PRAMS

Alabama Pregnancy Risk Assessment Monitoring System

Phase 8 Report

ALABAMA DEPARTMENT OF PUBLIC HEALTH
MCH
OFFICE OF MATERNAL & CHILD HEALTH

ALABAMA PUBLIC HEALTH

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Acknowledgements

We want to thank the members of the Centers for Disease Control and Prevention (CDC), the Alabama Pregnancy Risk Assessment Monitoring System (AL-PRAMS) Steering Committee, the University of Alabama at Birmingham (UAB) Survey Research Unit, and the Alabama Center for Health Statistics (AL-CHS) for their involvement in the AL-PRAMS Project. The objectives of AL-PRAMS could not be achieved without the commitment, assistance, and ongoing support of these members.

A special thanks to those who participated in the survey for sharing their most personal experiences about their pregnancy journey. Every completed AL-PRAMS survey helps strengthen our collaboration with existing and new partners to address health issues affecting both the mother and the infant.

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AL-PRAMS leadership is housed within the Bureau of Family Health Services.

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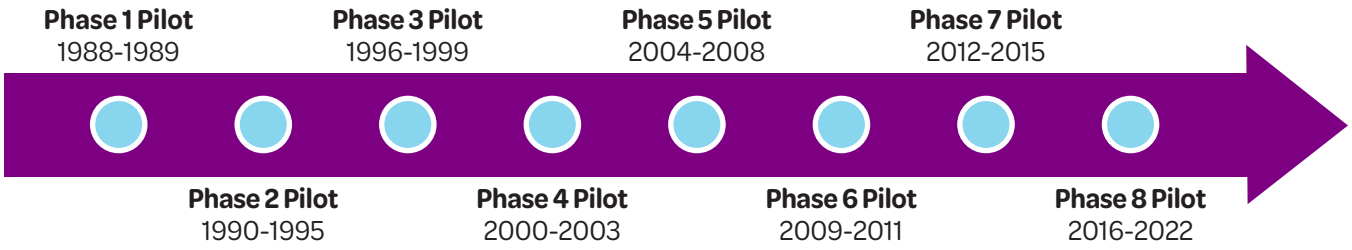
Introduction

What is the Pregnancy Risk Assessment Monitoring System (PRAMS)?

PRAMS is a joint surveillance project between state, territorial, or local health departments and the CDC Division of Reproductive Health, developed in 1987 to reduce infant morbidity and mortality [1]. The purpose of PRAMS is to determine why some infants are born healthy, and others are not, and to positively influence maternal behaviors before, during, and immediately after birth. Participating states receive annual funding from the CDC to conduct PRAMS activities and collect information from mothers who have recently either given birth or had an infant death through a standardized PRAMS survey. Mothers are selected from the state's birth registry using eligibility criteria set by the state. The PRAMS survey gives mothers the opportunity to answer questions about their lives before, during, and shortly after pregnancy. Since 1988, the CDC has periodically updated its core survey questions to reflect new or emerging health topics that could affect mothers and infants. Figure 1 highlights the chronology of PRAMS survey iterations sent to eligible mothers meeting the criteria set by each grantee. For this report, the findings from the Phase 8 survey iteration covered the period from 2016 to 2022.

Figure 1. PRAMS Survey Chronology



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Current core PRAMS survey questions include topics designed to monitor changes in MCH indicators such as maternal health, prenatal care, postpartum care, infant sleeping environment, and breastfeeding. In addition to the core PRAMS survey questions, supplemental questions may be included to better assess state-specific health issues. Supplemental questions can include topics on conditions and policies affecting health, e-cigarette use (vaping), and other related health topics relevant to the state. Starting in 2019, AL-PRAMS added an opioid data supplement to the Phase 8 Survey.

What Topics were Captured in Phase 8?

With the transition to Phase 8, questions concerning physical activity and the use of nicotine products such as e-cigarettes, hookah, or chew/snus were added to the survey. Figure 2 highlights the primary areas of focus of the Phase 8 survey selected by the Alabama PRAMS for analysis. The complete list of topics captured for Phase 8 is available at the provided link.

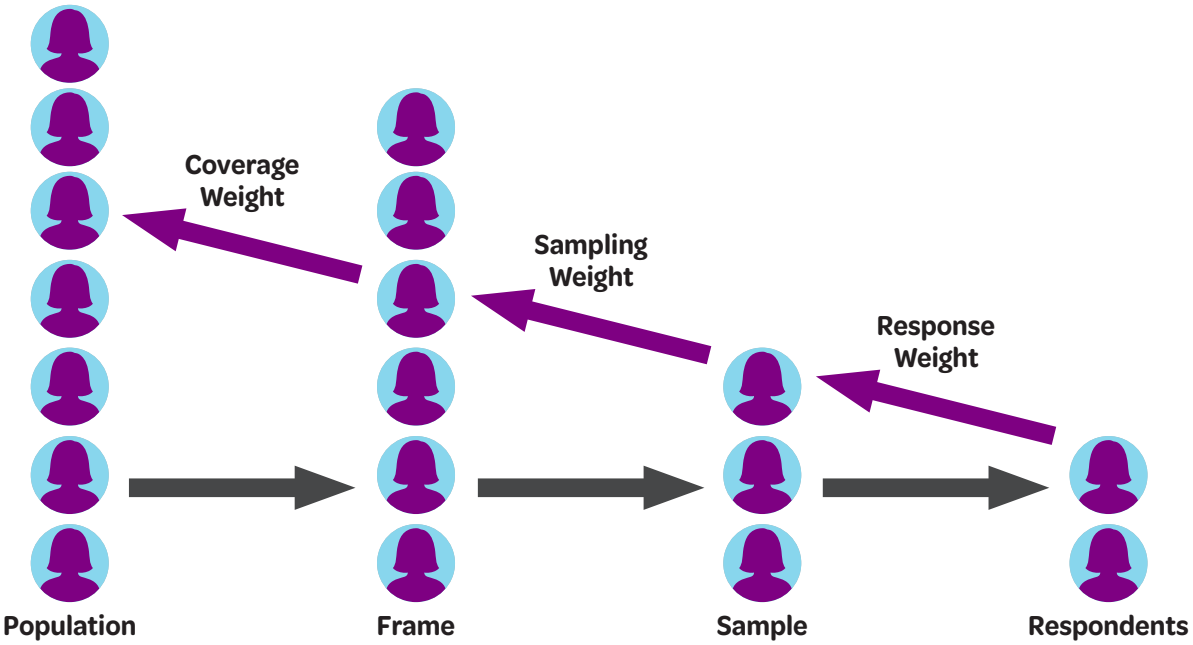
Figure 2. Phase 8 Selected Survey Topics

Source: Alabama Department of Public Health, Office of Maternal and Child Health

How does PRAMS work?

CDC uses unweighted survey data to accurately represent the maternal population at the state level [2]. Figure 3 illustrates the CDC framework for weighing the data from each participating PRAMS site. This framework enables states to select sample sizes ranging from approximately 1,000 to 3,000 women to represent all new mothers who either delivered a live-born infant or had an infant death during the time frame of interest. Birth records are used to select a sample that meets the state's eligibility criteria. Between 2016 and 2022, AL-PRAMS selected mothers based on Medicaid and non-Medicaid insurance status as the targeted population groups. Based on the data sampling plan, the AL-CHS provided AL-PRAMS with a randomized monthly sample of mothers who had delivered within the previous 2 to 6 months, drawn from Alabama's birth certificate data. Depending on the state's priorities, oversampling of a targeted population can be used to accurately reflect its representation in state-level estimates.

Figure 3. PRAMS Logic Model

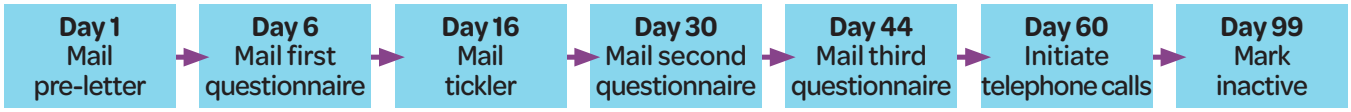


Source: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System

After data cleanup, the CDC provides annual datasets to participating sites for dissemination. PRAMS data also serve as one of the federally available data sources used to observe annual trends on specific health topics relevant to the Title V MCH Block Grant Application. With this reference, Alabama can develop strategies focused on topics identified in the PRAMS survey, such as dental care during pregnancy, postpartum care, and safe sleep practices.

After receiving the monthly list of eligible mothers, AL-PRAMS used the Figure 4 timeline to initiate contact and remind respondents to complete the AL-PRAMS survey. On Day 1, selected mothers are sent a letter explaining what AL-PRAMS is and how their opinions matter. On Day 6, the first copy of the survey is mailed to the mother. If there is no response, a reminder letter is sent on Day 16. If there is still no response, a second copy of the survey is sent on Day 30, followed by a third on Day 44. After sending out the third survey, telephone contact is initiated on Day 60. If contact has not been made by Day 99, the AL-PRAMS team will mark the survey as incomplete. Note that survey participants can opt out during the phone phase, and their status will be marked as a phone refusal.

Figure 4. Timeline for AL-PRAMS Survey

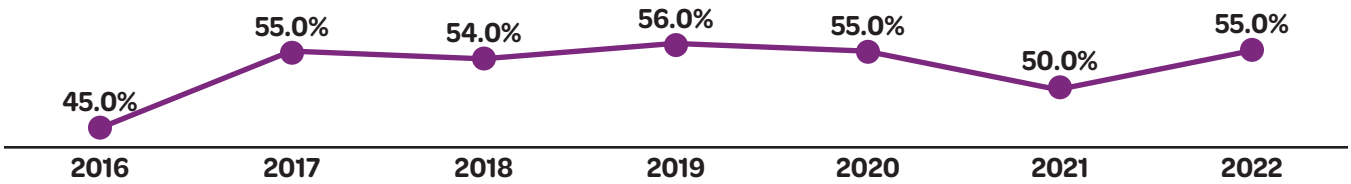


Source: Alabama Department of Public Health, Office of Maternal and Child Health

Response Rate

Figure 5 highlights the annual survey response rates calculated by the CDC. Except for 2016, the overall survey response rates were either equal to or above 50.0 percent. During Phase 8 survey data collection, the CDC required states to meet this threshold to increase the accuracy of weighted findings. As of 2025, the CDC has eliminated the survey response thresholds that states must meet for their findings to be included in reports, publications, or data requests.

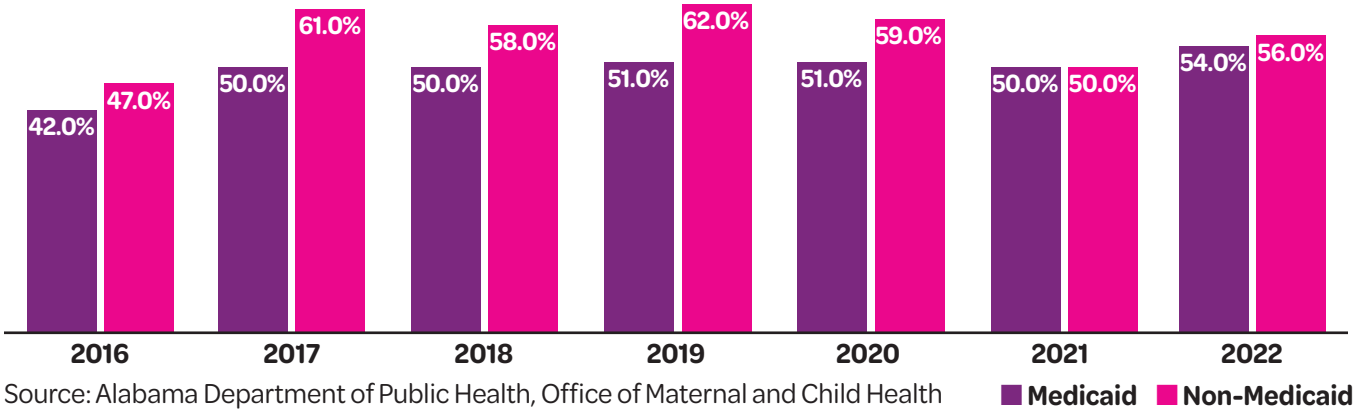
Figure 5. AL-PRAMS Phase 8 Annual Survey Response Rate



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Survey response rates can vary across the selected insurance strata. Figure 6 shows response rates across the Medicaid and non-Medicaid insurance strata. Excluding 2021, those without Medicaid insurance had the highest response rates.

Figure 6. AL-PRAMS Phase 8 Annual Survey Response Rate, by Insurance Strata



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Incentives and Rewards

To increase the overall survey response rate, AL-PRAMS Program offers incentives and rewards for eligible mothers to complete the survey. To encourage participation, selected participants receive a nail file and a pen in the first mailed packet. If a selected AL-PRAMS participant completes the survey, AL-PRAMS sends one of the following rewards, based on the respondent's preference.

- Diapers
- Insulated Coolers
- Manicure Sets
- Thermometers

Demographics of AL-PRAMS Survey Respondents

Between 2016 and 2022, AL-PRAMS sent surveys to approximately 11,000 new mothers (n=11,200), and just under 6,000 (n=5,249) completed the survey, resulting in a combined response rate of close to **50.0 percent (46.9 percent; n=5,249/11,200)**. Table 1 depicts the population characteristics of AL-PRAMS survey respondents with maternal characteristics stratified by maternal age, race/ethnicity, insurance status, WIC (Women, Infants, and Children) enrollment status, and education level.

Table 1. Maternal Characteristics of AL-PRAMS Respondents, 2016 - 2022†

Maternal Characteristics	Count	Percent
Age		
Less than 18 Years Old	95	1.8
18-19 Years Old	210	4.0
20-24 Years Old	1,234	23.5
25-29 Years Old	1,691	32.2
30-34 Years Old	1,294	24.7
35-39 Years Old	611	11.6
40 Years Old or Older	114	2.2
Race		
Black	1,521	29.0
White	3,344	63.7
Other	384	7.3
Unknown	-	-
Ethnicity		
Hispanic	578	11.0
Non-Hispanic	4,671	89.0
Unknown	-	-
Insurance		
Medicaid	2,487	47.4
Non-Medicaid	2,759	52.6
Unknown	3	0.1
WIC Enrollment Status		
Enrolled	2,525	48.1
Not Enrolled	2,641	50.3
Unknown	83	1.6
Education		
Less than High School	232	4.4
Attended High School, Not Completed	495	9.4
High School or GED Completed	1,524	29.0
Some College	1,532	29.2
College or Higher	1,457	27.8
Unknown	9	0.2
Total	**5,249**	**100.0**

Source: Alabama Department of Public Health, Center for Health Statistics
† Characteristic totals may not equal 100 percent due to rounding errors.
Note: The AL-PRAMS used the information collected from the birth certificate to determine the key characteristics of the AL-PRAMS respondent.

As expected, the majority of new mothers were between the ages of 20 and 34 years at the time of delivery, with mothers under 20 years representing less than **6.0 percent (5.8 percent; n=305/5,249)** of survey respondents and mothers with advanced maternal age (35 years or older) representing only **13.8 percent (n=725/5,249)** of survey respondents. White mothers comprised **63.7 percent (n=3,344/5,249**) of survey respondents, while Black mothers comprised **29.0 percent (n=1,521/5,249)**. Looking at Hispanic origin, **11.0 percent (n=578/5,249)** of AL-PRAMS survey respondents self-identified as Hispanic. Survey completion was nearly even across enrollment statuses in both Medicaid and WIC, while many respondents **(86.0 percent; n=4,513/5,249)** completed at least a high school education or a GED.

Selected Core Survey Topics

Based on the unweighted survey findings, the CDC estimated the statewide representation of the Alabama pregnant population. The section below highlights the core areas of focus selected by the AL-PRAMS Program for this annual report.

Maternal Health

AL-PRAMS selected questions on health-related topics, including diabetes, hypertension, depression, and nicotine use.

1. Pre-Pregnancy Diabetes

Survey respondents were asked about either having Type 1 or Type 2 diabetes, 3 months before getting pregnant. As shown in Figure 7, the annual trend in pre-pregnancy diabetes was declining, except in 2019. In Figure 8, **3.0 percent (n=5,571/185,777)** of the weighted Medicaid maternal population had pre-pregnancy diabetes, while **3.4 percent (n=6,452/189,017)** of the weighted non-Medicaid maternal population had this health condition.

Figure 7. Annual Findings for Pre-Pregnancy Diabetes, 2016 - 2022

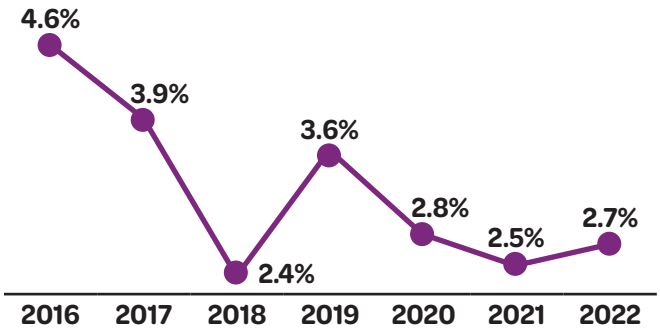
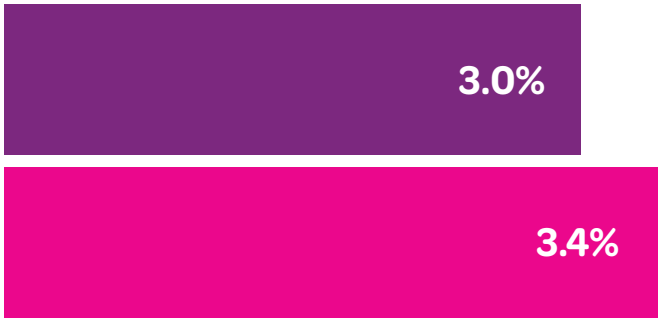


Figure 8. Pre-Pregnancy Diabetes by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

2. Pre-Pregnancy Hypertension

Survey respondents were also asked about having hypertension 3 months before getting pregnant. As shown in Figure 9, the statewide estimates of hypertension were elevated in 2018 at **8.8 percent (n=4,752/53,903)** and in 2021 at **8.6 percent (n=4,721/54,581)**. In Figure 10, **8.2 percent (n=15,296/185,413)** of the estimated statewide population with Medicaid insurance reported having hypertension 3 months before pregnancy, followed by **6.3 percent (n=11,987/189,110)** for the non-Medicaid insurance estimated statewide population.

Figure 9. Annual Findings for Pre-Pregnancy Hypertension, 2016 - 2022

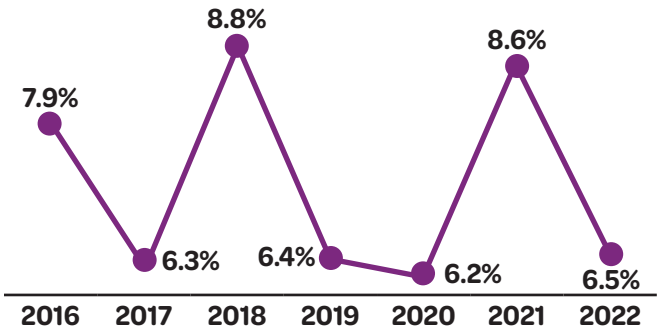
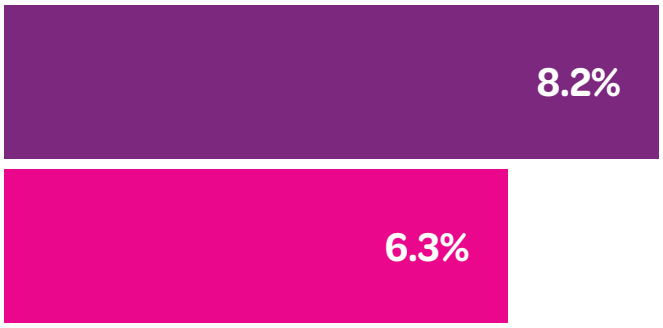


Figure 10. Pre-Pregnancy Hypertension by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

3. Pre-Pregnancy Depression

The AL-PRAMS Program examined the estimated statewide representation of the pregnant population with depression three months before pregnancy. Of the health conditions presented, depression affected a higher subset of the Alabama statewide projected population. Figure 11 fluctuated between 2016 and 2022, with the annual percent steadily increasing from **13.6 percent (n=7,560/55,542)** in 2016 to **16.9 percent (n=9,182/54,388)** in 2022. Figure 12 showed a difference in pre-pregnancy depression by the insurance strata, with close to **20.0 percent (17.8 percent; n=33,028/185,555)** representing Medicaid participants and **13.6 percent (n=25,765/189,145)** representing those without Medicaid insurance.

Figure 11. Trend Analysis for Pre-Pregnancy Depression, 2016 - 2022

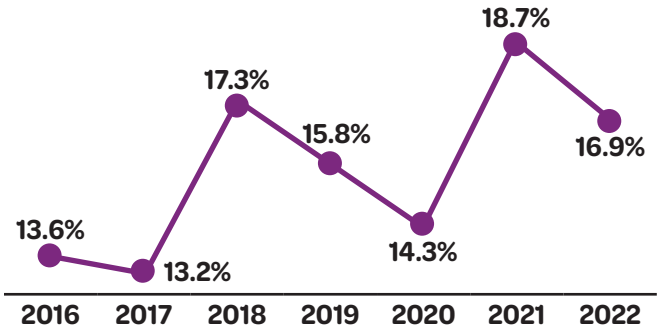
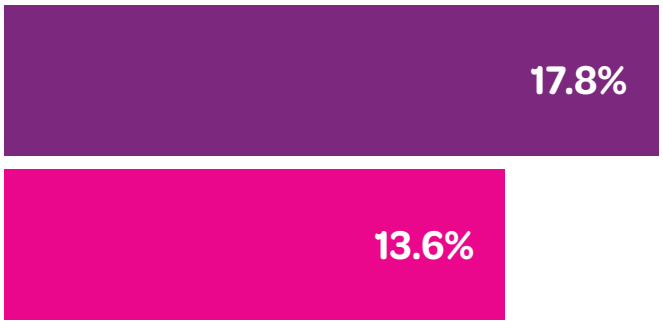


Figure 12. Pre-Pregnancy Depression by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

4. Nicotine Use

According to the CDC, nicotine use during pregnancy can elevate the risk of infants dying from either sudden infant death syndrome (SIDS) or disorders associated with short gestation and low birth weight[3]. In the 2022 CHS Infant Mortality Report, both causes were in the top 3 causes, accounting for **21.7 percent (n=85/391)** of the 2022 total number of infant deaths[4].

For Phase 8, the CDC developed questions concerning the use of nicotine products, including cigarettes, hookah, and vape pens. As shown in Figure 13, the annual projected percentage of mothers reporting any history of cigarette use 2 years before pregnancy declined notably after 2019. Nicotine use decreased from **27.0 percent (n=14,740/54,562)** in 2019 to **15.9 percent (n=8,584/53,826)** in 2022. Figure 14 showed a notable difference across insurance strata, with the statewide estimate of cigarette use more than twice as high for those with Medicaid than for those without.

Figure 13. Trend Analysis for Cigarette Use 2 Years Prior to Pregnancy, 2016 - 2022

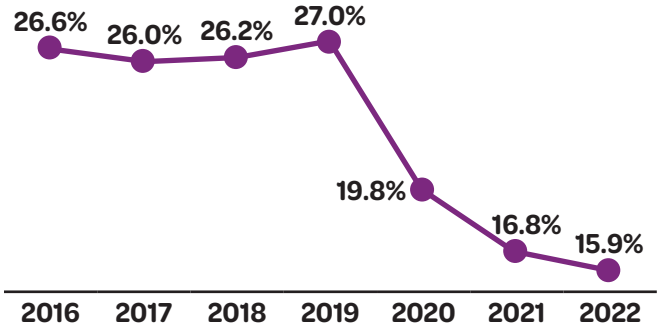
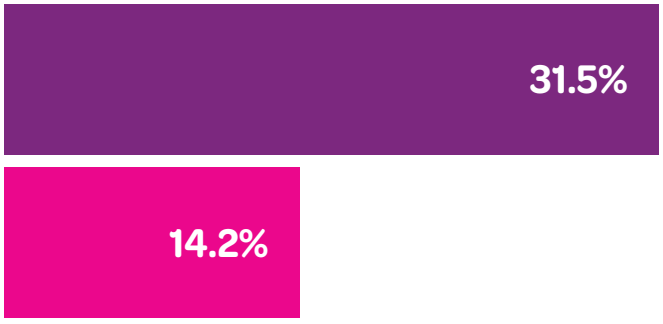


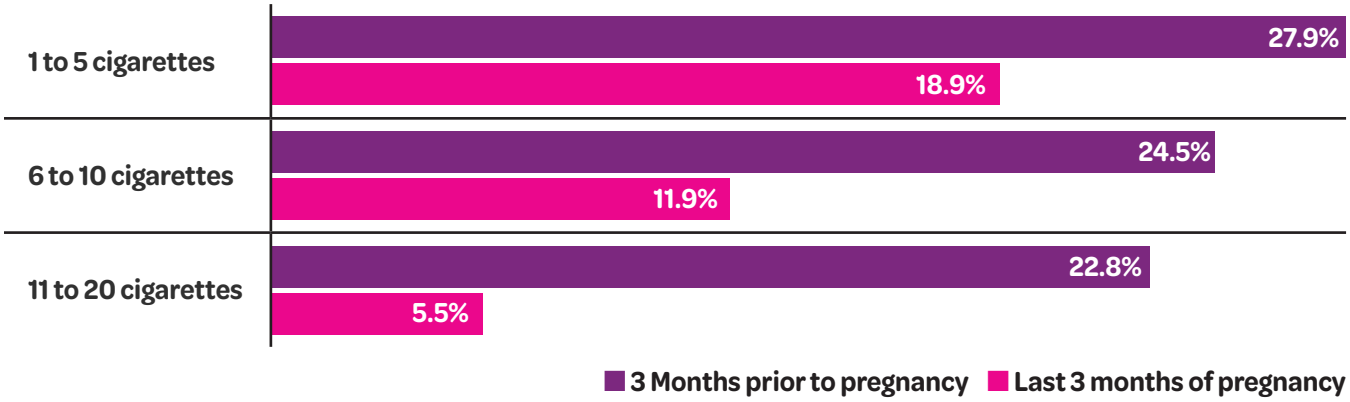
Figure 14. Cigarette Use 2 Years Prior to Pregnancy by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

AL-PRAMS respondents with a prior smoking history were asked about their daily cigarette consumption leading up to their pregnancy. Approximately **89.5 percent (n=74,556/83,304)** of those with a smoking history reported daily cigarette use 3 months before pregnancy. In comparison, continued daily cigarette consumption during the last 3 months of pregnancy decreased to **41.2 percent (n=34,284/83,306)**. Within 3 months before becoming pregnant, daily cigarette consumption of either 1 to 5 cigarettes, 6 to 10 cigarettes, or 11 to 20 cigarettes occurred among **75.2 percent (n=62,682/83,304)** of those with a smoking history. Figure 15 shows a reduction in daily smoking consumption for these options in the third trimester, with the most notable decrease occurring among the 11 to 20-cigarette option.

Figure 15. Changes in Daily Cigarette Consumption Leading up to Delivery, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

5. Electronic Cigarette or Other Electronic Products

As shown in Figure 16, E-cigarette or other electronic nicotine use within the past 2 years has doubled, with the projected statewide estimates being **8.4 percent (n=4,590/54,416)** in 2016 and **16.1 percent (n=8,664/53,856)** in 2022. Figure 17 showed a similar trend with the insurance strata, where the statewide estimate for E-cigarette or other electronic nicotine use was higher among those with Medicaid insurance compared to those with non-Medicaid insurance. Approximately, **13.5 percent (n=24,547/182,008)** among the projected Medicaid maternal population used either E-cigarettes or electronic nicotine products within the past 2 years, followed by **9.0 percent (n=16,830/186,717)** of the non-Medicaid maternal population.

Figure 16. Trend Analysis for Electronic Nicotine Products Use 2 Years Prior to Pregnancy, 2016 - 2022

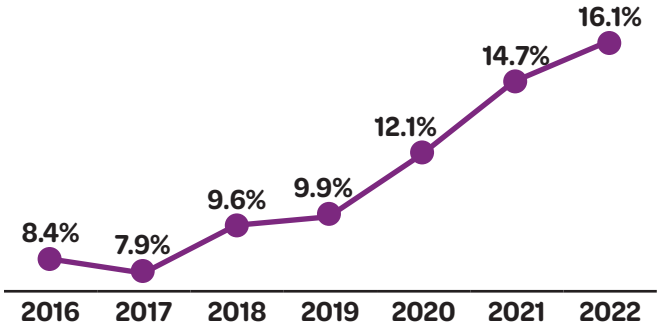
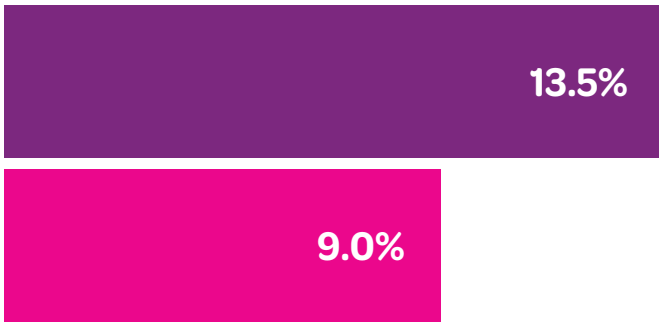


Figure 17. Electronic Nicotine Products Use History of 2 Years Prior to Pregnancy by Insurance Strata, 2016 - 2022

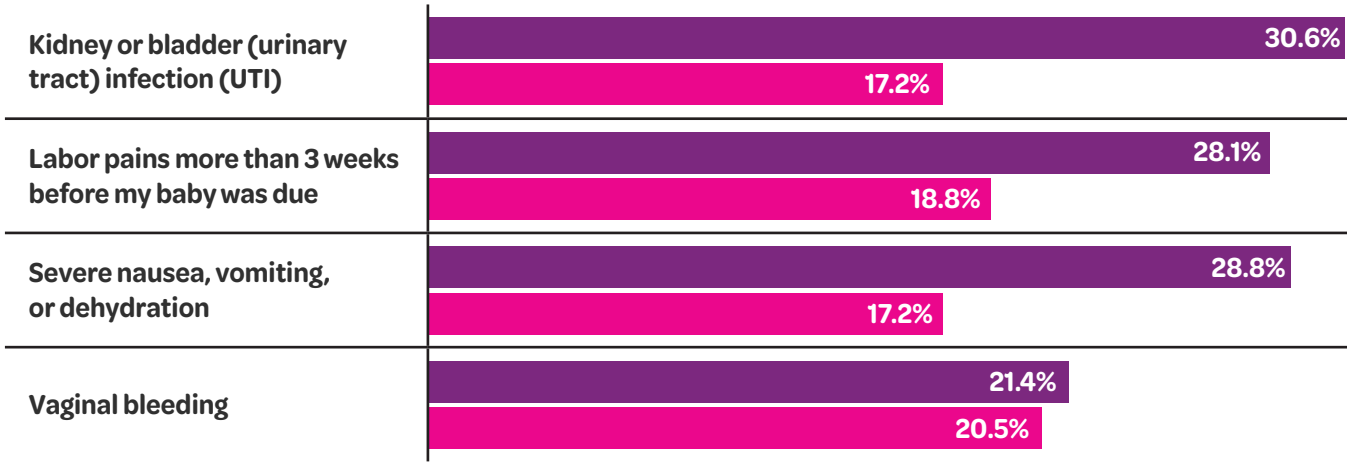


Source: Alabama Department of Public Health, Office of Maternal and Child Health

6. Health Complications from Recent Pregnancy

The AL-PRAMS survey evaluated high-risk pregnancies based on whether survey respondents experienced any health complications during their recent pregnancy. Figure 18 lists the top four leading complications during pregnancy, broken down by insurance strata. These four complications affected at least **20.0 percent** of the weighted population. A notable difference was observed across insurance strata for the top three leading complications.

Figure 18. Maternal Complications during Recent Pregnancy by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

Prenatal Care

Throughout pregnancy, prenatal care allows medical staff to closely monitor the health of both the mother and the infant. Monitoring both pre-existing and pregnancy-related health conditions can lower the likelihood of potential complications occurring during pregnancy. Specifically, hypertension during pregnancy can elevate the likelihood of developing pre-eclampsia, which has been linked to severe maternal complications, including kidney failure, liver damage, stroke, or even death. Maternal health conditions are closely linked to preterm births, low birth weight, and congenital disabilities. Prenatal care also offers counseling and support for recommended lifestyle changes during pregnancy and allows expectant mothers to discuss any mental or physical challenges during pregnancy. The next section will highlight how the AL-PRAMS statewide population assessed their prenatal care and potential barriers to receiving prenatal care.

Prenatal Care Initiation

In the AL-PRAMS survey, respondents were asked about the initiation of their prenatal care during pregnancy. Cumulatively, **88.0 percent (n=323,661/367,908)** of the projected statewide population had their first prenatal visit within the first trimester between 2016 and 2022. Prenatal care initiation during the first trimester was notably different across insurance strata, with **80.6 percent (n=145,579/180,646)** on Medicaid and **95.0 percent (n=177,960/187,260)** on non-Medicaid plans.

Figure 19 assessed whether AL-PRAMS respondents met with prenatal staff as early as possible during their pregnancy annually. The annual trend in receiving timely and appropriate prenatal care remained stable, with the 2016 statewide projected estimate being **85.1 percent (n= 45,611/53,620)** and the 2022 statewide projected estimate being **88.7 percent (n= 47,422/53,450)**. Figure 20 shows close to a 10 percent difference in starting prenatal care early as desired across insurance strata, with **81.2 percent (n=145,489/179,085)** being Medicaid and **91.1 percent (n=170,740/187,341)** being non-Medicaid.

Figure 19. Trend Analysis for Prenatal Care Access, 2016 - 2022

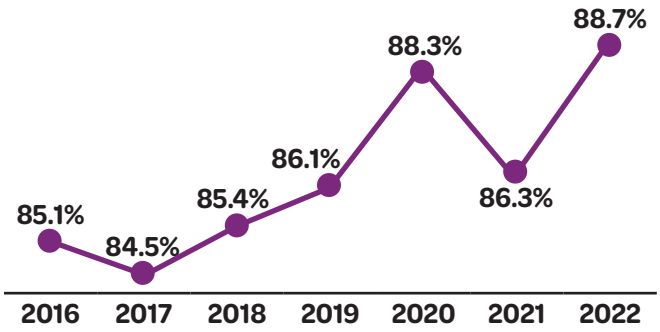
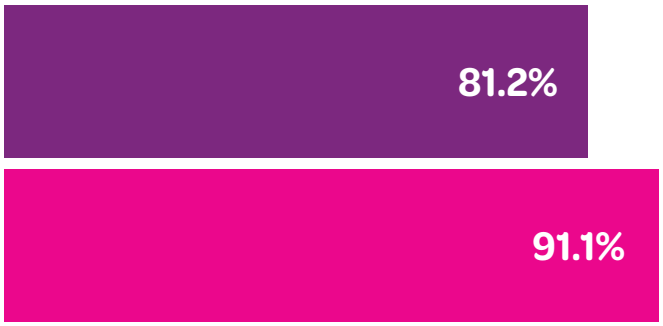


Figure 20. Percentage of Prenatal Care Access by Insurance Strata, 2016 - 2022

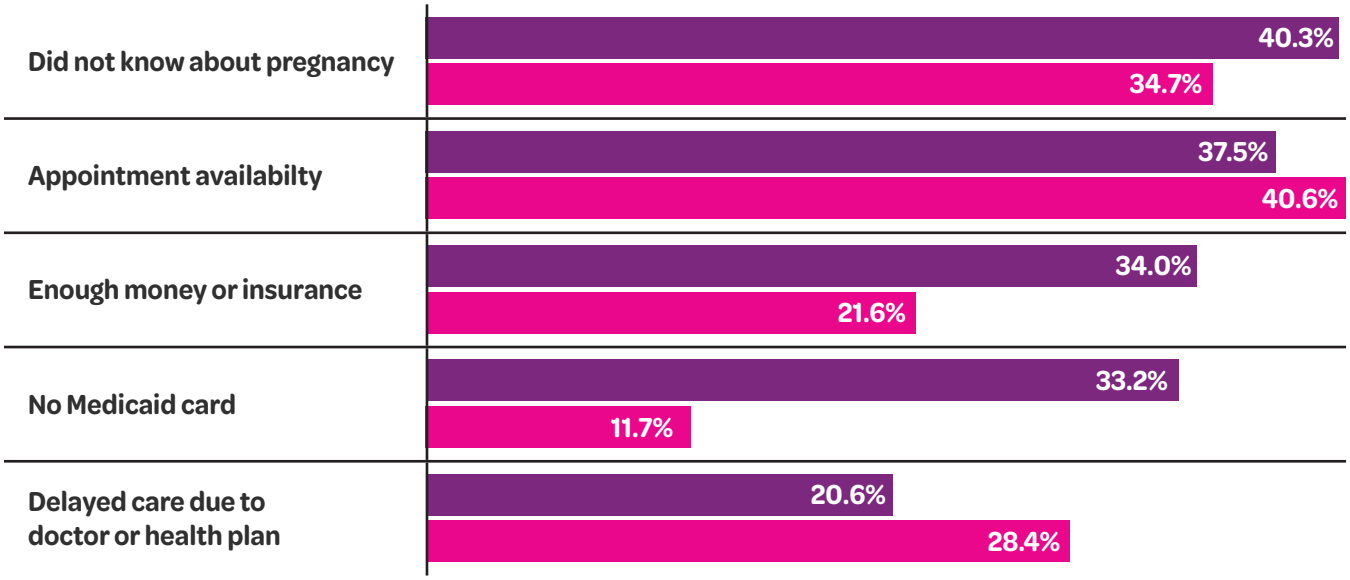


Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

Among those who reported challenges to timely prenatal care, the AL-PRAMS survey assessed potential barriers to adequate prenatal care. In Figure 21, AL-PRAMS examined the impact of insurance on the top five barriers overall. Compared to the non-Medicaid weighted population, a higher proportion of the Medicaid weighted population selected issues related to money or insurance, awareness of pregnancy, and a strata-specific issue related to access to their Medicaid insurance card.

Figure 21. Barriers for Timely Prenatal Care by Insurance Strata, 2016 - 2022



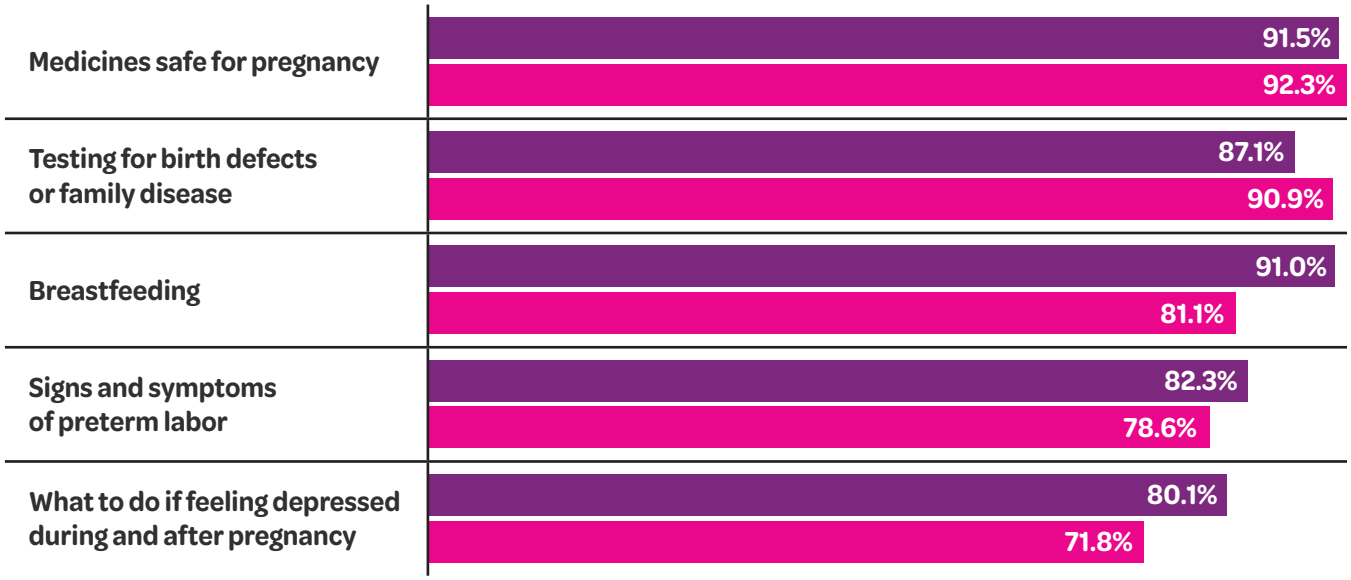
Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

Prenatal Care Discussion

The AL-PRAMS survey assessed whether medical staff discussed health topics that could potentially impact the health of both the infant and the mother. Figure 22 highlights the five most frequently selected health topics discussed at prenatal care among insurance strata. Of the topics discussed with medical staff, there was minimal variation across the insurance strata.

Figure 22. Health Topics discussed during Prenatal Care, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health ■ Medicaid ■ Non-Medicaid

Additionally, the AL-PRAMS survey included a list of items that may have been covered in the maternal health assessment completed and reviewed by medical staff during prenatal care. This assessment includes, but is not limited to, alcohol use, breastfeeding intention, plans for birth control use after delivery, drug use, history of tobacco use, and mental health issues. From this assessment, Figure 23 highlights the impact of insurance strata on the top five selected options overall. Compared with the non-Medicaid weighted population, a higher proportion of the Medicaid-weighted population selected the top four health assessment topics.

Figure 23. Health Assessment during Prenatal Care, 2016 - 2022

Source: Alabama Department of Public Health, Office of Maternal and Child Health ■ Medicaid ■ Non-Medicaid

Postpartum Care

According to the American College of Obstetricians and Gynecologists, new mothers should receive an initial medical follow-up within the first 3 weeks postpartum [5]. Depending on the mother's health, an additional comprehensive postpartum visit should be completed no later than 12 weeks after delivery. During the comprehensive postpartum visit, medical staff will assess the mother's physical and mental well-being. Depending on the mother's specific needs, medical staff can address them through resources and referrals.

In the AL-PRAMS survey, postpartum care was assessed by whether participants attended medical follow-up at least 4 to 6 weeks after giving birth. Cumulatively, **91.4 percent (n=331,721/362,970)** of Alabama mothers attended a postpartum checkup between 2016 and 2022. Among the weighted population, this would translate to approximately 1 in 10 women not attending a postpartum visit. As shown in Figure 24, the annual trend in receiving postpartum care has fluctuated, with the 2016 statewide projected estimate at **90.6 percent (n=48,676/53,751)** and the 2022 statewide projected estimate at **90.1 percent (n=47,402/52,623)**. In Figure 25, data stratified by insurance status show a slightly higher proportion of those with non-Medicaid insurance receiving postpartum care than those with Medicaid coverage.

Figure 24. Trends in Postpartum Checkup Attendance, AL-PRAMS 2016 - 2022

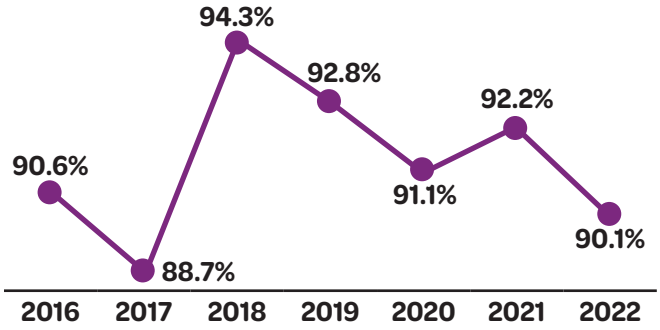
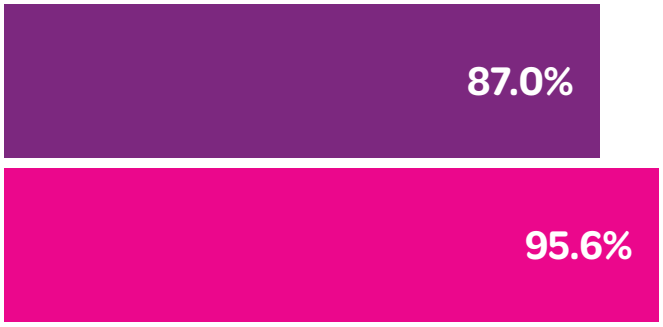


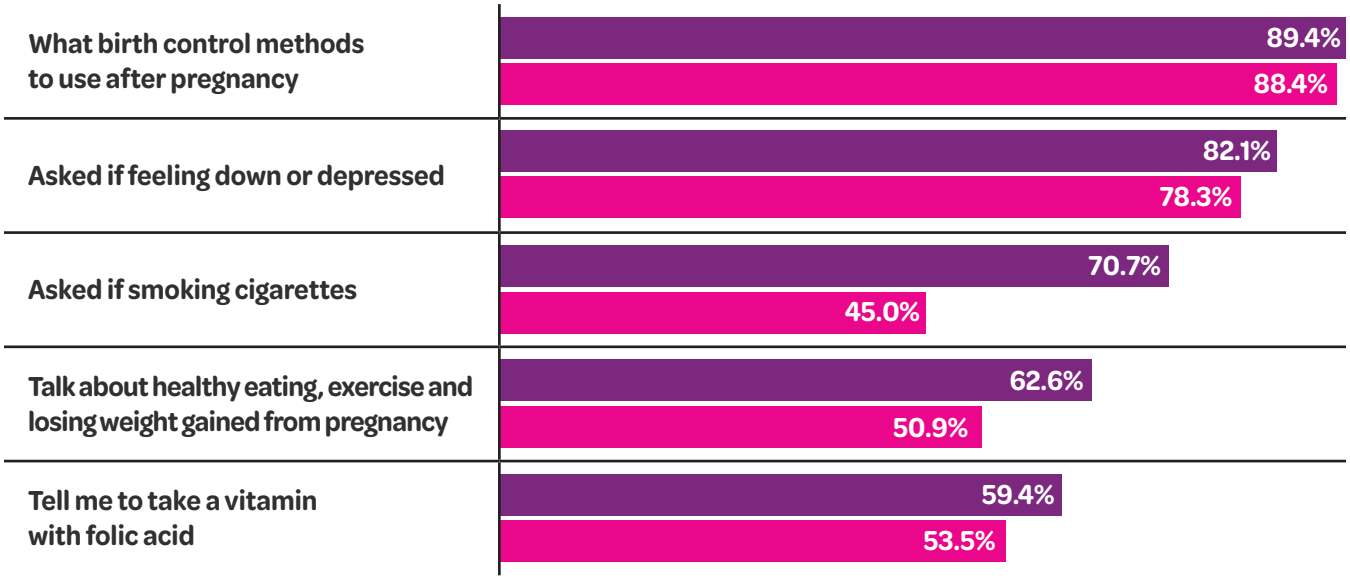
Figure 25. Postpartum Checkup Attendance by Insurance Type, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

The AL-PRAMS survey examined what medical staff may have completed during postpartum care. Figure 26 highlights the impact of insurance strata on the top five areas assessed overall during the completed postpartum care assessment. Discussion on the recommended birth control use and feeling down or depressed were the most common topics discussed, with minimal variation observed across insurance strata. A notable variation among the insurance strata did occur among topics on continued smoking after pregnancy and achieving a healthier lifestyle post-pregnancy.

Figure 26. Top Five Postpartum Checkup Discussion Topics by Insurance Type, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid Non-Medicaid

Depression after Childbirth

With depression being the second leading discussion point during the postpartum care assessment, the AL-PRAMS Program looked at those impacted by feeling either down or depressed after childbirth. From Figure 27, **10.3 percent (n=37,175/363,125)** selected either always or often with feeling either down or depressed after childbirth. As shown in Figure 28, the proportion of the maternal population reporting either always or often feeling down or depressed was higher among the Medicaid-weighted population **(11.9 percent; n=21,003/177,462)** than among the non-Medicaid-weighted population (**8.6 percent; n=16,050/185,489)**.

Figure 27. Depression after Childbirth, 2016 - 2022

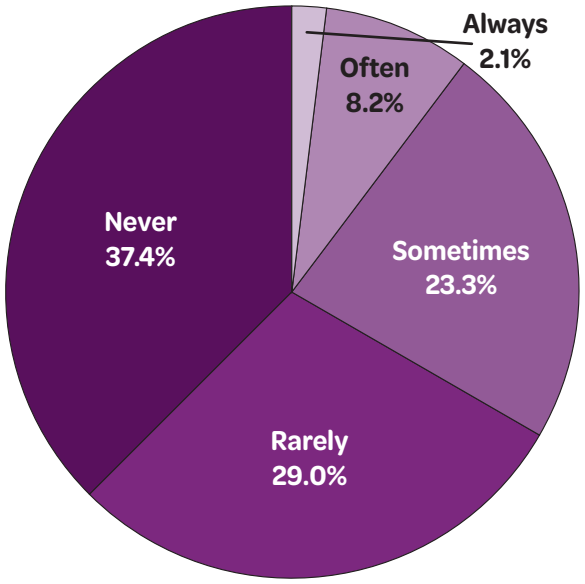
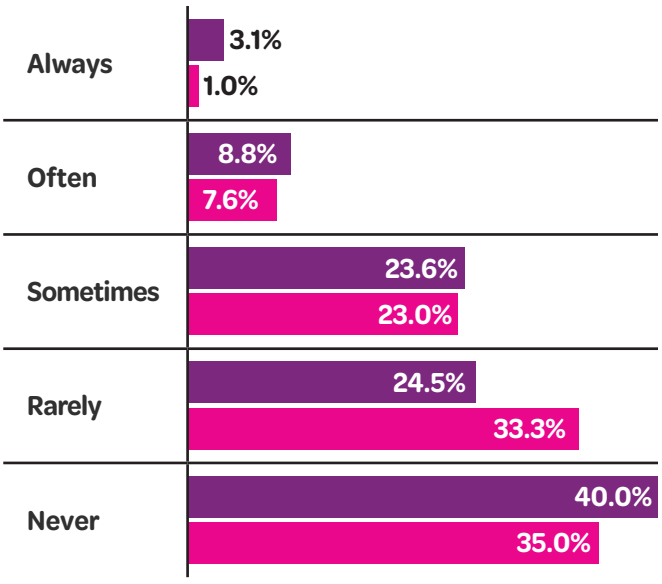


Figure 28. Depression Symptoms after Childbirth by Insurance Strata, 2016 – 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid Non-Medicaid

Infant Sleeping Environment

An unsafe sleeping environment can elevate the risk of a Sudden Unexpected Infant Death (SUID). A SUID refers to the death of an infant under 1 year old, where the cause of death was identified as either SIDS, accidental suffocation and strangulation, or an unknown cause. These deaths often occur while the infant is sleeping. Figure 29 highlights the ABCs of safe sleep message being shared statewide at community outreach events and in delivering hospitals to highlight the importance of safe sleep practices.

Figure 29. ABCs of Safe Sleep

Source: Alabama Department of Public Health, Alabama Fetal and Infant Mortality Review Program

According to CDC Wonder, in 2022, Alabama had the fourth-highest SUIDS mortality rate **(181.4 per 100,000; 105/57,882)**, trailing behind Arkansas, Mississippi, and Tennessee. According to the 2022 AL-CHS Infant Mortality Report, SIDS was the second leading cause of infant death statewide, with more than **60 percent (61.7 percent; n=29/47)** of SIDS deaths occurring among Black infants [4]. The next section highlights how AL-PRAMS respondents answered questions about their infant's sleep environment.

1. Sleeping Position

Placing the infant on their back during sleep is recommended to ensure a safe sleep environment. AL-PRAMS respondents were asked which sleeping position (side, back, or stomach) their infant most often used. As shown in Figure 30, placing infants on their backs during sleep showed a moderate increase annually between 2016 and 2022, with the projected statewide estimates starting at **69.0 percent (n=35,937/52,105)** in 2016 and ending at **77.2 percent (n=40,037/51,871)** in 2022. Figure 31 shows a notable difference in the selection of the recommended sleeping position by insurance strata, with **66.7 percent (n=114,735/172,103)** being Medicaid and **80.3 percent (n=145,978/181,831)** being non-Medicaid.

Figure 30. Trend Analysis for Infants placed on Back during Sleep, 2016 - 2022

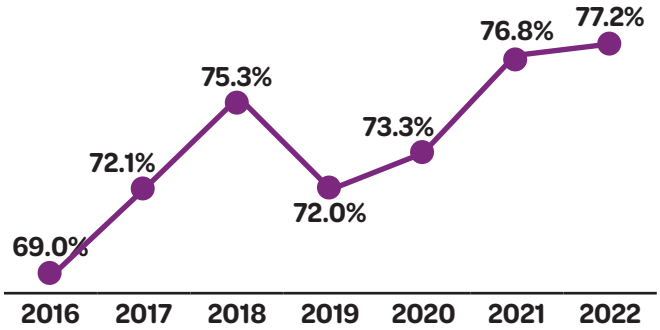
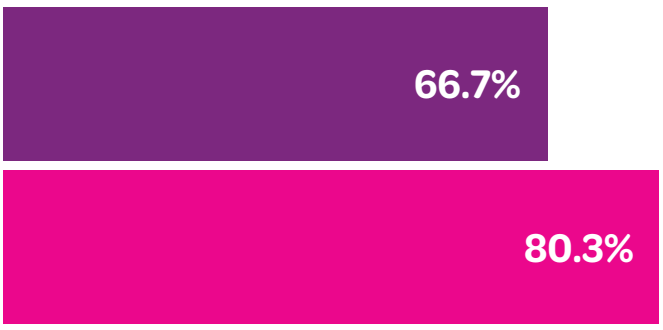


Figure 31. Infants placed on Back during Sleep by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

2. Sleeping Alone in Crib or Bed

Sleeping alone in a crib or bed is also recommended to ensure a safe sleeping environment. The AL-PRAMS respondents rated how often their infant slept alone in a crib or a bed in the past 2 weeks. As shown in Figure 32, **70.7 percent (n = 252,504/357,429)** of the projected statewide estimate for 2016 - 2022 indicated that their infant always or often slept alone in a crib or bed. Figure 33 shows minimal variation across the insurance strata in the frequency with which infants sleep alone in their cribs or beds.

Figure 32. Sleeping Alone in Crib or Bed within Past 2 Weeks, 2016 - 2022

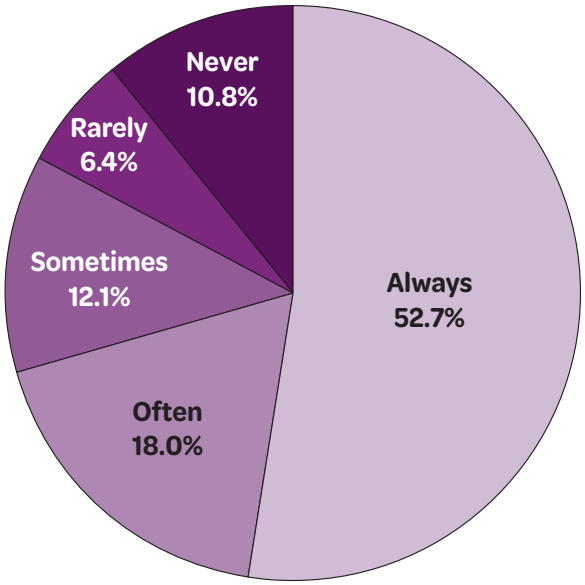
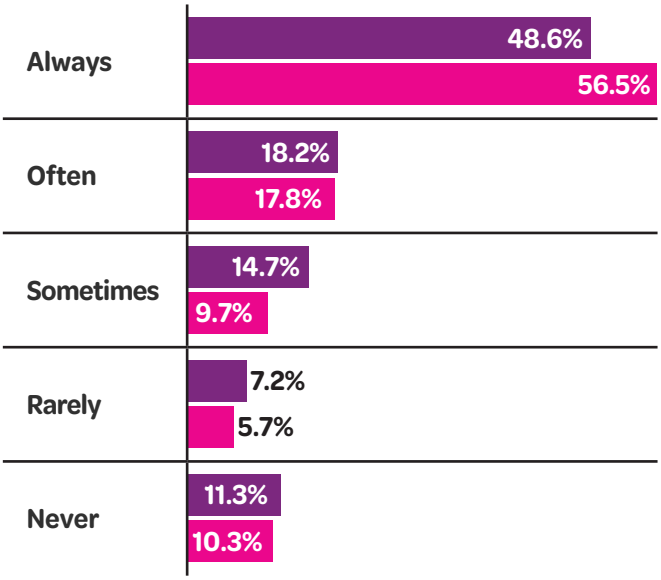


Figure 33. Sleeping Alone in Crib or Bed within Past 2 Weeks by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

3. Sleeping in the Same Room

As a preventive measure against SUID, the CDC recommends that the infant's crib or bassinet be kept in the same room as the parents until the infant is at least 6 months old [6]. From the design of the AL-PRAMS survey, the weighted estimate for the room sharing question is based on those who self-reported their infant sleeping alone in a crib or bed either frequently or on occasion over the past 2 weeks. Figure 34 remained relatively stable annually between 2016 and 2022, with the projected statewide estimates ranging from **79.9 percent (n=37,441/46,865)** in 2016 to **85.1 percent (n=39,913/46,896)** in 2022. Figure 35 shows a notable difference in reported room sharing across insurance strata, with **91.6 percent (n=140,602/153,566)** being Medicaid and **74.5 percent (n=121,576/163,151)** being non-Medicaid.

Figure 34. Trend Analysis for Room Sharing, 2016 - 2022

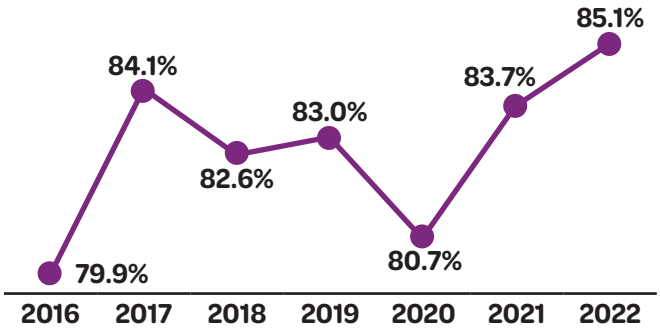
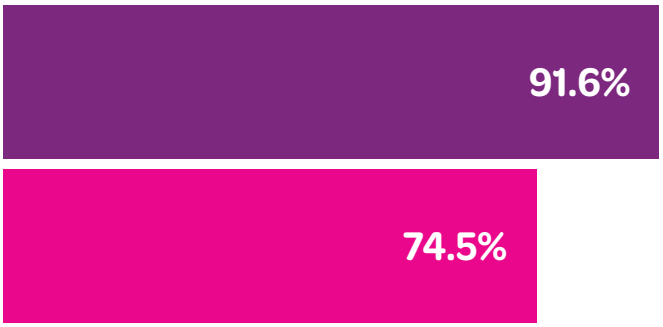


Figure 35. Room Sharing by Insurance Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

4. Infant's Sleeping Area

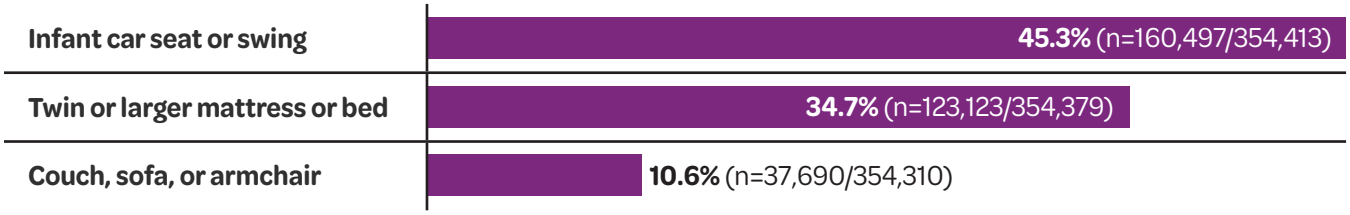
The CDC recommends that infants always sleep on a flat, firm surface. All toys, blankets, pillows, bumper pads, and other loose items should be removed from the crib due to the risk of SUID [6]. As shown in Figure 36, the ADPH Perinatal Health Division hosted "Clear the Crib" challenges at universities and hospitals statewide to increase awareness of the importance of these safe sleep practices.

Figure 36. Clear the Crib Challenge

Source: Alabama Department of Public Health, Alabama Perinatal Health Division

In the AL-PRAMS survey, **87.0 percent (n=310,838/357,114)** reported that their infants slept in a crib, bassinet, or pack-and-play within the past 2 weeks. In addition, survey respondents can identify which other sleeping areas were used within the past 2 weeks. From the weighted findings presented in Figure 37, the infant car seat or swing was commonly selected as an alternative sleeping area.

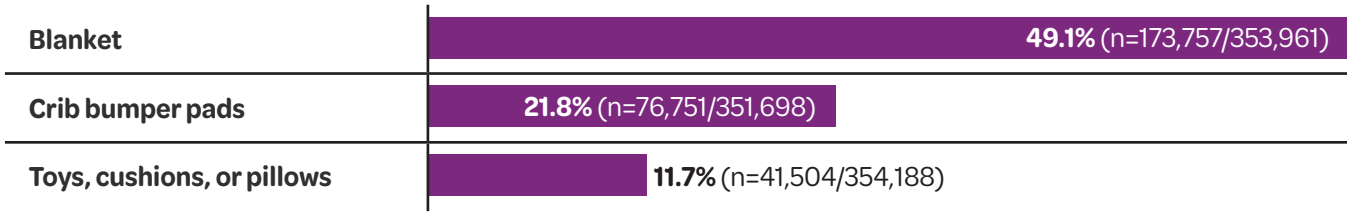
Figure 37. Other Sleep Surfaces Used for Infant within Past 2 Weeks, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Figure 38 highlights the most frequently selected options for the soft items left in the infant's sleeping area over the past 2 weeks. Notably, almost half **(49.1 percent; n=173,757/353,961)** of the weighted maternal population selected blanket being left in the sleeping area.

Figure 38. Soft Items Present in Infant's Sleeping Area within Past 2 Weeks, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Breastfeeding

Breastfeeding provides optimal nutrition to strengthen the infant's developing immune system. Breastfeeding has also been linked with positively impacting the infant's long-term health by lowering their risk of developing conditions such as asthma, diabetes, cardiovascular disease, and obesity. Similarly, mothers who breastfeed will also have a lower risk of developing chronic diseases, including breast and ovarian cancer, cardiovascular disease, and diabetes. The CDC recommends that an infant be exclusively breastfed during the first 6 months, then complemented with other food sources during the remainder of the infant's first year of life [7]. Breastfeeding promotion from support groups, medical experts, or family and friends can contribute to the likelihood of mothers achieving the CDC recommendation for breastfeeding. Most **(81.3 percent; n=293,206/360,482)** of the weighted statewide maternal population between 2016 and 2022 reported receiving breastfeeding educational information from their doctor.

To encourage initiation and continuation of breastfeeding, the Alabama WIC Program provides breastfeeding education to pregnant and breastfeeding participants covering topics such as the importance of breastfeeding for maternal and infant health, setting breastfeeding goals, the physiology of breast milk production, normal infant behavior and hunger cues, federal and state laws on breastfeeding rights, and continuation of breastfeeding after returning to work. WIC participants have access to additional resources, including individualized support from WIC breastfeeding peer counselors and breastfeeding support tools (such as absorbent breast pads, breast pumps, and other accessories). On its ADPH programmatic website, WIC included links to the annual Breastfeeding Community Resource Guide and other evidence-based online resources.

From the AL-PRAMS survey, **50.5 percent (n=187,450/370,983)** of the weighted statewide maternal population was enrolled in the Alabama WIC program between 2016 and 2022. Of those projected to be in the Alabama WIC program statewide, over **90 percent** (**93.1 percent; n=173,604/186,426)** reported receiving information on breastfeeding.

1. Breastfeeding Initiation Status

The majority (**79.8 percent; n=286,643/359,198)** of the weighted statewide maternal population either initiated breastfeeding by nursing or by pumping breast milk to feed their infants. Figure 39 fluctuated annually from 2016 to 2022, with projected statewide estimates eventually increasing from **81.0 percent (n=42,761/52,774)** in 2016 to **85.4 percent (n=44,792/52,469)** in 2022. Figure 40 shows a notable difference in breastfeeding initiation across insurance strata, with **71.7 percent (n=125,971/175,770)** on Medicaid and **87.6 percent (n=160,550/183,306)** on non-Medicaid plans.

Figure 39. Trend Analysis for Breastfeeding Initiation, 2016 - 2022

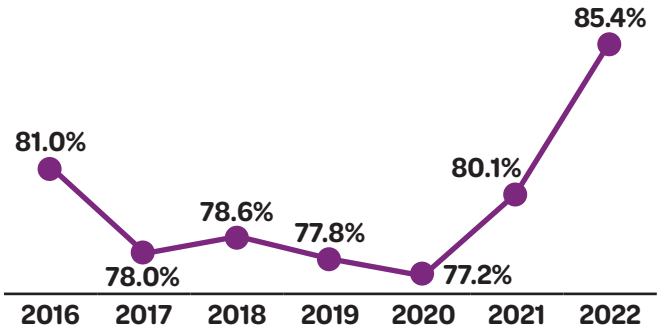
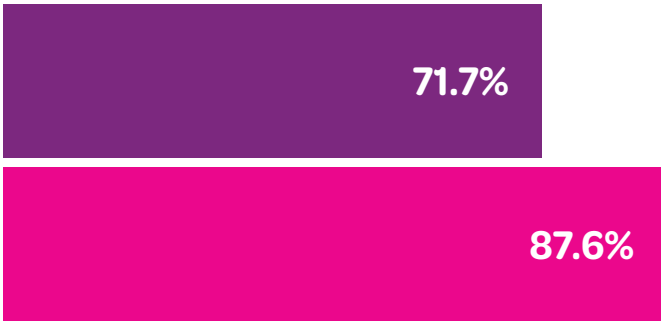


Figure 40. Breastfeeding Initiation by Strata, 2016 - 2022

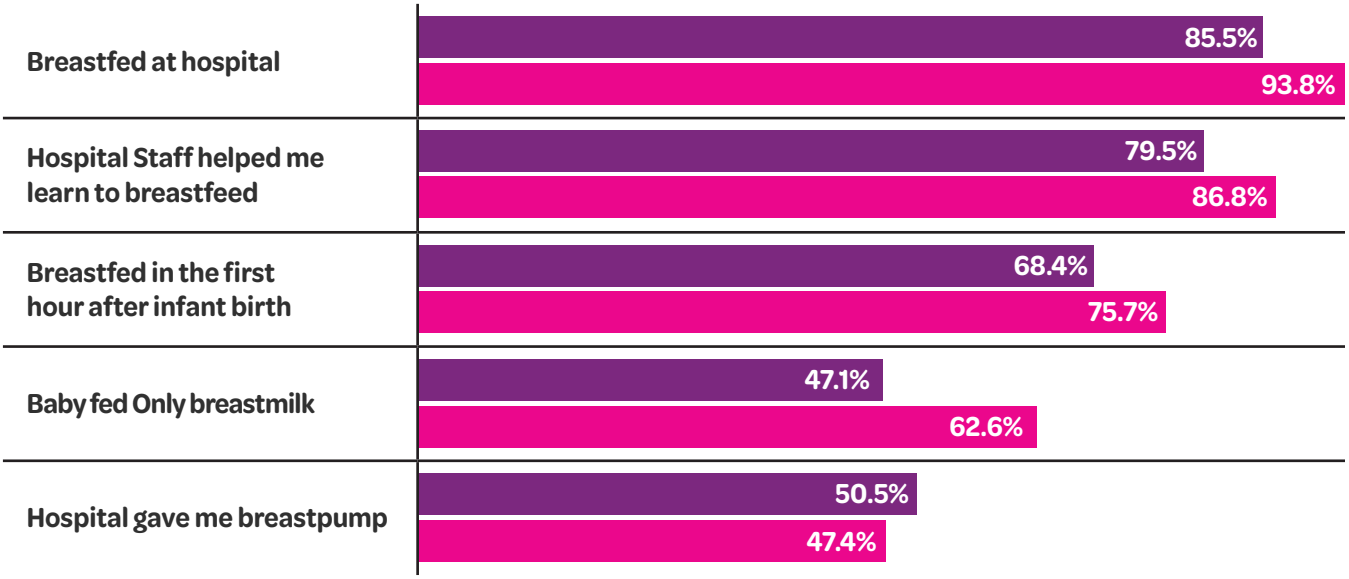


Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

Hospital breastfeeding support and resources provided to mothers during delivery can also contribute to the high breastfeeding initiation rates observed in Figures 39 and 40. Cumulatively, **90.2 percent (n= 255,238/283,076)** breastfed at the hospital. Figure 41 highlights the leading breastfeeding-related activities that the projected statewide maternal populations experienced during the delivery hospitalization, broken down by insurance strata. A notable difference among infants who were fed only breastmilk was observed across insurance strata, with **47.1 percent (n= 58,353/ 123,894)** being Medicaid and **62.6 percent (n= 99,318/ 158,629)** being non-Medicaid.

Figure 41. Breastfeeding Actions Taken at Delivery Hospital, 2016 – 2022



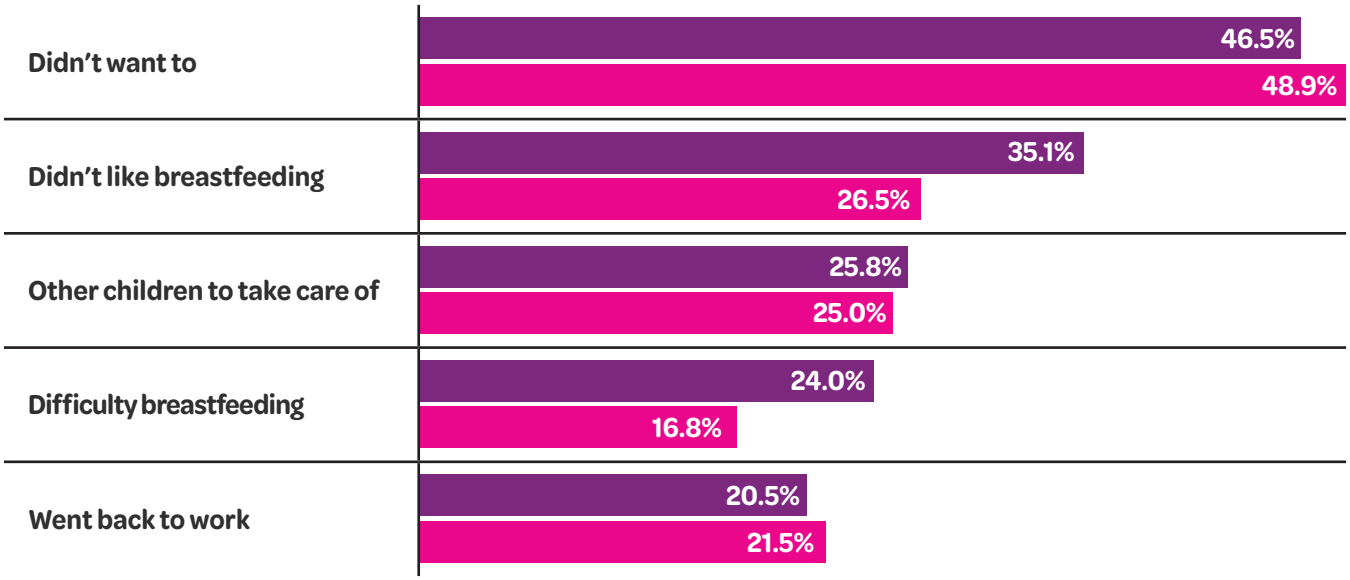
Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

2. Reasons for Not Initiating Breastfeeding

Overall, **20.2 percent (n=72,555/359,198)** of the AL-PRAMS projected statewide maternal population did not breastfeed or use a breast pump to feed their infant between 2016 and 2022. AL-PRAMS respondents may select various reasons for not breastfeeding, such as family commitments, busy schedule, difficulty breastfeeding, or a desire not to breastfeed. Figure 42 highlights the top five reasons why breastfeeding was not initiated among the AL-PRAMS statewide maternal population, broken down by Medicaid or non-Medicaid insurance. Among the top reasons, not wanting to breastfeed was the most common option selected across both insurance strata.

Figure 42. Top Five Reasons Breastfeeding was not Initiated, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health **Medicaid** **Non-Medicaid**

3. Discontinuation of Breastfeeding

Those who reported initiating breastfeeding in the AL-PRAMS survey were asked questions concerning whether they stopped breastfeeding and how long they breastfed before stopping. Between 2016 and 2022, over half **(52.1 percent; n=149,852/287,655)** of the projected statewide maternal population are no longer currently breastfeeding. As shown in Figure 43, a positive reduction was observed among those no longer breastfeeding between 2016 and 2022, with projected statewide estimates starting at **55.0 percent (n=23,845/43,344)** in 2016 and ending at **46.5 percent (n=20,800/44,695)** in 2022. Figure 44 shows a notable difference across insurance strata among those not currently breastfeeding: **67.7 percent (n=85,210/125,844)** are Medicaid, and **39.9 percent (n=64,573/161,690)** are non-Medicaid.

Figure 43. Trend Analysis for Breastfeeding Discontinuation, 2016 - 2022

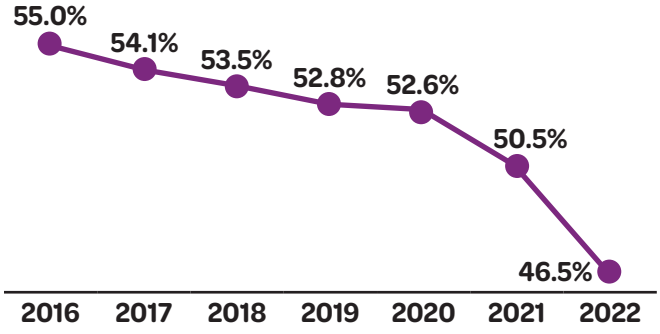
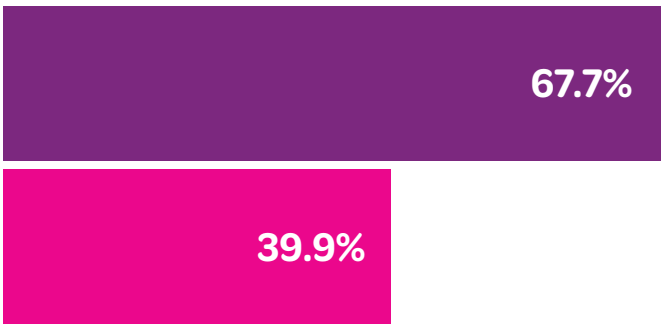


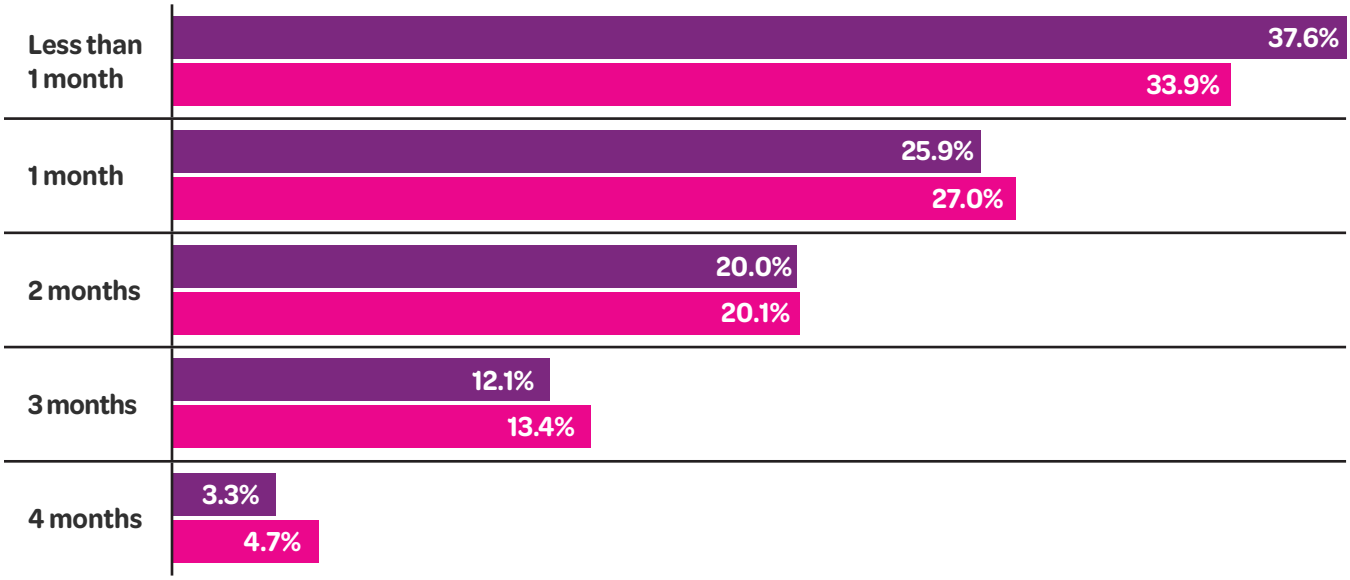
Figure 44. Percentage of Breastfeeding Discontinuation by Strata, 2016 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health **Medicaid** **Non-Medicaid**

As recommended by the CDC, infants would benefit most from exclusive breastfeeding during the first 6 months of life [7]. Among those who discontinued breastfeeding, Figure 45 illustrated a downward trend during the first 4 months of the infant's life in the continuation of breastfeeding for the insurance strata. For both insurance strata, less than 1.0 percent of the projected weighted statewide maternal populations reported breastfeeding continuation beyond the 4-month mark.

Figure 45. Breastfeeding Duration Before Stopping, 2016 - 2022

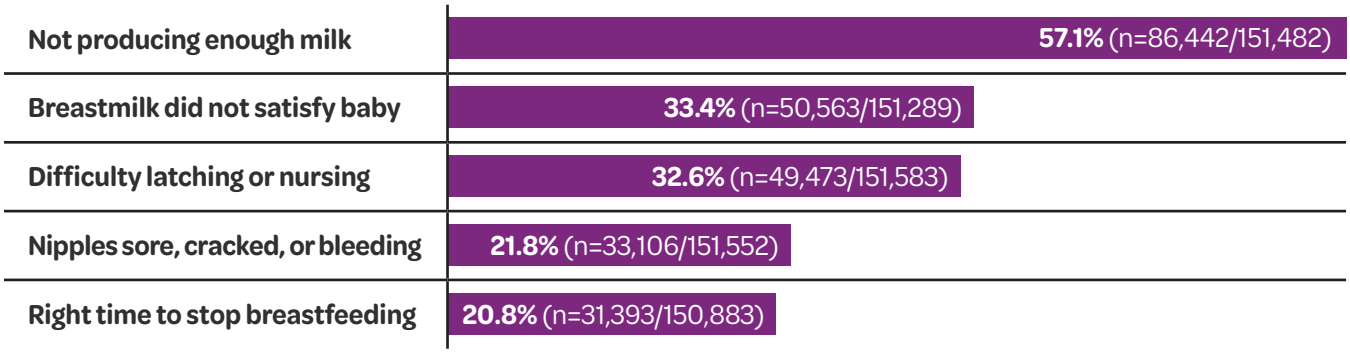


Source: Alabama Department of Public Health, Office of Maternal and Child Health

Note: AL-PRAMS respondents can report breastfeeding duration in either weeks or months. For the week option, those who reported 4 or more weeks were converted to months.

Given this notable trend, the AL-PRAMS survey allows participants to select reasons for stopping breastfeeding. Among the top 5 reasons shown in Figure 46, over **half (57.1 percent; n=86,442/151,482)** of the projected weighted statewide maternal population stopped breastfeeding because they did not produce enough milk.

Figure 46. Reasons to Stop Breastfeeding, 2016 - 2022

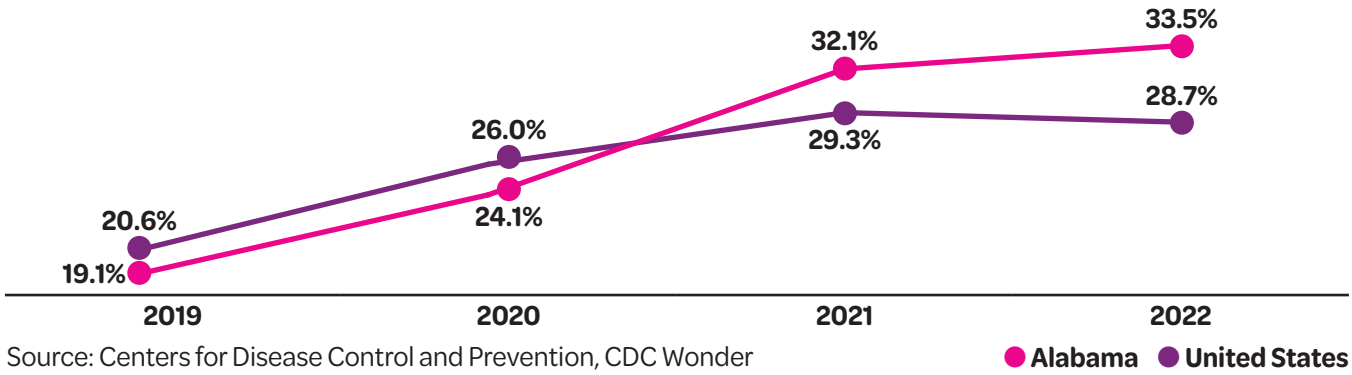


Source: Alabama Department of Public Health, Office of Maternal and Child Health

Opioid Data Supplement

According to the CDC, opioid drug use during pregnancy can adversely impact the maternal health and fetal development of the infant, thus resulting in a higher risk for complications associated with low birth weight, congenital abnormalities, or a stillbirth [8]. Figure 47 compares the annual drug-induced mortality rates among women of childbearing age (15 – 54) at the state and national level. Across this time frame, the Alabama statewide mortality rates steadily increased from 19.1 deaths per 100,000 female population in 2019 to 33.5 deaths per 100,000 female population in 2022. From 2021 forward, the statewide annual rates exceeded the national rates.

Figure 47. Drug-induced Annual Mortality Rates among Women of Childbearing Age (15- 54), 2019 - 2022†



Source: Centers for Disease Control and Prevention, CDC Wonder
† Age-adjusted mortality rates per 100,000 female population.

With the upward trend in statewide drug-induced mortality rates shown above, the AL-PRAMS Program added a supplement developed by the CDC in 2019 to better understand prescription drug use during pregnancy. Alabama incorporated the opioid drug supplement along with 33 other PRAMS participating sites [9].

Prescription Drug Use During Pregnancy

Between 2019 and 2022, **5.7 percent (n=12,043/211,242)** of the weighted maternal population used at least one of the prescription drugs highlighted in Figure 48.

Figure 48. Types of Prescription Drug Identified for the AL-PRAMS Survey

Hydrocodone	Codeine	Oxycodone	Tramadol
Hydromorphone or meperidine	Oxymorphone	Morphine	Fentanyl

Source: Alabama Department of Public Health, Office of Maternal and Child Health

The AL-PRAMS survey captures where this subset of the weighted maternal population received their prescription drugs during their pregnancy. Between 2019 and 2022, **85.4 percent (n=10,281/12,043)** acquired these medications from a healthcare provider, including obstetricians/gynecologists, midwives, family doctors, emergency rooms, or dental providers. As shown in Figure 49, minimum variation across insurance strata was observed. While the healthcare provider source was the most common option selected for getting prescription drugs, a small subset of the population reported other methods for acquiring prescription drugs during their pregnancy. Only **8.2 percent (n=982/12,043)** received a prescription medication through friends or family members, leftover prescriptions from previous needs, or through some other way without a formal prescription.

Figure 49. Prescription Drugs and Healthcare Provider Source by Insurance Strata, 2019 - 2022

Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

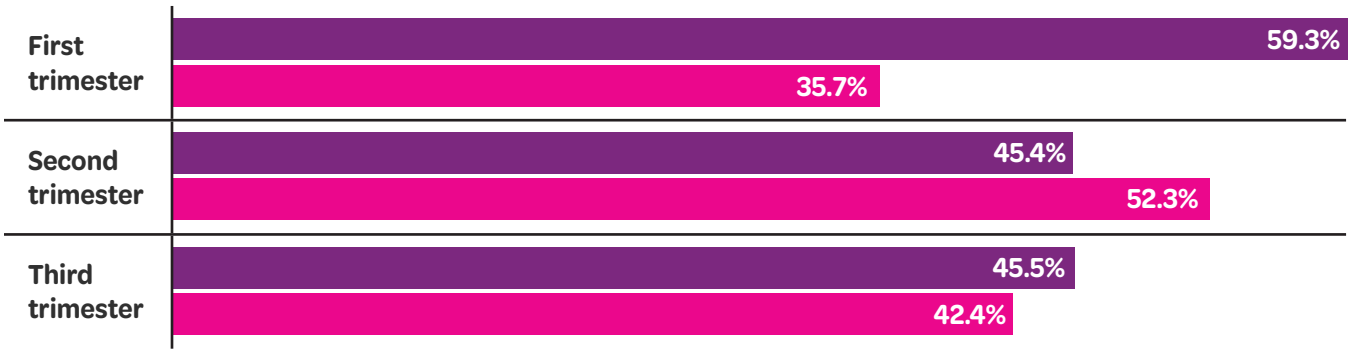
The AL-PRAMS survey also looked at reasons why prescription drugs were needed during pregnancy. Prescription drug use during pregnancy may be due to various reasons, such as addiction, depression, or pain relief from a health condition. Primarily, over half **(54.3 percent; n=6,541/12,043)** of the weighted maternal population between 2019 and 2022 used prescription drugs as pain relief from a health issue occurring during pregnancy.

Timing of Prescription Drug Use During Pregnancy

In the AL-PRAMS survey, the timing of prescription drug use throughout pregnancy was explored among those reporting prescription drug use. Between 2019 and 2022, prescription drug use remained relatively stable between the first two trimesters, with **49.3 percent (n=5,059/10,268)** reporting use during the first trimester and **48.3 percent (n=4,950/10,241**) during the second trimester. During the third trimester, prescription drug use did decrease, with **44.2 percent (n=4,445/10,060)** of the weighted maternal population reporting prescription drug use.

As shown in Figure 50, prescription drug use fluctuated across insurance strata. Notably, close to **60.0 percent (59.3 percent; n=3,497/5,896)** of the weighted Medicaid pregnant population reported prescription drug use during the first trimester. In comparison, prescription drug use among this stratum remained stable between the second and third trimesters, impacting **45.4 percent (n=2,650/5,843)** and **45.5 percent (n=2,613/5,739),** respectively. Within the non-Medicaid insurance strata, the lowest occurrence of prescription drug use occurred in the first trimester, affecting only **35.7 percent (n=1,562/4,372)**. The highest percentage of prescription drug use occurred during the second trimester, impacting just over half **(52.3 percent; n=2,300/4,398**). Prescription drug use fluctuated back down to **42.4 percent (n=1,832/4,321)** during the third trimester.

Figure 50. Prescription Drug Use Timing by Insurance Strata, 2019 - 2022

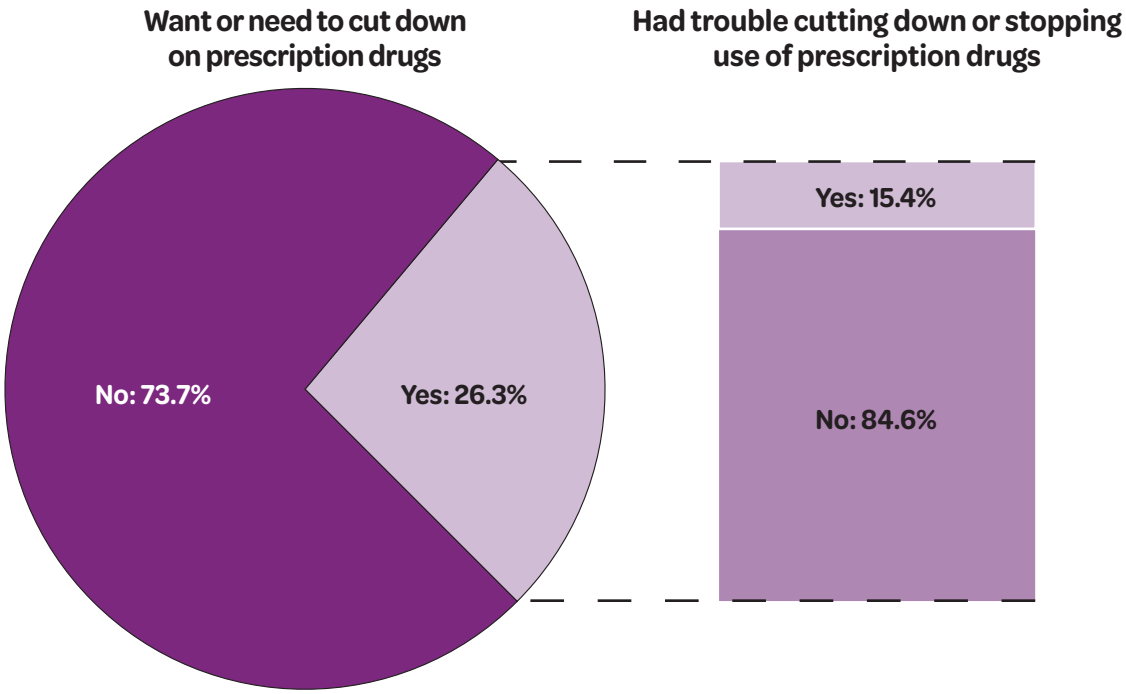


Source: Alabama Department of Public Health, Office of Maternal and Child Health

Medicaid **Non-Medicaid**

Building on Figure 50, the AL-PRAMS survey looked at those who wanted or needed to cut down or stop using prescription drugs during their pregnancy. The follow-up question would then look at whether they had trouble meeting their goal of either cutting down or stopping the use of prescription drugs. As shown in Figure 51, **26.3 percent (n=2,787/10,611)** of the weighted maternal population wanted or needed to achieve this goal. Only **15.4 percent (n=420/2,736)** of the weighted maternal population wanting to achieve this goal reported having trouble cutting down or stopping the use of prescription drugs during their pregnancy.

Figure 51. Desires to either reduce or cut Prescription Drug Use during Pregnancy, 2019 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

A notable difference was observed for the weighted findings across insurance strata among those wanting to either cut down or stop prescription drug use during their pregnancy, with **31.4 percent (n=1,940/6,172)** being Medicaid and **19.1 percent (n=847/4,439)** being non-Medicaid. The response rate was too low for stratum analysis to be completed among those having trouble cutting down or stopping prescription drug use during their pregnancy.

Perception of Prescription Drug Use During Pregnancy

Prescription drugs acquired from a healthcare provider source can impact the perception of whether prescription drugs can be safely used during pregnancy. Regardless of self-reported prescription drug use, the survey added questions for all survey respondents to assess their perception of whether prescription drugs can be harmful to their health during pregnancy and the infant. As shown in Figure 52, **60.0 percent (n=114,195/190,431)** of the maternal weighted population had the perception of prescription drugs not being harmful to their health during pregnancy if taken as prescribed. In contrast, Figure 53 shows that **56.2 percent (n=106,126/188,833)** viewed that prescription drugs can be harmful to the infant if taken as prescribed. The perception can be impacted by discussing with their healthcare provider about how prescription drugs can adversely impact their baby. Close to **60.0 percent (56.3 percent; n=108,051/192,014)** had this discussion with their healthcare provider.

Figure 52. Perception of Health Impact of Prescription Drug Use to Mother, 2019 - 2022

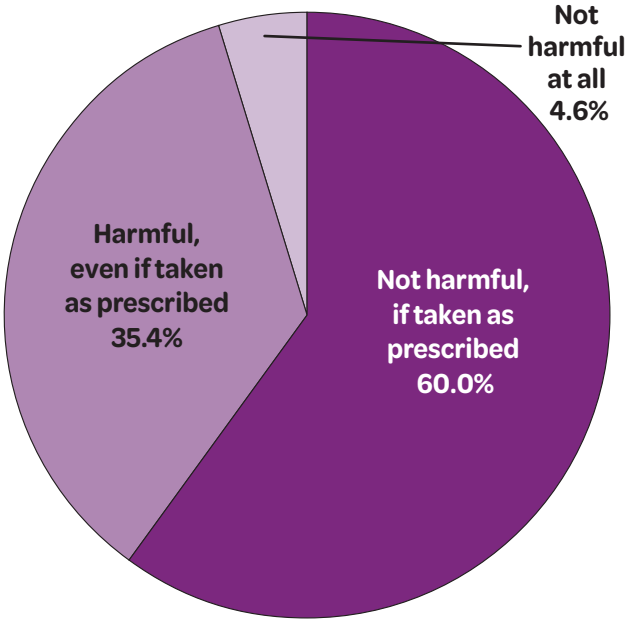
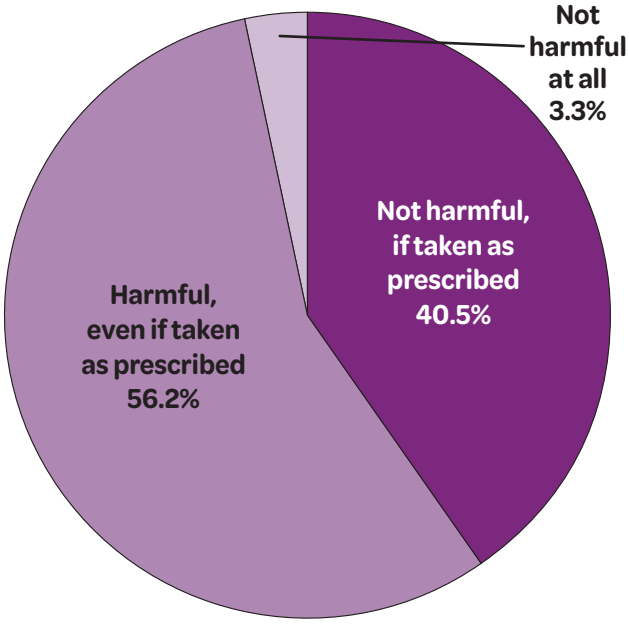


Figure 53. Perception of Health Impact of Prescription Drug Use on Infants, 2019 - 2022



Source: Alabama Department of Public Health, Office of Maternal and Child Health

Moving Forward

In 2023, AL-PRAMS Program began the Phase 9 iteration of the survey. With the transition to Phase 9, the survey can now be completed online. As shown in Figure 54, the Phase 9 survey highlighted changes to existing survey topic areas from the Phase 8 survey, as well as the addition of new survey topics. AL-PRAMS detailed several of the changes made by the CDC below for the newest iteration of the survey. Please refer to the references for more details on the survey topics covered in each PRAMS iteration [10].

New questions were added about whether a history of vaping was discussed during any healthcare visit before, during, and after pregnancy. The Phase 9 survey also looked at whether vaping was being used to either reduce or stop smoking cigarettes. For alcohol use, survey questions have been added to look at when alcohol was consumed throughout pregnancy. Binge drinking during pregnancy was also explored. Having transportation to either a medical appointment, work, or errands was included in the Phase 9 survey. The Phase 9 survey made several revisions to the vaccination questions, focusing on whether a vaccination of interest was received before or during pregnancy. The vaccinations of interest included COVID-19, flu, Tdap, and RSV. Another revision included having anxiety as an additional health condition being captured.

Figure 54. Phase 9 Modifications for the PRAMS Survey

Source: Alabama Department of Public Health, Office of Maternal and Child Health

To increase public awareness statewide, the AL-PRAMS Program will continue to promote the survey through outreach events, including Babypalooza, community baby showers, and health and wellness fairs. Every year, the AL-PRAMS Program also plans quarterly steering committee meetings. The purpose of these meetings is to build existing and new partnerships to share survey topic areas relevant to their goals. Figure 55 highlights some of the partnerships made at the steering committee meetings.

Figure 55. Participating AL-PRAMS Steering Committee Partnerships

†Within the Perinatal Health Division, programs such as the Alabama Fetal and Infant Mortality Review Program, the Alabama Maternal Mortality Review, and the Well Woman Program were active members.

Data Challenges

The data-related challenges with the PRAMS data collected between 2016 and 2022 included the following:

Recall Bias

Surveys are typically mailed to potential respondents within 2 to 6 months of delivery. There is a likelihood of not remembering what may have occurred with certain survey topics. Another factor included the answering of sensitive behavioral topics such as smoking, alcohol use, or drug use during pregnancy.

Nonresponse

The AL-PRAMS Program may not have access to the most current address or phone number. To increase survey response rates, AL-PRAMS plans to use LexisNexis as a source for the most up-to-date addresses and phone numbers.

Low Response Rate for Questions

AL-PRAMS had to exclude several questions from this report due to low response rates. Insurance stratum analysis was also factored into the data presented for this report. Since the opioid supplement is only applicable for a small subset of the weighted pregnant population, some of the questions captured had to be excluded from analysis.

Iterations to PRAMS Survey

CDC may restructure the survey topics across survey iterations. As noted in the Phase 9 survey changes, performing trend analysis over longer periods on certain survey topics will be more difficult.

References

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