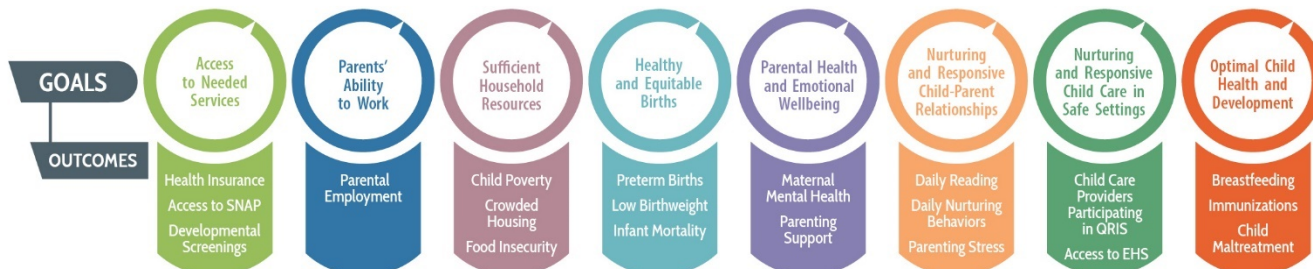


## How Do We Track State-Level Indicators of Child and Family Wellbeing?



### 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. 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, where half of states have outcomes that are worse.

## GOAL: Access to Needed Services

*Families have access to necessary services through expanded eligibility, reduced administrative burden, and identification of needs and connection to services.*

Ensuring access to the resources and services that parents and children need is foundational to building a prenatal-to-3 system of care. States have the ability to increase families’ and children’s access to services through three primary pathways:

1. Expanding eligibility criteria;
2. Reducing administrative burden, or the amount of effort that families must expend to receive an eligible benefit; and
3. Screening for the specific needs that families and their children have and connecting them with the precise services they need.

### Access to Needed Services Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Lack of Health Insurance	2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)	2018
2. Lack of Access to SNAP	Urban Institute’s TRIM3 Project	2016-2018
3. Lack of Developmental Screenings	National Survey of Children’s Health (NSCH)	2016-2018

#### Measure 1: Lack of Health Insurance

**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

**Numerator:** The number of low-income adult women of childbearing age who reported not having health insurance coverage during the prior calendar year

**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)

**Source:** U. S. Census Bureau. (2019). *2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. <https://www.census.gov/programs-surveys/acs/data/pums.html>

**Notes:** 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. The poverty threshold uses the U.S. 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.<sup>1</sup> All estimates were calculated in Stata 16 using

<sup>1</sup> U.S. 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>

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. The U.S. Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.<sup>2</sup> Given the age and poverty limits imposed on the sample (women age 19-44 with incomes  $\leq$ 138% of the federal poverty level) and the calculation estimates by state, incorporating both population and sampling weights helps to account for exogenous sources of variance and improve the accuracy of estimates. Four states (Alaska, North Dakota, South Dakota, 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 10.5% to 13.4%.

## Measure 2: Lack of Access to SNAP

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

**Numerator:** The number of SNAP-eligible families with children under age 18 who did not report receiving SNAP during the prior calendar year

**Denominator:** The number of SNAP-eligible families with at least one child under age 18

**Source:** TRIM3. (2017-2019). *Transfer Income Model, Version 3* [Data set]. Retrieved on May 10, 2020, from <https://trim3.urban.org>

**Notes:** 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. 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 U.S. 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.<sup>3</sup> The U.S. 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. 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.

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<sup>2</sup> Appendix 3 "Measures of Sampling Error" in U.S. Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. U.S. Government Printing Office, Washington, DC.

<sup>3</sup> U.S. 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 3: Lack of Developmental Screenings

**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

**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

**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

**Source:** U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2017-2019). *2016-2018 National Survey of Children's Health (NSCH) Public-Use Data* [Data Set].

<https://www.census.gov/programs-surveys/nsch.html>

**Notes:** 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. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2016, 2017, and 2018) were combined to create one multi-year dataset. Approximately 2.9% 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.<sup>4</sup> All estimates were calculated in Stata 16 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.<sup>5</sup> 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.<sup>6</sup> 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.

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<sup>4</sup> Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.) *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health*. As of 10/06/17. Retrieved May 15, 2020 from [www.childhealthdata.org](http://www.childhealthdata.org).

<sup>5</sup> U.S. Census Bureau (2019). *2018 National Survey of Children's Health: Guide to multi-year estimates*. As of October 4, 2019. Retrieved May 15, 2020 from <https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf>

<sup>6</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *2018 National Survey of Children's Health - Data users: Frequently asked questions*. As of October 2019. Retrieved May 15, 2020 from <https://mchb.hrsa.gov/data/national-surveys/data-user>

## GOAL: Parents’ Ability to Work

*Parents have the skills and incentives for employment and the resources they need to balance working and parenting.*

Irregular or unpredictable work schedules, lack of affordable child care, and limited access to paid time off can compromise a parent’s ability to maintain stable employment and earn enough income to adequately provide for a family. We rely on one outcome measure, parents’ employment security, to illustrate parents’ ability to find and maintain steady employment while also raising a family.

### Parents’ Ability to Work Outcome Measure

Outcome Measure	Data Sources	Data Vintage
Insecure Parental Employment	1. 2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS) 2. 2018 American Community Survey (ACS) 1-Year Integrated Public Use Microdata Sample (IPUMS)	2018

### Measure: Insecure Parental Employment

**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

**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

**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

**Sources:**

1. U. S. Census Bureau. (2019). *2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. <https://www.census.gov/programs-surveys/acs/data/pums.html>
2. American Community Survey 2018 1-Year Estimates. Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J., & Sobek, M (2020). *IPUMS USA: Version 10.0* [Data Set]. Minneapolis, MN: IPUMS, 2020. <https://doi.org/10.18128/D010.V10.0>

**Notes:** 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 for at least 50 weeks during the 12 months prior to the survey. 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. 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 2018 IPUMS ACS data files, with the 2018 ACS 1-Year PUMS data file. 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.<sup>7</sup> All estimates were calculated in Stata 16 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. The U.S. Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.<sup>8</sup> Ten states (Alaska, Delaware, the District of Columbia, New Hampshire, North Dakota, Rhode Island, South Dakota, Vermont, West Virginia, 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 10.6% to 14.4%.

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<sup>7</sup> See <https://usa.ipums.org/usa/chapter5/NewfamilyinterrelationshipvariablesinIPUMSUSA.shtml> for a thorough description of how IPUMS determines the location of parents in the household.

<sup>8</sup> Appendix 3 “Measures of Sampling Error” in U.S. Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. U.S. Government Printing Office, Washington, DC.

## GOAL: Sufficient Household Resources

*Parents have the financial and material resources they need to provide for their families.*

Experiences of financial hardship during early childhood can disrupt healthy brain development and compromise the foundation for long-term learning, behavior, and health. Financial hardship is a major predictor of food insecurity, which can lead to malnutrition and have negative impacts on children’s health. Moreover, families with low incomes are more likely to live in crowded housing, which increases the risk of housing instability or homelessness and is often associated with chaotic environments that do not promote healthy child development.

### Sufficient Household Resources Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Child Poverty	2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)	2018
2. Crowded Housing	2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)	2018
3. Food Insecurity	2016-2018 Current Population Survey (CPS), Food Security Supplement (FSS) Public Use Microdata Sample (PUMS)	2016-2018

#### Measure 1: Child Poverty

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

**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

**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

**Source:** U. S. Census Bureau. (2019). *2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. <https://www.census.gov/programs-surveys/acs/data/pums.html>

**Notes:** 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 U.S. 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.<sup>9</sup> All estimates were calculated in Stata 16 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

<sup>9</sup> U.S. 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>

sampling bias. The U.S. Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.<sup>10</sup> Four states (Delaware, the District of Columbia, North Dakota, and Rhode Island) had estimates with confidence interval widths that were larger than the recommended 10% margin of error, with over criteria confidence intervals ranging from 11.6% to 16.0%.

### Measure 2: Crowded Housing

**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

**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

**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

**Source:** U. S. Census Bureau. (2019). *2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. <https://www.census.gov/programs-surveys/acs/data/pums.html>

**Notes:** 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. All estimates were calculated in Stata 16 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. The U.S. Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.<sup>11</sup> 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%.

### Measure 3: 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

**Numerator:** The number of households with at least one child under age 3 reporting low or very low child food security

**Denominator:** The number of households with at least one child under age 3 with a valid score on the child food security scale

**Source:** U.S. Bureau of Labor Statistics and U.S. Census Bureau. (2017-2019). *2016-2018 Current Population Survey (CPS), Food Security Supplement (FSS) Public Use Microdata Sample (PUMS)* [Data Set]. <https://www.census.gov/programs-surveys/cps.html>

**Notes:** 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

<sup>10</sup> Appendix 3 “Measures of Sampling Error” in U.S. Census Bureau (2008). *A compass for understanding and using American Community Survey data: What general data users need to know*. U.S. Government Printing Office, Washington, DC.

<sup>11</sup> Ibid.



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.<sup>12</sup> To improve data quality and accuracy of state-level estimates, per U.S. Census Current Population Survey guidance, estimates were calculated using the three most recent years of CPS, Food Security Supplement data (2016, 2017, 2018) and household-level population weights were adjusted by three to account for the multi-year dataset.<sup>13</sup> All estimates (national and state-level) were calculated in Stata 16 using both household-level population weights (for representative estimates) and replicate weights to account for any sampling bias. The U.S. Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using CPS data. Seven states (Alabama, Arizona, Connecticut, Delaware, Maine, Pennsylvania, and Rhode Island) had estimates with confidence interval widths that were larger than the recommended 10% margin of error, with over criteria confidence intervals ranging from 10.9% to 18.5%.

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<sup>12</sup> Nord, M., & Bickel, G. (2002). *Measuring children's food security in U.S. households, 1995-99*. FANRR-25, U.S. Department of Agriculture, Economic Research Service.

<sup>13</sup> U.S. 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

*Children are born healthy to healthy parents, and pregnancy experiences and birth outcomes are equitable.*

Setbacks and trauma that children and families experience due to often preventable pregnancy and birth complications can have lifelong consequences for children’s health and wellbeing. Many babies in the US are born thriving, but each child who is not may need substantial resources and care not just to survive infancy but to meet the challenges beyond. A child born prematurely arrives before the 37<sup>th</sup> week of pregnancy, a time during which the rapidly developing brain and other organs still benefit from the unique advantages of the intrauterine environment. Premature birth increases the likelihood of low birthweight, which predisposes children to breathing and feeding difficulties, vision and hearing problems, developmental delays, and learning disabilities, among other short- and long-term complications.

### Healthy and Equitable Births Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Preterm Births	Vital Statistics from CDC WONDER – Natality Expanded 2018	2018
2. Low Birthweight	Vital Statistics from CDC WONDER – Natality Expanded 2018	2018
3. Infant Mortality	<i>National:</i> National Vital Statistics Reports, Infant mortality in the United States, 2018: Data from the period linked birth/infant death file <i>State:</i> CDC National Center for Health Statistics (NCHS); States of the States: Infant Mortality Rates by State	2018

#### Measure 1: Preterm Births

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

**Numerator:** The number of births in the last year in which the baby was born prior to 37 weeks gestational age

**Denominator:** The number of births in the last year with known gestational age

**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 2016-2018, on CDC WONDER Online Database, September 2019. Accessed at <https://wonder.cdc.gov/natality-expanded-current.html> on May 15, 2020.

**Notes:** The sample was limited to births in the last 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.<sup>14</sup> 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 grouped in 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 (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. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.<sup>15</sup>

### Measure 2: Low Birthweight Births

**Definition:** Percentage of babies born in the past year who were born weighing less than 5.5 pounds (2,500 grams)

**Numerator:** The number of births in the past year in which the baby weighed less than 5.5 pounds (2,500 grams)

**Denominator:** The number of births in the past year with known birthweight

**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 2016-2018, on CDC WONDER Online Database, September 2019. Accessed at <https://wonder.cdc.gov/natality-expanded-current.html> on May 17, 2020.

**Notes:** The sample was limited to births in the past year with valid birthweight data. 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 grouped in 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 (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. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.<sup>16</sup>

### Measure 3: Infant Mortality Rate

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

**Source:**

<sup>14</sup> 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.

<sup>15</sup> 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#>

<sup>16</sup> Ibid.

1. *State Estimates*: CDC National Center for Health Statistics (NCHS). (n.d.) *States of the States: Infant Mortality Rates by State*. As of April 24, 2020. Retrieved June 18, 2020 from [https://www.cdc.gov/nchs/pressroom/sosmap/infant\\_mortality\\_rates/infant\\_mortality.htm](https://www.cdc.gov/nchs/pressroom/sosmap/infant_mortality_rates/infant_mortality.htm)
2. *National estimates*: 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.

**Notes:** Per CDC guidance, national estimates and national estimates disaggregated by race/ethnicity were derived from the Vital Statistics period linked infant birth/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 U.S. (or U.S. territory) birth certificate and provides a more complete picture of the state-level infant mortality rate.<sup>17</sup>

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<sup>17</sup> 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

*Parents are mentally and physically healthy, with particular attention paid to the perinatal period.*

Parents' physical and mental health affects their ability to care for their children and engage in the warm, responsive interactions that infants and toddlers need for long-term healthy development. Yet parents often do not have the resources they need to care for themselves adequately as they care for their children.

### Parental Health and Wellbeing Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Poor Maternal Mental Health	National Survey of Children's Health (NSCH)	2016-2018
2. Low Parenting Support	National Survey of Children's Health (NSCH)	2016-2018

#### Measure 1: Poor Maternal Mental Health

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

**Numerator:** The number of children under age 3 whose mother rated her own mental/emotional health as fair or poor

**Denominator:** The number of children under age 3 whose mother provided a valid response to a survey item regarding her current mental/emotional health

**Source:** U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2017-2019). *2016-2018 National Survey of Children's Health (NSCH) Public-Use Data* [Data Set].

<https://www.census.gov/programs-surveys/nsch.html>

**Notes:** 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. To improve accuracy in calculating sample estimates, especially at the state-level, three years of NSCH data (2016, 2017, and 2018) were combined to create one multi-year dataset. Approximately 0.6% of children under 3 in the three-year combined data file were missing data for maternal mental health. 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.<sup>18</sup> All estimates were calculated in Stata 16 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

<sup>18</sup> Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.) *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health*. As of 10/06/17. Retrieved May 15, 2020 from [www.childhealthdata.org](http://www.childhealthdata.org).

combined data.<sup>19</sup> 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.<sup>20</sup> No states had estimates that exceeded the 20% width.

## Measure 2: Low 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

**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

**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

**Source:** U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2017-2019). *2016-2018 National Survey of Children's Health (NSCH) Public-Use Data* [Data Set].

<https://www.census.gov/programs-surveys/nsch.html>

**Notes:** 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 (2016, 2017, and 2018) 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 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.<sup>21</sup> All estimates were calculated in Stata 16 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.<sup>22</sup> 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.<sup>23</sup> No states had estimates that exceeded the 20% width.

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<sup>19</sup> U.S. Census Bureau (2019). *2018 National Survey of Children's Health: Guide to multi-year estimates*. As of October 4, 2019. Retrieved May 15, 2020 from <https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf>

<sup>20</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *2018 National Survey of Children's Health - Data users: Frequently asked questions*. As of October 2019. Retrieved May 15, 2020 from <https://mchb.hrsa.gov/data/national-surveys/data-user>

<sup>21</sup> Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health*. As of 10/06/17. Retrieved May 15, 2020 from [www.childhealthdata.org](http://www.childhealthdata.org).

<sup>22</sup> U.S. Census Bureau (2019). *2018 National Survey of Children's Health: Guide to multi-year estimates*. As of October 4, 2019. Retrieved May 15, 2020 from <https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf>

<sup>23</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *2018 National Survey of Children's Health - Data users: Frequently asked questions*. As of October 2019. Retrieved May 15, 2020 from <https://mchb.hrsa.gov/data/national-surveys/data-user>

## GOAL: Nurturing and Responsive Child-Parent Relationships

*Children experience warm, nurturing, stimulating interactions with their parents that promote healthy development.*

Stable, responsive relationships with caregivers during the earliest months and years of a child’s life are key to long-term healthy development. Yet those critical early years also can be stressful for parents, who may themselves struggle to cope and to connect with their children. Persistent absence of warm, reciprocal interactions increases the likelihood that a child will experience poor outcomes for health and wellbeing. Measuring the quality of children’s interactions with adults is not easy, nor are the data in this area abundant. However, some measures from available state-level data do capture this critical component of children’s development.

### Nurturing and Responsive Child-Parent Relationships Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Lack of Daily Reading	National Survey of Children’s Health (NSCH)	2016-2018
2. Lack of Daily Nurturing Behaviors	National Survey of Children’s Health (NSCH)	2016-2018
3. Parenting Stress	National Survey of Children’s Health (NSCH)	2016-2018

#### Measure 1: Lack of Daily Reading

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

**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

**Denominator:** The number of children under age 3 whose parent reported on the frequency of family reading behaviors

**Source:** U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2017-2019). *2016-2018 National Survey of Children’s Health (NSCH) Public-Use Data* [Data Set].

<https://www.census.gov/programs-surveys/nsch.html>

**Notes:** 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 (2016, 2017, and 2018) 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 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.<sup>24</sup> All estimates were calculated in Stata 16 using NSCH provided person level

<sup>24</sup> Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the U.S. Department of Health and Human Services, Health Resources and Services Administration

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.<sup>25</sup> 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.<sup>26</sup> No states had estimates that exceeded the 20% width.

## Measure 2: Lack of Daily Nurturing Behaviors

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

**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

**Denominator:** The number of children under age 3 whose parent reported on the frequency of family storytelling and other nurturing behaviors (singing songs)

**Source:** U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2017-2019). *2016-2018 National Survey of Children's Health (NSCH) Public-Use Data* [Data Set].

<https://www.census.gov/programs-surveys/nsch.html>

**Notes:** 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 (2016, 2017, and 2018) were combined to create one multi-year dataset. Approximately 0.9% 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.<sup>27</sup> All estimates were calculated in Stata 16 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.<sup>28</sup> Additionally, NSCH guidance recommends using a 95% confidence interval and identifying

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(HRSA), Maternal and Child Health Bureau (MCHB). (n.d.) *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health*. As of 10/06/17. Retrieved May 15, 2020 from [www.childhealthdata.org](http://www.childhealthdata.org).

<sup>25</sup> U.S. Census Bureau (2019). *2018 National Survey of Children's Health: Guide to multi-year estimates*. As of October 4, 2019. Retrieved May 15, 2020 from <https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf>

<sup>26</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *2018 National Survey of Children's Health - Data users: Frequently asked questions*. As of October 2019. Retrieved May 15, 2020 from <https://mchb.hrsa.gov/data/national-surveys/data-user>

<sup>27</sup> Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.) *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health*. As of 10/06/17. Retrieved May 15, 2020 from [www.childhealthdata.org](http://www.childhealthdata.org).

<sup>28</sup> U.S. Census Bureau (2019). *2018 National Survey of Children's Health: Guide to multi-year estimates*. As of October 4, 2019. Retrieved May 15, 2020 from <https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf>



estimates with confidence interval widths that exceed 20% as having questionable reliability and accuracy.<sup>29</sup> No states had estimates that exceeded the 20% width.

### Measure 3: Parenting Stress

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

**Numerator:** The number of children under age 3 whose parent reported that they are not coping very well with the demands of parenting

**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

**Source:** U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (2017-2019). *2016-2018 National Survey of Children's Health (NSCH) Public-Use Data* [Data Set].

<https://www.census.gov/programs-surveys/nsch.html>

**Notes:** 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 (2016, 2017, and 2018) were combined to create one multi-year dataset. Approximately 0.8% 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.<sup>30</sup> All estimates were calculated in Stata 16 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 3 to account for the combined data.<sup>31</sup> 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.<sup>32</sup> No states had estimates that exceeded the 20% width.

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<sup>29</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *2018 National Survey of Children's Health - Data users: Frequently asked questions*. As of October 2019. Retrieved May 15, 2020 from <https://mchb.hrsa.gov/data/national-surveys/data-user>

<sup>30</sup> Child and Adolescent Health Measurement Initiative. Data Resource Center, supported by Cooperative Agreement U59MC27866 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *The impact of missing values on population count estimates in the 2016 National Survey of Children's Health*. As of 10/06/17. Retrieved May 15, 2020 from [www.childhealthdata.org](http://www.childhealthdata.org).

<sup>31</sup> U.S. Census Bureau (2019). *2018 National Survey of Children's Health: Guide to multi-year estimates*. As of October 4, 2019. Retrieved May 15, 2020 from <https://www2.census.gov/programs-surveys/nsch/technical-documentation/methodology/NSCH-Guide-to-Multi-Year-Estimates.pdf>

<sup>32</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). (n.d.). *2018 National Survey of Children's Health - Data users: Frequently asked questions*. As of October 2019. Retrieved May 15, 2020 from <https://mchb.hrsa.gov/data/national-surveys/data-user>

## GOAL: Nurturing and Responsive Child Care in Safe Settings

*When children are not with their parents, they are in high-quality, nurturing, and safe environments.*

The developing brain of a young child depends on secure attachments with caregivers. Serve-and-return interactions – in which adults respond consistently and appropriately to a child’s cries, babbles, and other bids for connection – provide vitally important positive stimulation and protect the developmental process from disruption due to stress. These interactions, so fundamental to shaping brain architecture, are just as important when children are in child care as when they are at home with their parents. TO help eliminate barriers to quality care and disparities in access, a state can use a quality improvement and rating system (QRIS) to systematically assess and provide public information about child care quality. A QRIS allows a state to target areas of specific concern, such as the components of child care settings that affect child-caregiver interactions, and to encourage the adoption of models of care like Early Head Start (EHS).

### Nurturing and Responsive Child Care in Safe Settings Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Child Care Providers Not Participating in QRIS	The Build Initiative & Child Trends’ Quality Compendium	2019
2. Children without Access to Early Head Start (EHS)	1. 2019 Early Head Start (EHS) Program Information Reports (PIR) 2. 2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)	2018

In accordance with the treatment of the outcome measures for the other policy goals, these two measures are calculated in the negative direction (providers not participating in QRIS and children without access to EHS) when presented in the Prenatal-to-3 State Policy Roadmap State Profiles and online in the Prenatal-to-3 State Policy data interactive. However, in the Prenatal-to-3 State Policy Roadmap Report, these data are presented in the positive (providers participating in the state QRIS and children with access to EHS). The source and calculation information are the same, only the direction of the calculation changes.

#### Measure 1: Providers Not Participating in the State QRIS

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

**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>

**Notes:** States with a value of “Not Reported” indicates the QRIS is in planning or piloting stage or is not statewide. No QRIS means the state has no QRIS.

#### Measure 2: Percent of Children without Access to EHS

**Definition:** Percentage of income-eligible (< 100% FPL) children without access to Early Head Start (EHS)

**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 2019 PIRs

**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

**Sources:**

1. U.S. Department of Health & Human Services, Office of Head Start. (n.d.). *2019 Early Head Start (EHS) Program Information Report*. Retrieved on August 5, 2020, from <https://hses.ohs.acf.hhs.gov/pir/>
2. United States Census Bureau. (2018). *2018 American Community Survey (ACS) 1-Year Public Use Microdata Sample (PUMS)* [Data Set]. <https://www.census.gov/programs-surveys/acs/data/pums.html>

**Notes:** The sample was limited to children with valid poverty status data living in households with incomes below 100% of FPL. The data for the numerator (the number of funded EHS slots for children under age 3) came from the state 2019 EHS Program Information Reports (PIRs). The denominator reflects population level estimates from the 2018 ACS PUMS for the sample of children under the age of 3 whose family poverty value was below 100% of the federal poverty level (FPL). Sample size estimates were calculated in Stata 16 using ACS-provided person-level weights. 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.

The U.S. 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.<sup>33</sup>

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<sup>33</sup> U.S. 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>

## GOAL: Optimal Child Health and Development

*Children’s emotional, physical, and cognitive development is on track, and delays are identified and addressed early.*

A child’s developing brain is most flexible during the earliest months and years of life. This flexibility provides a window of opportunity for establishing a lifelong trajectory for health and wellbeing. Adverse childhood experiences during this period increase the likelihood of physical and mental health difficulties in adulthood. Despite the importance of this age period, children are more likely to experience abuse and neglect during their first three years of life than at any other age. Safe environments and good nutrition can support early child development and lifelong health.

### Optimal Child Health and Development Outcome Measures

Outcome Measure	Data Source	Data Vintage
1. Breastfeeding	National Immunization Survey (NIS) - Child	2018
2. Immunizations	National Immunization Survey (NIS) - Child	2018
3. Child Maltreatment	1. National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2018v2 2. Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States, Vintage 2018	2018

#### Measure 1: Percent Never Breastfed

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

**Numerator:** The number of children between the ages of 19 and 35 months whose mother reported they never breastfed the child

**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

**Source:** U.S. Department of Health and Human Services (DHHS), National Center for Immunization and Respiratory Diseases. (2020). *The 2018 National Immunization Survey-Child (NIS-Child)* [Data Set]. Atlanta, GA. <http://www.cdc.gov/vaccines/imz-managers/nis/datasets.html>

**Notes:** 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 16 using NIS-Child provided person-level weights and adjusting standard errors based on sampling stratum. 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.<sup>34</sup> No states had estimates that exceeded the 20% width.

<sup>34</sup> U.S. Department of Health and Human Services (DHHS), National Center for Immunization and Respiratory Diseases. (2020). *Data user’s guide for the 2018 NIS-Child public-use data file*. Centers for Disease Control and Prevention, Presented by NORC at the University of Chicago.

## Measure 2: Percent Not Fully Immunized

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

**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

**Denominator:** The number of children ages 19 to 35 months with adequate provider-verified immunization information

**Source:** U.S. Department of Health and Human Services (DHHS), National Center for Immunization and Respiratory Diseases. (2020). *The 2018 National Immunization Survey-Child (NIS-Child)* [Data Set]. Atlanta, GA. <http://www.cdc.gov/vaccines/imz-managers/nis/datasets.html>

**Notes:** 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.<sup>35</sup> 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. All estimates were calculated in Stata 16 using NIS-Child provided person-level weights, modified for adequate provider data, and adjusting standard errors based on sampling stratum. 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.<sup>36</sup> No states had estimates that exceeded the 20% width.

## Measure 3: Child Maltreatment Rate

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

**Numerator:** The number of unique child maltreatment victims under age 3

**Denominator:** The number of children under age 3

**Sources:**

1. U.S. 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 2018v2* [Data Set]. Available from the National Data Archive on Child Abuse and Neglect Web site, <http://www.ndacan.cornell.edu>
2. U.S. 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,

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<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

2020 from <https://www2.census.gov/programs-surveys/popest/datasets/2010-2018/state/asrh/sc-est2018-alldata6.csv>

**Notes:** The sample was limited to children under age 3. The numerator is derived from the restricted-use NCANDS FFY 2018 Child File (v2) and is the unique count of substantiated child maltreatment victims under age 3. The denominator is derived from 2018 Census Population Estimates and is the estimate of the total number of children under age 3.<sup>37</sup> The analyses presented in this publication were based on data from the National Child Abuse and Neglect Data System (NCANDS) Child File, FFY 2018v2. 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, U.S. 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.

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<sup>37</sup> U.S. 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>