



Technical Notes for *America's Health Starts with Healthy Children: A State-by-State Look*

Data Sources

The 2006 American Community Survey (ACS), conducted by the U.S. Census Bureau, was analyzed to obtain information nationally and in each state on children's household income and racial or ethnic group. The ACS is a nationwide survey designed to provide information on changes in demographic, housing, social, and economic characteristics every year for all states, as well as for all cities, counties, metropolitan areas, and population groups of 65,000 people or more. Income was based on reported household income for children under age 18 (N=692,307 children), measured as a percentage of the federal poverty level (FPL); children were considered to be poor (<100% of FPL), near-poor (100-199% of FPL), middle-income (200-399% of FPL), or higher-income (400% of FPL or higher). Children's racial or ethnic group was based on householder reports of the child's race and Hispanic origin. Children were considered to belong to one of the following racial or ethnic groups: non-Hispanic white; non-Hispanic black; Hispanic (of any race); non-Hispanic American Indian or Alaska Native; non-Hispanic Asian; non-Hispanic Native Hawaiian or Other Pacific Islander; and non-Hispanic other, which included any other reported race or more than one race (N=704,084 children). Analyses of the ACS were completed using the U.S. Census Bureau's DataFerrett program.

The 2005-2007 Current Population Survey (CPS), conducted by the U.S. Census Bureau for the Bureau of Labor Statistics, was analyzed to obtain information nationally and in each state, on the education levels of adults within households in which children reside. The CPS is a monthly survey of about 50,000 households, and is the primary source of information on the labor force characteristics of the U.S. civilian noninstitutional population. Respondents are interviewed to obtain information about the employment status of each member of the household 15 years of age or older, as well as a variety of demographic characteristics including age, sex, race, marital status, and educational attainment. Education was based on the reported highest level attained by any person in each household with children aged 0 to 17 years (N=77,488) (less than high-school graduate, high-school graduate, some college, and college graduate). Analyses of the CPS were completed using SAS, version 9.1.

The 2000-2002 Period Linked Birth/Infant Death File from the National Center for Health Statistics was used to obtain information on infant mortality nationally and in each state, by mother's educational attainment (0-11 years, 12 years, 13-15 years, 16 or more years) and mother's racial or ethnic group. Each year of data (2000-2002) consists of a numerator file and a denominator file. For example, the numerator for the 2000 period linked file consists of all infant deaths occurring in 2000 linked to their corresponding birth certificates, whether the birth occurred in 2000 or 1999. The denominator file for this data set is the 2000 natality file, that is, all births occurring in 2000. In the period linked birth and infant death data set the information from the death certificate is linked to the information from the birth certificate for each infant under 1 year of age who dies in the U.S. The linkage permits use of the many additional variables available from the birth certificate in more detailed analyses of infant mortality patterns. The linked files include information from the birth certificate such as age, race, Hispanic origin of the parents, and maternal education, linked to information from the death certificate such as age at death and cause of death. The infant mortality rate is defined as the number of infants who die before age 1 per 1,000 live births; to better examine differences in infant mortality rates by mother's education, we restricted analyses to live births among mothers aged 20 years or older. For the 2000-2002 period, there were 69,660 infant deaths and 10,742,652 live births in the U.S. Analyses of infant mortality were completed using SAS, version 9.1.



The 2003 National Survey of Children's Health (NSCH), conducted by the Centers for Disease Control and Prevention, National Center for Health Statistics, was analyzed to obtain information on: (1) children's general health status nationally and in each state by family income (<100% of FPL, 100-199% of FPL, 200-399% of FPL, 400% of FPL or higher), highest level of education in the household (less than high school graduate, high school graduate, at least some college), and child's racial or ethnic group; (2) children's general health status by income within racial or ethnic groups nationally; and (3) children's general health status by both income and health-related behaviors of persons in their families nationally. For household income status we used 5 imputed income files provided by NSCH. Imputed income files were based on the imputed values for household income and household size using multiple imputation models in IVEware. Healthy behavior households were defined as those with no smokers and at least one person who exercised regularly. The NSCH examines the physical and emotional health of children ages 0-17 years of age (N=102,353), with special emphasis placed on factors that may relate to well-being of children. Children's general health status was based on the parent's or guardian's overall assessment of a child's health (poor, fair, good, very good or excellent); children whose health status was assessed as poor, fair or good were considered to be in "less than optimal health." Weighted prevalence estimates were produced taking into account the complex sample design of the NSCH. Analyses of the NSCH were completed using SUDAAN, version 9.0.

A "national health benchmark" was also calculated for each measure of children's health. This additional reference point—intended to represent *a level of good health that should be possible for children in every state*—is featured to emphasize two additional points:

- (1) Levels of health among children are better in some states than in others, even when only children in the highest income or education groups are considered; and
- (2) Differences in health occur among children even within the most socially advantaged groups. At every level of family income or education, children's opportunities for good health are also shaped by other factors, including whether the adults they live with practice good health-related habits like refraining from smoking and exercising regularly.

For infant mortality, the national benchmark used here—3.2 deaths per 1,000 live births—was the lowest statistically reliable infant mortality rate seen among babies born to the most-educated mothers in any state. (Information on health-related behaviors was not available in the infant mortality data source.) For children's general health status, the national benchmark—3.5% of children with health not considered excellent or very good—was selected as the lowest statistically-reliable rate (looking across states) of less than optimal health among children living in higher-income families where adults practiced healthy behaviors (i.e., no smokers and at least one person who exercised regularly).

(1) National Overview

Distributions of household income, household education, and children's racial or ethnic group are shown to provide a snapshot of the social factors affecting children's health. Data are shown for six racial or ethnic groups (black, non-Hispanic; Hispanic; American Indian or Alaska Native, non-Hispanic; Asian or Pacific Islander, non-Hispanic; "other" non-Hispanic racial or ethnic group, including children for whom more than one group was reported; and white, non-Hispanic).



Differences in infant mortality according to mother's education and racial or ethnic group (black, non-Hispanic; Hispanic; and white, non-Hispanic) are shown along with the national benchmark. The benchmark—3.2 deaths per 1,000 live births, seen in New Jersey and Washington State—is the lowest statistically reliable rate observed among babies born to the most-educated mothers in any state. Rates for groups including at least 20 infant deaths were considered reliable.

Differences in children's health status by household income, household education, and child's racial or ethnic group (black, non-Hispanic; Hispanic; and white, non-Hispanic) are shown along with the national benchmark. The benchmark—3.5% of children with less than 'very good,' health seen in Colorado—is the lowest statistically reliable rate observed in any state among children whose families were not only higher-income but also practiced healthy behaviors. Rates with relative standard errors of 30% or less were considered reliable.

Differences in children's health status by household income within racial/ethnic group (black, non-Hispanic; Hispanic; and white, non-Hispanic) are shown along with the national benchmark.

Finally, differences in children's health status by health-related behaviors (healthy behavior households vs. unhealthy behavior households) within household income groups are shown along with the national benchmark.

(2) How Do States Compare?

In this section, all states and Washington, DC, are compared with respect to the size of the gaps in infant mortality and children's health status.

For infant mortality, a number of items are shown for each state and Washington, DC:

- a) yearly average (2000-2002) of the number of babies born alive to mothers ages 20 years and older
- b) overall infant mortality rate, or the number of deaths during the first year of life per 1,000 live births
- c) infant mortality rate for each category of years of schooling completed by mother
- d) percent of the population who would be affected if the gap were eliminated, or the percent of total live births that occurred to mothers who had completed fewer than 16 years of schooling
- e) size of infant mortality gap by maternal education, or the population attributable risk (PAR), defined as the amount of improvement in the state's overall rate if all infants experienced the infant mortality rate of infants whose mothers had completed 16 or more years of schooling (i.e., the difference between the rate among babies in the highest maternal education group and the state's overall rate)
- f) ranking on the size of the infant mortality gap (PAR), from smallest (ranking=1) to largest (ranking=51); states with the same size gap were assigned the same ranking

ArcView (version 9.2) was used to create a map displaying the rankings based on the size of the infant mortality gaps (PAR) within states. States were grouped into approximately three equal groups based on the size of the gap (small, 0.8-1.9; medium, 2.0-2.5; large, 2.6-7.3).



For children's health status, a number of items are shown for each state and Washington, DC:

- a) number of children ages ≤ 17 years in 2003
- b) overall percent of children in less than optimal health
- c) percent of children in less than optimal health in each household income group
- d) percent of children statewide who would be affected if the gap were eliminated, or the percent of all children living in families with incomes below 400% of the federal poverty level
- e) size of gap in children's general health status by household income, or the population attributable risk (PAR), defined as the size of improvement in the state's overall percent of children in less than optimal health if all children had the level of health experienced by children in families with $\geq 400\%$ of the federal poverty level (i.e., the difference between the percent of children in less than optimal health in the higher-income group and the overall percent of children in less than optimal health statewide)
- f) ranking on the size of the health gap (PAR), from smallest (ranking=1) to largest (ranking=51); states with the same size gap were assigned the same ranking

ArcView (version 9.2) was used to create a map displaying the rankings based on the size of the gap in children's general health status (PAR) by household income. States were grouped into approximately three equal groups based on the size of the gap (small, 2.0-5.7; medium, 5.8-8.3; large, 8.4-16.1).

(3) Snapshots of Each State

For each state and Washington, DC, distributions of household income, household education, and children's racial or ethnic group are shown to provide a snapshot of the social factors affecting children's health. For most states, 4 racial/ethnic groups are shown (black, non-Hispanic; Hispanic; "other" racial or ethnic group, including children for whom more than one group was reported; and white, non-Hispanic). In states for which more detailed information on racial and ethnic groups was included in the NSCH data, additional groups are shown separately. For Alaska, Arizona, Montana, North Dakota, New Mexico, Oklahoma, and South Dakota, a fifth group—American Indian or Alaska Native—is also shown. For California, New Jersey, New York, and Washington, a fifth group—Asian—is also shown. For Hawaii, two additional groups—Asian and Native Hawaiian or Other Pacific Islander—are also shown.

For each state and Washington, DC, gaps in infant mortality according to mother's education and racial or ethnic group are shown along with the state's overall rate, the U.S. overall rate, and the national benchmark. Racial or ethnic groups that comprised at least 3% of the dataset are included as separate groups; otherwise, they are included within the "other" racial or ethnic group. The benchmark—3.2 deaths per 1,000 live births, seen in New Jersey and Washington State—is the lowest statistically reliable rate among babies born to the most-educated mothers in any state. Rates for groups including at least 20 infant deaths were considered reliable. Unreliable rates are noted with an asterisk.

For each state and Washington, DC, gaps in children's general health status by household income, household education, and child's racial or ethnic group are shown along with the state's overall rate, the U.S. overall rate, and the national benchmark. Racial or ethnic groups that comprised at least 3% of the dataset are included as separate groups; otherwise, they are included with "other" racial or ethnic group. The benchmark—3.5% of children whose health was less than 'very good,' seen in Colorado—is the lowest statistically reliable rate observed in any state among children whose families were not only higher-income but also practiced healthy behaviors. Rates with relative standard errors of 30% or less were considered reliable. Unreliable rates are noted with an asterisk.



All comparative statements between groups are based on analyses of the 95% confidence intervals. Definitive statements are made only if the differences are statistically significant. A limit of greater than or equal to 4.5 percent for children's health status and a rate greater than or equal to 4.0 deaths per 1,000 births for infant mortality are used to determine the significance of the difference between a group or groups and the national benchmark.