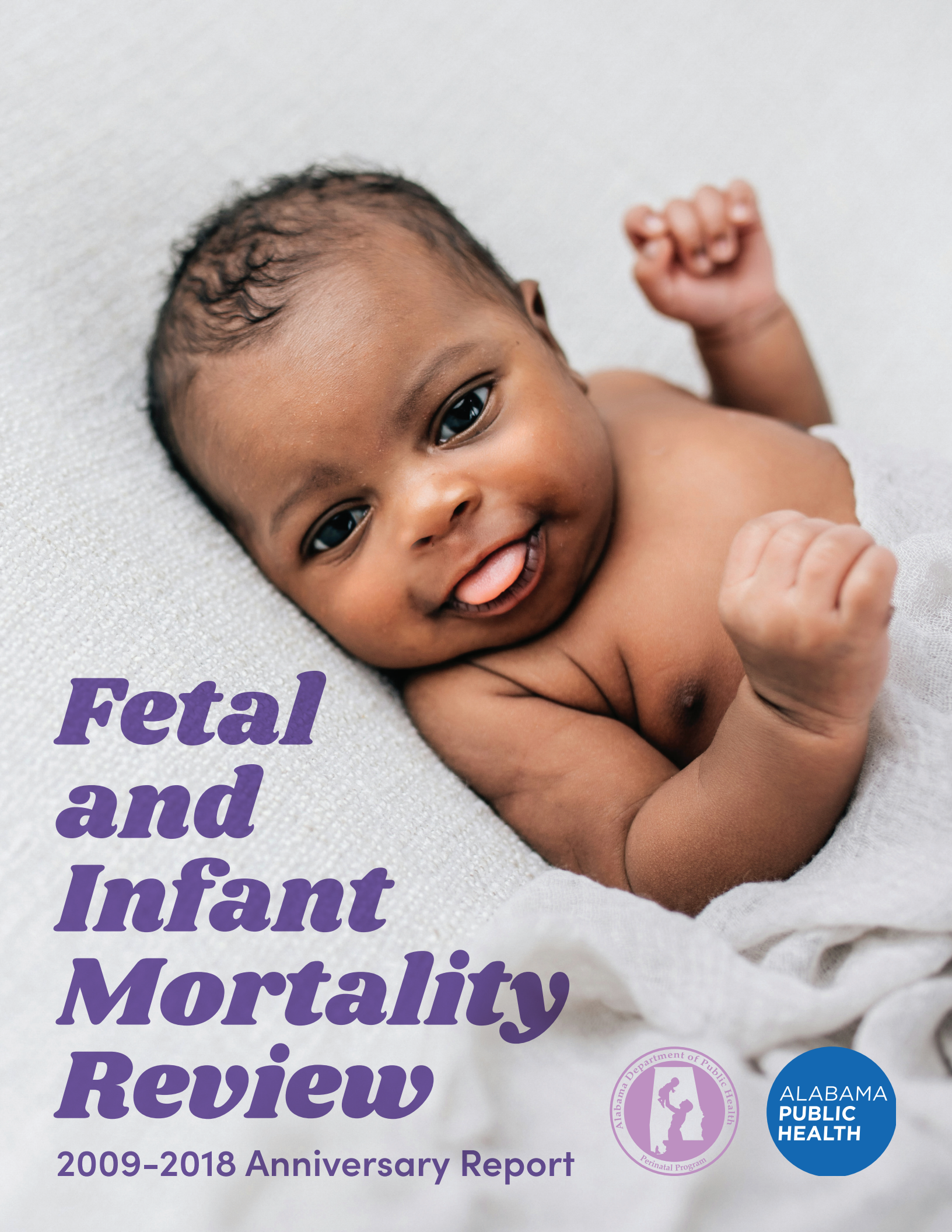

Fetal and Infant Mortality Review

2009–2018 Anniversary Report

Alabama Department of Public Health
Perinatal Program

ALABAMA PUBLIC HEALTH

Fetal and Infant Mortality Review 2009-2018 Anniversary Report

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We would like to thank the members of the State Perinatal Advisory Committee, Regional Perinatal Advisory Committees (RPACs), Case Review Teams (CRTs), and Community Action Teams (CATs) for volunteering their time and expertise. The objectives of the Fetal and Infant Mortality Review (FIMR) Program could not be achieved without the commitment, assistance, and ongoing support of these members.

A special thanks to the parents who have shared their most personal experiences in the expectation that they may help other families. Thank you for opening up your hearts and homes. We commend you for your courage and willingness to share your experiences with us.

Forward

The purpose of this report is to describe Alabama Fetal and Infant Mortality Review (FIMR) Program activities from 2009 through 2018.

FIMR is a process of identification and analysis of factors that contribute to fetal and infant death through chart reviews and interviews of individuals. An infant death is considered to be a live birth. Live birth is defined as the complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of pregnancy, which, after such expulsion or extraction, breathes, or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Heartbeats are to be distinguished from transient cardiac contractions. Respirations are to be distinguished from fleeting respiratory efforts or gasps.

Fetal death is defined as death prior to the complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of pregnancy, which is not an induced termination of pregnancy. The death is indicated by the fact that after the expulsion or extraction the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions. Respirations are to be distinguished from fleeting respiratory efforts or gasps.

FIMR complements other studies of fetal and infant death but uses an approach that is community-based and designed to bring together local health providers, consumers, advocates, and leaders. FIMR identifies strengths, areas for improvement in overall service systems, and community resources for women, children, and families. FIMR also provides direction towards the development of new policies to safeguard families. Through the regular collection, analysis, and sharing of health data and information about risks and resources in a community, the FIMR program identifies trends in fetal and infant mortality and the factors that may be involved.

Mobile County's FIMR, the Alabama Baby Coalition (ABC), was established in 1998. The ABC reviews fetal (over 20 weeks gestational age) and infant deaths of Mobile County residents only. When the program began, the infant mortality rate (IMR) was very high and exceeded the state and national averages. The Alabama Department of Public Health initiated the FIMR Program statewide on January 21, 2009. Prior to 2009, Mobile was using a modified version of the American College of Obstetricians and Gynecologists (ACOG) protocol but adopted the full ACOG model in 2009. Thus, Alabama has a statewide FIMR program which utilizes the full ACOG model.

FIMR has proven beneficial to many communities. The program has helped identify gaps in current services and collaborates to fill those gaps. Services have been expanded and improved through cooperative programming and joint funding. Enhanced coordination of services through interagency networking, communication, and collaboration has occurred in communities that have implemented the program. FIMR helps communities prepare and deliver culturally-appropriate interventions to improve service systems and resources for their multi-ethnic populations. FIMR has contributed to a greater understanding of maternal and child health community needs by assisting the community in seeing not just a part, but the whole picture. FIMR offers a means to implement needs assessment, quality assurance, and policy development, which are essential public health functions.

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Introduction

Overview of the History of FIMR

The loss of a baby during pregnancy or in early infancy can be devastating and life changing. The Alabama FIMR Program is a community-based case review process that concentrates on fetal and infant mortality. The purpose of the program is to improve maternal and child health outcomes through community-based actions.

Infant mortality is defined as the death of an infant before his or her first birthday. It is an indicator used to compare the health and social well-being of populations across and within countries, states, and communities. Also, it is a critical gauge of the health status of a population and reflects the overall state of maternal health, as well as the quality and accessibility of primary health care available to pregnant women and infants in their community and state. Consequently, it is a reflection of the current health status of a large segment of the U.S. population and also a predictor of the health of the next generation.

Most often, a single factor does not cause an infant's death. Instead, the death results from a number of contributing factors. Identifying the contributing factors and implementing strategies to address them can lead to fewer fetal and infant deaths and, over time, to improvements in birth outcomes.

The Alabama FIMR Program also reviews fetal deaths. Fetal death is defined as death prior to the birth, irrespective of the duration of pregnancy. The death is indicated by the fact that after the birth, the fetus does not breathe or show any other evidence of life. Annually, there are approximately 1,000 fetal and infant deaths statewide. Data gathering includes reviewing of records and information obtained from the voluntary maternal/family interview. When a fetal or infant death occurs, fetal death abstracts, birth abstracts, and death certificates are received by the Center for Health Statistics (CHS). These records and certificates are provided by CHS to the FIMR program staff. Upon receiving the information from CHS, the case abstraction process begins. FIMR staff gathers and reviews information related to the death from a variety of sources including birth abstracts and death certificates, medical records, physician office records, autopsy reports, police records, social records, and other contributing sources. A FIMR Perinatal Regional Coordinator (a Public Health nurse) contacts the mother and invites her to participate in a voluntary interview. If the mother consents, the interview is conducted with the mother and family to record their life experiences, which includes their childhood history, current life perspective, and pregnancy course. Confidentiality is important in the FIMR process. All information is confidential and in compliance with the Health Insurance Portability and Accountability Act (HIPAA). All abstracted medical and related records are stored in locked files, and all identifiers are deleted from abstracted records.

The FIMR Perinatal Regional Coordinator and the nurse abstractor prepare a case summary from the gathered data. All identifiers (patient names, hospital or clinic sites, and provider names) are removed, and the case summary is presented to the Case Review Team (CRT). The CRT is a multidisciplinary team that reviews the data. The team represents a range of professional organizations and public and private agencies that provide services to women, infants, and families. Alabama is divided into five perinatal regions, and there is a CRT located in each region. A map of the perinatal regions is shown in Appendix A. The Regional Perinatal Advisory Committees (RPACs) serve as the CRTs. Most of the CRTs meet monthly instead of quarterly to review the case summaries. At each meeting, all CRT members sign a pledge of confidentiality that prohibits them from discussing cases outside the team meetings. After the case summaries are reviewed, the CRT identifies health system and community factors that may have contributed to the death. The CRT team then makes recommendations for community change.

The CRT presents recommendations to the Community Action Team (CAT). The CAT creates an action plan based on the recommendations and participates in implementation of interventions designed to address the identified system and resource issues. The CAT may include members of the CRT, representatives of organizations and agencies, and community leaders. In the course of its work, the CAT may respond to issues that are broad to politically complex, that change over time, and that require substantial time and resources to implement change. There are seven CATs in the state of Alabama, with at least one in each region.

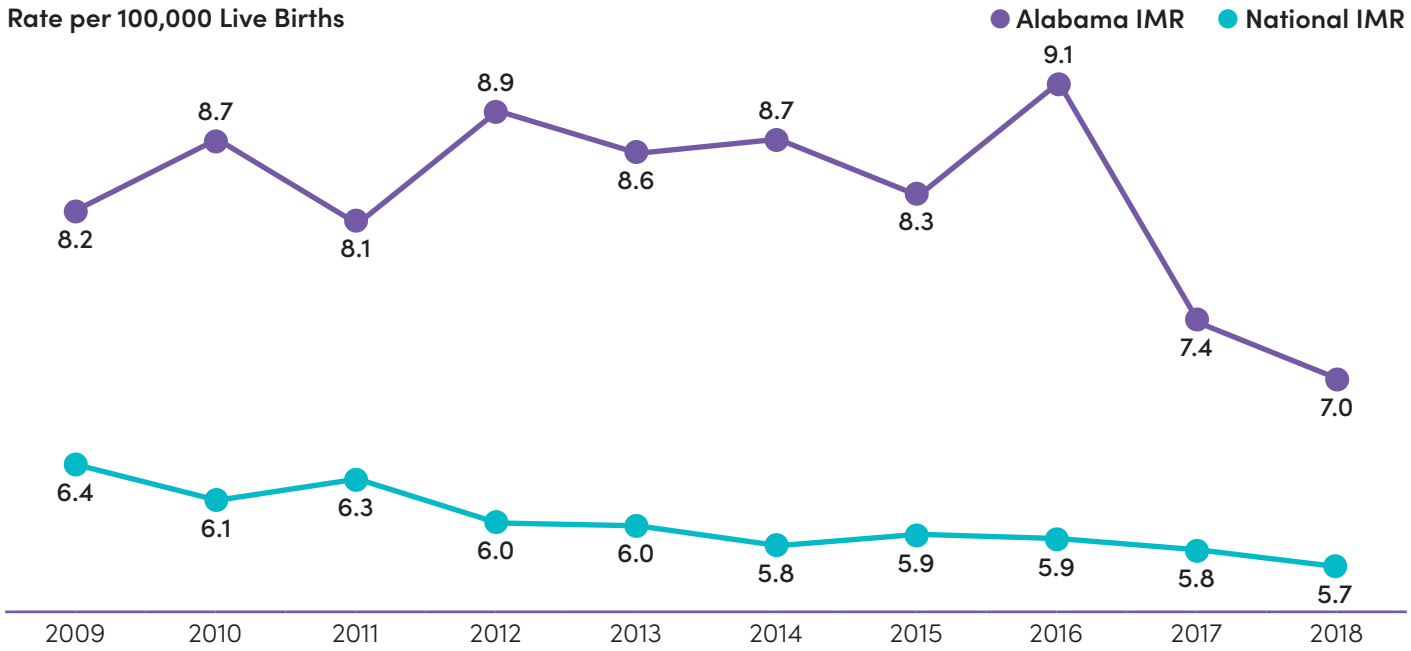
Summary of FIMR Process

The FIMR process described above is often referred to as the Cycle of Improvement (Figure 1). The continuous nature of the process provides a feedback mechanism that can help identify the extent to which the recommendations and actions are working. Over time, the review of new cases will reveal how successful interventions, programs, and policies have been because the change, or lack thereof, will be evident in future case reviews. As such, FIMR can function as a mechanism for continuous quality improvement.

Figure 1. The Cycle of Improvement

IMR in Alabama is above the national rate, which is around 5.6 to 6.4 per 100,000 births. Figure 2 shows the trend of IMR in Alabama versus the U.S. during 2009 to 2018.

Figure 2. Trend of Infant Mortality Rate by Year, 2009-2018



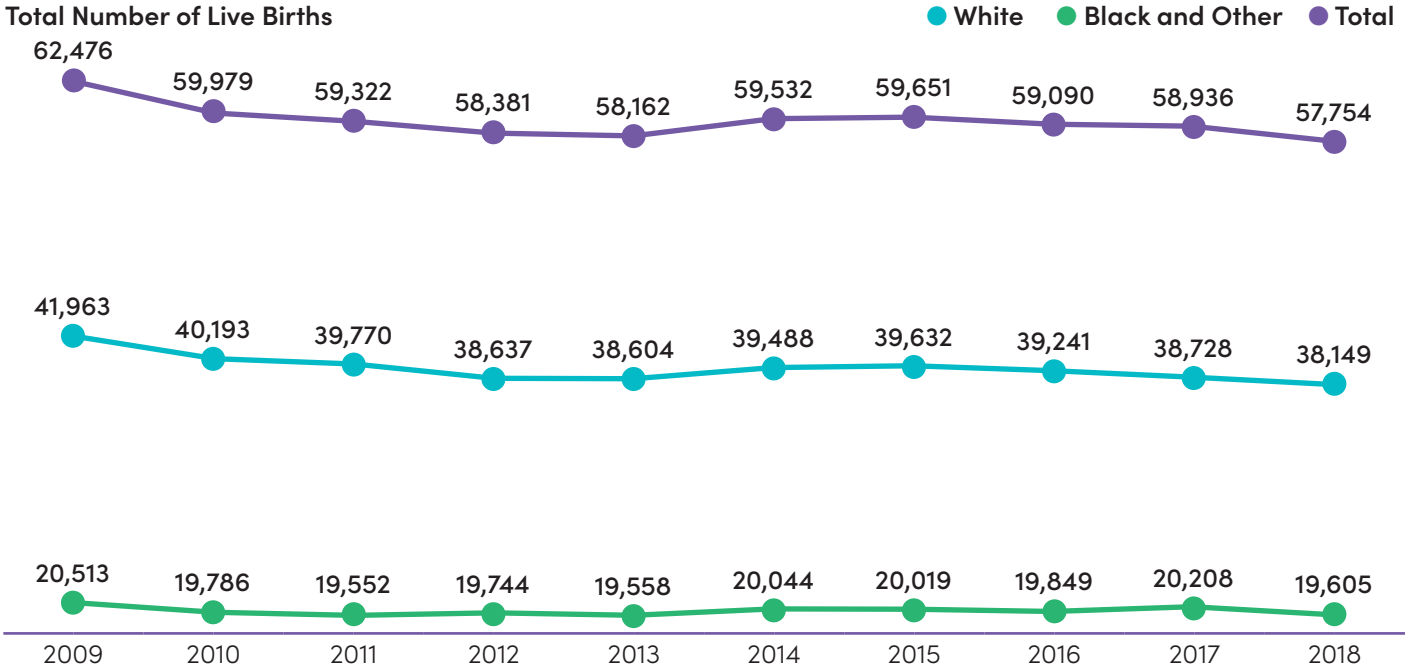
Source: IMR in Alabama from Center for Health Statistics (CHS), Alabama Department of Public Health; IMR in U.S.: CHS, National Vital Statistics System

Racial Disparities

INFANT MORTALITY

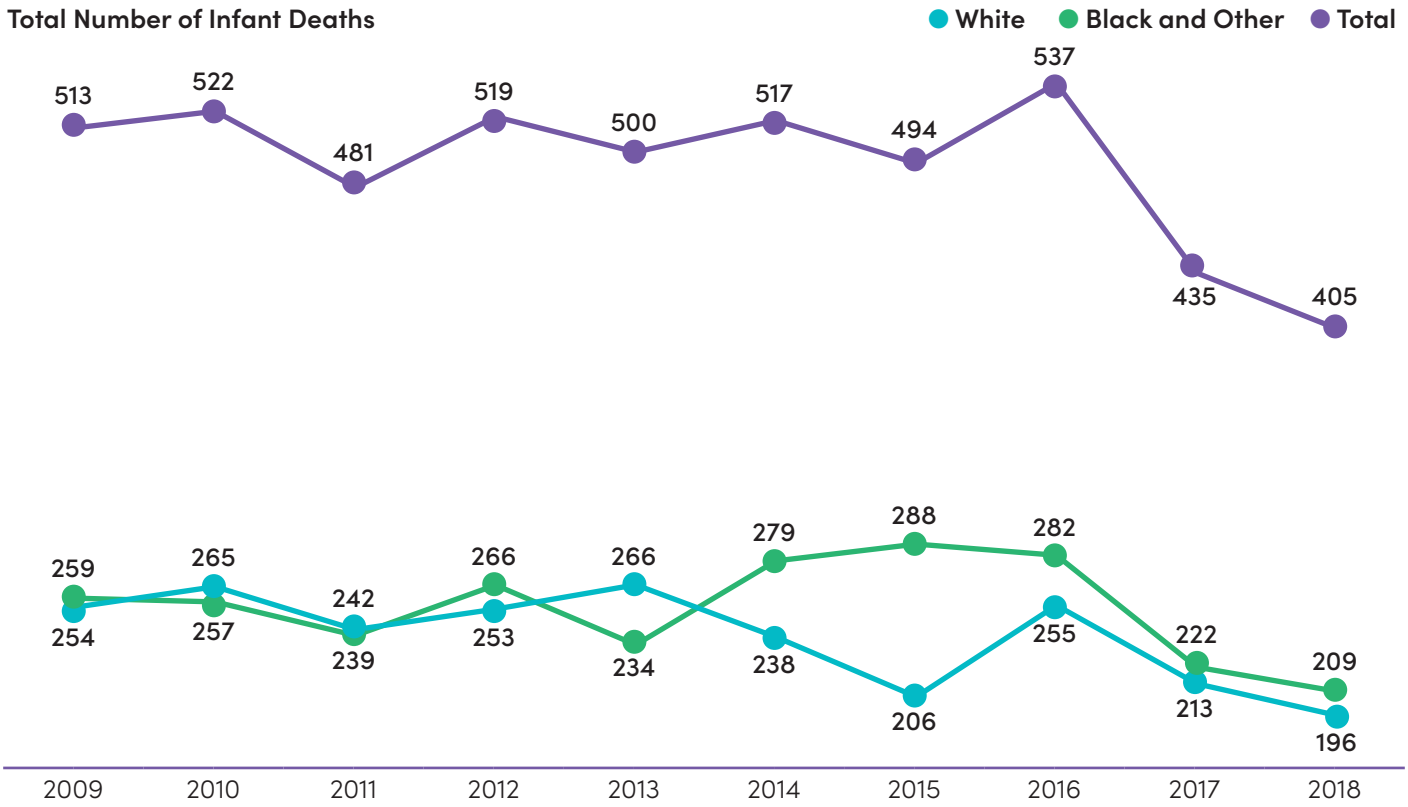
In Alabama, infants born to white women are twice as high to those born to black and other women (see Figure 3), while their numbers of deaths are almost the same for the two groups (see Figure 4). In other words, infants born to black and other women are over twice as likely to die relative to those born to white women. (See Figure 5.)

Figure 3. Trend of Live Births by Year and Race, 2009-2018



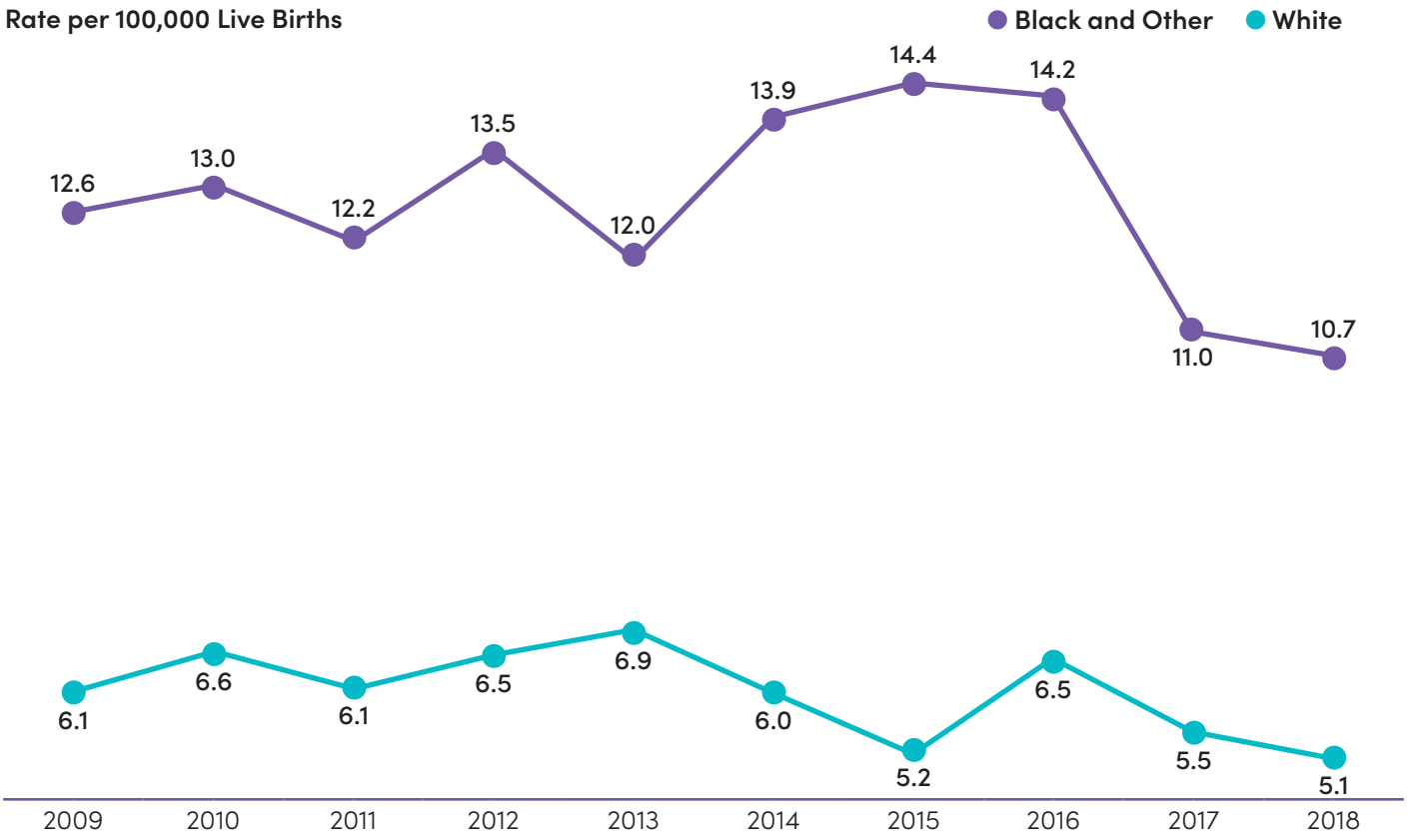
Source: CHS, Alabama Department of Public Health

Figure 4. Trend of Infant Deaths by Year and Race, 2009-2018



Source: CHS, Alabama Department of Public Health

Figure 5. IMRs by Race in Alabama per Year 2009-2018

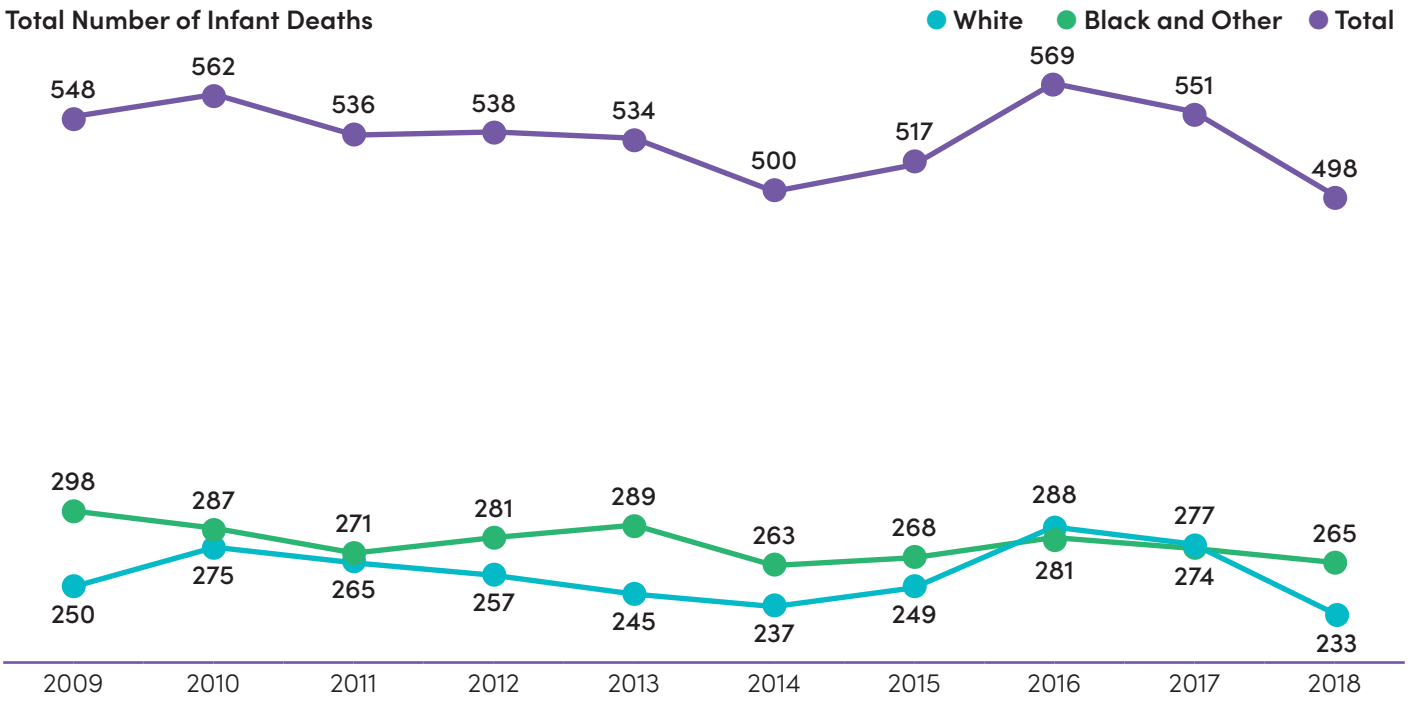


Source: CHS, Alabama Department of Public Health

FETAL DEATHS

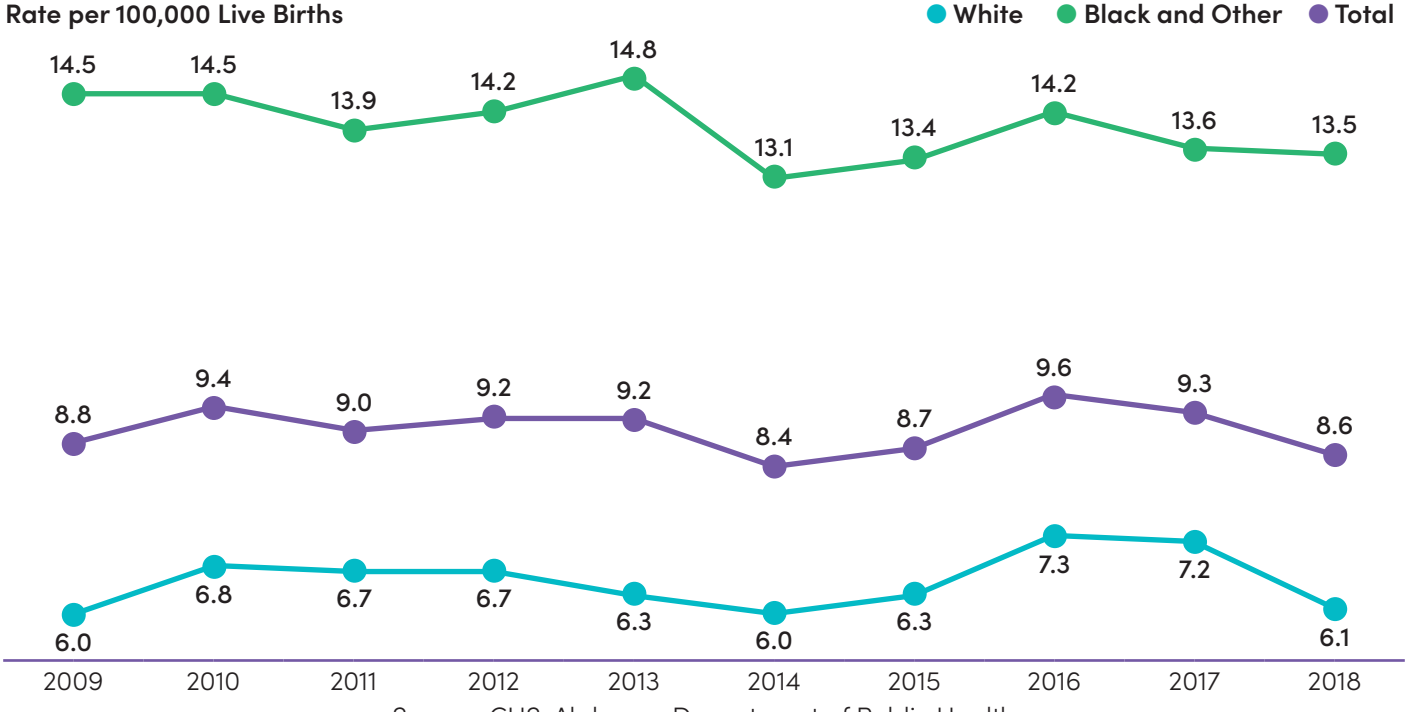
Although there are approximately half the number of black infants born annually in Alabama to white infants. (See Figure 3.) There are more fetal deaths to black women than to white women in most years since 2009. (See Figure 6.) The rate of fetal mortality for black women is twice as high as fetal mortality to white women, similar to infant deaths. (See Figure 7.)

Figure 6. Fetal Deaths and Mortality Rates, 2009 to 2018



Source: CHS, Alabama Department of Public Health

Figure 7. Rate of Fetal Mortality in Alabama, 2009-2018



Source: CHS, Alabama Department of Public Health

FIMR Recommendations

After reviewing the selected cases between 2009 and 2018, the FIMR team developed specific recommendations to promote, protect, and improve Alabama's health.

Grief Support/Bereavement Services

- Provide and increase adequate grief follow-up, and referrals/support for women and their families following a fetal or infant loss, such as grief support groups.
- Provide grief counseling/support information of available services and referrals to community agencies for grief counseling.
- Provide education to prenatal care providers on available tools to utilize in addressing grief and denial issues.
- Provide postpartum depression screening and assessment of grieving status with appropriate referrals.
- Provide education to emergency room staff on recommended steps to providing grief support, to include provision of a grief packet/box to families experiencing a loss.
- Provide home visits to Medicaid mothers who have experienced a perinatal loss.
- Provide education on the importance of bonding time for grief resolution for families who have a non-viable baby.

Preconception Health Education

- Increase awareness of the importance of preconception care, and the importance of proper nutrition and weight gain during pregnancy to the patient, caregiver, and the community.
- Implement consumer science and physical education curriculum in middle school and high school settings that encourage healthy lifestyles, nutrition and fitness, the risks of obesity, and family planning.

Family Planning

- Provide education about the importance of appropriate birth spacing, the importance of being healthy before pregnancy, the importance of family planning/preconception and interconceptional care, and referral and utilization of family planning options for women experiencing a fetal or infant loss.
- Provide family planning counseling prior to discharge, and follow-up with the patient if no contraception reported at discharge.
- Provide genetic counseling prior to the next pregnancy, when appropriate.
- Provide birth control in the immediate postpartum period.

Patient/Caregiver/Community Education

- Ensure patients receive adequate health education, to include the importance of prenatal care, preterm labor, rupture of membrane, signs of pre-eclampsia, proper nutrition, risks of obesity, and maternal infections..
- Educate patients and caregivers on counting fetal kicks, the signs and symptoms of decreased fetal movement, and when to call the doctor.

- Educate parents and caregivers on Safe Sleep/SIDS prevention, before discharge and ongoing to families and communities, including the risks of bed sharing, and infants sleeping in adult beds, swings, and couches or chairs.
- Stress the importance of receiving care from an appropriate prenatal care provider.
- Train infant cardio-pulmonary resuscitation to parents or caregivers before discharge from the hospital.
- Teach the signs and symptoms of a sick infant and when to call the pediatrician.
- Provide information on child safety education, including infant and child car seats, medication administration, and child proofing.

Substance Abuse

- Provide education regarding smoking cessation and substance abuse treatment.
- Supply providers with tools to screen for substance abuse and resources for substance abuse treatment.
- Develop protocol to screen all mothers with early abruptions for drugs.
- Provide education to the patient and the community on the importance of not using drugs anytime, especially when pregnant.

Coordination of Care

- Strengthen coordination between local agencies and programs and increase knowledge of available resources (specifically targeting mental health and substance abuse) among providers, agencies, and programs.
- Strengthen coordination between emergency room providers and obstetricians of patients who visit the emergency room.

Emergency Services/Law Enforcement

- Establish/enhance death scene investigation protocols and documentation of infant deaths.
- Advocate and educate county coroners, legislators, and the public regarding the need for mandatory scene investigations when an infant dies, particularly for those occurring outside of the hospital setting.
- Advocate for autopsies to be conducted without exception, in all cases of infant death except those cases that have a clear cause of death – prematurity, diagnosed disease, congenital anomaly, etc.
- Provide sensitivity training for all first responders.
- Enhance and improve intra-agency communications, including those with the medical examiner.
- Advocate for the availability, in rural areas, of Advanced Life Support (ALS) emergency medical service providers who have been trained in the care of obstetric (OB) and pediatric patients.
- Enhance and improve bereavement service referrals by coroners in all cases of infants discovered dead in the home.

Socioeconomic Issues

Improve assessment of family's home/socioeconomic situation, including possible need for referrals to social services, financial assistance, Women, Infants, and Children (WIC), Supplemental Nutrition Assistance Program (SNAP) Program, low cost/subsidized quality daycare, emergency shelter, and others as appropriate.

Nutritional Issues Education

Increase information, education, public awareness, and interventions specifically targeting areas involving adequate nutrition, underweight/overweight, and obesity.

Case Management Services

- Provide consistent and ongoing intimate partner violence (IPV) screening and protocol for referrals.
- Use open ended questions in initial contact to solicit more information from patient.
- Enhance and improve knowledge of community services available.
- Assess patient's understanding of discharge instructions and caring for their infant prior to discharge.
- Improve access for Maternity Care Program registration by enhancing and improving communication to patients regarding the Medicaid application process to facilitate a more timely approval.
- Enhance and improve both social services consults for perinatal patients, when applicable, and assessment of the income level for pregnant women, to ensure that basic needs as well as medical needs are being met during pregnancy.

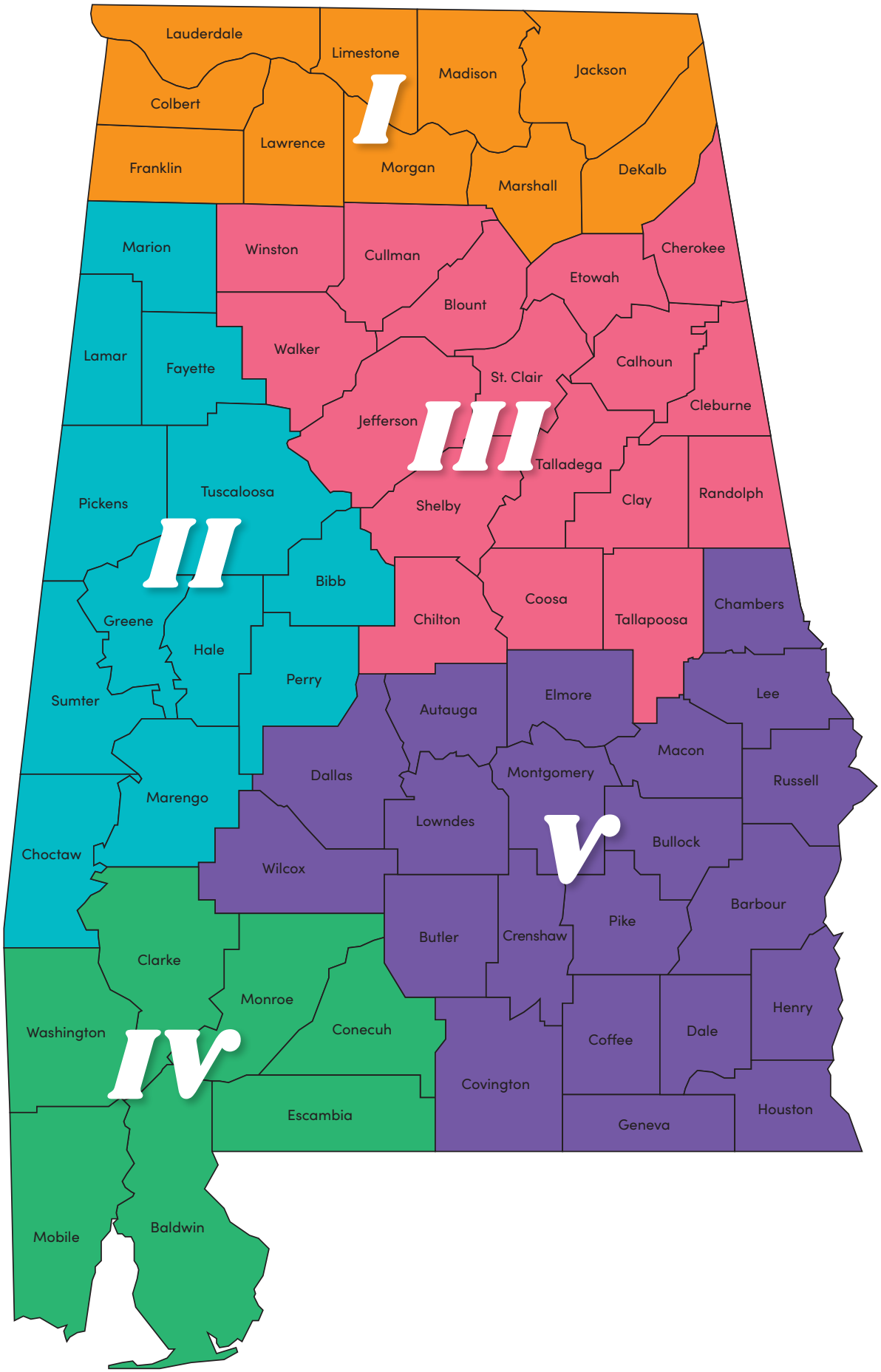
Medical Care/Provider Opportunities

- When applicable, debrief parents 2 to 3 months after loss to assess understanding of cause(s)/ circumstances of death.
- Enhance and improve sensitivity training, cultural competency training for providers, and network of interpreters for translation.
- Provide education to emergency room staff regarding the importance of prenatal care.
- Provide assessment and evaluation of dietary habits and of diet content/nutritional counseling.
- Improve communication by provider, of issues during pregnancy or infant's care, and evaluate the patient's/caregiver's understanding.
- Provide management/follow-up for mothers with pregnancy complications and subsequently transfer, in a timely manner, as warranted to the appropriate level of care.
- Provide infant cardio-pulmonary resuscitation training as standard before discharge from hospital.
- Provide notification of post-neonatal deaths occurring outside of the hospital setting to the Risk Management Division.
- Establish a regional list-serve for Risk Managers in all delivering hospitals so that information regarding OB issues can be addressed.
- Provide education to OB providers pertaining to bottle/breast feeding, car seat safety, safe sleep issues, etc., as directed in ACOG standards.
- Enhance communication among providers, especially with high-risk patients; completeness/ consistency of the Care Coordinator's record; and management and follow-up for mothers with multiple or frequent outpatient and inpatient visits.
- Provide education to providers on the need to document cervical lengths at 16 weeks and the appropriate medications to be used for postpartum depression.

Safe Sleep Community Education

Raise public awareness of the importance of safe sleep by developing public service announcements, placing billboards in communities promoting safe sleep education in areas most affected by sleep related deaths, giving education materials to parents during prenatal care and after birth, and distributing safe sleep posters to daycares.

Figure 8. Alabama Perinatal Regions Map



Activities in Region I

1. The Facebook page "Healing Hearts for Baby Loss of North Alabama," was developed and launched between May and June 2010. This activity assisted in providing mothers and families who had experienced loss to have a platform to share their experiences. The Perinatal Loss event was held on October 15, 2010, in Huntsville, Alabama.

2. An overview of the 2010 FIMR findings related to unsafe sleep issues was presented to the Marshall County Children's Policy Council for education and awareness of the need to develop a Marshall County CAT.

3. A subcommittee of the Marshall County Children's Policy Council was designated to address the recommendations from the CRT. From February through November 2011, data and resources were provided to the Nurse Manager Group to encourage review of its safe sleep policy/ procedures and education provided to families. More presentations and review of materials about safe sleep education were provided to groups such as Region I Lactation Consultant/ Advocate Group and Best Start Care Coordinators and Best Start Educators which provided Maternity Care Coordination in Public Health Regions I and II.

Activities in Region II

1. The CAT of Tuscaloosa provided educational training to providers, perinatal staff, and clergy in June 2010, and established and implemented bereavement follow-up protocol with Compassionate Friends in May 2010. In September 2018, the CAT hosted an event called Rocks in the Park for Infant Mortality Awareness Month. Sixty rocks were painted pink or blue with baby footprints and a number on them were placed along the walking trail at Snow Hinton Park in Tuscaloosa in memory of the babies lost in 2017 in Region II.

2. In 2011, The McDonald Hughes Community Center held a summer youth program for youth to address stressors in childhood. The program, "Summer, Food, and Fun," combined the regular summer food program with wellness education for youth. The focus was on reducing obesity, keeping the heart healthy, diabetes control, exercise, preconception health, reducing illiteracy, life skills, dealing with bullying, violence prevention, safety, and parenting.

3. To provide safe sleep education for the community, multiple projects were performed in 2017 and 2018. The CAT exhibited and/or provided hands-on training at the Holt Health Fair in March 2017; the Books, Balls, and Blocks Event in April 2017; BabyPalooza in 2017 and 2018; and the University of Alabama employee Health Fair in October 2017. The CAT partnered with Kids and Kin to provide safe sleep education in various counties in the Region II area.

4. To promote and support breastfeeding in 2018, an information session was held for patients and care providers in April 2019, at the University Medical Center (UMC) in collaboration with the UMC Social Services Department. Also in collaboration with the UMC Social Services Department, the CAT provided a tent for mothers to breastfeed or express breastmilk for their babies in the Family-Friendly Tailgate area for every University of Alabama home football game.

Activities in Region III

1. Resolve Through Sharing (RTS) Bereavement Training was sponsored by University of Alabama at Birmingham, in November 2010. A list of bereavement providers was also created to share with coroners and Emergency Departments.

2. In July 2010, the Safety Committee, a subcommittee of the Jefferson County CAT, obtained agreement from the Children's Health System's marketing director to assist, for a 6-month period beginning in January 2011, with a media blitz concerning substance abuse and safe sleep which were used in physicians' offices to educate parents/caretakers while they are waiting to see their provider. The Safety Committee also met with African American pastors in Jefferson County to provide education on perinatal issues such as human trafficking, homeless youth, youth violence, Shaken Baby Syndrome (SBS), and safe sleep.

3. In 2010, the Community Resource Subcommittee developed and distributed a county directory of services to physicians and medical facilities. The local newspaper also developed a local resource directory which was distributed to all OB physicians and care coordinators in Calhoun County in May 2011.

4. The CAT developed posters regarding signs and symptoms of preterm labor, premature rupture of membranes, and kick counts. These posters were distributed to hospitals, physicians, and care coordinators' offices.

5. Safe Sleep posters were distributed throughout the region to physicians' offices, hospitals, care coordinators' offices, and other agencies that provided care to mothers and infants. In July 2011, an article on safe sleep was written for the local newspaper, the Anniston Star. Plans were made to present safe sleep information in May 2011 at an annual nursing conference at Gadsden State Community College.

6. Prenatal classes to teens were provided by a local church. A new subcommittee for Reproductive Healthcare to address preconception health needs was created in the Jefferson County Children's Policy Council. The CAT continued to work with the Children's Task Force on the Cribs for Kids programs by providing contact information on accessing free cribs to physicians, social workers, care coordinators, and nurses.

Activities in Region IV

1. The March of Dimes' "I Want My 40 Weeks" information was distributed on cards at health fairs in Fairhope, Alabama.

2. A packet of information, including community services, grief support, and available educational brochures were distributed to providers in Baldwin County. The Escambia County CAT updated, assembled, and delivered community resource packets to all county OB/GYNs, pediatric and family practice providers, health departments, and women's resource centers in Escambia County. A Facebook page was developed and added to the grief support list of services available in Baldwin County. Alabama Baby Coalition sympathy cards were placed in the Level 3 hospital for distribution to parents who suffered a loss. In October 2011, the Baldwin County CAT developed and coordinated an Interdenominational Memorial Service and asked three delivering hospitals in Baldwin County to support the event by rotating sponsorship every year in a partnership with them.

3. An educational Power Point slide presentation on Baldwin County infant mortality statistics was developed and presented in churches to increase the awareness of infant mortality. Food and Lodging Inspectors with the Mobile County Health Department distributed safe sleep posters to the 175 daycare centers in Mobile County.

4. Babies and moms attended safe sleep training seminars promoted by the Baldwin County CAT. An interview with Devon Walsh was held on TV 10 to advertise safe sleep classes. The classeswere also advertised on local radio stations. The Children's Trust Fund Cribs for Kids Program donated 100 cribs. Attendance of the safe sleep class was mandatory for mothers to receive the cribs. The team also partnered with the Cribs for Kids Program and provided a Graco Pack n' Play portable crib to teen moms in need of a crib.

5. The CAT invited a member from the Mobile CRT to a CAT meeting to discuss natural family planning and future actions.

6. A CAT was implemented in Monroe and Escambia Counties in 2010. At the first meeting in Escambia County, goals were set to educate on safe sleep/SIDS prevention, benefits of breastfeeding, benefits of longer gestation for pregnancies, and utilizing the media to help with education. In January 2011, the Chair of the Escambia County CAT did a radio spot to discuss why expecting mothers should want to complete 40 weeks of pregnancy. In February 2011, the Vice Chair of the Escambia County CAT wrote an article on safe sleep in the Brewton Standard Newspaper.

Activities in Region V

1. In 2011, the River Region CAT volunteered at the "Citywide Field Day" held at Bellingrath Jr. High. Hundreds of youth participated in the event sponsored by the Montgomery Department of Public Safety, Montgomery Office of Faith-Based and Community Initiatives, and Community Congregational Church. In 2015, the River Region CAT volunteered to assist "Growing Our Own Youth" (a project of the Gift of Life Foundation that provides services to Montgomery, Autauga, Elmore, and Lowndes Counties) to provide a health rally of more than 2,000 eighth grade students from Montgomery public schools. The goal of the event was to encourage youth to make healthy lifestyle habits now that will benefit them for the rest of their lives.

2. In partnership with Jackson Hospital, a class was developed to educate pregnant mothers diagnosed with gestational diabetes about diabetes and its effect on the mother, fetus, and delivery outcomes.

3. In March 2010, information about the importance of bonding time for grief resolution in families with a fetal loss was presented at the regional Nurse Managers' meeting. The 2011 conference, "Perinatal Loss - Care and Compassion" provided information on how infant death affects the family and how caregivers can assist in the healing process. An event was held to commemorate infant loss on National Perinatal and Infant Remembrance Loss Day in 2012 and 2018.

4. Approximately 130 people attended the SIDS/SUID Conference held in Montgomery for first responders and hospital staff. Approximately 400 safe sleep posters were distributed to physicians, patients, community leaders, and hospitals in the region.

FIMR Statewide Initiatives

Well Woman Program

The Well Woman program creates the opportunity for women ages 15-55 to receive preventative health screenings and management of chronic diseases. The goal of the Well Woman program is to provide preconception and interconception care to women of child bearing ages as a foundation for wellness, identification of chronic diseases, and planning to adopt a healthier lifestyle. This provides women access to healthcare especially as access to Medicaid coverage ends 60 days post-delivery. The program started in 2017 as a pilot program in Butler, Dallas, and Wilcox Counties. The successes of the program in those three counties led to an expansion. In October 2018, ADPH received funds from the Governor's Initiative and federal funds to expand the program to Montgomery, Macon, and Russell Counties.

The Well Woman program utilizes the New Leaf Module, which is a scientific based intervention tool that emphasizes practical strategies for making changes in dietary and physical activity behaviors. The research for New Leaf was done by the University of North Carolina at Chapel Hill. All Well Woman participants receive a New Leaf booklet which focuses on nutrition, physical activity, tobacco cessation, achieving a healthy weight, prevention and management of hypertension and diabetes, bone health, and dealing with stress and depression.

A Well Woman visit begins with the woman visiting the county health department for services. After consenting to enroll in the program, nursing staff initiate the Well Woman initial visit. The nursing staff completes the data collection tool in CureMD. The tool captures demographic information and health history with specific questions focused on assessing a reproductive life plan, physical and emotional health, and identifying risk factors for chronic diseases. Also, baseline physical assessment data is collected such as blood work, vision screening, oral exam, height, and weight. The nurse practitioner conducts the risk reduction counseling by reviewing the history and physical assessment results to initiate treatment and follow-up for identified conditions, such as hypertension. The last stop of the visit is with the social worker. The social worker reinforces the risk reduction counseling information, provides health coaching, monthly group interactions, schedules follow-up visits, and provides resources for physical activity including gym memberships for participants.

Safe Sleep Initiatives

The goal is to increase infant safe sleep practices by 5 percent among all racial and ethnic groups. Alabama's infant sleep related deaths have increased each year since 2011. An on-line survey regarding safe sleep was distributed electronically to the delivering hospitals in Alabama. Ninety-two percent of the hospitals responded to the survey. The survey revealed that 64 percent of hospitals do not have an infant safe sleep policy, 68 percent of hospitals do not ask where the infant will sleep once they are taken home, and 94 percent of hospitals would be interested in having a safe sleep program in their facility.

There was collaboration with the Department of Child Abuse and Neglect Prevention to provide the Cribs For Kids® Program in Mobile and Baldwin Counties and to supply cribs statewide to families that need a crib in a crisis. A work-group was formed and developed "Alabama's Collaborative on

Safe Sleep: A Position Statement" to encourage providers to discuss safe sleep with patients. There was collaboration with stakeholders to identify consistent messaging for educational material to be used statewide. In collaboration with the American Academy of Pediatrics and the Alabama Hospital Association (AlaHA) a step-by-step process for implementing a safe sleep program for delivering hospitals in Alabama was developed.

Early Elective Delivery

Non-medically indicated early elective deliveries (EEDs) are births that occur before 39 weeks of pregnancy for no specific medical reason. EEDs are performed via induced labor or scheduled caesarean section before the mother is full term. There are no known benefits for EEDs, but the health risks for the infant and mother are significant. Infants born before 39 weeks are at risk for many serious health complications because vital organs, such as the brain, lungs, and liver have not fully developed. Labor induction can cause maternal complications such as increased risk of infection and postpartum hemorrhage due to prolonged labor, increased risk of caesarean section, and increased use of instruments such as forceps or vacuum during delivery.

EED activities began in May 2012. ADPH perinatal staff collaborated with AlaHa to reduce non-medically indicated EEDs. AlaHA received funding from the Centers for Medicare and Medicaid Services for the Hospital Engagement Network and was assigned delivering facilities in the state. According to AlaHA in 2013, 31 of the delivering hospitals in Alabama developed a policy to eliminate non-medically indicated EEDs. In 2013, there was a 50 percent decrease in EEDs statewide. According to AlaHA in 2014, 80 percent of delivering hospitals in Alabama had an EED rate of '0' with the average EED rate of 2 percent as of January 2014. In 2015, the percent of hospitals with an EED rate of 0 ranged from 82.6 to 93.5 percent among 46 hospitals.

AlaHA contacted all the delivering hospitals within the state to identify where the facilities were in the process of addressing EED reductions. Next, AlaHA engaged the delivering hospitals through their Quality Task Force Meetings. AlaHA collaborated with The March of Dimes (MOD) and provided the MOD with the "less than 39 weeks" tool kit to hospitals. AlaHA conducted face-to-face meetings and continues to conduct phone follow-up, as well as collaborate with the hospitals to monitor the number of EED deliveries in their facilities.

Medicaid Interconception Care

Preconception and interconception healthcare focused on taking steps before and between pregnancies to protect the health of a baby in the future. Poor maternal health prior to pregnancy is a factor that must be taken into account when addressing infant mortality. A mother's poor health before pregnancy can have detrimental effects on her infant. Women who are underweight before pregnancy are more likely to have low birthweight (LBW) infants than are women who are of normal weight before pregnancy. Obesity, along with chronic diseases such as diabetes and hypertension, are major causes of perinatal morbidity.

In order to improve access to postpartum visits and interconception care, case management services for women who have experienced a Medicaid financed birth that resulted in an adverse pregnancy outcome were added to Medicaid modified policies and procedures by December 2013. The Interconception Care (ICC) Program was implemented for women who remain on Medicaid after 60 days after delivery and who had an adverse pregnancy outcome that included: fetal death, very low birth weight (VLBW) delivery, LBW delivery, infant death, or premature birth. Development of a system of referral for the women who enroll in the ICC Program was also developed.

Guidelines developed by the CDC for preconception and interconception care emphasize a comprehensive approach to women's health that includes risk assessment, education, and counseling to all women of childbearing age as a part of primary care visits in order to reduce reproductive risks and improve pregnancy outcomes. Routine risk assessment through screening (and intervention where appropriate) is recommended to include: reproductive history, environmental hazards, medications, prenatal care, Human Immunodeficiency Virus (HIV) testing and counseling, weight reduction, nutrition, smoking cessation, social and mental health (depression, social support, domestic and partner violence, and housing), and substance use.

A comprehensive approach to women's health is designed to address the limitations associated with viewing preconception, prenatal, and interconception care as distinct entities targeting identifiable groups of women. Interconception care is achieved only when women anticipate having another child within a relative period of time from the previous pregnancy. Focusing on taking steps before and between pregnancies has been described as an effective strategy for improving birth outcomes by serving women across their lifespan and at various levels of risk. Therefore, it is essential to conduct educational activities for men and women of childbearing age so that chronic health conditions and lifestyle behaviors that can affect the life of an unborn infant can be addressed.

Smoking Cessation

Smoking during pregnancy is a modifiable risk factor for poor birth outcomes. Research documents that smoking before and during pregnancy is associated with a higher frequency of miscarriages, preterm births, LBW babies, problems with the placenta, greater risk of delivering an infant with cleft lip or cleft palate, and may be associated with an increased risk of behavioral and learning disabilities. According to the CDC, secondhand smoke causes numerous health problems in infants and children, including respiratory causes of infant death, more frequent and severe asthma attacks, respiratory infections, ear infections, and SIDS. Smoking during pregnancy results in more than 1,000 infant deaths annually in the U.S. Statistics indicate babies of mothers who smoke during pregnancy are three times more likely to die from SUID than infants of nonsmoking mothers.

In 2018, targeted education and training was distributed by the State Perinatal Program staff and the Area Tobacco Control Coordinators to providers in nine counties in Alabama where the number of women who smoked during pregnancy was greater than 20 percent. The counties were Bibb, Cherokee, Covington, Fayette, Jackson, Lawrence, Marion, Walker, and Winston. A smoking cessation poster was developed that addressed the long-term effects on the child when a mother smoked during her pregnancy. Approximately 3,500 posters were distributed statewide to hospitals, physicians' offices, pregnancy test centers, pharmacies, Department of Human Resources offices, Medicaid offices, and local health departments by the State Perinatal Program staff. The WIC staff completed and faxed the Quitline referral application for women who desired to stop smoking. Quitline contacts the women within 48 hours of receiving the fax to offer services.

Historically in Alabama, smoking decreases during pregnancy in the majority of women, only to increase again after the birth of their infants. Smoking during pregnancy has continued to decrease over time.

Targeted education and training included distribution of educational material regarding 1-800-QUITNOW, "Smoke Free for a Healthy Baby" and access to the "Smoking Cessation During Pregnancy – A Clinician's Guide to Helping Pregnant Women Quit Smoking," an on-line, self-instructional guide and tool kit from ACOG. Over 5,000 "How Smoking Affects Your Pregnancy" posters were distributed statewide. The posters addressed the long-term effects on the child when a mother smokes during her pregnancy. A protocol for all 67 county health departments was developed to provide smoking cessation counseling to women of childbearing age, which includes

completing the QUITLINE referral for services and faxing the QUITLINE referral for any woman who expresses the desire to stop smoking.

In recent years, electronic cigarettes (e-cigarettes) have become a popular alternative to traditional cigarettes. Although the aerosol of e-cigarettes generally has fewer harmful substances than traditional cigarette smoke, e-cigarettes and other products containing nicotine are not safe to use during pregnancy. Nicotine of any kind is a health danger for pregnant women and developing babies.

Technical Notes

ADEQUACY OF PRENATAL CARE UTILIZATION INDEX (APNCU). This index, also known as the Kotelchuck Index of Prenatal Care, was designed as an improvement on the Kessner Index. It has 5 values: 1 = Adequate Plus, 2 = Adequate, 3 = Intermediate, 4 = Inadequate, and 5 = Unknown. Its major advantage is that it divides Adequate into two categories. Those with Adequate Plus had other risk factors, which increased the number of visits. The index can serve as an indicator that some medical condition required additional prenatal care. [Kotelchuck M., "An Evaluation of the Kessner Adequacy of Prenatal Care Index and a Proposed Adequacy of Prenatal Care Utilization Index," American Journal of Public Health, 1994, 84(9):1414-20.]

BIRTHWEIGHT, The first weight of the fetus or newborn obtained after birth. This weight preferably is measured within the first hour of life, before a significant postneonatal weight loss has occurred.

CONGENITAL ANOMALIES. The abnormality of the structure of a body part. "Birth defect" is a widely-used term for a congenital malformation or anomaly which is recognizable at birth.

CAUSE OF DEATH. The cause of death presented in this publication is the "underlying cause," which is defined as the cause deemed responsible for the sequence of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury. Deaths by cause are classified according to the International Classification of Diseases, Tenth Revision following instructions established by the National Center for Health Statistics.

DEATH. Death is defined in Black's Law Dictionary, Sixth Edition, as "The cessation of life; permanent cessations of all vital functions and signs." For definitions of the determination of death under other than general circumstances, the Code of Alabama should be consulted.

FETAL DEATH. "Death prior to the complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy. The death is indicated by the fact that after the expulsion or extraction the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps," Code of Alabama, 1975, Section 22-9A-1. While the definition of fetal death includes all gestations, only fetal deaths that have advanced to or are beyond the twentieth week of uterogestation are required to be reported under Alabama law and they are the only ones counted as fetal deaths in this publication.

$$\text{Fetal Death Rate} = \frac{\text{Number of Fetal Deaths 20 or More Weeks in Gestation}}{\text{Number of Live Births + Fetal Deaths}} \times 1{,}000$$

GESTATION. The period of development from the time of fertilization of the ovum to birth. In these publications, the terms "gestation" and "uterogestation" are used synonymously.

INFANT DEATH. Death of a liveborn infant under 1 year of age. The term excludes fetal death.

$$\text{Infant Mortality Rate} = \frac{\text{Number of Deaths Under 1 Year of Age}}{\text{Number of Live Births}} \times 1{,}000$$

INTERNATIONAL CLASSIFICATION OF DISEASES (ICD). A publication of the World Health Organization (WHO) that provides the essential ground rules for the coding and classification of cause-of-death data. The purpose of the ICD, with the sponsorship of WHO, is to promote international comparability in the collection, classification, processing, and presentation of health statistics. In addition to being a classification system, the rules provide for identification of a single condition on the death certificate, that is considered most informative from a Public Health point of view, called the "underlying cause of death."

LATE PRENATAL CARE. Medical care during pregnancy that is initiated after the first trimester (after the third month).

LIVE BIRTH. "The complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of the pregnancy, which, after such expulsion or extraction, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps," Code of Alabama, 1975, Section 22-9A-1. In these publications, the terms "live birth" and "birth" are used synonymously.

LOW BIRTHWEIGHT. A weight at birth of under 2,500 grams or under 5 pounds and 8 ounces.

NEONATAL DEATH. Death of a liveborn infant occurring within the first 27 days of life.

$$\text{Neonatal Mortality Rate} = \frac{\text{Number of Deaths Under 28 Days of Age}}{\text{Number of Live Births}} \times 1{,}000$$

OCCURRENCE DATA. Data compiled as to the geographical place where the event occurred.

POSTNEONATAL DEATH. Death of a liveborn infant after the first 27 days of age but before 1 year of age.

$$\text{Postneonatal Mortality Rate} = \frac{\text{Number of Deaths 28 or More Days But Less Than 1 Year of Age}}{\text{Number of Live Births}} \times 1{,}000$$

RESIDENCE DATA. Data compiled as to the place of residence without regard to the geographical place where the event occurred. For births and fetal and infant deaths, place of residence of the mother is used.

TRIMESTER. A 3-month period of time. First trimester care, for example, refers to care initiated in the first 3 months of pregnancy.

VERY LOW BIRTHWEIGHT. A weight at birth of less than 1,500 grams or under 3 pounds and 5 ounces.

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