior to onset of labor; Complications of placenta, cord, membranes: Chorioamnionitis	1
Maternal conditions/diseases: Hyperemesis, Deep Vein Thrombosis; Complications of placenta, cord, membranes: Accelerated Villous Maturation	1





Primary Cause of Infant and Fetal Deaths 2021

All Cases—60 (cases reviewed and not reviewed)

Primary Cause of Death	
Infant Deaths - 34	Number
Severe Prematurity - 17 weeks (1), 18 weeks (1), 20 weeks (3), 22 weeks (1), 23 weeks (1), 24 weeks (1)	8
Respiratory Failure	4
Preterm Premature Rupture of Membranes (1), Premature Rupture of Membranes (2)	3
Withdrawal of Intensive Care (1), Withdrawal of Life Support (1)	2
Unsafe sleep — Sudden Unexpected Infant Death (SUID) while sleeping in an unsafe environment (1), Positional asphyxiation while bed-sharing (1)	2
Hydrops Fetalis	2
Cardiopulmonary Arrest	2
Spontaneous Rupture of Membranes	1
Non-viable gestational age at time of spontaneous delivery	1
Multiple Congenital Anomalies	1
Chronic Lung Disease	1
Failure to Thrive	1
Pulmonary Hypoplasia	1
Drowning	1
Septic Shock	1
Acute Pulmonary Hemorrhage	1
Hypoxic Ischemic Injury	1
Anencephaly	1

Data source for pages 8-11 Fetal and infant death certificates



Primary Cause of Infant and Fetal Deaths 2021

All Cases—60 (cases reviewed and not reviewed)

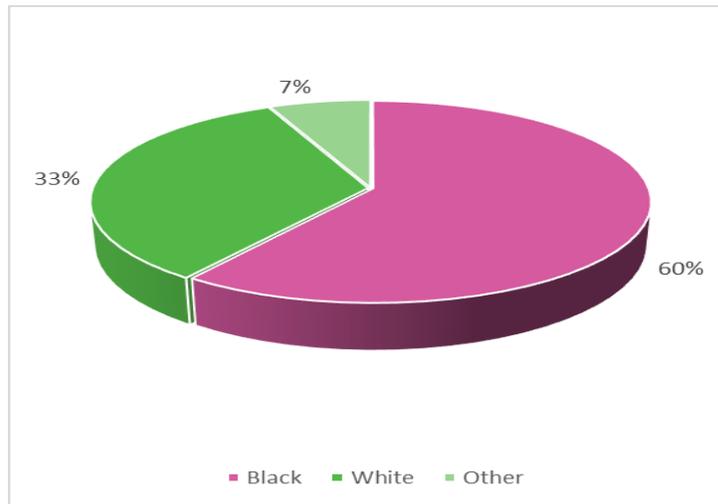
Primary Cause of Death	
Fetal Deaths - 26	Number
Complications of placenta, cord, membranes — Abruption Placenta (3), Chorioamnionitis (2), Anhydramnios (1), short appearing cord (1) *two of these contributed to by COVID-19	7
Complications of placenta, cord, membranes: Rupture of membranes prior to onset of labor, Abruption Placenta	2
Complications of placenta, cord, membranes: Abruption Placenta, Chorioamnionitis	1
Complications of placenta, cord, membranes: tight nuchal cord x2, body cord x1	1
Complications of placenta cord membranes: Abruption Placenta; Other conditions/ disorders: cause unknown, IUFD	1
Complications of placenta cord membranes: Abruption Placenta; Fetal injury: Motor Vehicle Accident/Blunt force abdominal trauma of mother	1
Complications of placenta, cord, membranes: Abruption Placenta; Fetal Anomaly: Anencephaly	1
Fetal Anomaly: Coarctation of Aorta and Single Kidney	1
Other fetal conditions/disorders: Unknown	1
Other fetal conditions/disorders: Extreme Prematurity	1
Maternal conditions/diseases: Hepatitis C	1
Maternal conditions/diseases: Gestational Diabetes	1
Maternal conditions/diseases: Pre-eclampsia with severe features	1
Maternal conditions/diseases: Hyperemesis, Deep Vein Thrombosis; Complications of placenta, cord, membranes: accelerated villous maturation	1
Maternal conditions/diseases: Hypothyroidism; Complications of placenta, cord, membranes: true knot in cord	1
Maternal conditions/diseases: COVID-19 positive 10 days prior to onset of labor; Complications of placenta, cord, membranes: Chorioamnionitis	1
Other obstetrical or pregnancy complications: Preterm Delivery	1
Maternal conditions/diseases: Preliminary Anatomic Diagnoses: no developmental abnormalities	1
Pending Autopsy or Histological Results	1

Data source for pages 8-11 Fetal and infant death certificates

FIMR Infant and Fetal Deaths 2021

Maternal Race

30 Cases Reviewed

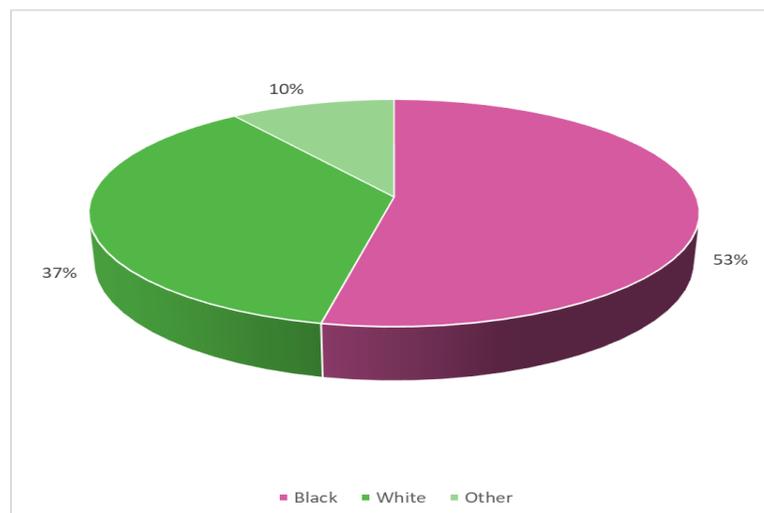


The above chart shows a breakdown by maternal race of the 30 infant and fetal deaths that occurred in Leon and Wakulla counties in 2021 that were reviewed during FIMR CRT meetings. Of the infants that died, 13 mothers were Black, 5 were White, and 1 was Other. Of the fetal deaths, 5 mothers were Black, 5 were White, and 1 was Other.

All Infant and Fetal Deaths 2021

Maternal Race

60 Total Deaths

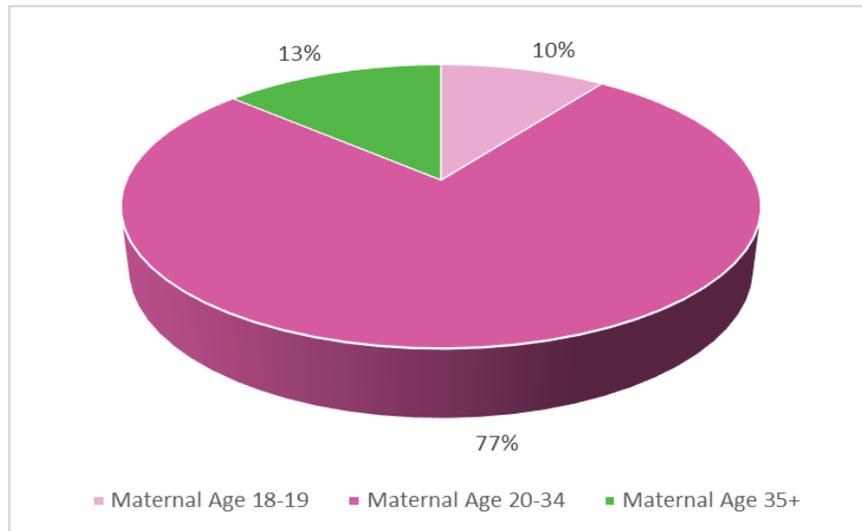


The above chart shows a breakdown by maternal race for the 34 infant deaths and 26 fetal deaths that occurred in 2021 in Leon and Wakulla counties. Of the infant deaths, 20 mothers were Black, 10 were White and 4 were Other. Of the fetal deaths, 12 mothers were Black, 12 were White, and 2 were Other.

FIMR Infant and Fetal Deaths 2021

Maternal Age

30 Cases Reviewed

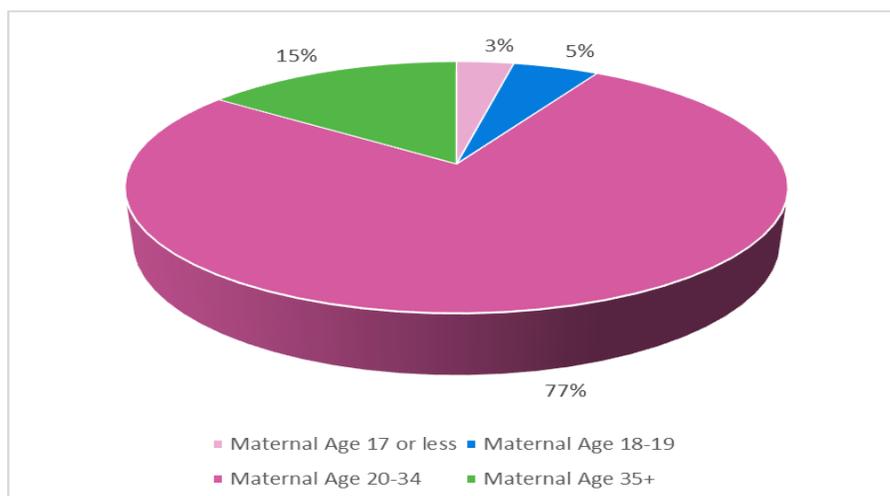


The above chart shows an overview of maternal ages at the time of delivery. Out of the cases reviewed there were 3 teenage mothers and 4 mothers 35 and over. The majority of mothers were between ages 20-34.

All Infant and Fetal Deaths 2021

Maternal Age

60 Total Deaths

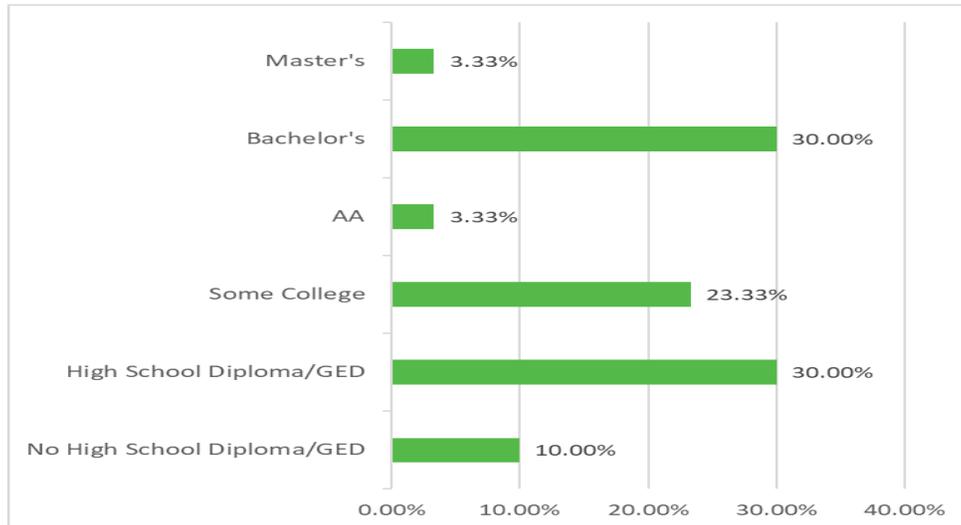


This chart shows an overview of maternal ages at the time of delivery for all the infant and fetal deaths occurring in Leon and Wakulla counties for 2021. There were 5 teenage mothers age 19 and under. There were 9 mothers age 35 and over. The majority (77%) of mothers that experienced losses were between the ages of 20-34.

FIMR Infant and Fetal Deaths 2021

Maternal Education

30 Cases Reviewed

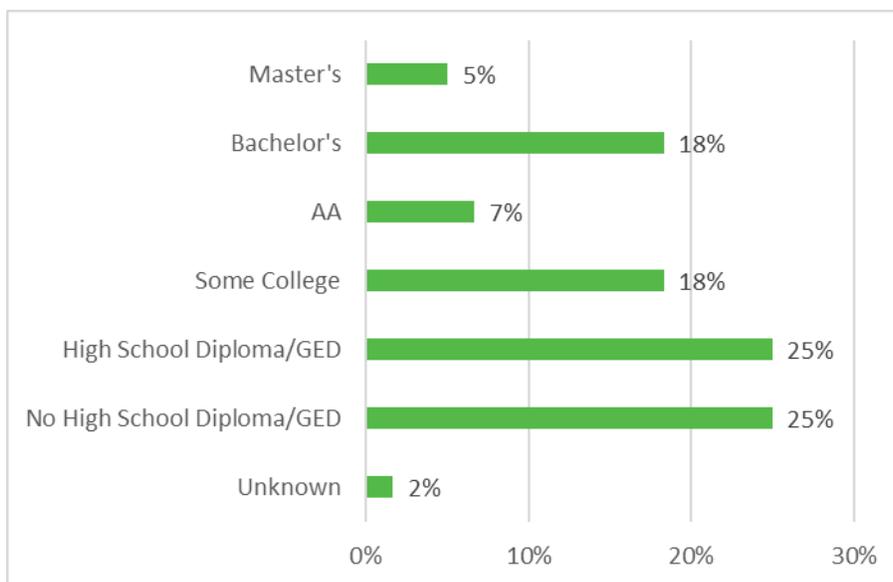


Of the 30 cases reviewed, 9 mothers had a high school education and 9 mothers had Bachelor's degrees. There were 3 mothers that had not completed high school, 7 who attended some college, 1 that had an Associate's degree and 1 that had a Master's degree.

FIMR Infant and Fetal Deaths 2021

Maternal Education

60 Total Deaths

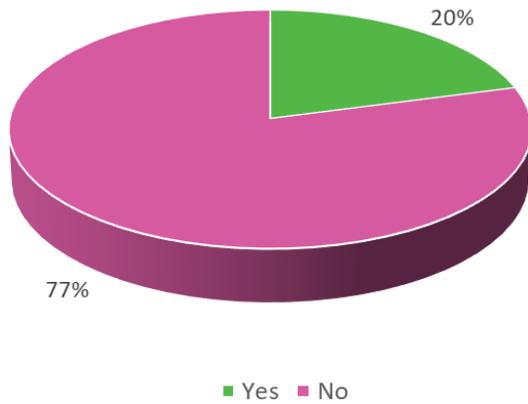


Fifteen mothers in the FIMR area had not completed high school and fifteen had a high school education. Eleven mothers had a Bachelor's degree, 11 mothers attended some college, 4 had an Associate's degree, 3 had Master's degrees, and 1 mother's education level was unknown.

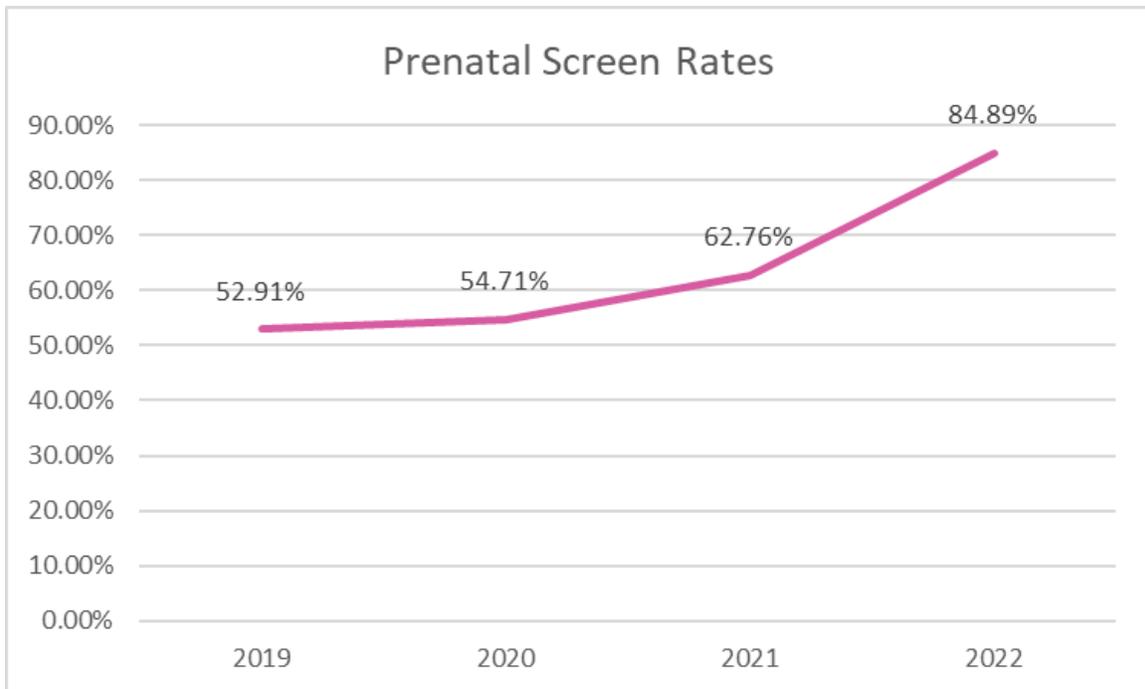
FIMR Infant and Fetal Deaths 2021

Prenatal Risk Screens Completed

30 Cases Reviewed



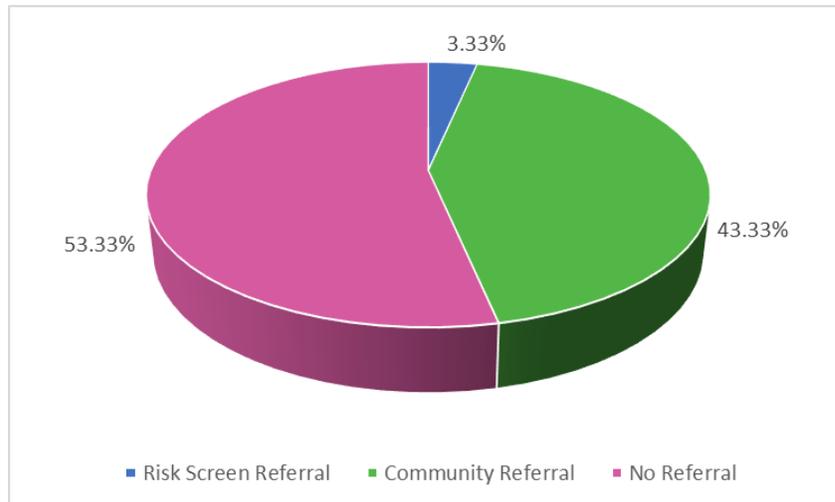
Six prenatal risk screens were completed of the 30 cases reviewed and of these 6 cases, 1 pregnant woman was referred for prenatal home visiting services. No prenatal risk screens or incomplete risk screens were found in the provider's medical record for 23 cases. There was 1 case where the mother did not receive prenatal care and that case is not represented in the graph. The Coalition has been doing trainings with staff in the prenatal provider offices and created and distributed a video presentation about prenatal risk screens that providers can use at their discretion to train new staff. While prenatal risk screen rates are still a concern, with continued training of prenatal care providers we are seeing a positive trend in screening rates. **Note:* Rates for 2022 only include data for the January – July timeframe.



FIMR Infant and Fetal Deaths 2021

Prenatal Referrals to Coordinated Intake and Referral (CI&R)

30 Cases Reviewed

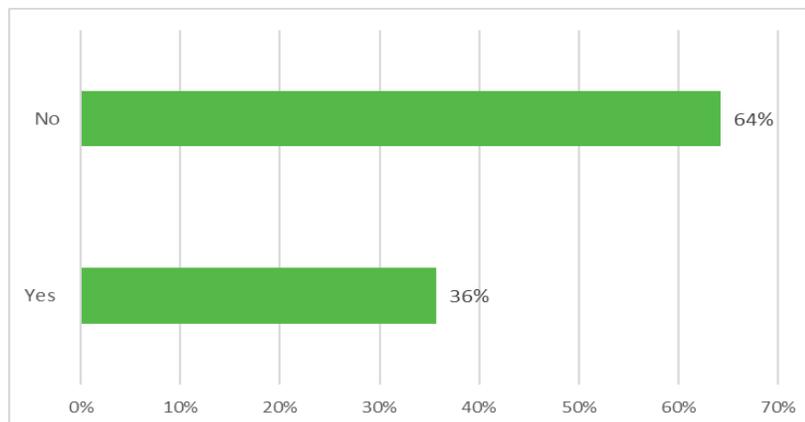


CI&R is the first point of contact in order to assess the needs of the client and direct them to the appropriate resources (*For more information about CI&R, see page 30*). Thirteen of the cases reviewed were referred to our CI&R program via community referral and 1 was referred via the risk screen. Sixteen of the cases were not referred prenatally. Women may also be referred for bereavement services after they have a loss. In 2021, there were 8 women referred to CI&R after the loss and 1 accessed services.

FIMR Infant and Fetal Deaths 2021

Coordinated Intake and Referral Intakes Completed

14 of 30 Cases Reviewed

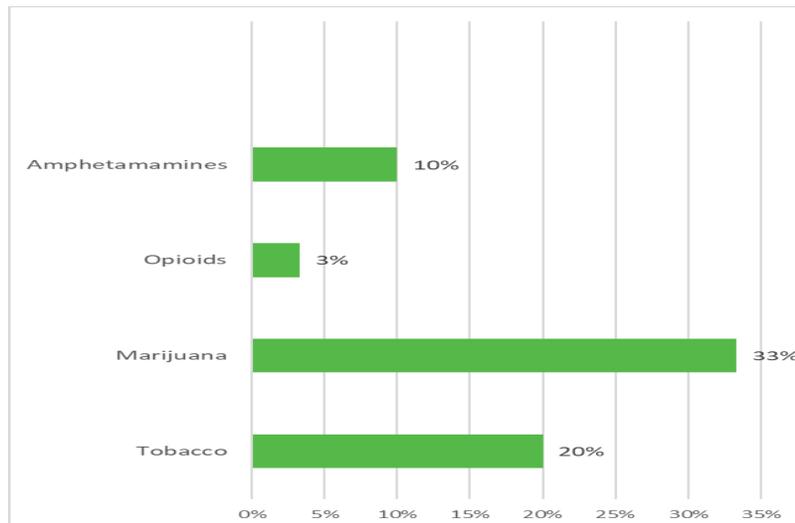


Of the 14 women referred to CI&R prenatally, 5 completed an intake. Of the 5 intakes completed, 4 were referred to home visiting services while 1 declined. Of the 4 who accepted the referral, 2 actually participated in home visiting services.

FIMR Infant and Fetal Deaths 2021

Maternal Substance Use

30 Cases Reviewed

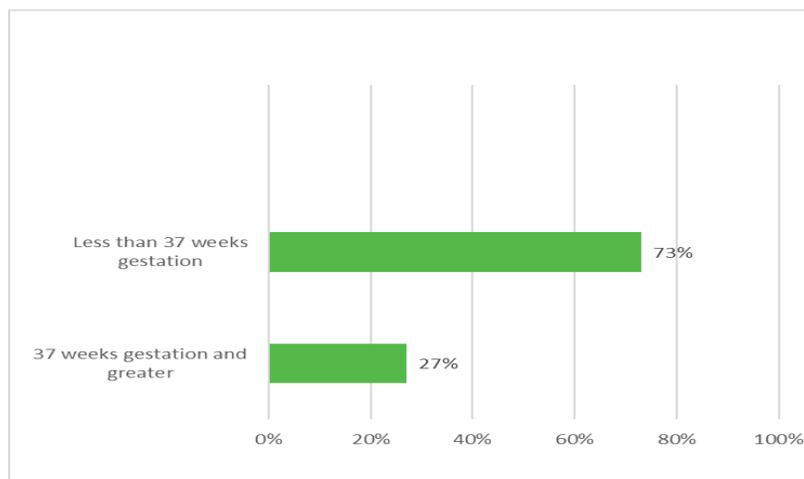


Substance use while pregnant is either self-reported by the mother or determined through drug screens during prenatal care or upon delivery. Twelve of the 30 cases reviewed had mothers that used tobacco, marijuana, amphetamines, opioids, or multiple substances. Five of the mothers used multiple substances throughout pregnancy; therefore, they are counted in multiple categories.

FIMR Infant and Fetal Deaths 2021

Prematurity

30 Cases Reviewed

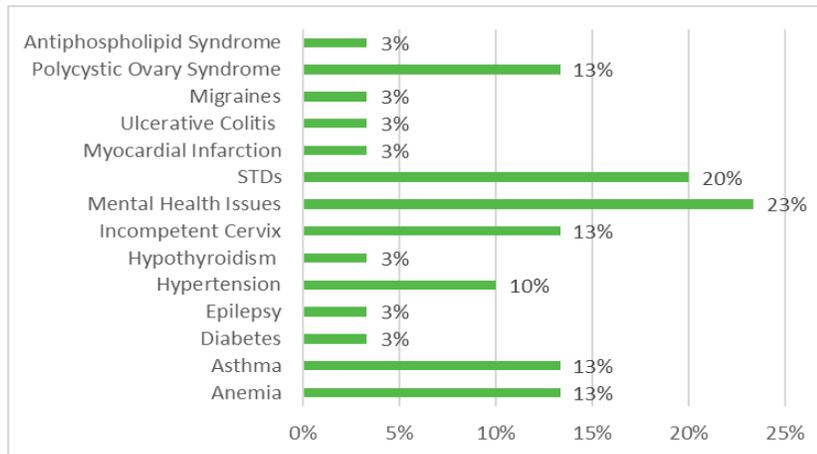


A premature baby is defined as a baby that is delivered prior to 37 weeks gestation. Of the 30 cases reviewed, 22 of the babies were premature with seven stillborn babies and 15 infants. Prematurity was listed as the primary or secondary cause of death for seven of the 22 cases, according to the death certificates.

FIMR Infant and Fetal Deaths 2021

Mother's Pre-existing Conditions

30 Cases Reviewed

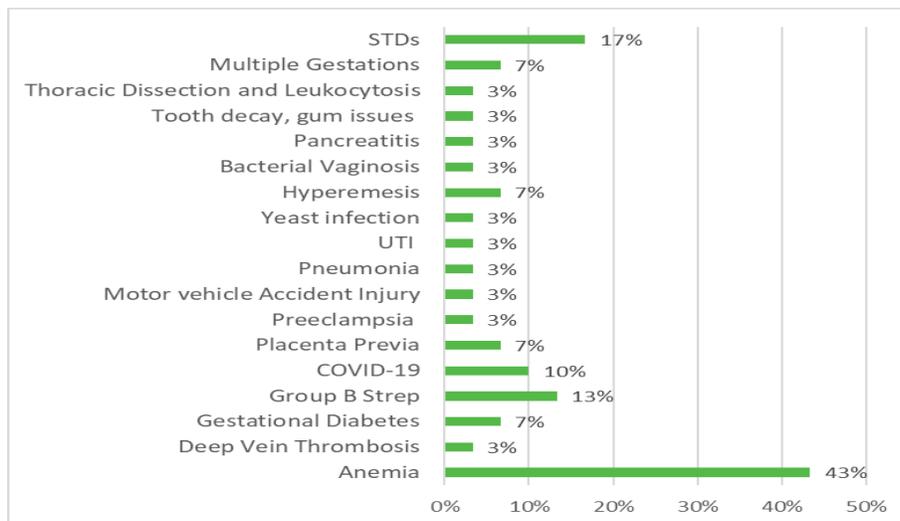


The top pre-existing conditions in the cases reviewed were mental health issues (23%) and STDs (20%). Other common conditions were polycystic ovary syndrome, incompetent cervix, asthma, and anemia. Each other condition listed represents 1 mother with that condition. Some mothers had 2 or more conditions and are counted in each category. There were 9 mothers with no pre-existing conditions.

FIMR Infant and Fetal Deaths 2021

Mother's Medical Conditions During This Pregnancy

30 Cases Reviewed

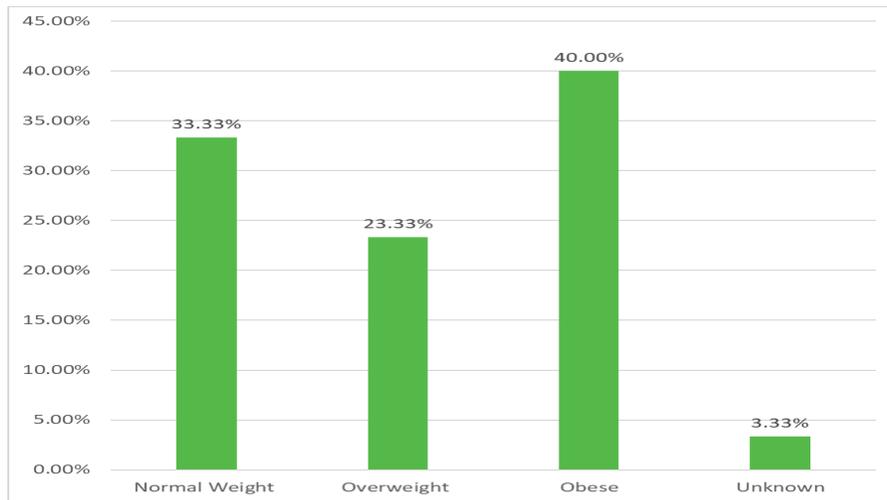


Thirteen mothers had anemia during pregnancy, 5 had STDs, 4 had Group B Strep, and 3 had COVID-19. Two mothers had multiple gestations, 2 had hyperemesis, 2 had placenta previa, and 2 had gestational diabetes. Two mothers had surgical procedures due to their medical conditions. Some of the moms had more than one medical condition during the pregnancy; only 2 of the 30 moms had no medical conditions during the pregnancy.

FIMR Infant and Fetal Deaths 2021

Pre-Pregnancy Weight

30 Cases Reviewed

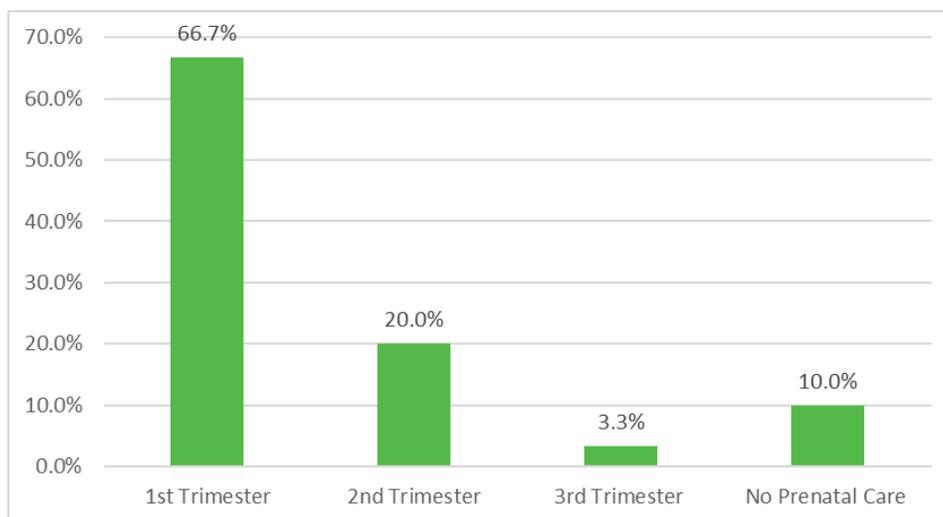


Twelve of the women in the 30 cases reviewed were obese before pregnancy. Of these 12 women, 7 were considered to be morbidly obese, having a BMI of 35 or greater, and 3 had a BMI of 42 or greater. Ten women were normal weight, 7 were overweight, and there was 1 case where the mother's pre-pregnancy weight was unknown. [*Underweight = BMI <18.5; Normal weight = BMI 18.5-24.9; Overweight = BMI 25-29.9; Obese = BMI 30+*]

FIMR Infant and Fetal Deaths 2021

Trimester of Entry into Prenatal Care

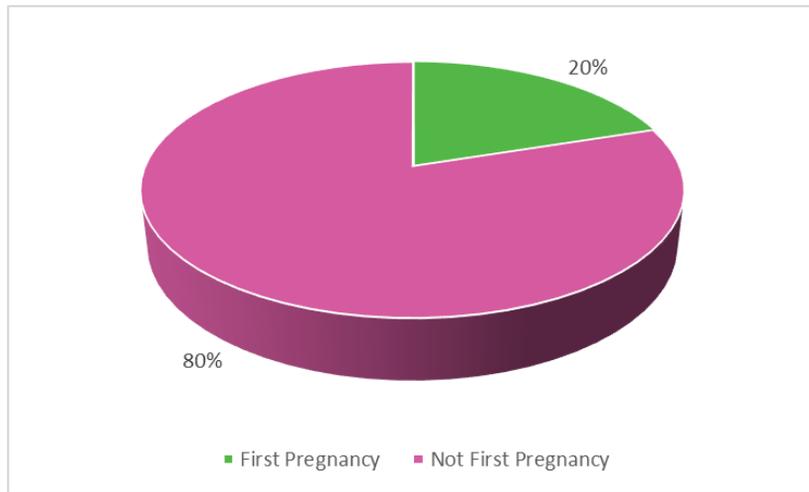
30 Cases Reviewed



Twenty women in the 30 cases reviewed started prenatal care in the first trimester. Six women started in the second trimester, 1 started in the third trimester, and 3 women had no prenatal care.

FIMR Infant and Fetal Deaths 2021

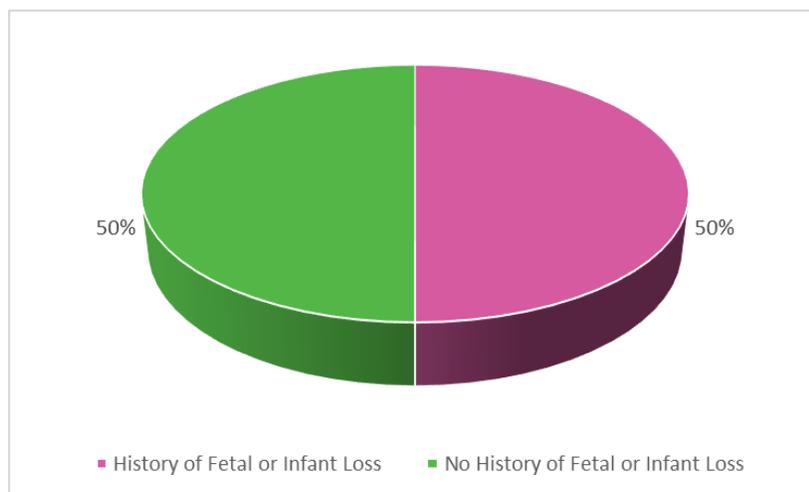
First Pregnancy
30 Cases Reviewed



Out of 30 FIMR cases reviewed, 6 of the mothers had never been pregnant prior to this pregnancy.

FIMR Infant and Fetal Deaths 2021

History of Loss in a Previous Pregnancy
24 out of the 30 Cases Reviewed

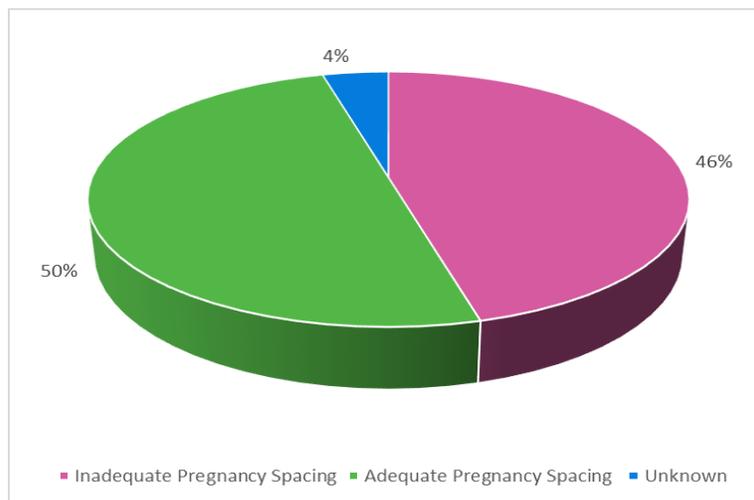


Twenty-four of the 30 mothers who had losses in 2021 had been pregnant in the past. Twelve of these 24 mothers had also experienced a previous fetal or infant loss.

FIMR Infant and Fetal Deaths 2021

Pregnancy Spacing

24 out of the 30 Cases Reviewed

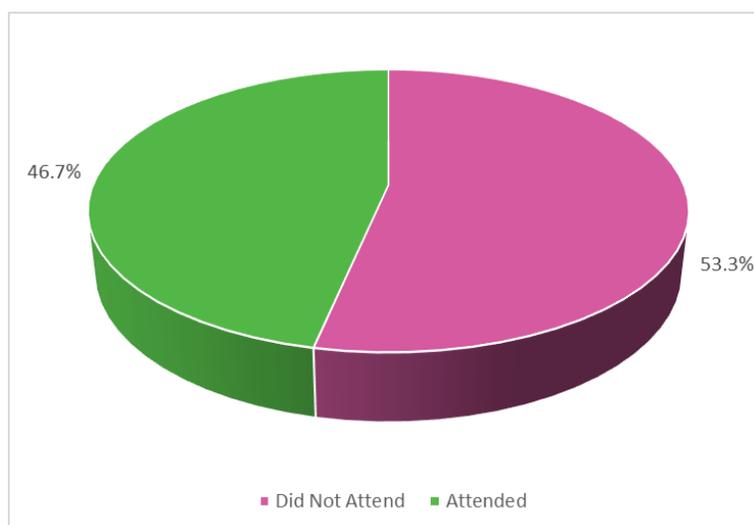


This chart shows the pregnancy spacing for 24 women who had a loss in 2021 and had also been pregnant in the past. Of the 24 women, 11 (46%) had become pregnant less than 18 months after their previous delivery.

FIMR Infant and Fetal Deaths 2021

Postpartum Appointments

30 Cases Reviewed

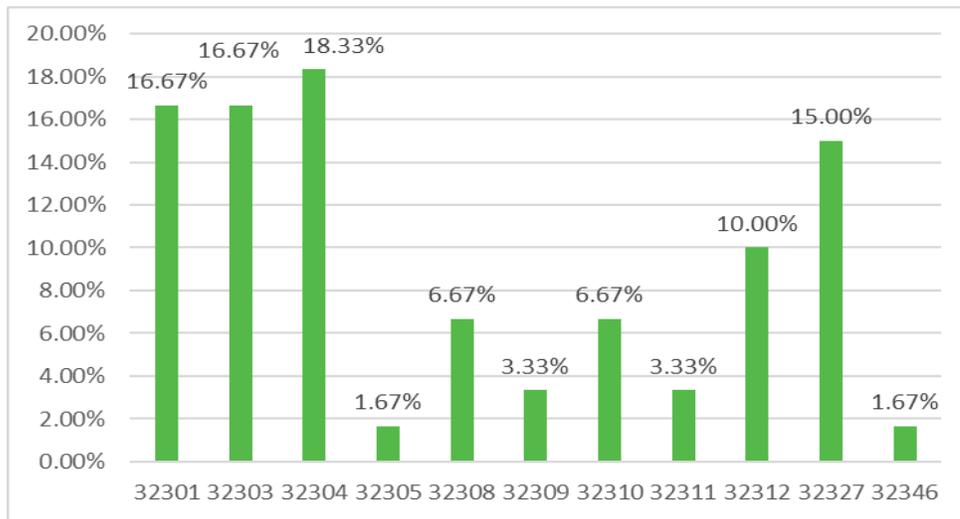


Out of the 30 FIMR cases reviewed, 14 of the women attended at least one postpartum visit.

FIMR Infant and Fetal Deaths 2021

Zip Codes of Mother's Residence

60 Total Deaths

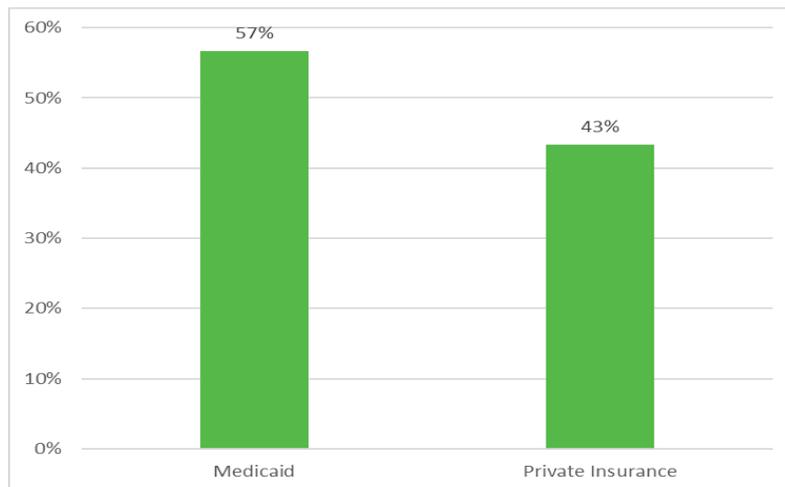


The 32327 and 32346 zip codes are in Wakulla County while the rest are in Leon County. Median household income in each zip code in 2020 was 32301-\$45,890; 32303-\$52,992; 32304-\$23,704; 32305-\$43,876; 32308-\$63,018; 32309-\$83,744; 32310-\$37,804; 32311- \$74,273; 32312-\$102,480; 32327-\$70,660; 32346-\$44,097. (Source for income: incomebyzipcode.com, the dollar amounts are inflation adjusted)

FIMR Infant and Fetal Deaths 2021

Payment Source

30 Cases Reviewed



In the state of Florida, pregnant women whose income is less than 185% of the Federal poverty guidelines, and are U.S. residents, are eligible to apply for Medicaid to cover medical costs during their pregnancy. Most of the women in the reviewed cases had Medicaid as their primary source of payment while 13 women had private insurance during their pregnancy.



2021 Sleep Related Deaths

There were two sleep related deaths in our FIMR review area (Leon and Wakulla counties) in 2021. The Capital Area FIMR program abstracted and reviewed both cases. The causes of deaths listed on the death certificates are as follows: Sudden Unexpected Infant Death (SUID) while sleeping in an unsafe sleeping environment and Positional Asphyxiation while bedsharing. The conditions surrounding the two cases that were reviewed are outlined below.

Conditions of the Sleep Related Infant Deaths 2021	
Site of Death	2 – Infant's home
Sleeping Situation	1 - With 1 adult 1 – With 1 sibling
Sleeping Location	2 - Adult Bed
Sleeping Position When Found	1 – On back underneath sibling 1 – On back
Usual Sleeping Position	1 – On back 1 - Unknown
Bedding at the Time of Death	1 - Pillow(s) 2 - Sheet(s) 1 - Comforter
Crib, Bassinet, or Portable Crib Present	2 - Yes
Feeding Type	1 - Formula 1 – Formula and Breast
Symptoms Within 2 Weeks of Death	1 - Mild Fever 1 - Recovering from RSV infection
Substance Exposure in the Home	1 - Unknown 1 - Marijuana



COVID-19 and Pregnancy

Research is being conducted throughout the world looking at the association of COVID-19 and pregnancy outcomes. Published results are showing that COVID-19 is having a significant effect on maternal morbidity and poor neonatal outcomes, including preterm birth and stillbirth.

On April 12, 2022, the National Center for Fatality Review and Prevention (NCFRP) sponsored a presentation by Regan N. Theiler, M.D., Ph.D. Chair, Division of OB/GYN, Mayo Clinic, entitled ["COVID-19 and Pregnancy: A look at adverse maternal and neonatal outcomes."](#) Findings below came from Dr. Theiler's presentation.

Pregnant women who have COVID-19: Risks to mom. Pregnant women with COVID-19 were compared to non-pregnant persons with COVID-19. Pregnant women were found to have had ICU admissions 2.7 times greater than the non-pregnant persons, ventilation needed was 2.5 times higher, extracorporeal membrane oxygenation utilization needed was 3 times higher, and the risk of death was 1.3 times higher. The *Journal of the American College of Cardiology* recently published research showing that pregnant women with a COVID-19 infection have an increased risk of more cardiovascular problems than non-pregnant women with the viral infection.

Pregnant women who have COVID-19: Risks to their unborn baby. Research presented by Dr. Theiler compared the risks of pregnant women who had COVID-19 during their pregnancy to risks of pregnant women who did not have the virus during their pregnancy. The moms who were COVID-19 positive had pre-eclampsia at a rate of 2 times higher than moms without the virus, hypertension 1.5 times higher, preterm births 1.2 time higher, and low birth weight babies 1.5 times higher. Pregnant women with the Delta variant of COVID-19 had rates of stillbirths/fetal deaths 4 times higher than pregnant women without the infection. Women with other forms of the virus prior to Delta had 2 times the rate of stillbirths/fetal deaths. Data on the Omicron variant was not available at the time of the presentation.

Mechanism of risks to unborn babies: Maternal infection can lead to placental infection which can lead to placental damage. Placental damage can result in lack of oxygen, nutrients, and blood to the baby. Two-thirds of fetal autopsies for stillborn babies in which the moms had COVID-19 showed the cause of the deaths as being due to fetal asphyxia (i.e., the lack of oxygen). Dr. Theiler also reported that the actual transmission of COVID-19 from mom to her baby is very rare.

To view Dr. Theiler's archived presentation: <https://vimeo.com/700989713> - use password NCFRP. Presentation slides: <https://ncfrp.org/center-resources/archived-webinars/>

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2021 COVID-19 Related Deaths

Out of the 11 fetal deaths reviewed there were three COVID-19 related fetal deaths in 2021. The primary cause of death for all three cases involved complications of placenta, cord, and membranes. The babies in these cases died indirectly as a result of the mother contracting COVID-19 during pregnancy. This is in accordance with the research mentioned on page 24. The chart below shows the initiating causes or conditions and other significant causes or conditions as listed on the fetal death certificates.

Initiating Causes or Conditions	Other Significant Causes or Conditions
Maternal conditions/diseases: COVID-19 positive 10 days prior to onset of labor; Complications of placenta, cord, membranes: Chorioamnionitis	
Complications of placenta, cord, membranes: Abruption Placenta	Maternal conditions/diseases: COVID-19
Complications of placenta, cord, membranes: Chorioamnionitis	Maternal conditions/diseases: COVID-19





2021 FIMR Case Review Team *Recommendations*

Provider Awareness and Education

- Encourage providers to thoroughly assess social determinants of health with their patients and make community referrals as needed
- Provide education to medical providers on community resources available to patients with psychosocial risk factors
- Promote the importance of medical staff offering, introducing, and accurately completing and submitting prenatal and infant risk screens
- Assure providers are reviewing the risk screens with their patients
- Share information with providers on the effects of marijuana on pregnancy
- Encourage providers to use certified interpreters for all non-English speaking patients even if the patient brings a person who speaks English
- Have social workers in all prenatal provider offices to help with case management
- Educate providers more about the Connect/CI&R program including the referral process
- Encourage emergency facilities and hospitals to refer pregnant women who go to triage to the Connect program and other community services
- Encourage providers to refer patients who are identified as having mental health concerns to appropriate services
- Ensure providers follow up with patients on positive drug screens and provide referrals for substance use treatment
- Encourage providers to ask and document more details about why prenatal lab testing is being declined by patients and address barriers

Education for Pregnant Women and Mothers

- Empower women to communicate their needs concerning their care to their providers
- Educate women on alternatives to medications to cope with nausea and anxiety
- Empower women to work with their providers to make decisions about their plan of care
- Educate pregnant women about the stages of fetal development through full term pregnancy
- Provide education on transportation services that are available for medical appointments
- Encourage pregnant women to attend childbirth education classes
- Encourage women with mental health concerns to talk to their providers about safe prescriptions to use during pregnancy as well as treatment if they have to cease medication temporarily
- Emphasize the importance of scheduling and attending postpartum appointments
- Help women make educated and informed decisions about COVID-19 vaccination during pregnancy
- Educate pregnant women on the benefits of nutrition counseling and exercise during pregnancy
- Demonstrate how to track fetal movement by counting kicks and the importance of seeking medical attention immediately if there is a decline in fetal movement
- Provide education about the effects of substance use in pregnancy
- Educate pregnant women on proper seatbelt use
- Encourage women to obtain and continue care with a primary care provider during and after pregnancy



2021 FIMR Case Review Team

Recommendations

Safe Sleep Education

- Educate the entire family and all caregivers on recommended safe sleep practices
- Advocate for pediatricians to provide safe sleep education at well child visits

Community Education and Outreach

- Educate families on the importance of tracking how much their baby eats by monitoring and recording diaper changes to report back to their pediatric provider
- Educate the community of the benefits of having doula support
- Develop specific educational materials for fathers to help include them in the pregnancy and parenting process
- Educate the public more about fertility and menstrual cycles
- Provide education on water safety for bathing infants
- Educate the community on local parenting and health resources
- Have more events in the community that are focused on education about risks that contribute to fetal and infant deaths
- Educate the community about family planning, recommended pregnancy spacing intervals, and contraception methods
- Provide education to the community about the benefits of home visiting services

Interconception & Immediately After Birth

- Educate pregnant women about how to care for themselves after pregnancy

Bereavement and Loss Support

- Encourage providers and birthing centers to refer mothers who experience losses to bereavement services
- Encourage providers to offer genetic counseling to the appropriate patients that experience a loss
- Educate providers on how to refer women who have a loss to Healthy Start bereavement support

Other Agency Outreach

- Work with Vital Statistics to improve the accuracy of birth and death certificates and advocate for more information to be added to fetal death certificates
- Obtain information about DCF and law enforcement protocol for drug screening during child death investigations
- Foster partnerships between criminal justice departments and home visiting services to increase referrals
- Advocate for insurance companies to cover the costs of language interpreting services



FIMR Initiatives

Outreach and Education. Our Outreach staff attend community events and share information about the importance of being healthy before, during, and after pregnancy.

Kicks Count Refrigerator Magnets. Refrigerator magnets reminding pregnant women to count kicks, and showing how to count kicks, were designed and produced as a result of FIMR recommendations. These magnets have been distributed in the community over the years. From 2021 to present, we have partnered with Count the Kicks to promote the use of their digital app /bracelets/and fillable charts to track fetal movement. Count the Kicks educational materials have been dispersed to prenatal care providers, to pregnant women in Healthy Start, and are distributed at local health fairs.

Local Resources Information. CAHSC created pamphlets and other material that are shared with medical providers and local agencies to distribute to their pregnant patients and clients based on recommendations from FIMR. Resources and education for providers and the community are posted on the CAHSC website as well. Some examples are the “Who Will Be Your Baby’s Doctor?” listing local pediatric providers, maternal mental health resource guides, post-pregnancy education with information on healing physically and emotionally after delivery, and how to apply to pregnancy Medicaid. Material is updated regularly. In 2022, all brochures made in-house were updated to include a QR code, making access to our website and self-referral easier.

Walk to Remember. The Coalition holds the Walk to Remember event yearly. The event is to help support families who have experienced the loss of a pregnancy or infant. This year, Walk to Remember will be held on October 13th.

Free Infant CPR classes. Another initiative the Coalition facilitated as a result of recommendations from the FIMR Team and the Community Action Team is to provide free Infant CPR classes in partnership with Leon County EMS. To date, a total of fifteen classes have been held in which 450 new parents and caregivers in our community were trained in Infant CPR. Classes were put on hold due to the COVID pandemic but are scheduled to resume in January 2023.

Traveling Crib Safe Sleep. In 2017, we launched the Traveling Crib Initiative to educate the community on the fact that babies are safest when they sleep **A**lone, on their **B**acks, and in a safe **C**rib. The Traveling Crib has made it’s way to businesses, local libraries, daycare centers, housing developments, and medical facilities. Another facet of this initiative is the Mini Crib Display, which is a smaller table top size version of a crib with a baby doll, pacifier, and sleep sack. These are currently stationed in medical offices for display in their waiting areas and are taken to outreach events to spark conversation about safe sleep practices.





Service Delivery Plan

The Capital Area Healthy Start Coalition and our 23-member Needs Assessment Team worked on various aspects of our Needs Assessment in 2019 and 2020 to provide the foundation for our comprehensive assessment of needs and gaps in services that impact birth outcomes and the health, and well-being of pregnant women, infants, and children in Leon and Wakulla counties.

As part of our Needs Assessment process, we researched and compiled an inventory of local resources and services to identify programs, resources, and services that are available locally for moms, babies, and families in our community and to identify unmet needs that can be addressed through our Coalition.

Our Coalition identified, through this rigorous process, three key priority areas to address in our 5-year Service Delivery Plan beginning July 2021:

- 1) Access to Care
- 2) Racial Disparities in Health Outcomes
- 3) Maternal Mental Health and Substance Exposed Newborns

The Coalition created three workgroups – one for each of our three priority areas. Workgroup members consist of community partners from Florida State University, Florida Agricultural and Mechanical University, Department of Children and Families, Children’s Home Society, WIC, DOH in Leon and Wakulla counties, local birthing hospitals, Healthy Families in Leon and Wakulla counties, Florida Perinatal Quality Collaborative, 2-1-1 Big Bend, Northwest Florida Health, prenatal and pediatric medical providers, Lola Brognano (LCSW), private and Medicaid health insurance companies, sororities, CAHSC Board members, and other community partners.

Each workgroup meets eight times a year, with meetings being held in the first two months of each quarter. During the meetings, workgroup members provide input and collaboration to meet selected goals, objectives, and action steps for the priority area being addressed.

The CAHSC also formed a Community Partnership Alliance (CPA). The CPA is comprised of individuals who represent community agencies and entities that also have a mission of improving the health and well-being of mothers, babies, and families. All workgroup members were also invited to participate in the CPA. This Alliance group meets quarterly, during the third month of each quarter, with the inaugural meeting taking place in September 2021. CPA participants were provided with updates on actions and progress being made by each individual workgroup, and they also helped create and implement community-wide strategies to address the issues in the three key priority areas as selected by the CAHSC.

The CAHSC invites you to participate in the work of the Community Partnership Alliance. To learn more about the Alliance or to join one of the workgroups, please contact Chris Szorcsik at chris@capitalareahealthystart.org.



Capital Area Healthy Start Coalition

Programs

The Capital Area Healthy Start Coalition (CAHSC) is dedicated to improving the health of pregnant women, infants, and their families. In addition to the FIMR project, facilitation of local initiatives, and providing community outreach and education, CAHSC also provides oversight for three direct client services programs in Leon and Wakulla counties. These programs are free of charge to participants.



Coordinated Intake and Referral (CI&R) Program

CI&R, also known as the Connect program, is a referral and risk reduction program open to all pregnant women and to infants from birth to age 3. Participants are referred into CI&R from medical providers and birthing centers via completion of universal prenatal and infant risk screens. These screens help us identify any risks that could negatively affect the mother and the baby. Pregnant women and parents/guardians of infants up to age 3 can also self-refer into the program and community agency referrals are accepted as well. A CI&R Intake Specialist contacts the women and parents/guardians, assesses their risks and needs, assists to ensure they have access to health care, provides health education, and provides referrals to community resources which often include referrals to local home visiting programs.

The home visiting programs in our two counties that work with our pregnant women and babies are Healthy Start and Healthy Families Florida. Healthy Start works with pregnant women and parents/guardians of infants and toddlers to reduce the risk of poor pregnancy outcomes and to increase the health and well-being of pregnant women, infants, and their families. Healthy Families works with expectant parents and parents of newborns and children to promote positive parent-child relationships and to reduce child abuse and neglect. Both home visiting programs provide education and support during pregnancy and after birth, using models tailored to their specific mission and goals, and both are voluntary programs. Our CI&R team of professionals help the women and families to determine which home visiting program will best meet their needs and offset their risks.



Healthy Start Home Visiting Program

The Healthy Start program provides services to pregnant women and infants up until age three to support healthy pregnancies and healthy babies. Our Healthy Start Care Coordinators work with each client to determine the right support, education, and services needed to ensure a healthy pregnancy, healthy birth, and healthy baby. Services are tailored to meet the individual needs of each client and are provided using a home visiting model. Education, support, and services include:

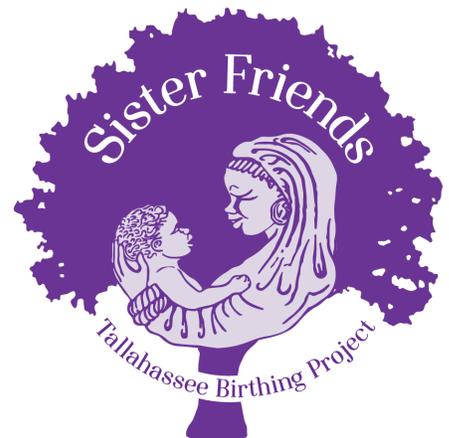


- Pregnancy health education
- Breastfeeding education and support
- New baby care and safe sleep education
- Parenting education and support
- Help to quit smoking
- Stress management and emotional support
- General support and community referrals

Healthy Start also provides home visiting services and support interconceptionally to women who recently had a pregnancy loss or have given birth but are not the caregivers for their infant.

Sister Friends Tallahassee Birthing Project

The Sister Friends Tallahassee Birthing Project is CAHSC's newest program. This program follows the extended family model of the National Birthing Project USA (BPUSA). The mission of BPUSA is to shepherd, support, and improve the health status of women of color by assisting local and global communities in addressing the systemic causes of their lack of well-being. The Sister Friends Tallahassee Birthing Project brings this model to our community to address the challenge of a mother's lack of knowledge or understanding about causes and ways to prevent unhealthy pregnancies and birth outcomes. The program will allow women who understand their community resources to be a link between these resources and women who need those resources. Sister Friends are trained by CAHSC to help their Little Sisters by providing support during pregnancy and after delivery. Some of the services provided are coordination for receiving prenatal care, guidance in navigating the healthcare system, encouragement to ensure there is compliance with medical provider instructions, and referrals for other needs.





**FIMR Project
2021 FIMR Project Case Review Team**

FIMR Case Review Team. The FIMR Case Review Team (CRT) is critical to the overall success of the FIMR project. Our CRT is comprised of representatives from healthcare, public health, social services, academic, government, community agencies, and other individuals who volunteer their time. Their role is to review and analyze the information collected from medical and social services records, interviews, and other records as presented during FIMR meetings, and to provide recommendations to improve the community’s service delivery systems and resources.

Thank you to FIMR CRT members

<i>Aaliyah Holiday</i>	<i>Edie Kiratzis</i>	<i>Lisette Mariner</i>	<i>Ruby Doughtry</i>
<i>Amelia Morse</i>	<i>Erin Conrad</i>	<i>Lola Brognano</i>	<i>Sandra King</i>
<i>Amy Hersey</i>	<i>Faye Gardner</i>	<i>Ludy Willis</i>	<i>Sandy Glazer</i>
<i>Antanasia Seright</i>	<i>Holly Kirsch</i>	<i>Mark Jackson</i>	<i>Shanquell Dixon</i>
<i>Barrett Winder</i>	<i>Jasmine Thornton</i>	<i>Mary Westbrook</i>	<i>Shiwan Powell</i>
<i>Betsy Wood</i>	<i>Jennifer Brock</i>	<i>Matherlyn Norwood</i>	<i>Shruti Patel</i>
<i>Breanna Darnell</i>	<i>Jennifer Harris</i>	<i>Monica Hayes</i>	<i>Stephanie Cash</i>
<i>Chris Szorcsik</i>	<i>Judy St. Petery</i>	<i>Ovidui Popa</i>	<i>Susan Gilson</i>
<i>Daisha Roberts</i>	<i>Kimberly Homer</i>	<i>Pamela Banks</i>	<i>Symone Holliday</i>
<i>Debra Pederson</i>	<i>Kisha Wilkinson</i>	<i>Phillip Carter</i>	<i>Terrence Watts</i>
<i>Donna Clark</i>	<i>Krystal Denson</i>	<i>Raegan Hamilton</i>	<i>Tifini Austin</i>
<i>Donnielle Ivory</i>	<i>Kyla Shillington</i>	<i>Rineisha Anderson</i>	<i>Trishay Burton</i>
<i>Dina Snider</i>	<i>Kyra Adams</i>	<i>Robin Perry</i>	<i>Vanessa Wynn</i>

2021 Community Action Team

FIMR Community Action Team. The Community Action Team (CAT) is charged with developing new and creative solutions to improve services and resources for families based on recommendations made by the CRT. The team selected six initiatives to work on this year and five were implemented and/or enhanced. One initiative was redirected to the service delivery plan workgroups. They were: safe sleep initiatives including the Traveling Crib and local safe sleep collaborations, free Infant CPR classes (on hold during the pandemic), community education to reduce c-sections, community education on pregnancy Medicaid and low to no cost healthcare options, community education on the importance and benefits of following through on healthcare referrals, and postpartum care messaging to encourage self-care after delivery.

Thank you to FIMR CAT members

<i>Amelia Morse</i>	<i>Dina Snider</i>	<i>Kyra Adams</i>	<i>Sandy Glazer</i>
<i>Antanasia Seright</i>	<i>Jasmine Thornton</i>	<i>Mary Westbrook</i>	<i>Shanquell Dixon</i>
<i>Betsy Wood</i>	<i>Jennifer Brock</i>	<i>Monica Hayes</i>	<i>Stephanie Cash</i>
<i>Catherine Deininger</i>	<i>Kalisha Staten</i>	<i>Pamela Banks</i>	<i>Susan Gilson</i>
<i>Chris Szorcsik</i>	<i>Kasey McGlone</i>	<i>Raegan Hamilton</i>	<i>Symone Holliday</i>

Capital Area Healthy Start Coalition

Staff

Chris Szorcsik, Executive Director
Sandy Glazer, Administrative Director
Symone Holliday, Community Relations Director
Angel Dameron, Administrative Assistant
Donnielle Ivory, Sister Friends Program/Special Projects Coordinator
Danielle Brown, Intake & Outreach Coordinator
Vanessa Wynn, Connect Family Partner
Cortney Nealy, Intake Specialist

FIMR Project Staff

Jasmine Thornton, FIMR Program Coordinator & Outreach Specialist
Debbie Pedersen, Nurse Abstractor

To enroll in Healthy Start call:

Leon County
850-488-0288 ext. 109
Wakulla County
850-888-6083
Jefferson County
850-948-2741
Madison County
850-948-2741
Taylor County
850-948-2741
Gadsden County
850-662-1061 ext. 303





Capital Area Healthy Start Coalition

1311 North Paul Russell Road

Suite A101

Tallahassee, Florida 32301

(850) 488-0288

www.capitalareahealthystart.org

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