Needs Assessment

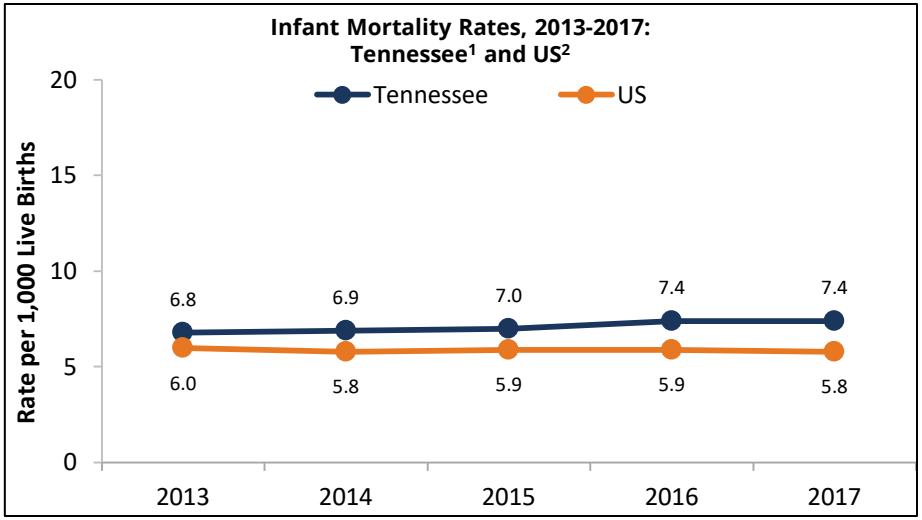
Perinatal and Infant Health

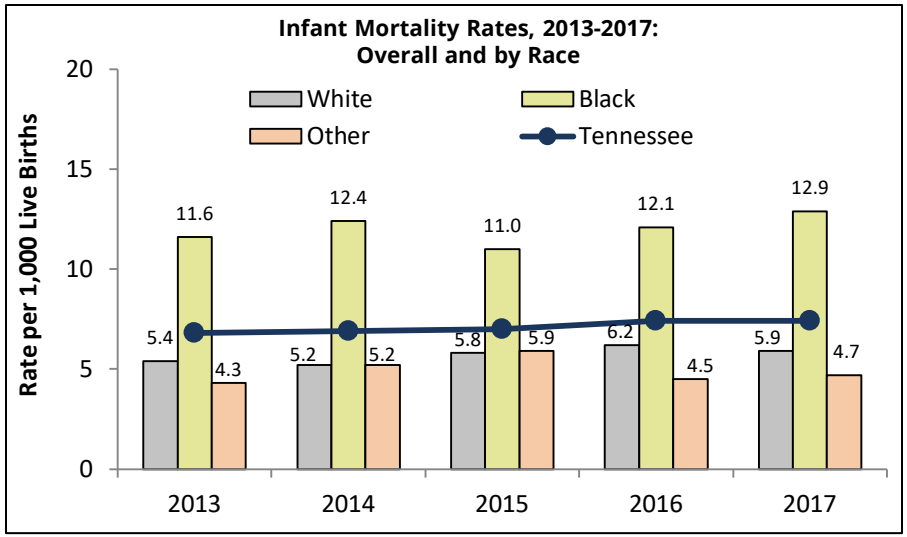
2019

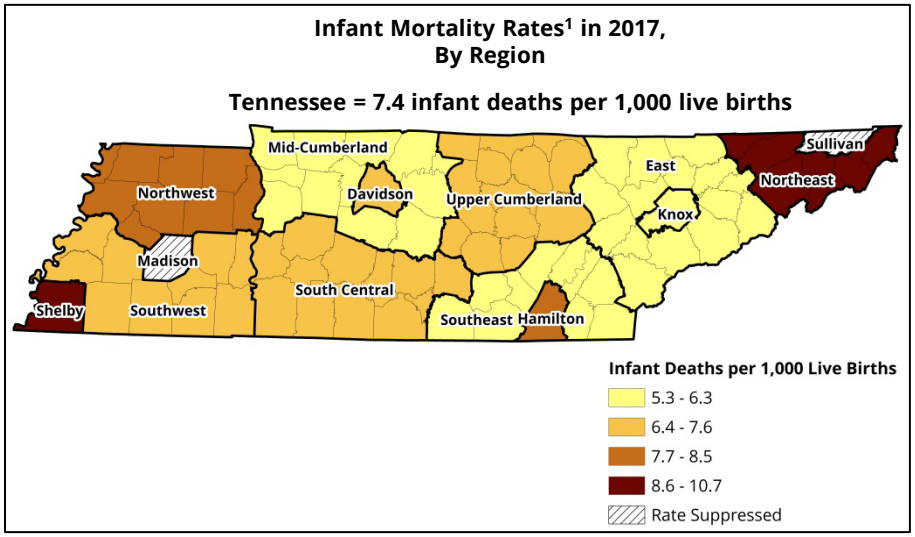
Updated: February 28, 2020

Infant Mortality

- In 2017, the infant mortality rate (IMR) for Tennessee children under one year of age was 7.4 infant deaths per 1,000 live births – unchanged from 2016
  - The increase in Tennessee's IMR between 2013 and 2017 was not statistically significant
  - Tennessee's 2017 IMR of 7.4 per 1,000 is 28 percent higher than the US rate of 5.8 per 1,000
- Racial and geographic disparities continue to exist among infant deaths in Tennessee
  - Black infants had over twice the mortality rate as white infants in 2017
  - There were variation in IMRs by region – high of 10.7 (Northeast Region) and low of 5.3 (East Region)







Data Sources: [1]Tennessee Department of Health, Office of Vital Records & Statistics, Death Statistical System. Prepared March 2019 by Division of Family Health and Wellness. [2]Martin JA, Hamilton BE, Osterman MJK, Driscoll AK, Drake P. Births: Final data for 2017. National Vital Statistics Reports; vol 67 no 8. Hyattsville, MD: National Center for Health Statistics. 2018. Accessed March 22, 2019 at: https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_08-508.pdf

Note: Rates suppressed due to small numbers or statistical reliability.

TN Department of Health

Infant Mortality

- Birth defects are the leading cause of death among Tennessee infants, followed by preterm birth and low birthweight, and accidents (unintentional injuries)
- Between 2013 and 2017,
  - Birth defects accounted for 22 percent of infant deaths
  - Preterm and low birthweight accounted for 14 percent of infant deaths
  - Accidents (unintentional injuries) accounted for seven percent of infant deaths

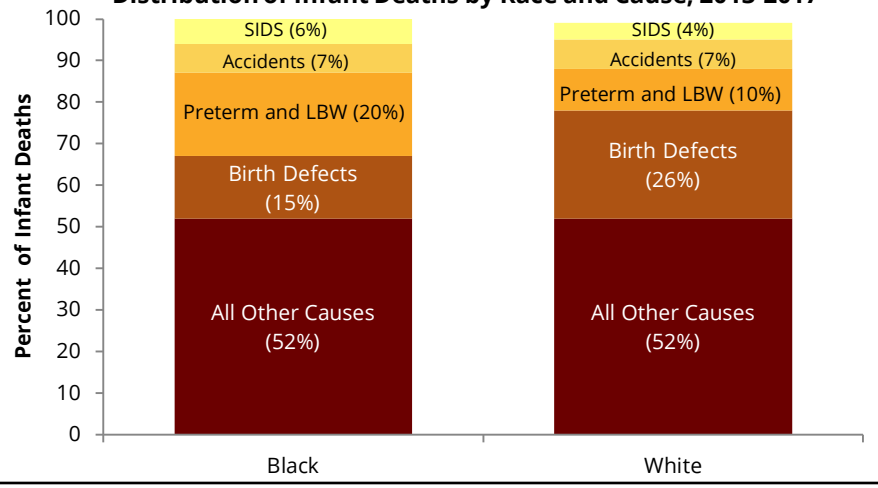
Leading Cause of Infant Death, 2013-2017

Rank	Cause of Infant Death	Number of Infant Deaths
1	Birth defects	631
2	Preterm birth and low birthweight	414
3	Accidents (unintentional injuries)	201
4	Sudden infant death syndrome (SIDS)	139
5	Maternal complications of pregnancy	100
6	Complications of placenta, cord, and membranes	81
7	Bacterial sepsis of newborn	74
8	Atelectasis (partial lung collapse)	69
9	Necrotizing enterocolitis of newborn	57
10	Diseases of the circulatory system	56

Leading Causes of Infant Death by Race, 2013-2017

Cause of Death	Rank	
	Black	White
Preterm birth and low birthweight	1	2
Birth defects	2	1
Accidents (unintentional injuries)	3	3
Sudden infant death syndrome (SIDS)	4	4
Maternal complications of pregnancy	5	5
Bacterial sepsis of newborn	6	7
Complications of placenta, cord, and membranes	7	6
Atelectasis (partial lung collapse)	8	8

Distribution of Infant Deaths by Race and Cause, 2013-2017



Data Source: Tennessee Department of Health, Office of Vital Records & Statistics, Death Statistical System, 2013-2017. Prepared March 2019 by Division of Family Health and Wellness.

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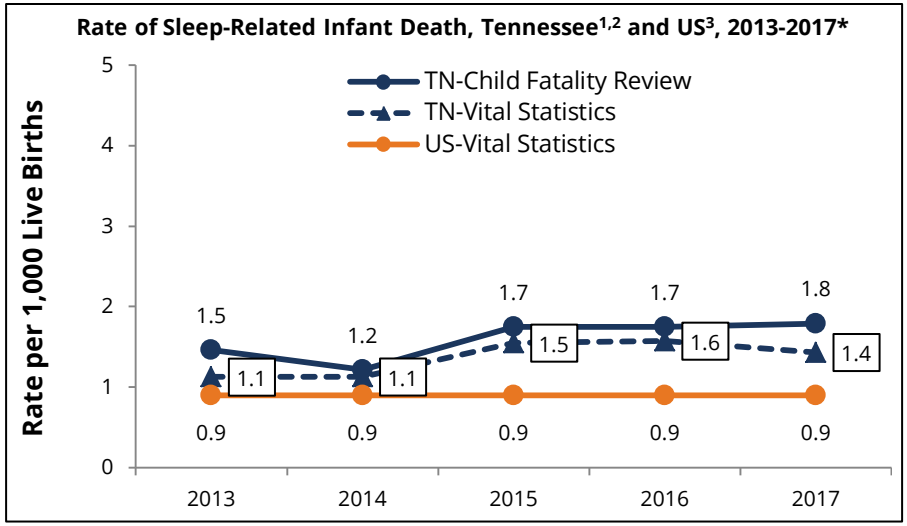
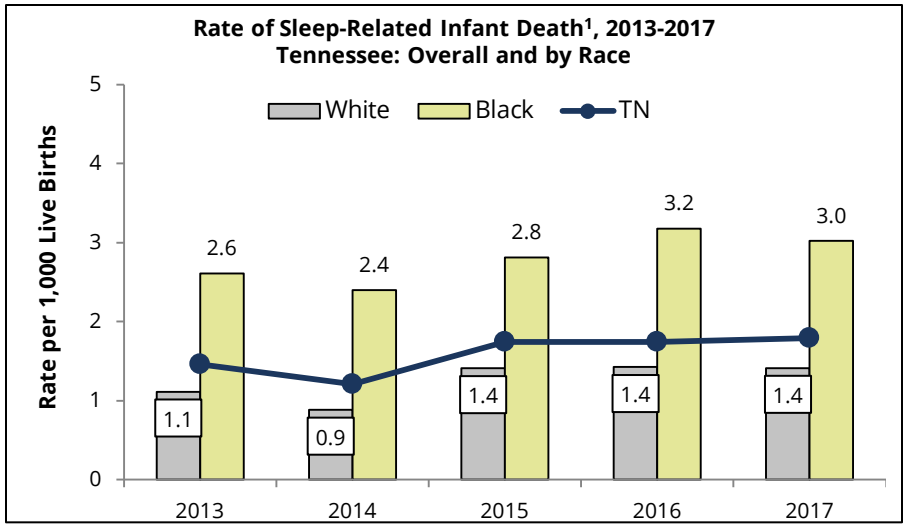
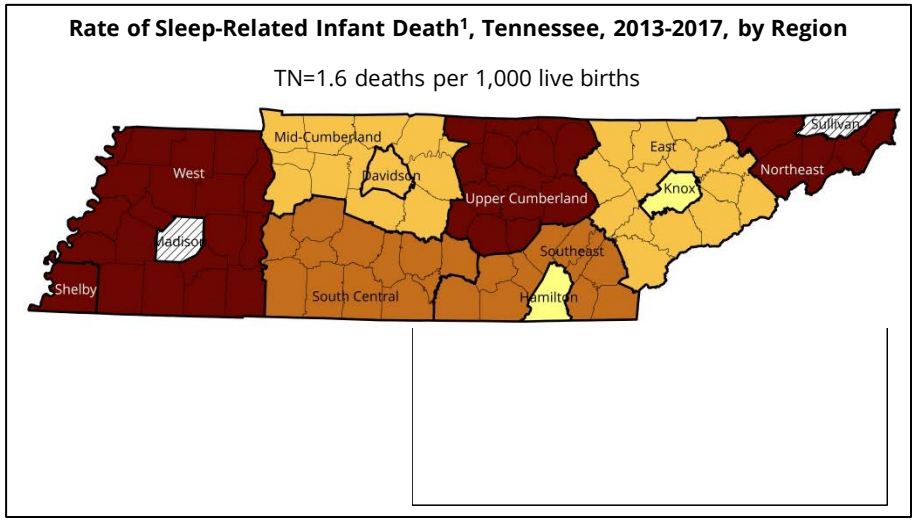
Sleep-Related Infant Death

- In 2017, there were 145 deaths of Tennessee infants that resulted from or were associated with an unsafe sleep environment
  - Approximately one out of four infant deaths (24%) in 2017 was sleep-related
  - Tennessee rates are higher than US
- Significant and longstanding disparities exist among sleep-related infant deaths in Tennessee.
  - From 2013-2017, the rate of sleep-related infant death among Black infants was two times as high as the rate among White infants
  - Wide variation by region, from 0.9 sleep-related infant deaths per 1,000 live births in Knox to 2.2 deaths per 1,000 live births in Shelby







Data Sources: [1]Tennessee Department of Health, Division of Family Health and Wellness, Child Fatality Review Database System. [2]Tennessee Department of Health, Office of Vital Records and Statistics, Death Statistical File. [3]CDC WONDER; Accessed March 25, 2019 at: https://wonder.cdc.gov/

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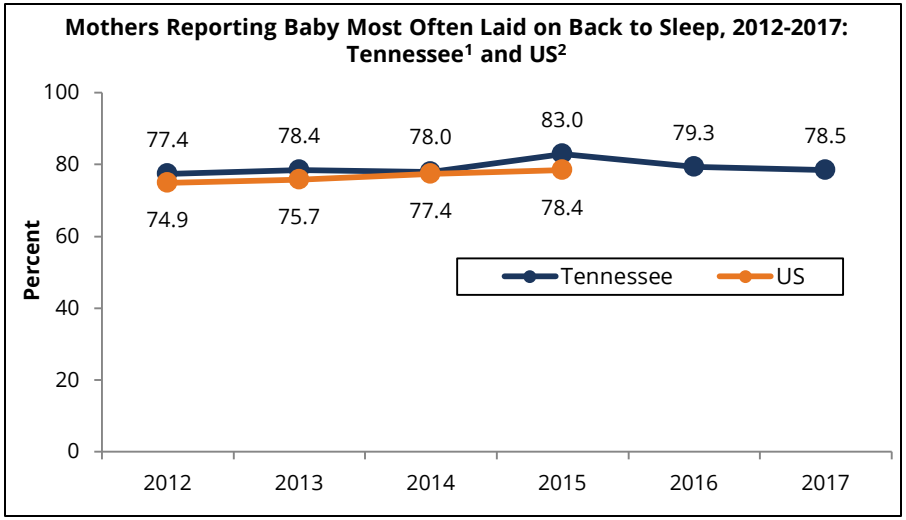
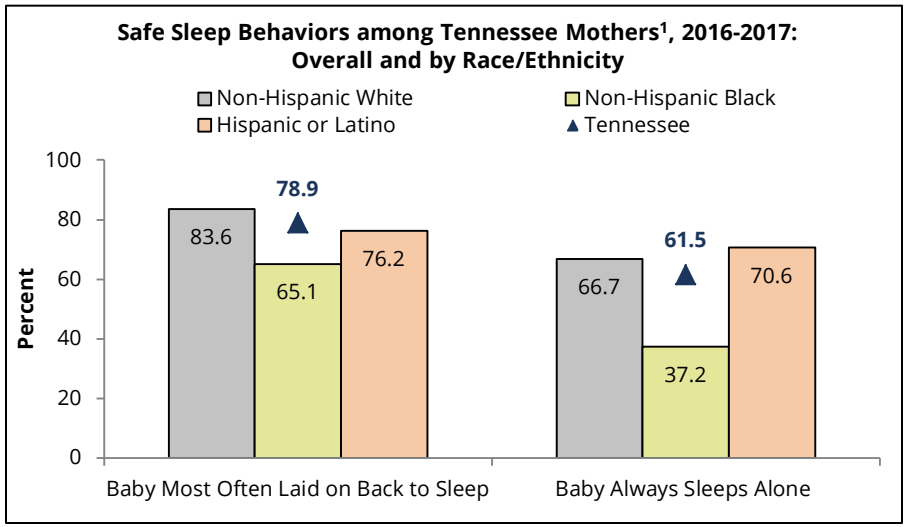
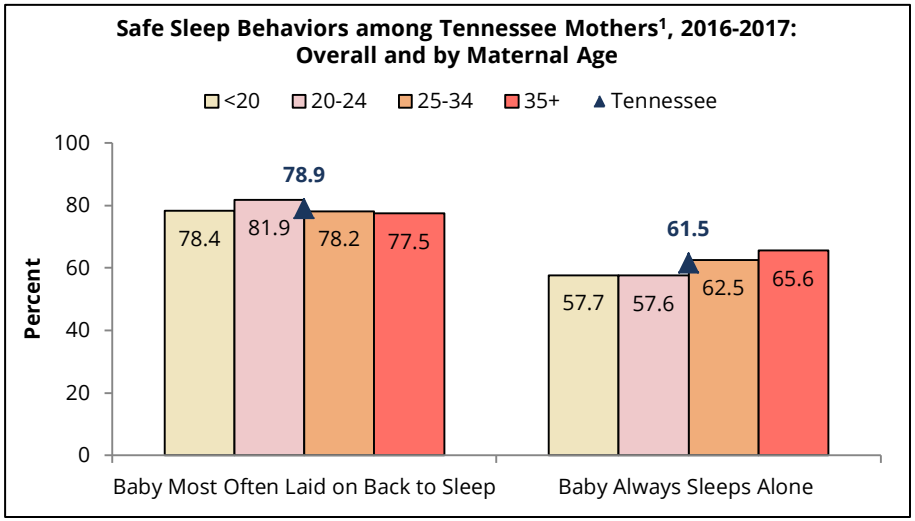
Notes: Rates suppressed due to small numbers or statistical reliability. Tennessee rate of sleep-related infant death presented from two data sources: Child Fatality Review (CFR) data and Vital Statistics (VS) data. CFR data is the gold standard for estimating sleep-related infant death, but TN VS data is also presented because this is more comparable to the United States estimates shown.

Sleep-Related Infant Death

- In 2017, 78.5% of Tennessee mothers reported putting their baby to sleep on their back
  - Tennessee estimates have tended to be slightly higher than estimates for U.S. overall
- In Tennessee, there are significant disparities among racial/ethnic groups in reported safe sleep behaviors
  - Non-Hispanic White mothers were significantly more likely to lay baby on back to sleep compared to Non-Hispanic Black mothers
  - Non-Hispanic Black Mothers were significantly less likely to lay baby alone to sleep during the past two weeks compared to both Non-Hispanic White and Hispanic mothers
- No differences in safe sleep behavior by maternal age





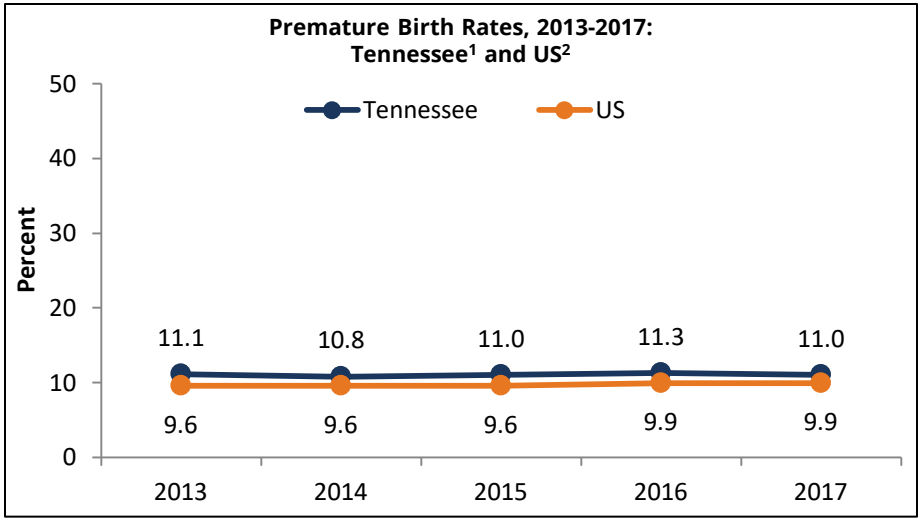


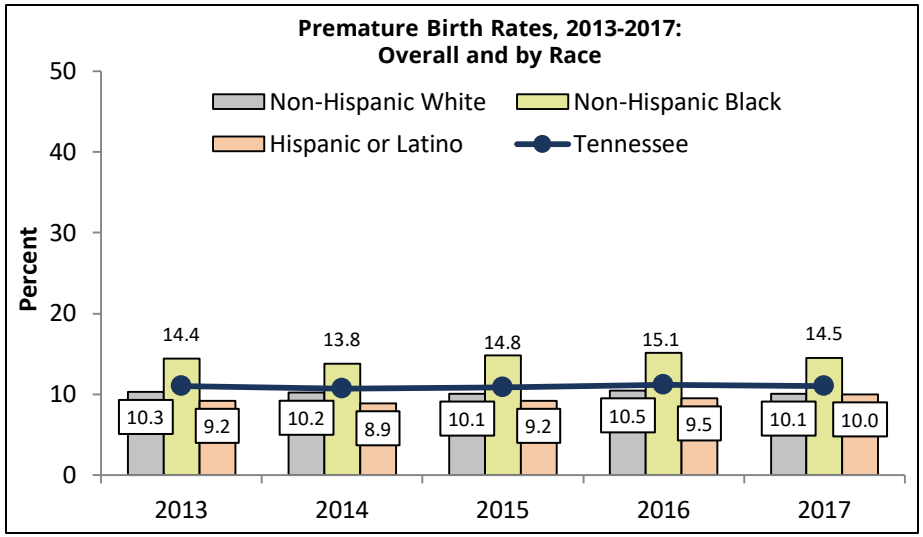
Data Sources: [1]Tennessee Pregnancy Risk Assessment Monitoring System (PRAMS), 2012–2017; Tennessee Department of Health, Office of Population Health Surveillance; Division of Population Health Assessment. Prepared April 2019 by Division of Family Health and Wellness. [2]CDC PRAMS Selected Maternal and Child Health Indicators for all PRAMS sites, 2012-2015.; Accessed April 8, 2019 here: https://www.cdc.gov/prams/pramstat/pdfs/mch-indicators/PRAMS-All-Sites-2012-2015-508.pdf

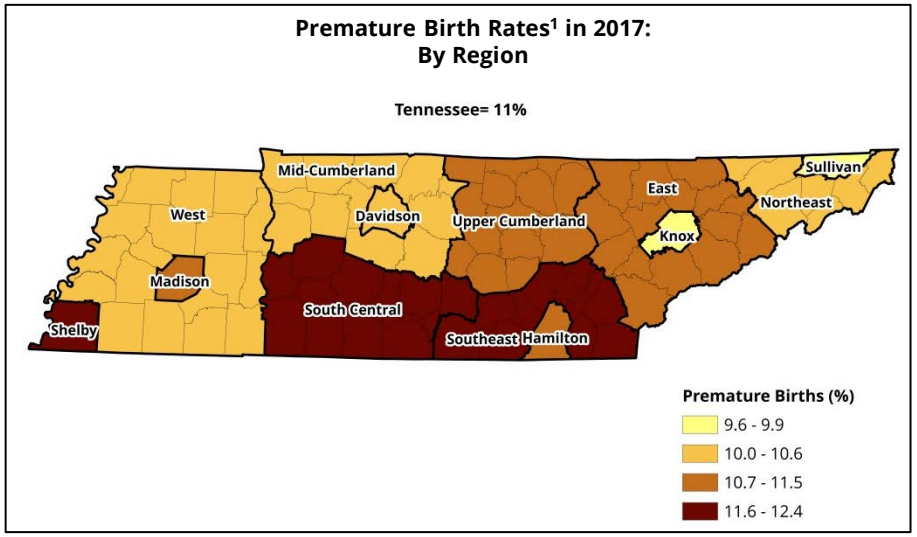
Data Notes: Data shown are responses to the questions "In which *one* position do you *most often* lay your baby down to sleep now?" and "In the *past 2 weeks*, how often has your new baby slept alone in his or her own crib or bed?"

Premature Birth (< 37 Weeks Gestation)

- In 2017, 11 percent of Tennessee births were premature
  - The premature birth rate remained relatively stable from 2013-2017 – a trend very similar to the US
  - Tennessee's 2017 rate is 11 percent higher than the US rate
- Racial and geographic disparities continue to exist among premature births in Tennessee
  - Overall, black babies had significantly higher rates of prematurity than White babies
  - There was variation in rates by region in 2017 – high of 12.4 percent (Shelby County) and low of 9.6 percent (Sullivan County)







Data Sources:

[1]Tennessee Department of Health, Office of Vital Records & Statistics, Birth Statistical System. Prepared March 2019 by Division of Family Health and Wellness.

[2]Martin JA, Hamilton BE, Osterman MJK, Driscoll AK, Drake P. Births: Final data for 2017. National Vital Statistics Reports; vol 67 no 8. Hyattsville, MD: National Center for Health Statistics. 2018. Accessed March 22, 2019 at: https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_08-508.pdf

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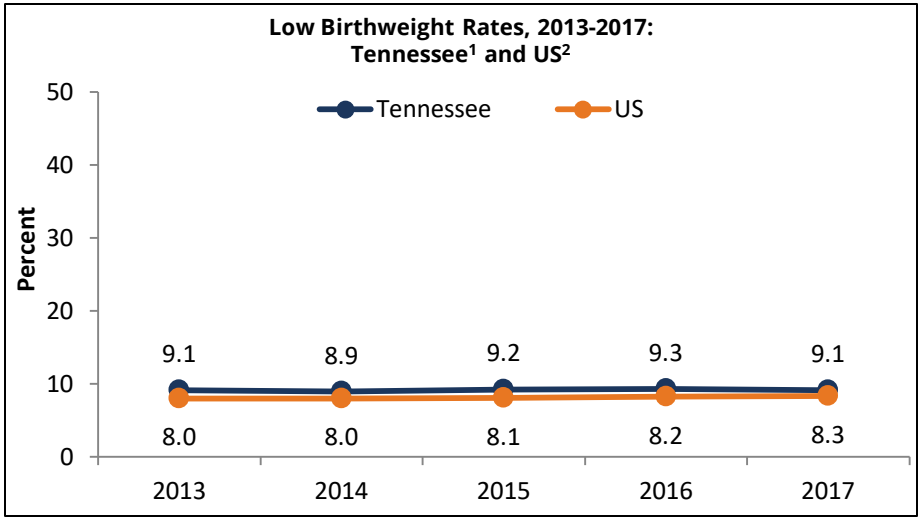
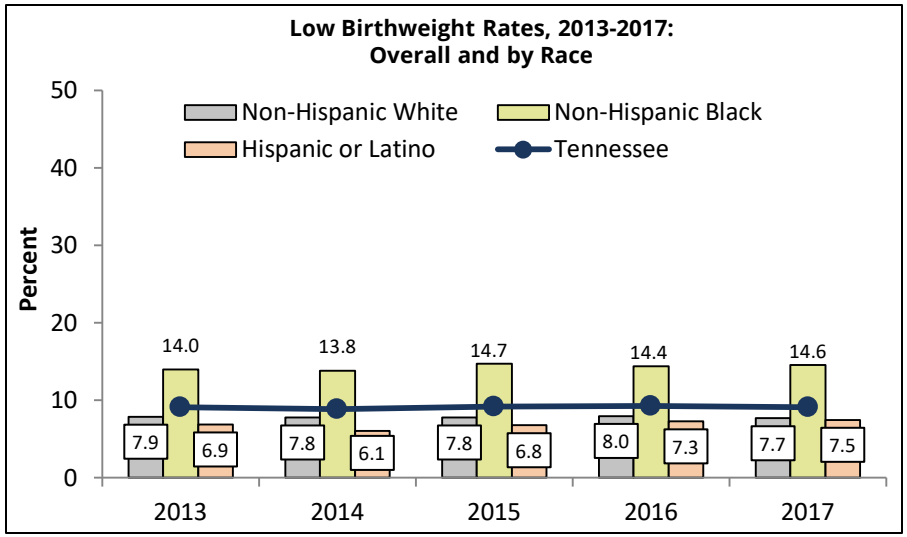
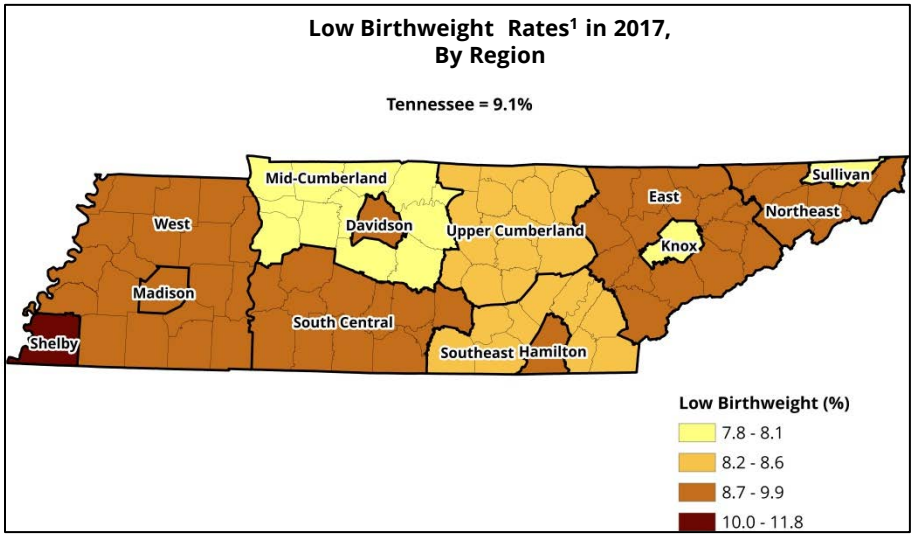
Low Birthweight (< 2500 Grams)

- In 2017, 9.1 percent of Tennessee births were low birthweight
  - The low birthweight rate remained relatively stable from 2013-2017 – a trend very similar to the US
  - Tennessee's 2017 rate is nearly 10 percent higher than the US rate
- Racial and geographic disparities continue to exist among babies born low birthweight in Tennessee
  - Black babies had significantly higher rates of low birthweight than White babies
  - Variation in rates by region – high of 11.8 percent (Shelby County) and low of 7.8 percent (Mid-Cumberland Region)







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[1]Tennessee Department of Health, Office of Vital Records & Statistics, Birth Statistical System. Prepared March 2019 by Division of Family Health and Wellness.

[2]Martin JA, Hamilton BE, Osterman MJK, Driscoll AK, Drake P. Births: Final data for 2017. National Vital Statistics Reports; vol 67 no 8. Hyattsville, MD: National Center for Health Statistics. 2018. Accessed March 22, 2019 at: https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_08-508.pdf

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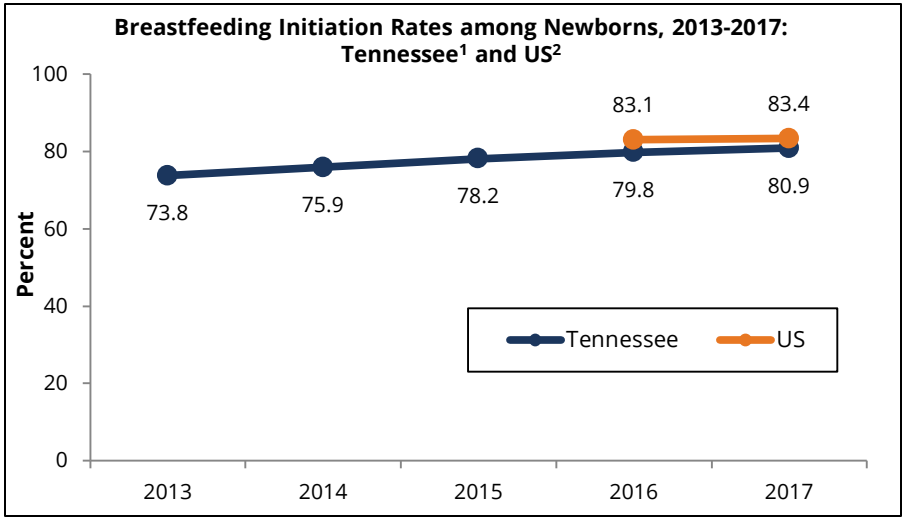
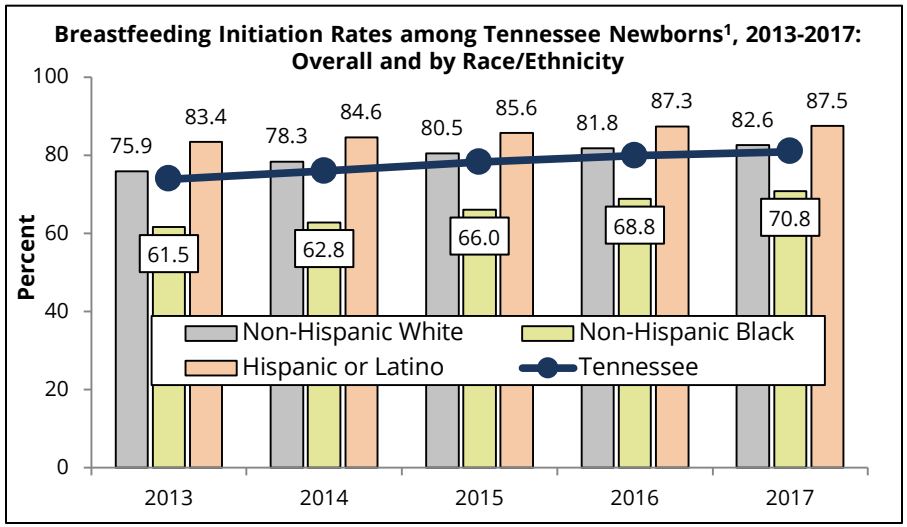
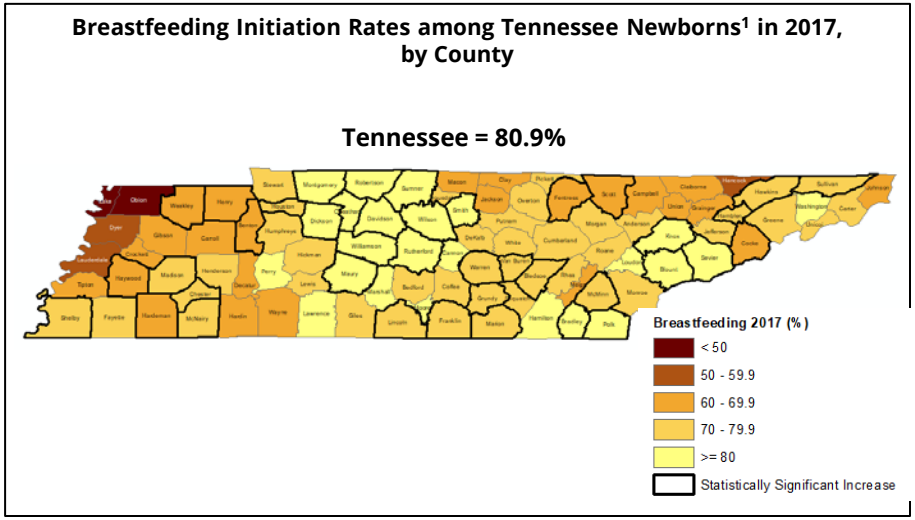
Breastfeeding

- In 2017, 80.9% of Tennessee newborns had initiated breastfeeding by hospital discharge
  - Statistically significant increase since 2013 (average of 2 percentage points per year)
  - In 2017, Tennessee's rate 3% lower than US
- Tennessee has seen statistically significant increases in breastfeeding initiation, but disparities persist
  - During 2013-2017, statistically significant differences among racial and ethnic groups ($p < 0.0001$)
  - In 2017, Wide variation by county from 32.8% (Lake) to 97.7% (Williamson)
  - Since 2013, statistically significant increase in breastfeeding initiation for 39 of 95 counties





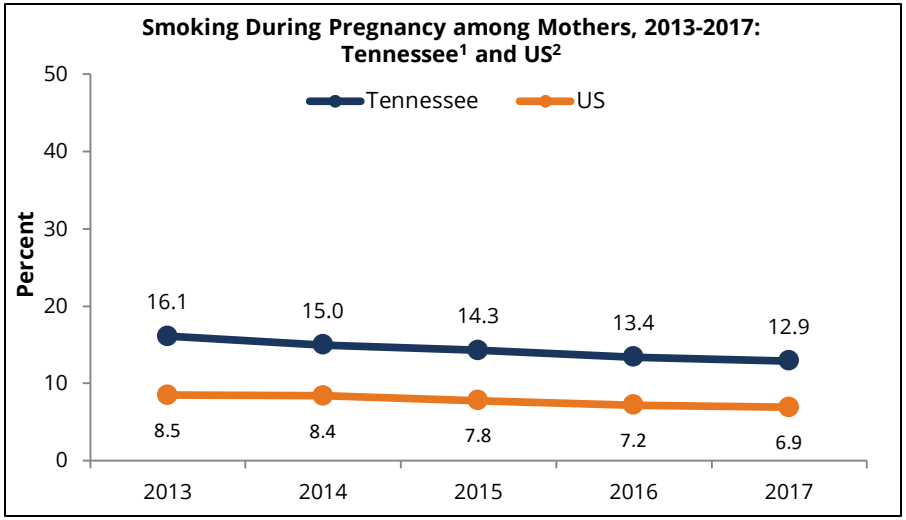


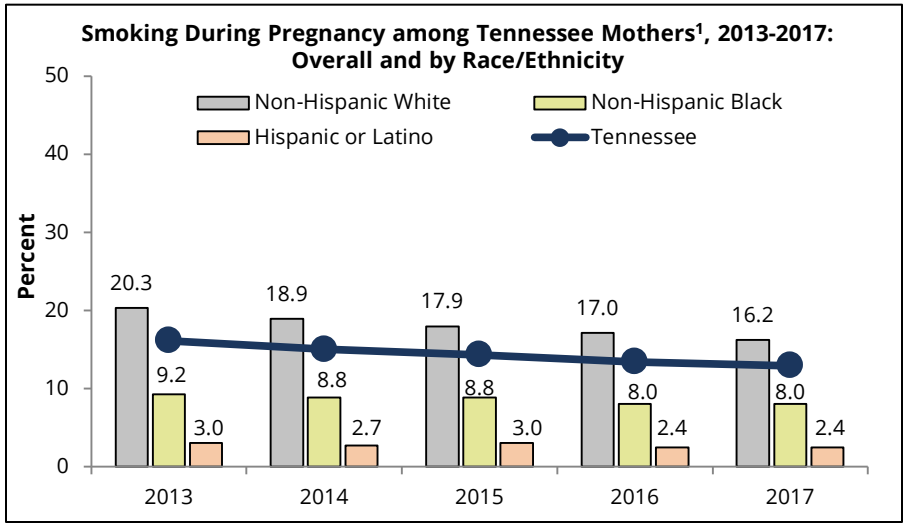
Data Sources:
[1]Tennessee Department of Health, Office of Vital Records & Statistics, Birth Statistical System. Prepared February 2019 by Division of Family Health and Wellness. Breastfeeding initiation determined by following question: *"Is infant being breastfed?"*. [2]National Center for Health Statistics (NCHS), National Vital Statistics System, Natality. Accessed February 25, 2019 at: https://www.cdc.gov/nchs/products/nvsr.htm. Rates determined by following question: *"Is infant being breastfed at discharge?"* Data exclude California and Michigan births.

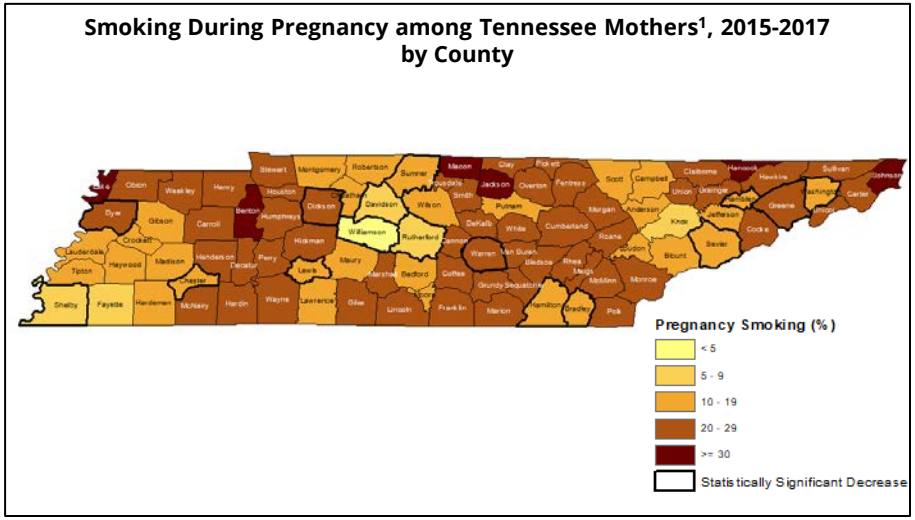
TN Department of Health

Prenatal Smoking

- In 2017, 12.8% of Tennessee mothers reported cigarette smoking during pregnancy
  - Statistically significant decrease since 2013 (average of 1 percentage points per year)
  - Tennessee rates almost 2x higher than US
- Prenatal smoking has significantly decreased, but Tennessee has large disparities by race and place
  - During 2013-2017, statistically significant differences among racial and ethnic groups ($p < 0.0001$)
  - Wide variation by county from 3.0% (Williamson) to 38.1% (Hancock)
  - Since 2013, statistically significant decrease in prenatal smoking for 16 of 95 counties







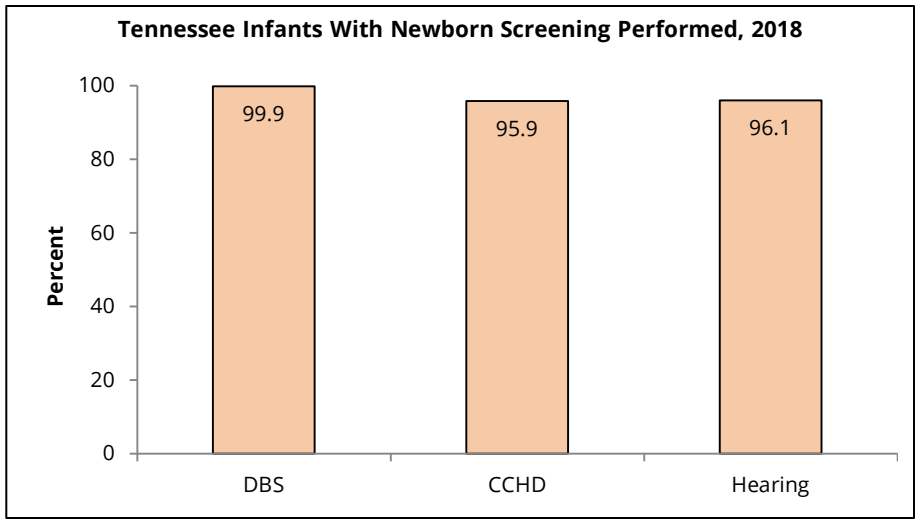
Data Sources:

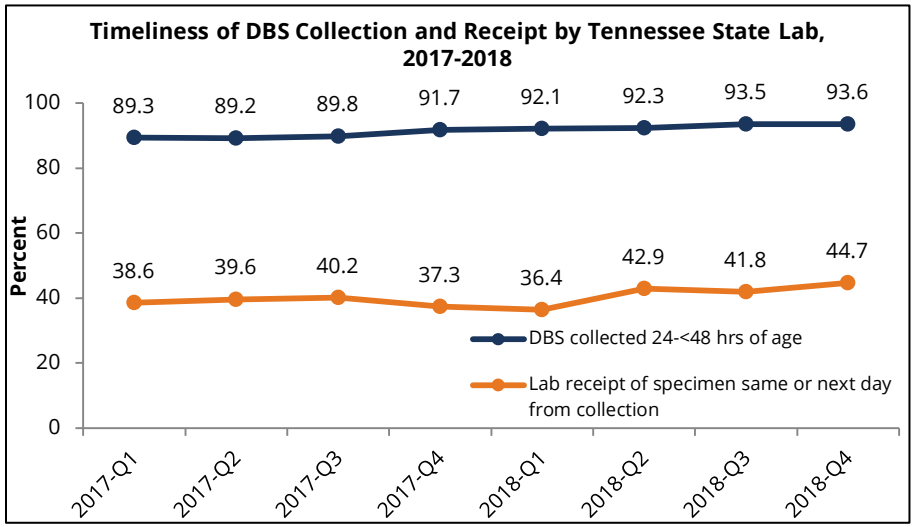
[1]Tennessee Department of Health, Office of Vital Records & Statistics, Birth Statistical System. Prepared March 2019 by Division of Family Health and Wellness. *Prenatal smoking determined by a series of questions to collect number of cigarettes or number of packs of cigarettes smoked during each trimester.* [2]Centers for Disease Control and Prevention (CDC), CDC Wonder. Accessed March 13, 2019 at: https://wonder.cdc.gov/. *Prenatal smoking by mothers indication of smoking tobacco at some point while pregnant.*

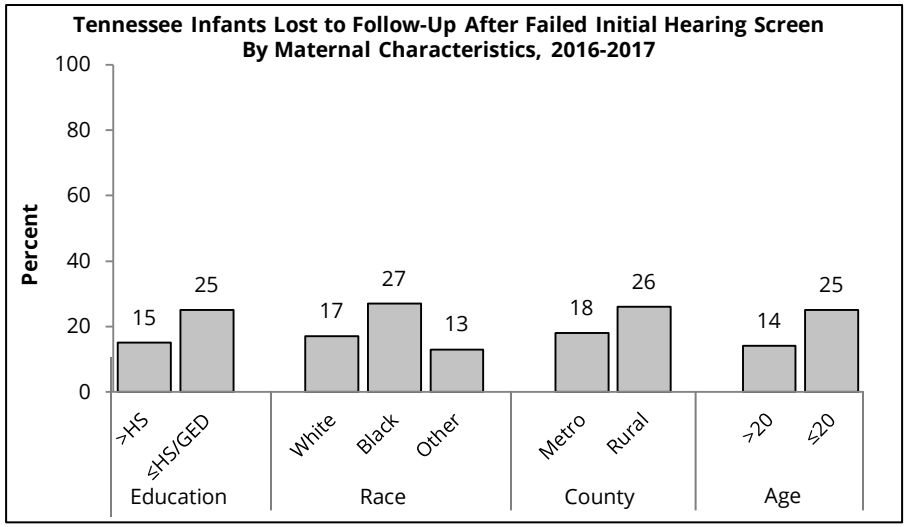
TN Department of Health

Newborn Screening

- Tennessee State Law (TCA 68-5-401) requires that all infants born in the state receive screening for certain conditions. In 2018:
  - 99.9% received dried blood spot (DBS) screen
  - 95.9% received congenital heart disease (CCHD) screen
  - 96.1% received hearing screen
- Since 2017, the percent of DBS specimens collected within 24-<48 hours of age and timely receipt by State Lab has improved
- Disparities exist by maternal characteristics for infants who fail the hearing screen and are lost to follow-up. Higher percentage of loss to follow-up for infants of mothers who:
  - Had less than a high school (HS) education
  - Identified as black
  - Lived in a rural area
  - Were 20 years old or younger







Data Sources: Tennessee Department of Health, Division of Family Health and Wellness, Newborn Screening Program. Prepared April 2019 by Division of Family Health and Wellness.

Note: Residents of Davidson, Hamilton, Knox, Madison, Shelby, and Sullivan counties were considered metro. All else categorized as rural.

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