

The logo features the letters 'TN' in white on a red square background.

TN

Department of
Health



PRAMS Trend Report

2017-2021

Pregnancy Risk Assessment Monitoring System

Tennessee Department of Health



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Background: What is PRAMS?

The **Tennessee Pregnancy Risk Assessment Monitoring System (PRAMS)** is a state-run surveillance study conducted in collaboration with the CDC that improves the understanding of the health and wellness of maternal and infant populations, to ultimately inform policies and programs to improve birth outcomes. State-specific, population-based information is collected by individual states on the attitudes, beliefs, and experiences of women before, during, and after pregnancy. Presently, 46 states and 4 independent regions/territories participate in PRAMS, representing nearly 81% of all live U.S. births.

Data is collected and weighted in a manner that is **representative** of the entire Tennessee population of women who have given birth to a live infant during that year. Currently, Tennessee's PRAMS program surveys approximately 120 women per month (~1800 per year) from Tennessee birth records. To be selected for participation, women must be residents of Tennessee that delivered a live-born infant within the previous 2-6 months. Currently, out of the total sampled population of Tennessee births, around 800 women participate in the survey each year. The CDC sets a specific response rate threshold, currently 50%, that states must meet to be included in CDC's published national estimates and reports, such as the *Selected Maternal and Child Health Indicators* reports. Tennessee *did not* meet the threshold to be included in the United States estimates presented in those reports for few of the years included in this trend report.

Because only a small number of women with live births are selected for participation in PRAMS, **PRAMS should not be considered the primary data source** for maternal and child health measures. The birth certificate, which captures information on every TN residing mother-infant pair, is a better primary source for some measures. That said, PRAMS is unique in that it is the only data source that captures information before, during, and after pregnancy, and it also captures qualitative data about these time periods. For example, the birth certificate captures a woman's insurance status at the time of delivery, while PRAMS captures insurance status before, during, and after pregnancy, as well as any barriers in addition to health care coverage that the woman may have experienced in seeking first trimester prenatal care.

For more information on:

- **PRAMS methodology**, visit: <https://www.cdc.gov/prams/index.htm>
- **Healthy People 2030 Goals** for Maternal, Infant, and Child Health, visit: [Pregnancy and Childbirth - Healthy People 2030 | health.gov](#)
- **TN Department of Health Maternal and Child Health Priorities**: <https://www.tn.gov/health/health-program-areas/mch/mch-block-grant/mch-block-grant-priorities.html>
- **TN PRAMS Data Request**: [Health Statistics \(tn.gov\)](#)

Executive Summary

The Tennessee Pregnancy Risk Assessment Monitoring System (PRAMS) trend report includes data from 2017-2021 to identify emerging trends in maternal health indicators, behaviors, outcomes. These trends include statewide changes in risk factors, prevalence rates, utilization of prenatal care services and maternal health disparities.

Different factors and experiences before, during, and after a woman's pregnancy influence these indicators, and understanding data trends can help shape policies and programs that improve maternal and infant outcomes.

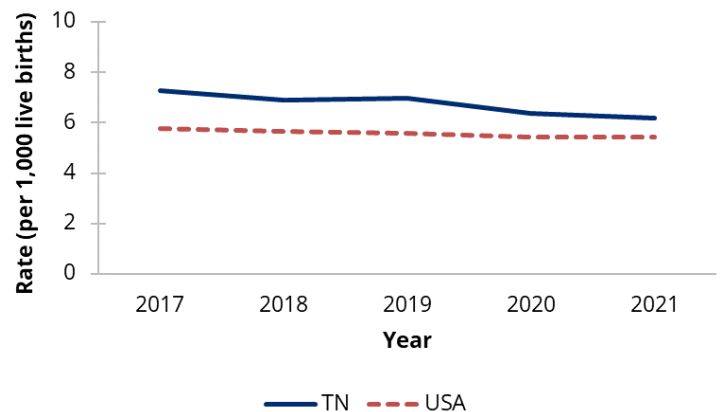
This report is based on the maternal and child health (MCH) indicator reports published by the Centers for Disease Control and Prevention (CDC), which provide trends for select MCH indicators that have been prioritized at the state and national level.¹ Tennessee has **not seen significant change** in most of the 2017-2021 indicators presented in this report, the following are highlights.

What is Tennessee Doing Well?

From 2017 to 2021:

- More Tennessee women (65.1%) reported having a **health care visit before pregnancy** compared to U.S. women (67.4%), and the percentage of Tennessee women that began **prenatal care** during the 1st trimester and had a **postpartum checkup** is negligible variance than those for the U.S.
- Fewer Tennessee women (21.5%) reported having a **mistimed pregnancy** compared to the U.S. (18.4%), while more (80.5% vs. 75.5%) reported using any **postpartum contraceptives**; further, fewer women in Tennessee (21.6%) reported using any of the least effective methods post-partum family planning compared to the U.S. average (22.9%).
- Fewer Tennessee women (9.2%) reported being **uninsured after pregnancy** compared to U.S. women (9.4%).
- Slight discrepancy in reported Tennessee women with their babies most often **laid to sleep on their backs** (79.3%) compared to the U.S. average (80%). Implementing safe sleep practices reduces the risk of infant mortality. Between 2017 and 2021, the infant mortality rate in Tennessee decreased by 14.6% (**Figure a**).

Figure a: Infant Mortality Rate by Year



What Can Tennessee Improve?

From 2017 to 2021:

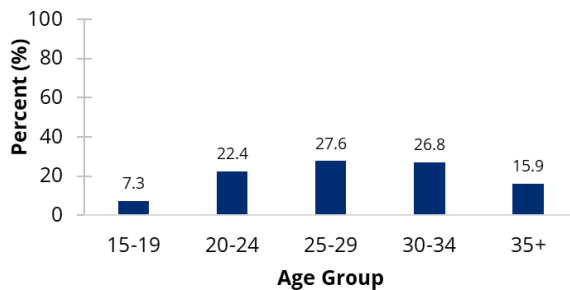
- **Multivitamin use** 4+ times a week before pregnancy in Tennessee women is lower (38.3%) compared to U.S. women (42.7%).
- **Cigarette smoking** in Tennessee women before (20.3%), during (10.4%) and after (14.1%) pregnancy is more common compared to U.S. women (15.1%, 6.9%, and 9.7% respectively).
- Fewer Tennessee women (55.4%) report receiving a **flu shot** 12 months before delivery compared to U.S. women (59.2%).
- More women in Tennessee (15.4%) report experiencing **postpartum depressive symptoms** compared to U.S. women (13.1%).
- Only about 50.5% of Tennessee women reported having **intended pregnancies** compared to U.S. women (59.8%).
- Nearly 4 out of 5 babies (84.8%) were **ever breastfed** in Tennessee, a figure lower than the U.S. percentage (87.8%).
- Fewer Tennessee women (60.2%) reported any **breastfeeding at 8+ weeks** compared to U.S. women (68%).

Many of these areas for improvement directly involve preconception health, something that is important not only for the general health of all women but also helps to set them up for a healthy pregnancy and delivery and reduces the chance of experiencing poor birth outcomes.² Additionally, unintended pregnancy can exacerbate the effects of inadequate preconception health, as it limits the ability of women to actively improve and address health and lifestyle problems that can increase the risk of poor pregnancy and birth outcomes.³ Finally, many of the preconception health and lifestyle factors mentioned above have been associated with an increased risk of postpartum depression and decreased likelihood of breastfeeding initiation.^{4,5}

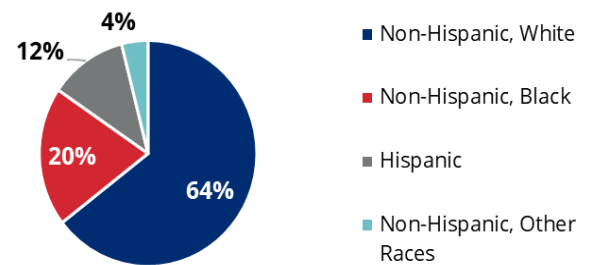
Demographics of Women with a Recent Live Birth in Tennessee^{*†}

The demographics characteristics of PRAMS respondents do not change drastically from year-to-year; during 2017-2021, most women, on average, were: aged 25-34 years, non-Hispanic White, married, and had more than a high-school-level education.

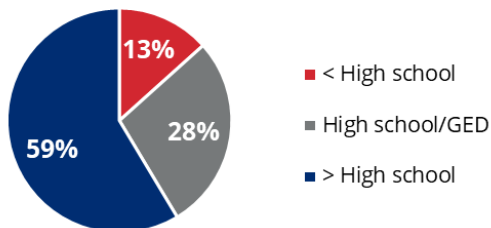
Age Group



Race/Ethnicity[#]



Education Level

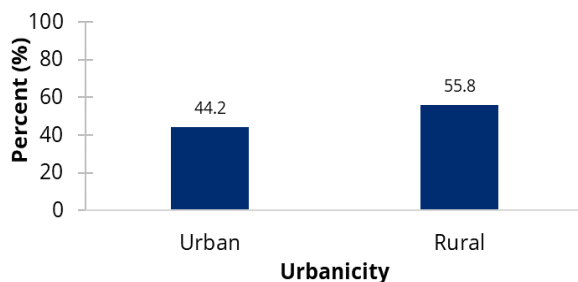


Marital Status

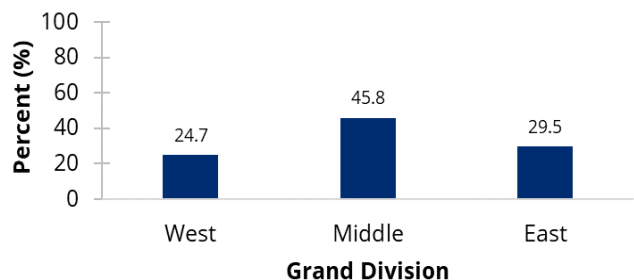
Over 1 in 2 women
(55.9%) were married.



Urbanicity



Grand Division



* PRAMS samples women with a recent live birth, and is weighted to be representative of that population, which will be referred to as “women” throughout this report.

†All presented estimates are based upon weighted PRAMS data.

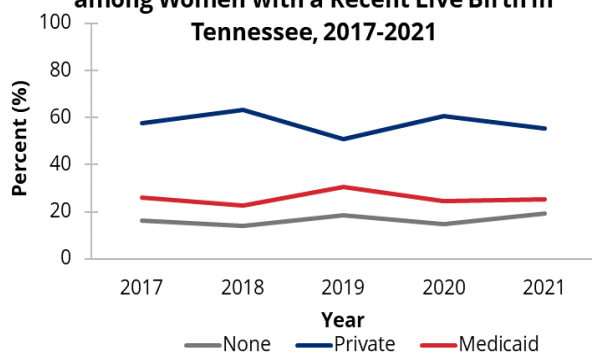
#Race and ethnicity estimates shown here depict only respondents to the PRAMS survey.

Maternal Health Insurance Coverage

Uninsured women tend to receive less prenatal care because they cannot access that care compared to women who are insured, and consequently experience worse birth outcomes.⁶ Low-income, minority, undocumented immigrants without insurance have higher barriers in accessing the healthcare especially prenatal care.^{7,8}

Prior to pregnancy

Figure 1: Preconception Insurance Status among Women with a Recent Live Birth in Tennessee, 2017-2021



Source: TN PRAMS

In Tennessee during 2017-2021, more women were covered by private insurance (**57.7%**) than were covered by Medicaid (**25.8%**), these percentages have stayed relatively constant between 2017-2021. (Figure 1).

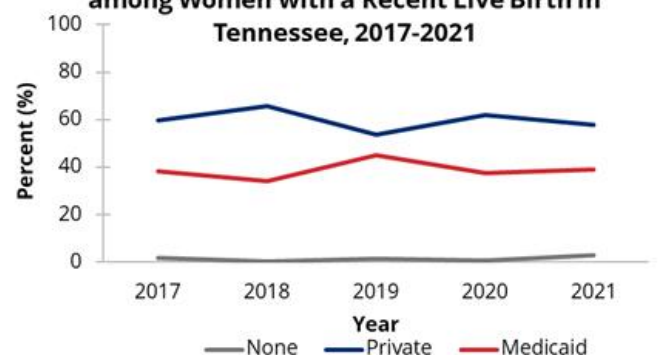
Compared to U.S. rates from 2017-2021, a lower percentage of Tennessee women had private insurance, and Medicaid; however, a greater percent of Tennessee women was uninsured (**16.5%**) compared to U.S. women (**13.3%**).

During pregnancy

During pregnancy, few women (**1.5%**) remained uninsured during pregnancy, while more women reported having insurance from Medicaid (**38.8%**) and from Private (**59.7%**) during pregnancy (Figure 2).

Low-income women may become eligible for Medicaid during pregnancy, thus the percentage of women covered by Medicaid increased while the percentage of uninsured women decreased.

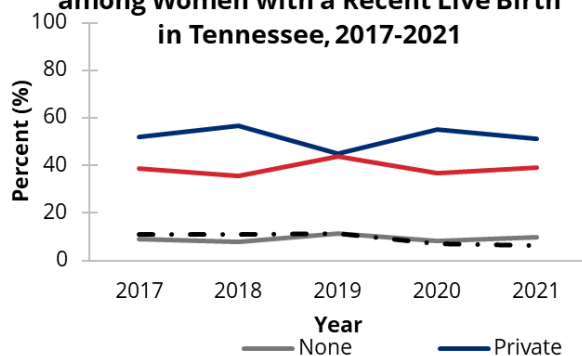
Figure 2: Prenatal Insurance Status among Women with a Recent Live Birth in Tennessee, 2017-2021



Source: TN PRAMS

After pregnancy

Figure 3: Postpartum Insurance Status among Women with a Recent Live Birth in Tennessee, 2017-2021



Source: TN PRAMS; CDC MCH Indicator Report (2017-2021)

Compared to the U.S average (9.4%) the same percentage of Tennessee woman remain uninsured postpartum (9.2%) during 2017-2021(Figure 3). The percentage of Tennessee women covered by Medicaid during pregnancy compared to after pregnancy remain unchanged (38.8%, respectively).

Pregnancy Intention & Family Planning

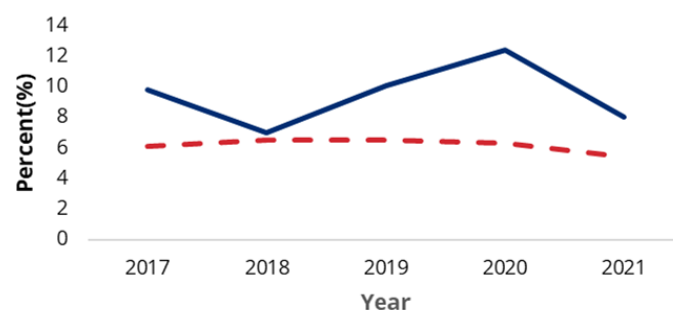
Family planning and pregnancy intention are important aspects of reproductive health that help individuals and couples make informed choices about when and if to have children. An unintended pregnancy is one that is either unwanted or occurred earlier than desired. In the U.S, during 2017-2019, 22.4% of women aged 15-19 reported a mistimed pregnancy and 15.7% reported an unwanted pregnancy.⁹

Unintended pregnancy is associated with adverse maternal and child outcomes, such as maternal depression during pregnancy and postpartum, as well as preterm birth and low birth weight.¹⁰ Contraception, also known as 'birth control', plays a fundamental role in comprehensive reproductive healthcare.¹¹

Pregnancy Intention[†]

During 2017-2021, the percent of unwanted pregnancies among women on an average **6.2%** in the U.S compared to an average of **9.5%** in Tennessee. Intended pregnancies have generally been stable from year-to-year, accounting for about **50.5%** of live births in Tennessee.

Figure b: Unwanted Pregnancy Rate by Year



Source: TN PRAMS

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Family Planning[‡]

The proportion of women who used any contraception in Tennessee before or after pregnancy remained largely the same between 2017 and 2021. Overall, around **39.6%** of **women in Tennessee used any contraceptives** before pregnancy; among those with **unintended** pregnancies, **57.3%** did not **use any method** prior to pregnancy. Overall, around **80.5%** of all women in Tennessee used any **postpartum contraceptives**; among those with unintended pregnancies, **18.2%** did not **use any method** after pregnancy.

About **1.3%** of women in Tennessee reported using the **most-effective contraception** methods prior to pregnancy (Figure 4.a); this shifts after pregnancy, with **31.1%** of women having reported using the most-effective methods (Figure 4.b).

Figure 4.a: Average Preconception Contraception Use by Effectiveness among Women with a Recent Live Birth in Tennessee (2017-2021)

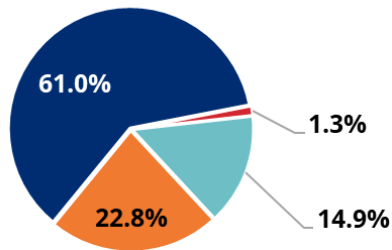
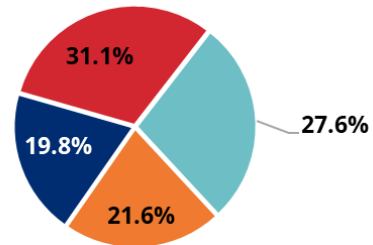


Figure 4.b: Average Postpartum Contraception Use by Effectiveness among Women with a Recent Live Birth in Tennessee (2017-2021)



Source: TN PRAMS

†

Pregnancy intention and ‡contraceptive effectiveness is defined in the Analysis Notes.

Maternal Health Care Services

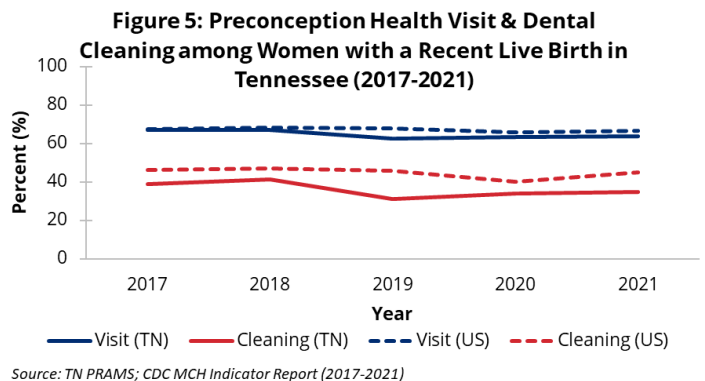
Women who are healthy before and at the time of conception typically have healthier pregnancies with fewer complications. Data from 2017-2021, showed a rise in the percent of U.S women who encountered challenges in accessing reproductive healthcare services, particularly among those who were part of disadvantaged or marginalized populations.¹²

Some of the common barriers to women getting sufficient healthcare before or during pregnancy are cost or lack of insurance, difficulty in getting a doctor's appointment, availability of physician, and lack of adequate transportation.

Healthcare services in preconception, prenatal and postpartum phases are essential for promoting maternal and infant health.

Preconception Healthcare Visit

Overall, nearly **65.1%** of Tennessee women reported **attending any type of preconception healthcare visit** during the 12 months before pregnancy during 2017-2021. During this time, the proportion of women reporting a preconception healthcare visit decreased slightly from 67% to 64%. (Figure 5)



Prenatal Care

About **86.4%** of Tennessee women reported **beginning prenatal care during their 1st trimester**; **13.1%** reported starting during the 2nd or 3rd trimester, and only **0.5%** reported not receiving any prenatal care.

Postpartum Checkup

Nearly **90%** of women reported attending their postpartum checkup.

Flu Vaccinations & Dental Care

Before or during their pregnancy, an average of **55.4%** of Tennessee women reported receiving a flu shot prior to delivering their baby. About **36.3%** of women reported having their teeth cleaned during pregnancy; this estimate has decreased slightly since 2017, from 38.9% to 34.8% (Figure 5). In addition to being linked to heart disease in the general population¹³, due to hormonal changes during pregnancy, poor dental health has been linked to adverse pregnancy outcomes¹⁴ such as preterm birth, pre-eclampsia/eclampsia, and even an increased risk of dental cavities in early childhood among infants born to mothers with poor dental health.

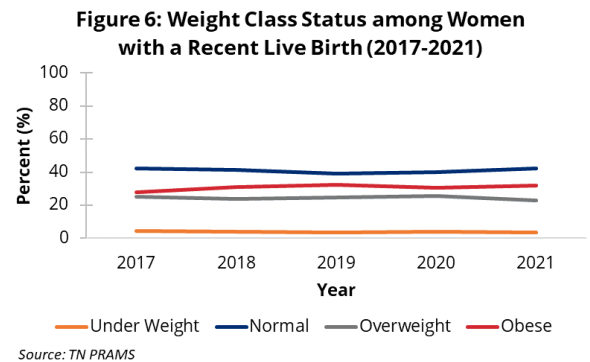
Maternal Nutrition & Wellness

Food insecurity is the social and economic condition of having limited or inconsistent access to healthy, adequate foods within households.¹⁵ Poor nutrition among pregnant women is an important public health concern in the US.¹⁶ Pregnant and postpartum women have greater nutrient and calorie needs compared to those who are not pregnant or postpartum.¹⁷ Some of the special requirements are healthy gain weight, seafood, folic acid, iron and iodine, choline, and supplements for healthy neurocognitive fetal development.¹⁸ Women who don't meet these needs can experience weight gain during pregnancy, increase blood pressure, pregnancy related diabetes and it can lead to poor birth outcomes like stillbirth, low birthweight, and lasting developmental delays among infants.¹⁹

Between 2019-2021, 11% of pregnant and postpartum women in the U.S. experienced food insecurity. WIC is a supplemental nutrition program for Women, Infants and Children that provides additional food to low-income pregnant, postpartum, and breastfeeding women until their children reach age 5. Only 65% of mothers with federal poverty line (FPL) below 195% participated in WIC.

Weight Class Status

On average, over 1 in 2 women with a recent live birth in Tennessee were overweight or obese prior to pregnancy; **24.4%** were overweight and **30.6%** were obese. Only **41.1%** were of normal weight; these percentages did not change significantly between 2017-2021. (Figure 6).

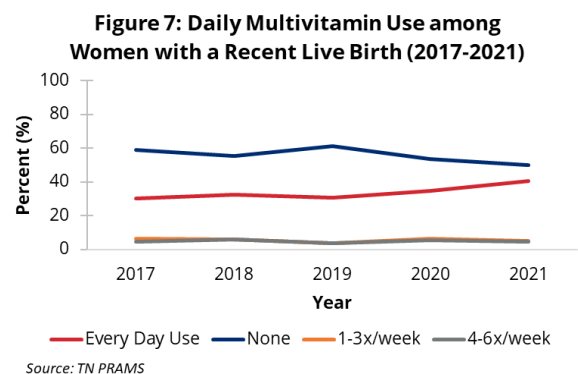


Diet & Exercise

About **27.6%** of Tennessee women reported **dieting to lose weight** during the 12 months before pregnancy. An average of **40.2%** of Tennessee women reported **exercising 3 or more days per week** during the 12 months before pregnancy.

Multivitamin Use

About **33.4%** of Tennessee women reported taking **multivitamins every day of the week** during the month before pregnancy, while **56.2%** of women reported not taking any multivitamins at all (Figure 7). Since 2017, daily use of multivitamin use increased from 30.2% to 40.5% in 2021.



Maternal Substance Use

Smoking and E-Cigarette Use

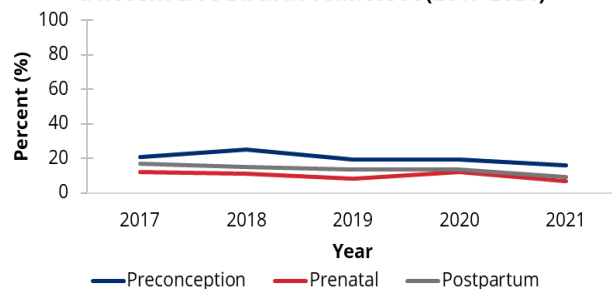
Smoking during pregnancy can lead to fetal death or birth defects such as cleft lip, cleft palate or both.²⁰ First and second-hand smoking increases the risk of abnormal bleeding in mothers and sudden infant death syndrome (SIDS) in babies. Data from 2010-2017 showed the prevalence of smoking in the U.S during pregnancy was highest among women in the 20-24 age group, non-Hispanic American Indian/Alaska Native women, and those with a high school education or lower.²¹

Between 2016 and 2021, the percent of U.S mothers who smoked during pregnancy declined from 7.2% to 4.6%.²²

During 2017-2021, the proportion of Tennessee women who **smoked cigarettes within the 3 months before pregnancy** averaged around **20.3%**. During the last 3 months of pregnancy, about **10.4%** of all women reported **smoking** (Figure 8).

Prevalence of **postpartum smoking** was about **14.1%** of all women between 2017 - 2021; and since 2017, postpartum smoking has decreased from 17.2% to 9.5%. Prevalence of e-cigarette use tends to be much lower compared to cigarette smoking; see *Appendix A* for estimates.

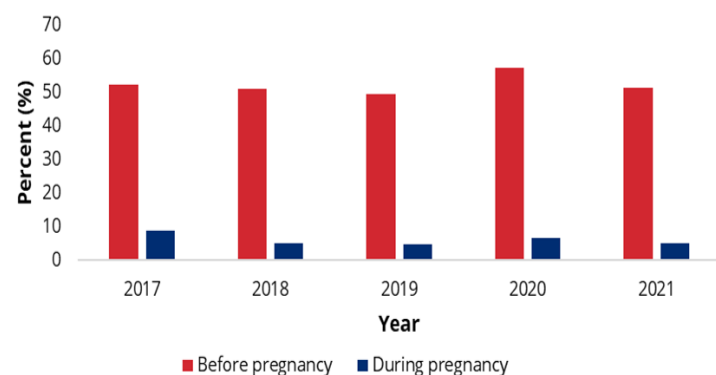
Figure 8: Cigarette Smoking among Women with a Recent Live Birth in Tennessee (2017-2021)



Source: TN PRAMS

Alcohol Use

Figure c: Alcohol Use by Year among Women with a Recent Live Birth in Tennessee, 2017-2021



Source: TN PRAMS

There is no safe type, time, or amount of alcohol use during pregnancy. Drinking alcohol during pregnancy increases the risk of miscarriage and stillbirth.²³ It can also ultimately restrict the baby's mental and physical development and result in a condition known as **fetal alcohol spectrum disorder (FASD)**.²⁴

Nearly **52.3%** of Tennessee women **used alcohol during the 3 months before pregnancy**. About **6.3%** of Tennessee women used alcohol **during pregnancy** (Figure c).

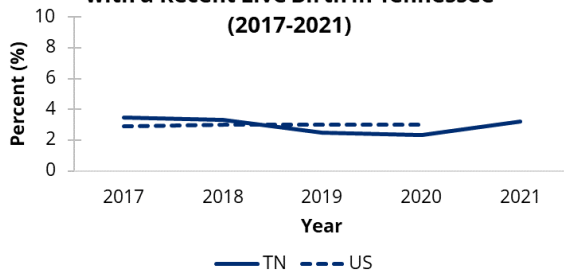
Intimate Partner Violence & Maternal Depression

Intimate Partner Violence

Experiencing **Intimate partner violence (IPV)** during pregnancy leaves women with an increased risk of poor pregnancy outcomes for both her and her baby.²⁵ These risks are brought about not only by the physical violence, but also by stress from the lasting psychological effects.

Historically, more Tennessee women appear to have experienced IPV compared to the U.S. average.

Figure 9: Experience of Intimate Partner Violence before Pregnancy among Women with a Recent Live Birth in Tennessee (2017-2021)



Source: TN PRAMS; CDC MCH Indicator Report (2016-2019)

About **3%** of Tennessee women reported experiencing any **IPV before pregnancy** by a current or ex-partner (Figure 9).

During pregnancy, **1.9%** of women in Tennessee reported experiencing **IPV**. The proportion of IPV among Tennessee women has remained the same since 2017.

Postpartum Depressive Symptoms

Post-partum depression (PPD)—depression that occurs at any time during the post-partum period is another complication women can face after giving birth.²⁶ Pre-pregnancy depression, family history of mental illness, substance use disorder, changing hormone levels after pregnancy as well as young maternal age are thought to increase the risk for PPD.²⁷ Women suffering from PPD can experience low self-esteem, sadness, increased anxiety.²⁸ Infants born of mothers with PPD can experience lowered overall health, gain less weight, and have reduced cognitive and motor-skill development.²⁸

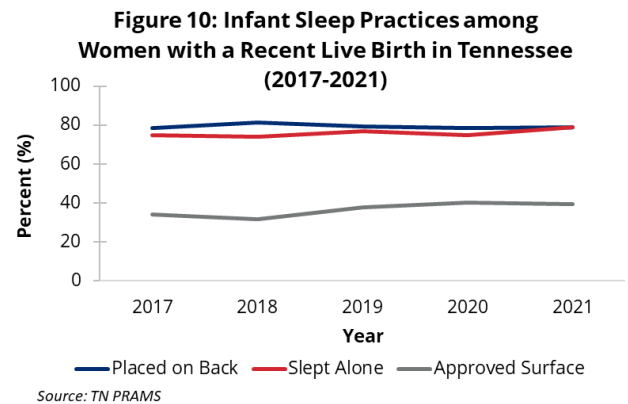
About **17.9%** of women reported experiencing depression prior to pregnancy between 2017 and 2021. An average of **15.9%** of Tennessee women reported **experiencing symptoms of postpartum depression (PPDS)** between 2017 and 2021. From year-to-year in Tennessee, women reporting depression or depressive symptoms around the time of pregnancy has remained mostly constant from 2018 to 2021.

Infant Sleep Practices and Breastfeeding

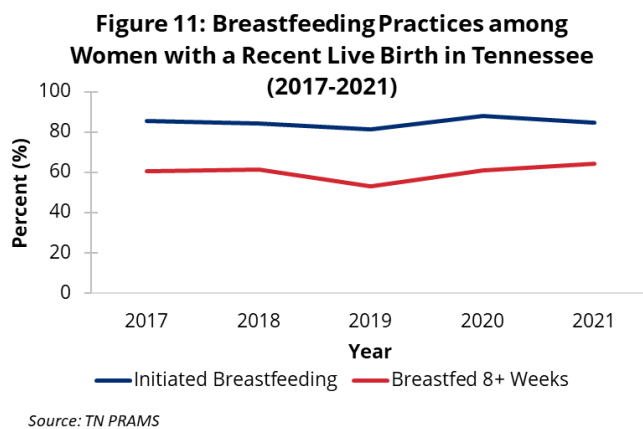
Sudden Infant Death Syndrome (SIDS)—the sudden and unexplained death of an infant under 12 months of age—is the leading cause of death among infants aged 1-12 months, and the fourth leading cause among all infants in the U.S.²⁹ While other factors such as substance use during or after pregnancy and low birth weight may play a role, the majority of SIDS cases are linked to improper sleeping position in babies. Research indicates that placing babies on their backs to sleep and breastfeeding them can help dramatically decrease the risk of SIDS.³⁰

Safe Sleep

An average of **79.3%** of Tennessee women reported that they most often **place their baby on his or her back to sleep** (Figure 10); **76%** of women reported her baby most often slept alone, and **36.4%** reported her baby sleeps on an approved sleep surface.



Breastfeeding



Nearly **85%** of women reported **ever breastfeeding their babies** (Figure 11). At the time of survey, **60.2%** of women reported she had breastfed her baby for 8 or more weeks. *American Academy of Pediatrics* recommends exclusive breastfeeding for the initial 6 months after birth and continuing to breastfeed after the introduction of solid foods; mothers are encouraged to breastfeed until their child reaches 2 or longer as desired by both mother and child.³¹

Appendix A: Indicator Trends

YEAR											
		2017	2018		2019		2020		2021		
INDICATOR	Response	%	[95%CL]	%	[95%CL]	%	[95%CL]	%	[95%CL]	%	[95%CL]
MATERNAL HEALTH INSURANCE COVERAGE											
INSURANCE STATUS BEFORE PREGNANCY	Medicaid	26.0	22.1-29.8	22.5	18.8-26.3	30.6	25.3-35.9	24.5	19.8-29.2	25.3	21.2-29.5
	None	16.3	13.1-19.4	14.0	11.1-16.9	18.6	14.2-22.9	14.8	11.0-18.7	19.1	15.5-22.8
	Private	57.7	53.5-62.0	63.5	59.2-67.7	50.9	45.2-56.5	60.7	55.3-66.0	55.5	50.8-60.2
INSURANCE STATUS DURING PREGNANCY	Medicaid	38.4	33.7-43.1	34.1	29.5-38.7	45.0	39.0-51.1	37.5	31.6-43.4	39.1	34.1-44.2
	None	1.9	0.5-3.3	0.3	0.0-0.7	1.4	0.0-2.9	0.6	0.0-1.4	3.0	1.2-4.8
	Private	59.7	55.0-64.4	65.6	61.0-70.2	53.6	47.5-59.6	61.9	56.0-67.8	57.9	52.7-63.0
INSURANCE STATUS AFTER PREGNANCY	Medicaid	38.8	34.6-43.0	35.6	31.3-39.8	43.7	38.2-49.3	36.8	31.5-42.2	39.1	34.6-43.7
	None	9.0	6.7-11.2	7.8	5.4-10.1	11.4	7.9-14.9	8.0	5.0-11.1	9.8	7.1-12.5
	Private	52.2	47.9-56.4	56.7	52.3-61.1	44.9	39.4-50.4	55.1	49.6-60.6	51.1	46.4-55.8
PREGNANCY INTENTION & FAMILY PLANNING											
MISTIMED PREGNANCY	No	77.4	73.9-80.9	78.3	74.8-81.9	79.0	74.3-83.6	77.3	72.8-81.7	80.8	77.2-84.4
UNWANTED PREGNANCY	Yes	22.6	19.1-26.1	21.7	18.1-25.2	21.0	16.4-25.7	22.7	18.3-27.2	19.2	15.6-22.8
	No	90.2	87.5-92.8	93.0	90.9-95.1	89.9	86.6-93.3	87.6	83.9-91.3	92.0	89.3-94.7
	Yes	9.8	7.2-12.5	7.0	4.9-9.1	10.1	6.7-13.4	12.4	8.7-16.1	8.0	5.3-10.7
FELT UNSURE ABOUT PREGNANCY	No	80.9	77.5-84.3	81.4	77.9-85.0	81.2	76.8-85.5	85.6	81.9-89.3	78.9	75.1-82.6
	Yes	19.1	15.7-22.5	18.6	15.0-22.1	18.8	14.5-23.2	14.4	10.7-18.1	21.1	17.4-24.9

INTENDED PREGNANCY	No	51.5	47.3-55.7	47.2	42.9-51.6	49.9	44.5-55.4	49.5	44.2-54.8	48.4	43.7-53.0
	Yes	48.5	44.3-52.7	52.8	48.4-57.1	50.1	44.6-55.5	50.5	45.2-55.8	51.6	47.0-56.3
ANY METHOD BEFORE PREGNANCY	No	58.5	52.8-64.2	59.3	53.4-65.2	66.6	59.4-73.8	57.2	49.9-64.6	61.5	55.3-67.7
	Yes	41.5	35.8-47.2	40.7	34.8-46.6	33.4	26.2-40.6	42.8	35.4-50.1	38.5	32.3-44.7
ANY METHOD BEFORE PREGNANCY (AMONG WOMEN WITH UNINTENDED PREGNANCIES)	No	55.1	48.9-61.4	57.0	50.6-63.5	63.5	55.5-71.5	53.7	45.6-61.9	57.8	50.9-64.8
	Yes	44.9	38.6-51.1	43.0	36.5-49.4	36.5	28.5-44.5	46.3	38.1-54.4	42.2	35.2-49.1
ANY METHOD AFTER PREGNANCY	No	19.3	15.9-22.8	22.4	18.6-26.1	16.9	12.8-21.0	19.7	15.5-23.9	19.5	15.9-23.0
	Yes	80.7	77.2-84.1	77.6	73.9-81.4	83.1	79.0-87.2	80.3	76.1-84.5	80.5	77.0-84.1
ANY METHOD AFTER PREGNANCY (AMONG WOMEN WITH UNINTENDED PREGNANCIES)	No	17.9	13.1-22.7	23.2	17.6-28.7	15.3	9.5-21.0	16.9	11.3-22.6	18.0	13.1-22.9
	Yes	82.1	77.3-86.9	76.8	71.3-82.4	84.7	79.0-90.5	83.1	77.4-88.7	82.0	77.1-86.9
CONTRACEPTIVE USE BY EFFECTIVENESS BEFORE PREGNANCY	Least	23.8	19.0-28.7	25.5	20.2-30.7	18.9	13.0-24.7	25.6	19.0-32.2	20.0	14.9-25.1
	Moderately	16.0	11.7-20.3	13.6	9.6-17.7	13.2	8.0-18.5	15.2	9.8-20.5	15.7	11.0-20.4
	Most	1.2	0.1-2.2	1.1	0.0-2.3	1.3	0.0-2.8	1.6	0.0-3.5	1.3	0.0-2.9
	None	59.0	53.3-64.7	59.8	53.8-65.7	66.6	59.4-73.8	57.6	50.2-65.0	62.9	56.8-69.1
CONTRACEPTIVE USE BY EFFECTIVENESS AFTER PREGNANCY	Least	22.5	18.9-26.1	20.4	17.0-23.9	27.7	22.7-32.7	16.8	12.8-20.8	19.8	16.1-23.5
	Moderately	29.5	25.7-33.4	26.4	22.5-30.2	26.0	21.1-30.8	28.9	24.0-33.8	26.4	22.3-30.5
	Most	28.5	24.7-32.3	30.5	26.4-34.5	29.3	24.4-34.2	34.3	29.2-39.4	34.2	29.7-38.7
	None	19.5	16.1-23.0	22.7	18.9-26.5	17.1	12.9-21.2	20.0	15.8-24.2	19.6	16.1-23.2
MATERNAL HEALTH CARE SERVICES											
PRECONCEPTION VISIT	No	33.0	29.1-37.0	32.7	28.6-36.8	37.2	31.9-42.5	36.4	31.2-41.6	36.0	31.5-40.5
	Yes	67.0	63.0-70.9	67.3	63.2-71.4	62.8	57.5-68.1	63.6	58.4-68.8	64.0	59.5-68.5

STARTED PRENATAL CARE 1ST TRIMESTER	1st trim.	87.8	85.0-90.7	86.1	83.0-89.3	84.7	80.6-88.7	84.6	80.7-88.5	88.2	85.2-91.1
	2nd/3rd	11.9	9.0-14.7	13.3	10.1-16.4	14.9	10.9-19.0	14.4	10.6-18.2	11.6	8.7-14.6
	No PNC	0.3	0.0-0.7	0.6	0.0-1.2	0.4	0.0-1.0	1.0	0.0-2.1	0.2	0.0-0.3
HAD POSTPARTUM CHECK-UP	No	7.3	5.0-9.7	10.7	7.9-13.6	11.7	8.2-15.2	11.3	7.9-14.7	11.3	8.6-14.1
	Yes	92.7	90.3-95.0	89.3	86.4-92.1	88.3	84.8-91.8	88.7	85.3-92.1	88.7	85.9-91.4
FLU SHOT BEFORE DELIVERY	No	44.1	39.9-48.3	42.7	38.4-47.1	43.2	37.8-48.7	45.3	39.9-50.6	48.0	43.3-52.6
	Yes	55.9	51.7-60.1	57.3	52.9-61.6	56.8	51.3-62.2	54.7	49.4-60.1	52.0	47.4-56.7
FLU SHOT BEFORE OR DURING PREGNANCY	No	44.1	39.9-48.3	42.7	38.4-47.1	43.2	37.8-48.7	45.3	39.9-50.6	48.0	43.3-52.6
	Yes before	12.7	10.1-15.3	10.3	7.9-12.8	11.7	8.3-15.2	12.6	9.0-16.2	15.2	11.8-18.7
	Yes during	43.2	39.0-47.4	46.9	42.6-51.3	45.0	39.6-50.5	42.1	36.8-47.4	36.8	32.2-41.3
DENTAL CLEANING DURING PREGNANCY	No	61.1	57.0-65.2	58.6	54.3-62.8	68.6	63.7-73.6	66.1	61.1-71.1	65.2	60.8-69.6
	Yes	38.9	34.8-43.0	41.4	37.2-45.7	31.4	26.4-36.3	33.9	28.9-38.9	34.8	30.4-39.2
MATERNAL NUTRITION & WELLNESS											
DIETING TO LOSE WEIGHT BEFORE PREGNANCY	No	72.0	68.2-75.8	69.9	65.8-74.0	72.3	67.4-77.1	74.8	70.2-79.3	73.2	69.1-77.4
	Yes	28.0	24.2-31.8	30.1	26.0-34.2	27.7	22.9-32.6	25.2	20.7-29.8	26.8	22.6-30.9
EXERCISE 3+ DAYS PER WEEK BEFORE PREGNANCY	No	58.5	54.4-62.7	58.8	54.5-63.1	61.0	55.7-66.2	61.5	56.4-66.7	60.0	55.4-64.5
	Yes	41.5	37.3-45.6	41.2	36.9-45.5	39.0	33.8-44.3	38.5	33.3-43.6	40.0	35.5-44.6
WEIGHT CLASS STATUS	Normal	42.4	38.1-46.7	41.2	36.8-45.5	39.2	33.8-44.6	39.9	34.5-45.2	42.1	37.4-46.9
	Obese	28.0	24.2-31.9	31.2	27.1-35.2	32.5	27.3-37.7	30.4	25.4-35.5	31.7	27.3-36.1
	Over	25.2	21.3-29.0	23.8	20.0-27.6	24.5	19.8-29.2	25.6	20.8-30.4	22.7	18.8-26.7
	Under	4.4	2.8-6.1	3.8	2.2-5.5	3.8	1.8-5.7	4.1	2.0-6.3	3.4	1.7-5.2
MULTIVITAMIN USE 4+ TIMES/WEEK BEFORE PREGNANCY	No	65.3	61.4-69.2	61.3	57.1-65.6	65.3	60.2-70.4	59.7	54.5-64.9	55.1	50.4-59.7
	Yes	34.7	30.8-38.6	38.7	34.4-42.9	34.7	29.6-39.8	40.3	35.1-45.5	44.9	40.3-49.6
FREQUENCY OF MULTIVITAMIN USE BEFORE PREGNANCY	1-3/wk	6.4	4.4-8.5	5.9	3.7-8.0	3.8	1.8-5.8	6.2	3.6-8.8	4.9	3.0-6.9
	4-6/wk	4.5	2.7-6.3	6.1	4.1-8.0	3.8	1.8-5.9	5.6	3.2-8.1	4.5	2.5-6.4
	Every day	30.2	26.4-33.9	32.6	28.5-36.7	30.8	25.9-35.8	34.7	29.7-39.8	40.5	35.8-45.1

	None	58.8	54.7-62.9	55.5	51.1-59.8	61.5	56.3-66.7	53.5	48.1-58.8	50.1	45.4-54.8
MATERNAL SUBSTANCE USE											
ANY SMOKING BEFORE PREGNANCY	No	78.9	75.4-82.4	75.0	71.3-78.7	80.7	76.4-84.9	80.8	76.6-85.0	83.9	80.6-87.2
	Yes	21.1	17.6-24.6	25.0	21.3-28.7	19.3	15.1-23.6	19.2	15.0-23.4	16.1	12.8-19.4
ANY SMOKING DURING PREGNANCY	No	87.9	85.1-90.7	88.5	85.9-91.2	91.7	89.0-94.5	88.0	84.6-91.4	92.9	90.6-95.2
	Yes	12.1	9.3-14.9	11.5	8.8-14.1	8.3	5.5-11.0	12.0	8.6-15.4	7.1	4.8-9.4
ANY SMOKING AFTER PREGNANCY	No	82.8	79.6-86.1	85.0	82.0-88.1	86.4	82.8-90.0	86.4	82.8-90.0	90.5	87.9-93.1
	Yes	17.2	13.9-20.4	15.0	11.9-18.0	13.6	10.0-17.2	13.6	10.0-17.2	9.5	6.9-12.1
HOOKAH USE, LAST 2 YEARS	No	93.5	91.1-95.8	95.8	93.8-97.8	96.1	93.9-98.4	96.7	94.8-98.7	96.2	94.5-98.0
	Yes	6.5	4.2-8.9	4.2	2.2-6.2	3.9	1.6-6.1	3.3	1.3-5.2	3.8	2.0-5.5
ANY E-CIGARETTE USE BEFORE PREGNANCY	No	93.9	91.8-96.1	95.4	93.5-97.3	94.9	92.3-97.4	92.7	89.9-95.5	89.7	86.9-92.6
	Yes	6.1	3.9-8.2	4.6	2.7-6.5	5.1	2.6-7.7	7.3	4.5-10.1	10.3	7.4-13.1
ANY E-CIGARETTE USE DURING PREGNANCY	No	98.0	96.6-99.4	98.2	97.0-99.5	99.0	98.2-99.8	97.9	96.3-99.4	96.3	94.5-98.1
	Yes	2.0	0.6-3.4	1.8	0.5-3.0	1.0	0.2-1.8	2.1	0.6-3.7	3.7	1.9-5.5
ANY ALCOHOL USE BEFORE PREGNANCY	No	47.7	43.4-51.9	48.8	44.4-53.2	50.4	45.0-55.9	42.6	37.4-47.9	48.6	44.0-53.2
	Yes	52.3	48.1-56.6	51.2	46.8-55.6	49.6	44.1-55.0	57.4	52.1-62.6	51.4	46.8-56.0
ANY ALCOHOL USE DURING PREGNANCY	No	91.2	88.7-93.7	94.7	92.9-96.6	95.2	93.0-97.4	93.2	90.5-95.9	95.0	93.1-96.9
	Yes	8.8	6.3-11.3	5.3	3.4-7.1	4.8	2.6-7.0	6.8	4.1-9.5	5.0	3.1-6.9
INTIMATE PARTNER VIOLENCE & MATERNAL DEPRESSION											
ANY INTIMATE PARTNER VIOLENCE BEFORE PREGNANCY	No	96.5	94.9-98.1	96.7	95.3-98.1	97.5	95.9-99.0	97.6	96.2-99.1	96.8	95.1-98.5
	Yes	3.5	1.9-5.1	3.3	1.9-4.7	2.5	1.0-4.1	2.4	0.9-3.8	3.2	1.5-4.9
ANY INTIMATE PARTNER VIOLENCE (CURRENT PARTNER) BEFORE PREGNANCY	No	97.5	96.0-98.9	98.3	97.3-99.3	98.8	97.8-99.8	98.2	96.9-99.5	98.2	96.9-99.5
	Yes	2.5	1.1-4.0	1.7	0.7-2.7	1.2	0.2-2.2	1.8	0.5-3.1	1.8	0.5-3.1

ANY INTIMATE PARTNER VIOLENCE (EX-PARTNER) BEFORE PREGNANCY	No	97.6	96.3-99.0	98.1	97.0-99.2	98.2	96.9-99.5	99.1	98.2-99.9	97.6	96.2-99.0
	Yes	2.4	1.0-3.7	1.9	0.8-3.0	1.8	0.5-3.1	0.9	0.1-1.8	2.4	1.0-3.8
ANY INTIMATE PARTNER VIOLENCE DURING PREGNANCY	No	98.1	97.0-99.2	98.0	96.9-99.2	99.4	98.8-100	97.4	95.7-99.0	98.0	96.8-99.3
	Yes	1.9	0.8-3.0	2.0	0.8-3.1	0.6	0.0-1.2	2.6	1.0-4.3	2.0	0.7-3.2
ANY INTIMATE PARTNER VIOLENCE (CURRENT PARTNER) DURING PREGNANCY	No	98.9	98.1-99.7	98.7	97.8-99.6	99.8	99.7-100	97.8	96.3-99.4	98.9	97.8-99.9
	Yes	1.1	0.3-1.9	1.3	0.4-2.2	0.2	0.0-0.3	2.2	0.6-3.7	1.1	0.1-2.2
ANY INTIMATE PARTNER VIOLENCE (EX-PARTNER) DURING PREGNANCY	No	98.4	97.4-99.4	99.2	98.4-100	99.5	98.9-100	98.8	97.6-100	98.5	97.4-99.5
	Yes	1.6	0.6-2.6	0.8	0.0-1.6	0.5	0.0-1.1	1.2	0.0-2.4	1.5	0.5-2.6
REPORTED DEPRESSION BEFORE PREGNANCY	No	84.6	81.5-87.6	79.4	75.8-83.0	82.7	78.7-86.7	82.6	78.6-86.6	80.1	76.5-83.8
	Yes	15.4	12.4-18.5	20.6	17.0-24.2	17.3	13.3-21.3	17.4	13.4-21.4	19.9	16.2-23.5
REPORTED DEPRESSION DURING PREGNANCY	No	86.1	83.2-88.9	83.7	80.5-87.0	83.2	79.1-87.2	84.0	80.1-87.9	82.8	79.3-86.3
	Yes	13.9	11.1-16.8	16.3	13.0-19.5	16.8	12.8-20.9	16.0	12.1-19.9	17.2	13.7-20.7
REPORTED POSTPARTUM DEPRESSIVE SYMPTOMS	No	83.6	80.3-86.8	83.7	80.4-87.0	84.5	80.4-88.5	84.7	80.8-88.5	87.0	84.0-90.0
	Yes	16.4	13.2-19.7	16.3	13.0-19.6	15.5	11.5-19.6	15.3	11.5-19.2	13.0	10.0-16.0
INFANT SLEEP PRACTICES & BREASTFEEDING											
BABY MOST OFTEN PLACED TO SLEEP ON BACK	No	21.5	17.9-25.1	18.7	15.3-22.2	20.6	16.2-25.1	21.6	17.2-25.9	20.9	17.1-24.6
	Yes	78.5	74.9-82.1	81.3	77.8-84.7	79.4	74.9-83.8	78.4	74.1-82.8	79.1	75.4-82.9
BABY MOST OFTEN SLEPT ALONE	No	25.0	21.2-28.7	25.8	21.8-29.8	23.1	18.4-27.7	25.1	20.4-29.8	20.8	16.9-24.6
	Yes	75.0	71.3-78.8	74.2	70.2-78.2	76.9	72.3-81.6	74.9	70.2-79.6	79.2	75.4-83.1
BABY LAID TO SLEEP ON AN APPROVED SLEEP SURFACE	No	65.8	61.8-69.9	68.3	64.3-72.4	62.1	56.7-67.5	59.9	54.5-65.2	60.6	55.9-65.3
	Yes	34.2	30.1-38.2	31.7	27.6-35.7	37.9	32.5-43.3	40.1	34.8-45.5	39.4	34.7-44.1
	No	14.3	11.1-17.4	15.9	12.6-19.2	18.7	14.3-23.1	12.1	8.5-15.6	15.2	11.9-18.6

BABY EVER BREASTFED BREASTFEEDING DURATION	Yes	85.7	82.6-88.9	84.1	80.8-87.4	81.3	76.9-85.7	87.9	84.4-91.5	84.8	81.4-88.1
	8+ weeks	60.7	56.5-65.0	61.3	57.0-65.6	53.3	47.8-58.8	61.0	55.7-66.3	64.6	60.0-69.1
	<8 weeks	39.3	35.0-43.5	38.7	34.4-43.0	46.7	41.2-52.2	39.0	33.7-44.3	35.4	30.9-40.0

Appendix B: Data Analysis Notes

SAS 9.4 (Cary, NC) was used for all analyses; appropriate survey procedures were used to account for the nature of complex survey data.

1. PRAMS site aggregate for 2017: Alabama, Alaska, Colorado, Connecticut, Delaware, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Missouri, Montana, New Hampshire, New Jersey, New Mexico, New York City, New York State, North Carolina, North Dakota, Oklahoma, Pennsylvania, Puerto Rico, Rhode Island, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming met the required 55% response rate threshold for inclusion.
2. PRAMS site aggregate for 2018: Alabama, Alaska, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York City, New York State, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Puerto Rico, Rhode Island, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming met the required 50% response rate threshold for inclusion.
3. PRAMS site aggregate for 2019: Alabama, Alaska, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York City, New York State, North Carolina, North Dakota, Oregon, Pennsylvania, Puerto Rico, Rhode Island, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, Wisconsin, and Wyoming met the required 50% response rate threshold for inclusion.
4. PRAMS site aggregate for 2020: Alabama, Alaska, Arizona, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York City, North Dakota, Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming met the required 50% response rate threshold for inclusion.
5. PRAMS site aggregate for 2021: Alabama, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Illinois, Kansas, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York City, New York State, North Dakota, Oklahoma, Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming met the required 50% response rate threshold for inclusion.
6. Substance use estimates include *all women with a recent live birth* as the denominator.
7. *Intimate Partner Violence*: Defined as being pushed, hit, slapped, kicked, choked, or physically hurt in any way by a husband/partner and/or an ex-husband/ex-partner. Beginning in 2016 (Phase 8), the question response options were expanded to include “my ex-husband or ex-partner” in addition to “my husband or partner”. PRAMS data has been calculated to reflect this change.
8. *Pregnancy intention*: Defined as the woman’s reported feelings about becoming pregnant just before she became pregnant. Intention was assessed 2-6 months postpartum. **Mistimed** pregnancies are those that

were wanted, but later. **Unwanted** pregnancies are those not wanted then or any time in the future. **Intended** pregnancies were those that were wanted then or sooner. **Unsure** describes those women who were unsure about their desire for pregnancy.

9. *Post-partum contraceptive use*: Defined as using any kind of birth control at the time when the PRAMS survey was completed. Women who selected the “other” write-in option were excluded from the analysis. **Most effective methods (Long-Acting Reversible Contraception (LARC))** include Intrauterine Device (IUD) or contraceptive implant. **Moderately effective methods** include birth control pills, shots or injections (e.g., Depo-Provera), contraceptive patch, and vaginal ring. **Least effective methods** include condom, rhythm method/natural family planning, and withdrawal.
10. *Insurance*: other state-specific government plans or programs such as SCHIP/CHIP were *excluded* from estimates; those selecting “other” types were also excluded.
- **Private** includes private only, any other insurance in combination with private, TRICARE, or other military-type insurance.
 - **Medicaid** includes Medicaid or another state-named Medicaid program (e.g., TennCare).
 - **None** is defined as no selected insurance or selecting only Indian Health Service (IHS).

Appendix C: References

1. Centers for Disease Control and Prevention. (n.d.-b). Selected 2016-2022 maternal and Child Health (MCH) indicators. Centers for Disease Control and Prevention. <https://www.cdc.gov/prams/php/data-research/mch-indicators-by-site.html> Accessed Nov 25, 2024.
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