2021 Prenatal-to-3 State Policy Roadmap

Methods and Sources

How Do We Calculate State-Level Demographic Characteristics of the PN-3 Population?

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).

Births

Total Births – 2019

Definition:
Total number of births in the last year and the percentage of births in each of four mutually exclusive race/ethnic groups

Notes:
1. 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).
2. Births to mothers whose Hispanic origin was reported as unknown on the birth certificate were excluded from the percentages reported by race/ethnic group.
3. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[1]

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. (n.d.). Natality public-use data 2016-2019, on CDC WONDER Online Database, October 2020 [Data Set]. Accessed at http://wonder.cdc.gov/natality-expanded-current.html on March 16, 2021.

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[1] 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#

Prenatal-to-3 Population

Number of children under age 3

Definition:
Number of children under age 3 and the percentage of children under 3 in each of four mutually exclusive race/ethnic categories

Notes:
1. Census Population Estimates are based on the most recently available decennial census (currently the 2010 census) and are adjusted each year using a cohort-component method.[2] This method takes the population base (e.g., 2010 census) and accounts for subsequent births, deaths, and net migration (domestic and international) to create estimated population counts by various characteristics (e.g., age, sex, and race) and for specific geographies (e.g., state, county) as of July 1 of the vintage year.[3]
2. Our demographic calculations are based on the 2019 vintage census population estimates.
3. Race/ethnic groups were calculated using the Hispanic/non-Hispanic and 6-race category information provided in the Census Population Estimates. From these two indicators, four mutually exclusive race/ethnic groups were created. If a child was identified as Hispanic, then they were categorized as Hispanic regardless of race. Next, children were identified as Black, non-Hispanic, then White, non-Hispanic. The fourth group was created from all other non-Hispanic children (Asian, American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, more than one race, or unknown/not stated).

Source:
US Census Bureau, Population Division. (2020). *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, 2019* – sc-est2019-alldata6.csv [Data Set]. Retrieved June 30, 2020 from https://www.census.gov/data/tables/time-series/demo/popest/2010s-state-detail.html

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[2] Due to the 2020 decennial census and the COVID-19 pandemic, updated Census Population Estimates for 2020 were not included in this year's demographics.
[3] US Census. (2020). Methodology for the United States population estimates: Vintage 2019, version 2. As of March 2020. Retrieved June 30, 2020 from https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2019/natstcopr-methv2.pdf

At-Risk Birth Factors

Percent of babies born preterm - 2019

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 last year in which the baby was born prior to 37 weeks gestational age
2. **Denominator:** The number of births in the last year with known gestational age
3. The sample was limited to births in the last year with valid gestational age information.
4. 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.[4]
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 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 (Asian, American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, more than one race, or unknown/not stated).
6. Births to mothers whose Hispanic origin was reported as unknown on the birth certificate were excluded from the percentages reported by race/ethnic group.
7. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[5]

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. (n.d.). Natality public-use data 2016-2019, on CDC WONDER Online Database, October 2020 [Data Set]. Accessed at http://wonder.cdc.gov/natality-expanded-current.html on March 11, 2021.

Percent of births to unmarried mothers - 2019

Definition:
Percent of births in the last year to mothers who are not married

Notes:

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[4] 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.
[5] 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#

1. **Numerator:** The number of births in the last year to mothers whose marital status was reported as unmarried on the birth certificate
2. **Denominator:** The number of births in the last year to mothers with known marital status
3. The sample was limited to births that were not missing birth certificate information on mother's marital status.
4. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[6]
5. Beginning in 2017, in accordance with state statute restrictions, California discontinued providing individual-level data on mother's marital status for births in California. All California marital status data is suppressed in the CDC WONDER Natality data. State-level aggregate data on mother's marital status are available through the CDC NCHS' Stats of the State database.

Sources:
1. 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. (n.d.). Natality public-use data 2016-2019, on CDC WONDER Online Database, October 2020 [Data Set]. Accessed at http://wonder.cdc.gov/natality-expanded-current.html on March 24, 2021.
2. Data for California: CDC National Center for Health Statistics (NCHS). (n.d.). *Stats of the States: Percentage of Births to Unmarried Mothers by State.* As of February 8, 2021. Retrieved August 1, 2021 from https://www.cdc.gov/nchs/pressroom/sosmap/unmarried/unmarried.htm

Percent of births to low education mothers - 2019

Definition:
Percent of births in the last year to mothers with less than a high school education

Notes:
1. **Numerator:** The number of births in the last year to mothers with less than a high school degree or high school degree equivalent at the time of the birth
2. **Denominator:** The number of births in the last year to mothers with known education level at the time of the birth
3. The sample was limited to births that were not missing information on mother's highest education level at the time of birth. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[7]

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. (n.d.). Natality public-use data 2016-2019, on CDC WONDER Online Database, October 2020 [Data Set]. Accessed at http://wonder.cdc.gov/natality-expanded-current.html on March 16, 2021.

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[6] Ibid.
[7] Ibid.

Percent of births to teen mothers – 2019

Definition:
Percent of births in the last year to mothers younger than 18

Notes:
1. **Numerator**: The number of births in the last year to mothers who were younger than 18 at the time of the birth
2. **Denominator**: The number of births in the last year to mothers whose age was known at the time of birth
3. The sample was limited to births that were not missing information on mother's age at the time of birth. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[8]

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. (n.d.). Natality public-use data 2016-2019, on CDC WONDER Online Database, October 2020 [Data Set]. Accessed at http://wonder.cdc.gov/natality-expanded-current.html on March 17, 2021.

Percent of births that are Medicaid funded – 2019

Definition:
Percent of births in the last year that were funded by Medicaid

Notes:
1. **Numerator**: The number of births in the last year in which the payment source was reported as "Medicaid"
2. **Denominator**: The number of births in the last year in which the payment source for the delivery was known
3. The sample was limited to births that were not missing information on the source of payment for delivery. CDC reporting rules require the suppression of sub-national counts of 9 or fewer births.[9]

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. (n.d.). Natality public-use data 2016-2019, on CDC WONDER Online Database, October 2020 [Data Set]. Accessed at http://wonder.cdc.gov/natality-expanded-current.html on March 16, 2021.

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[8] Ibid.
[9] Ibid.

Percent of children under 3 at various poverty levels

Definition:
Percent of children under 3 living in families below various federal poverty level (FPL) cutoffs: deep poverty (< 50% FPL) in poverty (< 100% FPL), and near poverty (< 150% 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 various thresholds 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. 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.
4. 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. Three poverty groups were created: those living in deep poverty (< 50% of the FPL), those living in poverty (< 100% FPL), and those living near poverty (< 150% FPL).
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. The US Census Bureau recommends using a 90% confidence interval for evaluating the accuracy of estimates using ACS data.[11]
7. For those in deep poverty (< 50% FPL): One state (Montana) had estimates with confidence interval widths that were larger than the recommended 10% margin of error (11.8%).
8. For those in poverty (< 100% FPL): Four states (Delaware, Montana, Rhode Island, 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 11.0% to 14.6%.
9. For those near poverty (< 150% FPL): Nine states (Alaska, Delaware, the District of Columbia, Maine, Montana, Rhode Island, South Dakota, Vermont, 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 11.1% to 14.7%.

Source:
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

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[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.

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.[12]
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)*.[13]
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

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[12] 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?
[13] 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.[14]

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.[15].

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

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[14] 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

[15] 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.