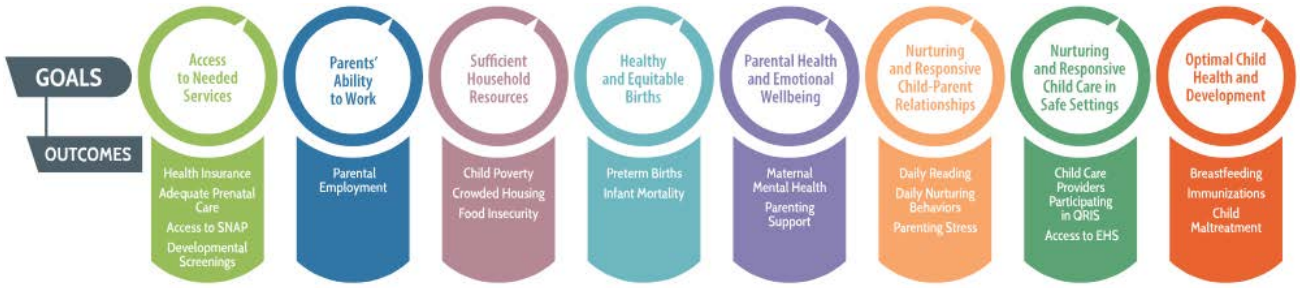
prenatal-to-3 policy IMPACT CENTER
RESEARCH FOR ACTION AND OUTCOMES

Child & Family Research Partnership
The University of Texas at Austin
LBJ School of Public Affairs

# 2021 Prenatal-to-3 State Policy Roadmap

## Methods and Sources

## How Do We Calculate State-Level Indicators of Child and Family Wellbeing?




### Outcomes Measure Progress Toward Policy Goals

Based on the science of the developing child, we have identified **20 outcome measures** to track the overall health and wellbeing of infants and toddlers and their parents. Each outcome is aligned with a PN-3 policy goal, and illustrates states' success in meeting that goal or indicates where a state is lagging. In this document, the information for the source data and calculation parameters for each outcome is organized by the PN-3 policy goal with which it is aligned.

All outcome measures were calculated intentionally in the negative direction to demonstrate where states have room for improvement and to help states prioritize the PN-3 goals that are lagging. Where the relative rank is reported, these state-level estimates were used to rank states from best (1) to worst (51), with higher estimates indicating poorer performance. Outcome estimates were rounded to one decimal point prior to ranking and states with the same rounded estimate were assigned the same rank. If multiple states had the same rank, the subsequently assigned rank value would reflect the duplicate ranks and skip values. For example, if two states were both assigned a rank value of 17, the next rank assigned would be 19. The median state indicates that half of states have outcomes that measure better than that state and half of states have outcomes that are worse.

In addition to reporting the updated single-year estimates for outcomes, compared to the 2020 Prenatal-to-3 State Policy Roadmap, values for the most recent five years were calculated when adequate data were available to provide estimates with high data quality and accuracy. These five-year patterns demonstrate the recent state-level trends and facilitate monitoring the progress that states have made towards achieving the eight policy goals.

For all outcomes, estimates were based on the most recently available data through March 2020. This temporal limitation provides estimates of the most recently available data prior to the start of the COVID-19 pandemic.

## GOAL: ACCESS TO NEEDED SERVICES

### Measure 1: % Low-Income Women Uninsured

**Definition:**
The percentage of low-income (<=138% of the federal poverty level) adult women of childbearing age (19 to 44) who report they do not have any health insurance coverage

**Notes:**

1. **Numerator:** The number of low-income adult women of childbearing age who reported not having health insurance coverage during the prior calendar year
2. **Denominator:** The number of adult (age 19 to 44) women of known age and with known poverty status whose poverty threshold is at or below 138% of the federal poverty level (FPL)
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to low-income adult women of childbearing age with known age and poverty status. For this particular measure, the sample was limited to women aged 19 to 44 as women aged 18 or under are eligible for Medicaid coverage. Women living in group quarters were excluded from the sample.
5. The poverty threshold uses the US Census calculation of poverty and is based on the total income of all individuals aged 15 or older who are related to the head of household through marriage, birth or adoption. Income from cohabiting partners who are not married and unrelated children (including foster children) are not included in the calculation of family income. This family income is compared to federal poverty thresholds based on related family size and composition (*povpip*).[1]
6. All estimates were calculated in Stata 17 using both ACS person-level weights, to provide national and state representative estimates, and replicate weights to appropriately adjust standard errors to account for any sampling bias.
7. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.[2]
8. Given the age and poverty limits imposed on the sample (women age 19-44 with incomes <=138% of the federal poverty level) and the calculation of estimates by state, incorporating both population and sampling weights helps to account for exogenous sources of variance and improve the accuracy of estimates.
9. Within the 5-year trends, several states had estimates with confidence interval widths that were larger than the recommended 10% margin of error. In 2015, 2017, and 2018 three states (Alaska, South Dakota, and Wyoming) had over criteria confidence intervals ranging from 11.0% to 14.8%; in 2016, four states (Alaska, North Dakota, South Dakota, and Wyoming) were out of the criteria range, with intervals

[1] US Census Bureau (n.d.). *How the Census Bureau measures poverty*. As of August 26, 2020. Retrieved on September 9, 2021 from https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html
[2] Appendix 3 "Measures of Sampling Error" in US Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. US Government Printing Office, Washington, DC.

ranging from 11.3% to 19.9%; and in 2019 three states (North Dakota, South Dakota, and Wyoming) had over criteria confidence intervals ranging from 11.3% to 14.4%.

**Source:**
US Census Bureau. (2016-2020). *2015-2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Sets]. https://www.census.gov/programs-surveys/acs/microdata.html

**Measure 2: % Births to Women Not Receiving Adequate Prenatal Care**

**Definition:**
The percentage of births to women who received no prenatal care, whose prenatal care started in the fifth month of pregnancy or later, or who received fewer than 50% of expected prenatal visits based on when prenatal care was initiated and the gestational age at delivery.

**Notes:**
1. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
2. March of Dimes calculations were based on the Adequacy of Prenatal Care Utilization Index and identified those births to women who either had no prenatal care, whose prenatal care started in the fifth month of pregnancy or later, or who received fewer than 50% of expected prenatal visits based on when prenatal care was initiated and the gestational age at delivery.[3]
3. The American College of Gynecologists recommends 14 prenatal visits for a normal term pregnancy, with 1 visit per month up to 28 weeks, 1 visit every two weeks from 29 to 36 weeks, and 1 visit per week from 37 to 40 weeks.
4. While data by race/ethnicity were not available for each individual year, data disaggregated into three mutually exclusive groups (White, non-Hispanic; Hispanic; and Black, non-Hispanic) were available as averages across the most recent three years (2017-2019) of natality data from March of Dimes Peristats.
5. Lack of adequate prenatal care was one of the outcomes for which data were available for the most recent five years (2015-2019) for the majority of states. Data for Connecticut and New Jersey were not available for the 2015 birth data; subsequently the US percentage is also not available for 2015.

**Source:**
National Center for Health Statistics, final natality data 2015-2019. Retrieved June 23, 2021, from www.marchofdimes.org/peristats

[3] Kotelchuck, M. (1994). *An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index.* American Journal of Public Health, 84, 1414-1420.

**Measure 3: % Eligible Families with Children < 18 Not Receiving SNAP**

**Definition:**
Percentage of SNAP-eligible families with children under age 18 who did not receive SNAP in the past year

**Notes:**
1. **Numerator:** The number of SNAP-eligible families with children under age 18 who did not report receiving SNAP during the prior calendar year
2. **Denominator:** The number of SNAP-eligible families with at least one child under age 18
3. **Only one datapoint for each state (a weighted average of 2016-2018 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. Data for this measure are the same as those reported in the 2020 Prenatal-to-3 State Policy Roadmap. Updated data for the 2019 and 2020 CPS ASEC samples were not available in TRIM3 as of September 1, 2021.
5. The sample was limited to SNAP-eligible families with children under age 18. These data are the pooled TRIM3 model adjusted values based on the Census Bureau's Current Population Survey Annual Social and Economic Supplement (CPS ASEC) 2018, 2017, and 2016 datasets. The model adjusts Census data, based on program eligibility requirements and program administrative data on recipients, to account for underreporting of benefit receipt. The TRIM3 project microdata uses the actual date of the data. For example, as the 2018 CPS ASEC survey questioned respondents about activities and benefits from 2017, the TRIM3 model refers to these data as the 2017 input files.
6. All estimates (national and state-level) were calculated in Stata 16 using family-level weights. To improve data quality and accuracy of state-level estimates, per US Census Current Population Survey guidance, estimates were calculated using the three most recent years of CPS ASEC data and family-level population weights were adjusted by three to account for the multi-year dataset.[4]
7. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using CPS data. All state-level estimates fell within this recommended 10% margin of error.
8. Due to the use of pooled data for this calculation, it is not possible to calculate estimates across the most recent five years without reporting on overlapping samples.
9. Information presented here is derived in part from the Transfer Income Model, Version 3 (TRIM3) and associated databases. TRIM3 requires users to input assumptions and/or interpretations about economic behavior and the rules governing federal programs. Therefore, the conclusions presented here are attributable only to the authors of this report.

**Source:**
TRIM3. (2016-2018). *Transfer Income Model, Version 3* [Data set]. Retrieved on May 10, 2020, from https://trim3.urban.org

[4] US Census Bureau (n.d.). *Which data source to use*. As of March 20, 2018. Retrieved on April 28, 2020 from https://www.census.gov/topics/income-poverty/poverty/guidance/data-sources.html

**Measure 4: % Children < 3 Not Receiving Developmental Screening**

**Definition:**
Percentage of children ages 9 months through 35 months whose parent reports the child did not receive a developmental screening using a parent-completed screening tool in the past year

**Notes:**

1. **Numerator:** The number of children between the ages of 9 and 35 months whose parent reported they had not received a developmental screening using a parent-completed screening tool in the past year
2. **Denominator:** The number of children between the ages of 9 and 35 months whose parent responded yes or no to a survey item regarding their receipt of a parent-completed screening tool
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children between the ages of 9 and 35 months whose parent responded to a survey item regarding their receipt of a developmental screening tool.
5. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2017, 2018, and 2019) were combined to create one multi-year dataset.
6. Approximately 2.2% of children ages 9 to 35 months in the three-year combined data file were missing data for developmental screenings. In accordance with the reporting practice of the Data Resource Centers' Interactive Data Query (https://www.childhealthdata.org/browse/survey), cases with missing data were excluded from the analysis.[5]
7. All estimates were calculated in Stata 17 using NSCH provided person level weights and adjusting standard errors based on sampling stratum. Per NSCH guidance the individual year population weight was divided by three to account for the combined data.[6]
8. NSCH guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[7] Two states (New Mexico and Oregon) had estimates with confidence interval widths that were larger than the recommended 20% margin of error, with over criteria confidence intervals of 21.4% and 20.5%, respectively.
9. Due to the use of pooled data for this calculation and the significant survey changes that occurred with the NSCH redesign in 2016, it is not possible to calculate estimates across the most recent five years.

**Source:**

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[5] Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2019). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health.* Revised 3/4/19. Retrieved May 15, 2020 from https://www.childhealthdata.org/docs/default-source/nsch-docs/nsch_impact-of-missing-cases_revised_03-02-19_generic.pdf?sfvrsn=d0c25e17_2

[6] US Census Bureau (2020). *National Survey of Children's Health: Guide to multi-year estimates*. As of August 21, 2020. Retrieved June 1, 2021 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf

[7] US Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. (2020). *2019 National Survey of Children's Frequently asked questions*. As of September 2020. Retrieved October 5, 2020 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/2019-NSCH-FAQs.pdf

US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2018-2020). *2017-2019 National Survey of Children's Health (NSCH) Public-Use Data* [Data Sets]. https://www.census.gov/programs-surveys/nsch.html

## GOAL: PARENTS' ABILITY TO WORK

### Measure 5: % Children < 3 Without Any Full-Time Working Parent

**Definition:**
Percentage of children under age 3 living in a family in which no parent has regular, full-time (35 hours per week or more), year-round (50 weeks of the year) employment

**Notes:**

1. **Numerator:** The number of children under age 3 who have no parent reporting that they have regular, full-time (35 hours per week or more), year-round (50 weeks per year or more) employment
2. **Denominator:** The number of children under age 3 living with parents who have valid labor force participation data or who are not reported to be living with either parent and are not living in group quarters
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 whose parents have valid labor force participation data or who are not reported to be living with either parent. Year-round employment was defined as working 35 hours per week or more for at least 50 weeks during the 12 months prior to the survey.
5. For children living in two parent households, neither parent had secure employment; for children living in single parent families, the resident parent was not securely employed. Children whose parents were not labor-force eligible (under age 16) or who were reported to not be living with any parents were considered to have insecurely employed parents. Children whose parents provided inconsistent employment information (e.g., reported their status as unemployed but had valid data for hours worked) or who were living in group quarters were excluded from the sample.
6. Parents' resident status with the child was determined by merging in the parent location variables (*momloc, momloc2, poploc, poploc2*), as determined by the University of Minnesota's IPUMS USA and available in each of the single year 2015-2019 IPUMS ACS data files, with each of the respective 2015-2019 ACS 1-Year PUMS data files. The IPUMS familial interrelationship variables were used in the identification of resident parents as they allow for the identification and inclusion of both cohabiting and same sex couples.[8]
7. All estimates were calculated in Stata 17 using both ACS person-level weights, to provide national and state representative estimates, and replicate weights to appropriately adjust standard errors to account for any sampling bias.
8. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.[9]
9. Within the 5-year trends, several states had estimates with confidence interval widths that were larger than the recommended 10% margin of error. In 2015 six states (Alaska, Delaware, Maine, Montana,

[8] See https://usa.ipums.org/usa/chapter5/NewfamilyinterrelationshipvariablesinIPUMSUSA.shtml for a thorough description of how IPUMS determines the location of parents in the household.
[9] Appendix 3 "Measures of Sampling Error" in US Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. US Government Printing Office, Washington, DC.

Vermont, and Wyoming) had over criteria confidence intervals ranging from 11.5% to 15.7%; in 2016, eight states (Alaska, the District of Columbia, Maine, North Dakota, Rhode Island, South Dakota, Vermont and Wyoming) were out of the criteria range, with intervals ranging from 11.9% to 15.4%. In 2017, a similar number of states (Alaska, Delaware, the District of Columbia, Maine, North Dakota, Rhode Island, Vermont, and Wyoming) had over criteria confidence intervals ranging from 10.9% to 15.5%. In 2018, ten states were out of the criteria range (Alaska, Delaware, the District of Columbia, New Hampshire, North Dakota, Rhode Island, South Dakota, Vermont, West Virginia, and Wyoming) with confidence intervals ranging from 10.6% to 14.4%. Only six states had out of range confidence intervals in 2019 (Delaware, the District of Columbia, Montana, North Dakota, Rhode Island, and Vermont) with out of range intervals ranging from 11.0% to 15.4%.

**Sources:**

1. US Census Bureau. (2016-2020). *2015-2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Sets]. https://www.census.gov/programs-surveys/acs/microdata.html
2. American Community Survey 2015-2019 1-Year Estimates. Ruggles, S., Flood, S., Foster, S., Goeken, R., Pacas, J., Schouweiler, M., & Sobek, M (2021). *IPUMS USA: Version 11.0* [Data Sets]. Minneapolis, MN: IPUMS, 2021. https://doi.org/10.18128/D010.V11.0

## GOAL: SUFFICIENT HOUSEHOLD RESOURCES

### Measure 6: % of Children < 3 in Poverty

**Definition:**
Percentage of children under age 3 whose family lives below 100% of the federal poverty level (FPL)

**Notes:**

1. **Numerator:** The number of children under age 3 living in a household in which they are related to the household head whose family income falls below 100% of the federal poverty level
2. **Denominator:** The number of children under age 3 living in a household in which they are related to the household head and have valid poverty data
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 living in a household in which they are related to the household head and have valid poverty data. Children living in group quarters or who were unrelated to the head of household (e.g., foster children or children of unmarried cohabiters) were excluded from the sample. The poverty threshold uses the US Census calculation of poverty and is based on the total income of all individuals aged 15 or older who are related to the head of household through marriage, birth or adoption. Income from cohabiting partners who are not married and unrelated children (including foster children) are not included in the calculation of family income. This family income is compared to federal poverty thresholds based on related family size and composition (*povpip*).[10]
5. All estimates were calculated in Stata 17 using both ACS person-level weights, to provide national and state representative estimates, and replicate weights to appropriately adjust standard errors to account for any sampling bias.
6. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.[11]
7. Within the 5-year trends, several states had estimates with confidence interval widths that were larger than the recommended 10% margin of error. In 2015, five states (Delaware, the District of Columbia, Montana, Vermont, and Wyoming) had over criteria confidence intervals ranging from 10.7% to 15.8%. Similarly, in 2016 five states (Delaware, the District of Columbia, Maine, Rhode Island, and Vermont) had confidence interval estimates outside of the recommended range, with values from 10.9% to 14.7%. Six states (Alaska, Delaware, the District of Columbia, Rhode Island, Vermont, and Wyoming) had out of range estimates in 2017, with values ranging from 11.4% to 14.9%. In 2018 (Delaware, the District of Columbia, North Dakota, and Rhode Island) and 2019 (Delaware, Montana, Rhode Island, and South Dakota), four states had confidence interval widths that fell outside of the 10% margin of error, ranging from 11.6% to 16.0% and 11.0% to 14.6%, respectively.

[10] US Census Bureau (n.d.). *How the Census Bureau measures poverty*. Revised August 26, 2020. Retrieved on September 9, 2021 from https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html
[11] Appendix 3 "Measures of Sampling Error" in US Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. US Government Printing Office, Washington, DC.

**Source:**
US Census Bureau. (2016-2020). *2015-2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Sets]. https://www.census.gov/programs-surveys/acs/microdata.html

**Measure 7: % Children < 3 Living in Crowded Households**

**Definition:**
Percentage of children under age 3 living in a household in which there is more than one person per room or more than two people per bedroom

**Notes:**

1. **Numerator:** The number of children under age 3 living in a household in which there is more than one person per room or more than two people per bedroom
2. **Denominator:** The number of children under age 3 living in a household reporting valid household size and providing data regarding the number of rooms and bedrooms in the household
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to the number of children under age 3 with valid household size and housing structure data. Children living in group quarters were excluded from the sample.
5. All estimates were calculated in Stata 17 using both ACS person-level weights, to provide national and state representative estimates, and replicate weights to appropriately adjust standard errors to account for any sampling bias.
6. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.[12]
7. Within the 5-year trend calculations, several states had estimates with confidence interval widths that were larger than the US Census' recommended 10% margin. In 2015, six states (Alaska, Delaware, the District of Columbia, Montana, Vermont, and Wyoming) had out of range confidence intervals ranging from 11.1% to 16.0%. In 2016 and 2017, only four states (the District of Columbia, Montana, Vermont, and Wyoming in 2016 and Alaska, Delaware, the District of Columbia, and Wyoming in 2017) had out of range estimates from 10.6% to 14.8%. In 2018, three states (Delaware, the District of Columbia, and Wyoming) had estimates with confidence interval widths that were larger than the recommended 10% margin of error, with over criteria confidence intervals ranging from 11.0% to 17.0%. Four states (Alaska, the District of Columbia, Rhode Island, and Vermont) had out of range confidence interval values (from 11.8% to 14.5%) in 2019.

**Source:**
US Census Bureau. (2016-2020). *2015-2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Sets]. https://www.census.gov/programs-surveys/acs/microdata.html

[12] Ibid.

**Measure 8: % of Households Reporting Child Food Insecurity**

**Definition:**
The percentage of households with at least one child under age 3 who reported experiencing low or very low **child** food security

**Notes:**

1. **Numerator:** The number of households with at least one child under age 3 reporting low or very low child food security
2. **Denominator:** The number of households with at least one child under age 3 with a valid score on the child food security scale
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to households with at least one child under age 3 with valid child food security scale data. The child food security scale was selected instead of the household food security scale to more realistically capture the food security situation for children in the household. Parents frequently shield children from experiencing hunger even though they may report low or very low food security for themselves. Estimates of household food security may overestimate the food insecurity experience of children in the household and this may be especially true for younger children as research suggests that older children in the household may be more likely to experience food insecurity compared to younger children.[13]
5. To improve data quality and accuracy of state-level estimates, per US Census Current Population Survey guidance, estimates were calculated using the three most recent years of CPS, Food Security Supplement data (2017, 2018, 2019) and household-level population weights were adjusted by three to account for the multi-year dataset.[14]
6. All estimates (national and state-level) were calculated in Stata 17 using both household-level population weights (for representative estimates) and replicate weights to account for any sampling bias.
7. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using CPS data.
8. Seven states (Connecticut, Delaware, Maine, Nevada, Pennsylvania, Rhode Island, and South Carolina) had estimates with confidence interval widths that were larger than the recommended 10% margin of error, with over criteria confidence intervals ranging from 10.7% to 13.8%.
9. Due to the use of pooled data for this calculation, it is not possible to calculate estimates across the most recent five years without reporting on overlapping samples.

**Source:**
US Bureau of Labor Statistics and US Census Bureau. (2018-2020). *2017-2019 Current Population Survey (CPS), Food Security Supplement (FSS) Public Use Microdata Sample (PUMS)* [Data Sets]. https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp_cps-repwgt/cps-food-security.html

[13] Nord, M., & Bickel, G. (2002). *Measuring children's food security in US households, 1995-99*. FANRR-25, US Department of Agriculture, Economic Research Service.
[14] US Census Bureau (n.d.). *Which data source to use*. As of March 20, 2018. Retrieved on April 28, 2020 from https://www.census.gov/topics/income-poverty/poverty/guidance/data-sources.html

## GOAL: HEALTHY AND EQUITABLE BIRTHS

### Measure 9: % Babies Born Preterm (< 37 Weeks)

**Definition:**
Percentage of babies born in the past year who were born prior to 37 weeks gestational age

**Notes:**

1. **Numerator:** The number of births in the past year in which the baby was born prior to 37 weeks gestational age
2. **Denominator:** The number of births in the past year with known gestational age
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to births in the past year with valid gestational age information. Per Vital Statistics guidance, the obstetric estimated (OE) gestational age was used to measure gestational age instead of the last menstrual period (LMP) gestational age.[15]
5. Race/ethnic groups based on mother's race and ethnicity were calculated using the Hispanic origin and 6-race category variables provided in CDC WONDER. From these two variables, four mutually exclusive race/ethnic groups were created. If a birth was identified with a Hispanic mother, then the birth was categorized as Hispanic regardless of the race of the mother. Next, births were identified as those to Black, non-Hispanic mothers, then White, non-Hispanic mothers. The fourth group was created from all other non-Hispanic mothers (Asian, American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, more than one race, or unknown/not stated). Births to mothers whose Hispanic origin was reported as unknown on the birth certificate were excluded from the percentages reported by race/ethnic group.
6. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[16]

**Source:**
United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics, Natality public-use data 2007-2019, on CDC WONDER Online Database, October 2020. Accessed at https://wonder.cdc.gov/natality- current.html on March 11, 2021.

[15] Martin, J.A., Osterman, M.J., Kirmeyer, S.E., & Gregory, E.C. (2015). *Measuring gestational age in vital statistics data: Transitioning to the obstetric estimate*. National Vital Statistics Reports from the Center for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 64(5), 1-20.
[16] Centers for Disease Control (CDC) National Center for Health Statistics (NCHS). (n.d.). *CDC WONDER Datasets - Data use restrictions*. As of February 10, 2020. Retrieved May 15, 2020 from https://wonder.cdc.gov/DataUse.html#

**Measure 10: # of Infant Deaths per 1,000 Births**

**Definition:**
The number of infant deaths within the first year per 1,000 live births.

**Notes:**

1. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
2. Per CDC guidance, when available national estimates disaggregated by race/ethnicity were derived from the Vital Statistics period linked birth/infant death data. Race/ethnic subgroups are based on the race and ethnicity of the mother; using the linked birth/death file provides better accuracy in identifying mother's race/ethnicity from birth certificate data. However, to fully provide the rate of infant deaths at the state-level, state estimates were derived from the mortality file. The mortality file does not require the child to have a valid US (or US territory) birth certificate and provides a more complete picture of the state-level infant mortality rate.[17]. Data from the 2019 linked birth/infant death file were not available as of September 1, 2021.
3. The rate of infant mortality was one of the outcomes for which data were available for the most recent five years (2015-2019) for the majority of states. In 2015 and 2019 the infant mortality rates for the District of Columbia and Vermont, respectively were not available due to unreliable data quality associated with smaller sample sizes.

**Sources:**

1. *State Estimates*: CDC National Center for Health Statistics (NCHS). (n.d.) *States of the States: Infant Mortality Rates by State.* As of March 21, 2021. Retrieved June 17, 2021 from https://www.cdc.gov/nchs/pressroom/sosmap/infant_mortality_rates/infant_mortality.htm
2. *National estimates (overall)*: Xu, J.Q., Murphy, S.L., Kochanek, K.D., & Arias, E. (2021, July 26). *Deaths: Final data for 2019*. National Vital Statistics Reports Volume 70, Number 8. National Center for Health Statistics, Hyattsville, MD. https://dx.doi.org/10.15620/cdc:106058
3. *National estimates (race/ethnicity):*
    a. **2017 and 2018**: Ely, D.M., & Driscoll, A.K. (2020). *Infant mortality in the United States, 2018: Data from the period linked birth/infant death file.* National Vital Statistics Reports, 69 (7), 1-18.
    b. **2016:** Ely, D.M., Driscoll, A.K., & Mathews, T.J. (2018). *Infant mortality by age at death in the United States, 2016*. NCHS Data Brief, no 326. National Center for Health Statistics, Hyattsville, MD.

[17] Ely, D.M., & Driscoll, A.K. (2020). *Infant mortality in the United States, 2018: Data from the period linked birth/infant death file.* National Vital Statistics Reports, 69 (7), 1-18.

## GOAL: PARENTAL HEALTH AND WELLBEING

### Measure 11: % Children < 3 Whose Mother Reports Fair/Poor Mental Health

**Definition:**
Percentage of children under age 3 whose mother rates her own mental/emotional health as fair or poor

**Notes:**

1. **Numerator:** The number of children under age 3 whose mother rated her own mental/emotional health as fair or poor
2. **Denominator:** The number of children under age 3 whose mother provided a valid response to a survey item regarding her current mental/emotional health
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 whose mother responded to a survey item regarding her current mental/emotional health. Children who did not have a mother listed as either adult in the household (generally children living with grandparents, in single father households, or living with other relatives) were excluded from the analyses.
5. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2017, 2018, and 2019) were combined to create one multi-year dataset.
6. Approximately 0.4% of children under 3 with a mother in the household were missing data for maternal mental health in the three-year combined data file. In accordance with the reporting practice of the Data Resource Centers' Interactive Data Query (https://www.childhealthdata.org/browse/survey ), cases with missing data were excluded from the analysis.[18]
7. All estimates were calculated in Stata 17 using NSCH provided person level weights and adjusting standard errors based on sampling stratum. Per NSCH guidance the individual year population weight was divided by three to account for the combined data.[19]
8. NSCH guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[20] No states had estimates that exceeded the 20% width.
9. Due to the use of pooled data for this calculation and the significant survey changes that occurred with the NSCH redesign in 2016, it is not possible to calculate estimates across the most recent five years.

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[18] Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2019). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health.* Revised 3/4/19. Retrieved May 15, 2020 from https://www.childhealthdata.org/docs/default-source/nsch-docs/nsch_impact-of-missing-cases_revised_03-02-19_generic.pdf?sfvrsn=d0c25e17_2

[19] US Census Bureau (2020). *National Survey of Children's Health: Guide to multi-year estimates*. As of August 21, 2020. Retrieved June 1, 2021 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf

[20] US Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. (2020). *2019 National Survey of Children's Frequently asked questions*. As of September 2020. Retrieved October 5, 2020 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/2019-NSCH-FAQs.pdf

**Source:**
US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2018-2020). *2017-2019 National Survey of Children's Health (NSCH) Public-Use Data* [Data Sets]. https://www.census.gov/programs-surveys/nsch.html

**Measure 12: % Children < 3 Whose Parent Lacks Parenting Support**

**Definition:**
Percentage of children under age 3 whose parent reported that during the past year there was not someone they could turn to for emotional parenting support

**Notes:**
1. **Numerator:** The number of children under age 3 whose parent reported that during the past year they did not have someone they could turn to for emotional parenting support
2. **Denominator:** The number of children under age 3 whose parent responded yes or no to a survey item regarding the availability of someone providing emotional parenting support over the past year
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 whose parent responded to a survey item regarding emotional parenting support. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2017, 2018, and 2019) were combined to create one multi-year dataset.
5. Approximately 1.2% of children under 3 in the three-year combined data file were missing data for parenting support. In accordance with the reporting practice of the Data Resource Centers' Interactive Data Query (https://www.childhealthdata.org/browse/survey ), cases with missing data were excluded from the analysis.[21]
6. All estimates were calculated in Stata 17 using NSCH provided person level weights and adjusting standard errors based on sampling stratum. Per NSCH guidance the individual year population weight was divided by three to account for the combined data.[22]

[21] Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2019). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health.* Revised 3/4/19. Retrieved May 15, 2020 from https://www.childhealthdata.org/docs/default-source/nsch-docs/nsch_impact-of-missing-cases_revised_03-02-19_generic.pdf?sfvrsn=d0c25e17_2

[22] US Census Bureau (2020). *National Survey of Children's Health: Guide to multi-year estimates*. As of August 21, 2020. Retrieved June 1, 2021 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf

7. NSCH guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[23] No states had estimates that exceeded the 20% width.
8. Due to the use of pooled data for this calculation and the significant survey changes that occurred with the NSCH redesign in 2016, it is not possible to calculate estimates across the most recent five years.

**Source:**
US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2018-2020). *2017-2019 National Survey of Children's Health (NSCH) Public-Use Data* [Data Sets]. https://www.census.gov/programs-surveys/nsch.html

[23] US Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. (2020). *2019 National Survey of Children's Frequently asked questions*. As of September 2020. Retrieved October 5, 2020 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/2019-NSCH-FAQs.pdf

## GOAL: NURTURING AND RESPONSIVE CHILD-PARENT RELATIONSHIPS

### Measure 13: % Children < 3 Not Read to Daily

**Definition:**
Percentage of children under age 3 whose family did not read to them daily during the prior week

**Notes:**

1. **Numerator:** The number of children under age 3 whose parent reported that family members read to them fewer than 7 days in the prior week
2. **Denominator:** The number of children under age 3 whose parent reported on the frequency of family reading behaviors
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 whose parent responded to a survey item regarding family reading behaviors. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2017, 2018, and 2019) were combined to create one multi-year dataset.
5. Approximately 1.2% of children under 3 in the three-year combined data file were missing data on family reading behavior. In accordance with the reporting practice of the Data Resource Centers' Interactive Data Query (https://www.childhealthdata.org/browse/survey ), cases with missing data were excluded from the analysis.[24]
6. All estimates were calculated in Stata 17 using NSCH provided person level weights and adjusting standard errors based on sampling stratum. Per NSCH guidance the individual year population weight was divided by three to account for the combined data.[25]
7. NSCH guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[26] One state (New Jersey) had an estimate with a confidence interval that exceeded the recommended 20% width (20.6%).
8. Due to the use of pooled data for this calculation and the significant survey changes that occurred with the NSCH redesign in 2016, it is not possible to calculate estimates across the most recent five years.

**Source:**

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[24] Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2019). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health.* Revised 3/4/19. Retrieved May 15, 2020 from https://www.childhealthdata.org/docs/default-source/nsch-docs/nsch_impact-of-missing-cases_revised_03-02-19_generic.pdf?sfvrsn=d0c25e17_2

[25] US Census Bureau (2020). *National Survey of Children's Health: Guide to multi-year estimates*. As of August 21, 2020. Retrieved June 1, 2021 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf

[26] US Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. (2020). *2019 National Survey of Children's Frequently asked questions*. As of September 2020. Retrieved October 5, 2020 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/2019-NSCH-FAQs.pdf

US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2018-2020). *2017-2019 National Survey of Children's Health (NSCH) Public-Use Data* [Data Sets]. https://www.census.gov/programs-surveys/nsch.html

**Measure 14: % Children < 3 Nurtured Daily**

**Definition:**
Percentage of children under age 3 whose family did not sing songs or tell stories to them every day during the prior week

**Notes:**

1. **Numerator:** The number of children under age 3 whose parent reported that family members told stories or sang songs with the child fewer than 7 days of the prior week
2. **Denominator:** The number of children under age 3 whose parent reported on the frequency of family storytelling and other nurturing behaviors (singing songs)
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 whose parent responded to a survey item regarding family nurturing behaviors. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2017, 2018, and 2019) were combined to create one multi-year dataset.
5. Approximately 1.2% of children under 3 in the three-year combined data file were missing data on family nurturing behaviors. In accordance with the reporting practice of the Data Resource Centers' Interactive Data Query (https://www.childhealthdata.org/browse/survey ), cases with missing data were excluded from the analysis.[27]
6. All estimates were calculated in Stata 17 using NSCH provided person level weights and adjusting standard errors based on sampling stratum. Per NSCH guidance the individual year population weight was divided by three to account for the combined data.[28]
7. NSCH guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[29] No states had estimates that exceeded the 20% width.

[27] Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2019). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health.* Revised 3/4/19. Retrieved May 15, 2020 from https://www.childhealthdata.org/docs/default-source/nsch-docs/nsch_impact-of-missing-cases_revised_03-02-19_generic.pdf?sfvrsn=d0c25e17_2

[28] US Census Bureau (2020). *National Survey of Children's Health: Guide to multi-year estimates*. As of August 21, 2020. Retrieved June 1, 2021 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf

[29] US Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. (2020). *2019 National Survey of Children's Frequently asked questions*. As of September 2020. Retrieved October 5, 2020 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/2019-NSCH-FAQs.pdf

8. Due to the use of pooled data for this calculation and the significant survey changes that occurred with the NSCH redesign in 2016, it is not possible to calculate estimates across the most recent five years.

**Source:**
US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2018-2020). *2017-2019 National Survey of Children's Health (NSCH) Public-Use Data* [Data Sets]. https://www.census.gov/programs-surveys/nsch.html

**Measure 15: % Children < 3 Whose Parent Reports Not Coping Very Well**

**Definition:**
Percentage of children under age 3 whose parent reports they are not coping "very well" with the day-to-day demands of parenting

**Notes:**
1. **Numerator:** The number of children under age 3 whose parent reported that they are not coping very well with the demands of parenting
2. **Denominator:** The number of children under age 3 whose parent responded to a survey item regarding how well they are coping with the demands of parenting
3. **Only one datapoint for each state (a weighted average of 2017-2019 data) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3 whose parent responded to a survey item regarding parenting stress and coping. Responses to the survey item were on a four-point scale: very well, somewhat well, not very well, or not very well at all. Our calculation grouped the last three categories (somewhat well, not very well, or not very well at all). To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2017, 2018, and 2019) were combined to create one multi-year dataset. Approximately 1.0% of children under 3 in the three-year combined data file were missing data for parenting stress and coping. In accordance with the reporting practice of the Data Resource Centers' Interactive Data Query (https://www.childhealthdata.org/browse/survey ), cases with missing data were excluded from the analysis.[30]
5. All estimates were calculated in Stata 17 using NSCH provided person level weights and adjusting standard errors based on sampling stratum. Per NSCH guidance the individual year population weight

[30] Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2019). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health.* Revised 3/4/19. Retrieved May 15, 2020 from https://www.childhealthdata.org/docs/default-source/nsch-docs/nsch_impact-of-missing-cases_revised_03-02-19_generic.pdf?sfvrsn=d0c25e17_2

was divided by 3 to account for the combined data.[31] Additionally, NSCH guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[32] No states had estimates that exceeded the 20% width. Due to the use of pooled data for this calculation and the significant survey changes that occurred with the NSCH redesign in 2016, it is not possible to calculate estimates across the most recent five years.

**Source:**
US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2018-2020). *2017-2019 National Survey of Children's Health (NSCH) Public-Use Data* [Data Sets]. https://www.census.gov/programs-surveys/nsch.html

[31] US Census Bureau (2020). *National Survey of Children's Health: Guide to multi-year estimates*. As of August 21, 2020. Retrieved June 1, 2021 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf
[32] US Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. (2020). *2019 National Survey of Children's Frequently asked questions*. As of September 2020. Retrieved October 5, 2020 from https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/2019-NSCH-FAQs.pdf

## GOAL: NURTURING AND RESPONSIVE CHILD CARE IN SAFE SETTINGS

### Measure 16: % Children Without Access to Early Head Start

**Definition:**
The estimated percentage of income-eligible children (those in families whose poverty status was less than 100% of the federal poverty level) under age 3 without access to Early Head Start (as measured through the total number of EHS slots).

**Notes:**

1. **Numerator:** The number of EHS slots (regardless of funding source) available in all EHS programs (traditional EHS, American Indian, Alaska Native (AIAN) and migrant EHS) as provided in state-level PIRs
2. **Denominator:** The number of children under age 3 living in households in which they are related to the household head and the household income level is below 100% of the Federal Poverty Level, as estimated from two years of the American Community Survey (ACS)
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children with valid poverty status data living in households with incomes below 100% of the FPL.
5. The data for the numerator (the number of funded EHS slots for children under age 3) came from the state EHS Program Information Reports (PIRs). T
6. he denominator reflects population level estimates from the American Community Survey (ACS) Public-Use Microdata Sample (PUMS) for the sample of children under the age of 3 whose family poverty value was below 100% of the federal poverty level (FPL).
7. Sample size estimates were calculated in Stata 17 using ACS-provided person-level weights. Given the age and income limits imposed on the sample (children under age 3 living in families below 100% FPL) and the estimates by state, two years of ACS data were combined to improve data quality and accuracy and all weights were appropriately adjusted to account for the two combined years of data. Children living in group quarters or whose family poverty status was not available (e.g., foster children or children who were unrelated to the head of household) were excluded from the calculation.
8. The US Census calculation of poverty is based on the total income of all individuals aged 15 or older who are related to the head of household through marriage, birth or adoption. Income from cohabiting partners who are not married and unrelated children (including foster children) are not included in the calculation of family income. This family income is compared to federal poverty thresholds based on related family size and composition (*povpip*).[33]
9. For each of the calculations for the five-year trends, a single year of the funded slot data from the EHS PIR was paired with two combined years of data from the ACS PUMS 1-year data. For each year, the same methodology described above was used – with EHS slots reflecting all program types and funding sources and ACS estimates reflecting income-eligible children under age 3. The table below provides further information regarding the pairing of PIR data with estimated ACS sample data.

[33] US Census Bureau (n.d.). *How the Census Bureau measures poverty*. As of August 27, 2019. Retrieved on April 28, 2020 from https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html

| EHS PIR Vintage | ACS Combined Vintages |
|---|---|
| 2015 | 2014-2015 |
| 2016 | 2015-2016 |
| 2017 | 2016-2017 |
| 2018 | 2017-2018 |
| 2019 | 2018-2019 |

**Sources:**

1. US Department of Health & Human Services, Office of Head Start. (n.d.). *2015-2019 Early Head Start (EHS) Program Information Report* [Data Sets]. Retrieved on August 5, 2020, from https://hses.ohs.acf.hhs.gov/pir/
2. US Census Bureau. (2016-2020). *2015-2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Sets]. https://www.census.gov/programs-surveys/acs/microdata.html

**Measure 17: % Providers Not in Participating in the State's Quality Rating and Improvement System (QRIS)**

**Definition:**
Percentage of child care providers not participating in state QRIS

**Notes:**

1. Data for this measure is not reported in the 2021 Prenatal-to-3 State Policy Roadmap.
2. These data were not updated in 2020 due to the ongoing COVID-19 pandemic and the impact on childcare providers.
3. Per communication with Child Trends, moving forward data for the Quality Compendium will be collected on a bi-annual instead of annual basis.[34]

**Source:**
The Build Initiative & Child Trends' Quality Compendium. (2019, December 31). *QRIS Compendium profile report* [Data set]. Retrieved on July 13, 2020, from https://qualitycompendium.org/profile-report

[34] A. Blasberg, Child Trends, personal communication, June 17, 2021.

## GOAL: OPTIMAL CHILD HEALTH AND DEVELOPMENT

### Measure 18: % Children Whose Mother Reported Never Breastfeeding

**Definition:**
Percentage of children ages 19 to 35 months whose mother reported never breastfeeding

**Notes:**

1. **Numerator:** The number of children between the ages of 19 and 35 months whose mother reported they never breastfed the child
2. **Denominator:** The number of children between the ages of 19 and 35 months whose mother reported yes or no to an item regarding whether the child was ever breastfed
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children between the ages of 19 and 35 months whose mother responded to a survey item regarding breastfeeding of the child. All estimates were calculated in Stata 17 using NIS-Child provided person-level weights and adjusting standard errors based on sampling stratum.
5. NIS-Child guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[35] No states had estimates that exceeded the 20% width.

**Source:**
US Department of Health and Human Services (US DHHS), National Center for Immunization and Respiratory Diseases. (2016-2020). *The 2015-2019 National Immunization Survey-Child (NIS-Child)* [Data Sets]. Atlanta, GA: Centers for Disease Control and Prevention. http://www.cdc.gov/vaccines/imz-managers/nis/datasets.html

### Measure 19: % Children < 3 Not Up to Date on Immunizations

**Definition:**
Percentage of children ages 19 to 35 months who are not up to date on the combined 7-vaccine series

**Notes:**

1. **Numerator:** The number of children ages 19 to 35 months who are not up-to-date on the combined 7-vaccine series, based on the child's age
2. **Denominator:** The number of children ages 19 to 35 months with adequate provider-verified immunization information

[35] US Department of Health and Human Services (US DHHS), National Center for Immunization and Respiratory Diseases. (2020). *A user's guide for the 2019 public-use data file.* Centers for Disease Control and Prevention, Presented by NORC at the University of Chicago. Retrieved January 26, 2021 from https://www.cdc.gov/vaccines/imz-managers/nis/downloads/NIS-PUF19-DUG.pdf

3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children ages 19 to 35 months with adequate provider-verified information regarding immunizations. Children with at least one vaccination verified by a provider are considered to have adequate provider-verified data. The combined 7-vaccine series consists of 4 or more Diphtheria, tetanus, and acellular pertussis (DTaP) vaccinations; 3 or more polio vaccinations; 1 or more measles-containing (MCV) vaccinations; 3 or 4 Hib vaccinations (depending upon vaccine manufacturer); 3 or more hepatitis B vaccinations; 1 or more varicella vaccinations (administered at 12 months or older); and 3 or more pneumococcal vaccinations.[36] The NIS-Child public use data file contains a constructed variable indicating whether the child is up-to-date on the combined 7-vaccine series based on the age of the child at the time of the survey and provider-verified vaccination data.
5. All estimates were calculated in Stata 17 using NIS-Child provided person-level weights, modified for adequate provider data, and adjusting standard errors based on sampling stratum.
6. NIS-Child guidance recommends using a 95% confidence interval and identifying estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.[37] No states had estimates that exceeded the 20% width.

**Source:**
US Department of Health and Human Services (US DHHS), National Center for Immunization and Respiratory Diseases. (2016-2020). *The 2015-2019 National Immunization Survey-Child (NIS-Child)* [Data Sets]. Atlanta, GA: Centers for Disease Control and Prevention. http://www.cdc.gov/vaccines/imz-managers/nis/datasets.html

**Measure 20: Maltreatment Rate per 1,000 Children < 3**

**Definition:**
The rate of substantiated incidents of child maltreatment (per 1,000) for children under age 3

**Notes:**
1. **Numerator:** The number of unique child maltreatment victims under age 3
2. **Denominator:** The number of children under age 3
3. **A five-year trend (2015-2019) is reported in the 2021 Prenatal-to-3 State Policy Roadmap for this indicator.**
4. The sample was limited to children under age 3. The numerator is derived from the restricted-use NCANDS Child Files and is the unique count of substantiated child maltreatment victims under age 3. The denominator is derived from Census Population Estimates and is the estimate of the total number

[36] Ibid.
[37] Ibid.

of children under age 3.[38] The child maltreatment rate was one of the outcomes for which data were available for the most recent five years (2015-2019).

5. The analyses presented in this publication were based on data from the National Child Abuse and Neglect Data System (NCANDS). These data were provided by the National Data Archive on Child Abuse and Neglect at Cornell University, and have been used with permission. The data were originally collected under the auspices of the Children's Bureau. Funding was provided by the Children's Bureau, Administration on Children, Youth, and Families, Administration for Children and Families, US Department of Health and Human Services. The collector of the original data, the funding agency, NDACAN, Cornell University, and the agents or employees of these institutions bear no responsibility for the analyses or interpretations presented here. The information and opinions expressed reflect solely the opinions of the authors.

**Sources:**

1. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2015). *National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2015v4* [Data Set]. Available from the National Data Archive on Child Abuse and Neglect Web site, http://www.ndacan.cornell.edu
2. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2016). *National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2016v3* [Data Set]. Available from the National Data Archive on Child Abuse and Neglect Web site, http://www.ndacan.cornell.edu
3. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2017). *National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2017v3* [Data Set]. Available from the National Data Archive on Child Abuse and Neglect Web site, http://www.ndacan.cornell.edu
4. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2018). *National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2018v3* [Data Set]. Available from the National Data Archive on Child Abuse and Neglect Web site, http://www.ndacan.cornell.edu
5. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2019). *National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2019v1* [Data Set]. Available from the National Data Archive on Child Abuse and Neglect Web site, http://www.ndacan.cornell.edu
6. US Census Bureau, Population Division. (2019). *Annual state resident population estimates for 6 race groups (5 race alone groups and two or more races) by age, sex, and Hispanic origin: April 1, 2010 to July 1, 2018* – sc-est2018-alldata6.csv [Data Set]. Retrieved Jan 30, 2020 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2018/state/asrh/sc-est2018-alldata6.csv

[38] US Census. (2019). Methodology for the United States population estimates: Vintage 2018. Retrieved June 30, 2020 from https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2018/2018-natstcopr-meth.pdf

In 2019, children under three comprised 3.5% of the total US population and 15.8% of the total child population. The characteristics of families vary considerably by states and it is important for states to have a clear picture of the current demographic composition and characteristics of this population and their families. These include early signs of disadvantage from at-risk birth characteristics to access to sufficient family resources (both financial and geographic).

**Median family income**

**Definition**:
Median family income for children under age 3

**Notes**:
1. The median family income for children under age 3 was calculated using the family income variable (*fincp*) available in PUMS and adjusted using the US Census provided adjustment factor (*adjinc*) to adjust income values to 2019 dollars.[39]
2. To verify that all parent income was included in the family income calculation, including cohabiting, unmarried parent income, we linked each child under age 3 in PUMS with their record in the 2019 ACS Integrated Public Use Microdata Sample (IPUMS) data to incorporate the variables identifying resident parents available in IPUMS *(momloc, momloc2, poploc*, and *poploc2*).[40]
3. Children who did not live with either parent but with other family members (e.g., grandparents or siblings) were included.
4. Children who lived in group quarters or who were unrelated to the household head (e.g., foster children) were excluded from the analysis.
5. All estimates were calculated in Stata 17 using ACS person-level weights, to provide national and state representative estimates.

**Sources**:
1. US Census Bureau. (2020). *2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. https://www.census.gov/programs-surveys/acs/microdata.html
2. American Community Survey 2019 1-Year Estimates. Ruggles, S., Flood, S., Foster, S., Goeken, R., Pacas, J., Schouweiler, M., & Sobek, M (2021). *IPUMS USA: Version 11.0* [Data Set]. Minneapolis, MN: IPUMS, 2021. https://doi.org/10.18128/D010.V11.0

**Percent of children living in metro or non-metro areas**

**Definition**:
Percentage of children under age 3 living in metro or non-metro areas

**Notes**:
1. **Numerator**: The number of children under age 3 living in a metropolitan (urban) or non-metropolitan (rural) area
2. **Denominator**: The number of children under age 3 whose household geographic location could be identified as metropolitan or non-metropolitan

[39] US Census Bureau, American Community Survey Office. (2020). *American Community Survey 2019 ACS 1-Year PUMS files ReadMe.* As of October 15, 2020. Retrieved September 9, 2021 from https://www2.census.gov/programs-surveys/acs/tech_docs/pums/ACS2019_PUMS_README.pdf?
[40] See https://usa.ipums.org/usa/chapter5/NewfamilyinterrelationshipvariablesinIPUMSUSA.shtml for a thorough description of how IPUMS determines the location of parents in the household.

3. The sample was limited to children under 3 whose household geographic location could be categorized as either metropolitan (urban) or non-metropolitan (rural). We used the metropolitan/non-metropolitan geographic status indicator calculated and included in the University of Minnesota's 2019 ACS IPUMS and each child under 3 in the ACS PUMS data was linked with their household's metro status from IPUMS. The IPUMS USA's metro status indicator identifies whether a household lives in a metropolitan area based on Public-Use Microdata Areas (or PUMAs) and the Office of Management and Budget's 2013 definition of principal cities.
4. Areas that could not be fully identified as falling in a metropolitan area were considered indeterminate and households in those geographies were excluded from the analysis.[41]
5. All estimates were calculated in Stata 17 using ACS person-level weights, to provide national and state representative estimates and replicate weights to appropriately adjust standard errors to account for any sampling bias.
6. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.[42].
7. Four states (Alaska, Montana, North Dakota, and South Dakota) had estimates with confidence interval widths that were larger than the recommended 10% margin of error, with over criteria confidence intervals ranging from 11.3% to 15.1%.

**Sources**:

1. US Census Bureau. (2020). *2019 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. https://www.census.gov/programs-surveys/acs/microdata.html
2. American Community Survey 2019 1-Year Estimates. Ruggles, S., Flood, S., Foster, S., Goeken, R., Pacas, J., Schouweiler, M., & Sobek, M (2021). *IPUMS USA: Version 11.0* [Data Set]. Minneapolis, MN: IPUMS, 2021. https://doi.org/10.18128/D010.V11.0

[41] Minnesota Population Center, University of Minnesota, IPUMS USA. (n.d.). *Metropolitan status — Description and comparability*. Retrieved on June 30, 2020 from https://usa.ipums.org/usa-action/variables/METRO#description_section

[42] Appendix 3 "Measures of Sampling Error" in US Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. US Government Printing Office, Washington, DC.