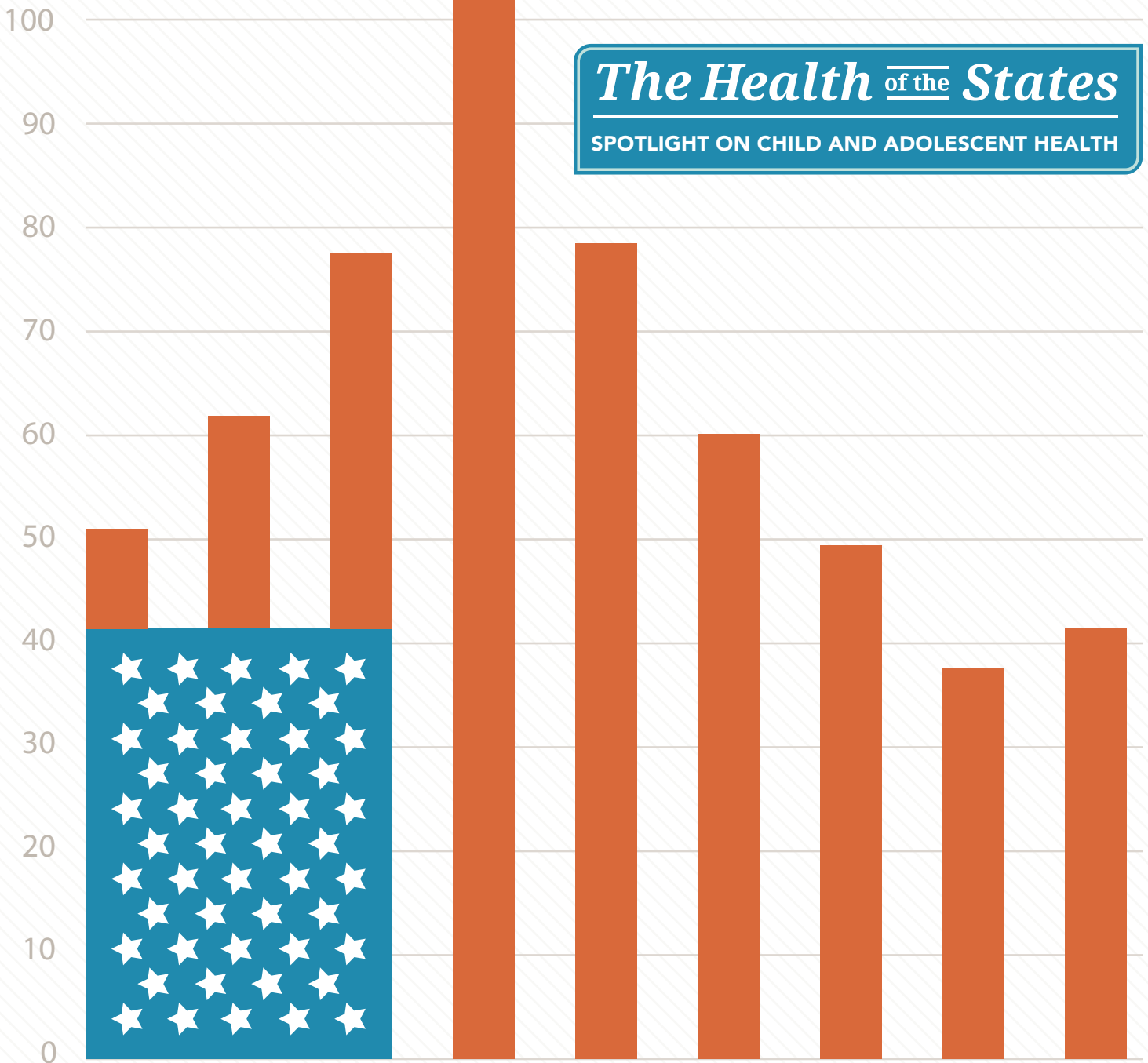


# The Health of the States

SPOTLIGHT ON CHILD AND ADOLESCENT HEALTH



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*The Health of the States* study, funded by the Robert Wood Johnson Foundation, was a systematic examination of health disparities in the U.S. across the 50 states and the District of Columbia. The study was conducted in 2014–2016 by the Virginia Commonwealth University Center on Society and Health and the Urban Institute. The goal was to take a “deep dive” into the available data on the health of the states and the factors that shape health. The project examined how 123 potential determinants of health, drawn from five broad domains, correlated with 39 different health outcomes that span mortality and illness/injury across the life course.

The results were issued in a series of reports: a summary report<sup>1</sup> released in October 2016, which was followed by a series of supplements. This report, the fourth of nine supplements, focuses on how the health of children and adolescents varies across the states. Please refer to the first supplement—*The Health of the States: Spotlight on Methods*<sup>2</sup>—for details on the data sources and analytic methods used to produce these results.

THE HEALTH OF THE STATES

Supplement 4:

**Spotlight on  
Child and  
Adolescent Health**

Virginia Commonwealth University  
Center on Society and Health  
and the Urban Institute

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# Spotlight on Child and Adolescent Health

- a. Data on developmental delay were reviewed but not considered valid for state-level comparisons.
- b. Experts differ on the extent to which self-reported (or in this instance, parent-reported) health accurately reflects the true health status of an individual. Nevertheless, this question has been considered to be an important reflection of child health and is used widely on federal and academic surveys.
- c. The geography for frequent reports of children in “fair” or “poor” health differed slightly, with the highest rates concentrated in a southern band of states stretching from California across Nevada, Arizona, Arkansas, Louisiana, and Tennessee.

We reviewed state-level data on birth outcomes and the health of children and adolescents in the United States. The data on birth outcomes are provided in the third supplement, *The Health of the States: Spotlight on Birth Outcomes*.<sup>1</sup> This supplement examines data on child health status as assessed by their parents, the dental health of children and adolescents, child and adolescent overweight, child and adolescent asthma, and teen births.<sup>2</sup> Figure 1 presents the data for each state.

## CHILD HEALTH STATUS AS ASSESSED BY PARENTS

The National Survey of Children’s Health (NSCH) asked parents to rate their child’s health as excellent, good, fair, or poor.<sup>3</sup> In

2011–12, the percentage of parents who rated their child’s health as “good” or “excellent” ranged from 77.6 percent in California to 91.7 percent in South Dakota. The Top 10 states were primarily in the New England and West North Central regions (Figure 2).

Bottom 10 states (with the lowest percentage of parents rating their child’s health as “good” or “excellent”) spanned the Pacific and Southwestern borders of the United States, from Oregon to Texas.<sup>4</sup> States in the South, which often rate poorly on other measures, did not have the lowest rates for this category. Conversely, California, a state that ranked in the Top 10 for 16 health outcomes, had the nation’s lowest proportion of parents reporting their children in good or excellent health. Missouri and Virginia, both of which had intermediate health outcomes for adults (see summary report<sup>1</sup>), ranked in the Top 10 on parent-reported child health status.

## What correlates the most with parent-reported child health status?

Whether parents described their child’s health as “good” or “excellent” correlated highly with household socioeconomic conditions such as poverty and parental employment (Figure 3). Figure 4 presents the average poverty data for the Top 10 and Bottom 10 states, showing dramatic differences between the states with high

FIGURE 1  
BIRTH OUTCOMES, BY STATE

	Child health status (%)*	Child dental problems (%)**	Child overweight/obesity (%)	Child/adolescent asthma (%)	Teen birth rates (per 1,000)
SD	91.7	13.1	22.1	8.6	13.8
ND	91.4	13.3	23.1	9.0	14.1
NH	91.0	13.6	24.5	9.1	15.1
VT	90.2	13.8	24.7	9.6	16.3
MT	89.8	13.8	26.0	9.6	16.7
VA	89.7	14.8	26.2	9.9	18.5
ME	89.2	14.9	26.4	10.2	19.4
MA	88.8	15.0	26.5	10.4	19.7
AK	88.7	15.3	26.5	11.1	19.9
IA	88.5	15.4	26.7	11.4	21.9
MI	88.4	15.4	27.2	12.5	22.1
WI	88.1	15.7	27.4	12.5	22.9
ID	87.9	15.7	27.5	12.6	23.3
MN	87.8	16.1	27.8	12.8	23.4
NE	87.8	16.2	28.3	13.0	23.7
PA	87.4	16.6	28.3	13.1	23.8
CO	87.3	17.2	28.4	13.4	24.1
WY	87.0	17.2	28.8	13.5	25.0
UT	87.0	17.3	28.9	14.1	25.4
KS	86.9	17.3	29.0	14.1	26.3
OH	86.8	17.4	29.5	14.2	26.5
RI	86.8	17.7	29.7	14.2	26.5
MD	86.8	18.1	29.8	14.3	26.8
WV	86.3	18.1	29.9	14.4	27.9
HI	86.3	18.3	30.2	14.4	28.0
SC	86.0	18.4	30.4	14.4	28.1
CT	86.0	18.6	30.5	14.6	28.3
KY	85.8	18.6	30.8	14.6	28.8
LA	85.5	18.6	31.4	14.6	29.8
GA	85.5	18.7	31.5	14.8	31.8
AL	85.3	18.8	31.6	15.0	32.2
NC	85.2	18.8	32.0	15.0	33.0
MS	84.7	19.0	32.4	15.3	33.3
OK	84.4	19.2	32.6	15.4	33.4
WA	84.4	19.2	32.8	15.8	33.8
DE	84.4	19.4	33.2	15.8	34.1
IL	84.1	19.4	33.6	16.4	34.5
IN	84.0	19.5	33.6	16.8	34.7
TN	84.0	19.6	33.9	16.9	36.6
NJ	84.0	19.6	33.9	16.9	37.4
FL	83.7	19.7	34.1	16.9	38.5
OR	83.5	19.7	35.0	17.1	38.6
NY	83.3	19.7	35.0	17.3	39.2
TX	83.2	20.7	35.0	17.3	41.5
AR	82.0	20.9	35.7	17.6	43.1
DC	81.8	21.9	35.8	17.8	44.1
NM	81.4	22.1	36.6	17.8	44.4
AZ	81.4	22.2	36.7	19.1	45.7
NV	80.1	22.3	39.2	19.4	46.1
CA	79.0	23.8	39.7	19.7	47.3
CA	77.6	24.0	39.8	21.5	47.5

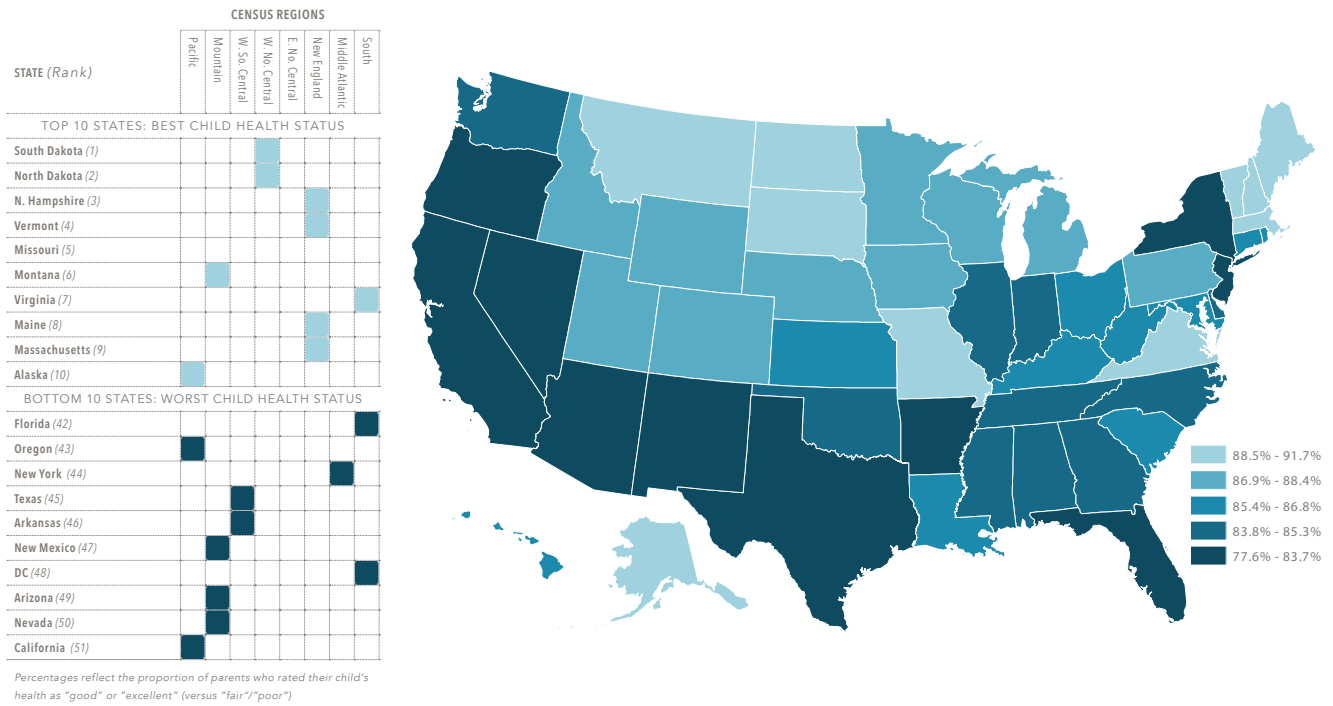
\*Percentages reflect the proportion of parents who rated their child's health as "good" or "excellent" (versus "fair"/"poor")

\*\*Percentages refer to the proportion of children age 1–17 years reported (by parents) to have had a toothache, decayed teeth, or unfilled cavities in the past year

convergence between *household* poverty and *area* poverty (concentrated poverty in which more than 20 percent of the population in a census tract earns less than the poverty level). Similarly, the states differed in other measures of household economic status (e.g., employment, overcrowding). Children experienced greater food insecurity in these states, and households reported greater economic stresses. For example, 26.3 percent of persons in Bottom 10 states for child health reported severe housing cost burden (spending more than 50 percent of their income on rent or mortgage), compared with 17.4 percent in Top 10 states. The proportion of people unable to afford medical care was 15.2 percent and 10.4 percent, respectively.

Child health status correlated with income inequality (as expressed by the Gini coefficient) but even more strongly with the *social environment* in neighborhoods, such as the perceived safety and social support that children experience in their neighborhoods. Child health correlated inversely with racial segregation. As shown in Figure 4, in Bottom 10 states, where child health is the worst, the percentage of the population living in segregated census tracts (less than 35 percent non-Hispanic whites) was more than 5 times higher than in Top 10 states (those with the healthiest children). While 86.4 percent of parents in Top 10 states reported that their children lived in a supportive

**FIGURE 2  
CHILD HEALTH STATUS (%) BY STATE (2011–2012)**



neighborhood, only 77.7 percent of parents in Bottom 10 states felt the same. Parents considered their children less safe in the neighborhoods and schools of these states; more teens reported feeling unsafe or being injured in school, and a greater proportion had experienced intimate partner violence (Figure 3). In Bottom 10 states for child health, the violent crime rate averaged 521.0 per 100,000, compared with 284.8 per 100,000 in Top 10 states with the healthiest children.<sup>d</sup>

## DENTAL HEALTH OF CHILDREN AND ADOLESCENTS

In the 2011–12 NSCH, parents of children age 1–17 years were asked whether their

children had experienced a toothache, decayed teeth, or unfilled cavities in the past year. The percentage of children reported to have these dental problems varied almost two-fold, from 13.1 percent in Vermont to 24.0 percent in Mississippi. The lowest rates were in New England, where every state except Rhode Island was in the Top 10. The Bottom 10 states stretched across the Pacific coast and southern border (Figure 5). California, a state that ranked in the Top 10 on 16 health outcomes examined in this report, ranked in the Bottom 10 on children's dental disease. Rates of dental disease in Mississippi and New Mexico were higher than those of other Bottom 10 states (Figure 1).

d. Child health status also correlated with per capita spending on highways and toll roads ( $r_s = 0.57$ ).

## What correlates the most with the dental health of children and adolescents?

The prevalence of children experiencing a toothache, decayed teeth, or unfilled cavities in the past year correlated highly with adverse socioeconomic conditions and their consequences (e.g., food insecurity) (Figure 6). In Bottom 10 states (with the worst dental health), the child poverty rate was 24.3 percent, compared with 15.1 percent in the Top 10 states. These are states where children have poorer educational outcomes (e.g., math and reading scores) and where families face greater barriers to obtaining health care (e.g., being uninsured, fewer annual dentist visits by adults) (Figure 6). The proportion of persons reporting that they could not afford their doctor was 16.2 percent and 9.8 percent in Bottom 10 and Top 10 states, respectively.

Children's dental health is obviously influenced by personal behaviors not measured in this study, such as brushing and flossing, and by environmental factors like water fluoridation, but the data reported here show the powerful influence of socioeconomic wellbeing on these downstream health habits. States with poor dental health among children were also places where there was less invested per capita in elementary and secondary education ( $r_s = -0.51$ ).

FIGURE 3  
WHAT CORRELATES WITH CHILD HEALTH STATUS?

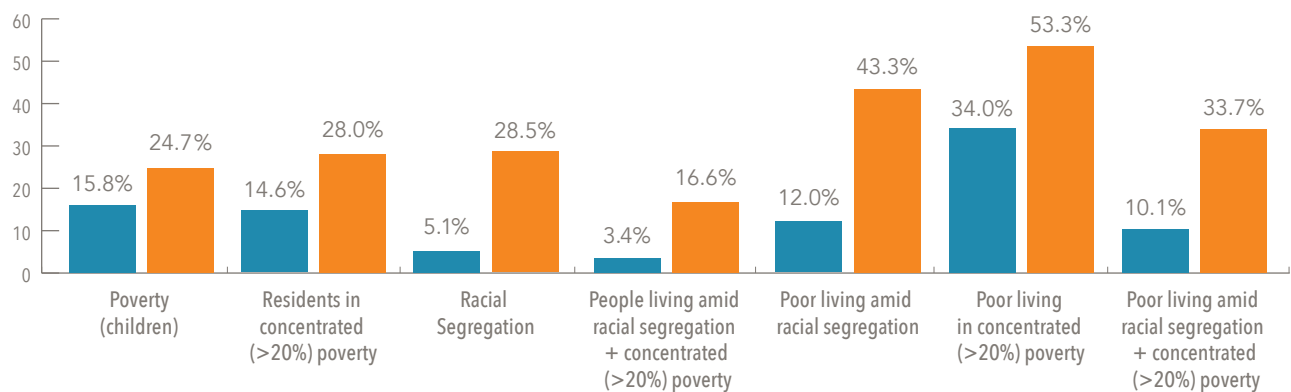
THE CORRELATION COEFFICIENTS ( $r_s$ )\*

HEALTH BEHAVIORS			
		Birth control ( <i>youth</i> )	0.61
PHYSICAL AND SOCIAL ENVIRONMENT			
Low social capital index	-0.67	Children in supportive neighborhoods	0.77
Teens who consider school unsafe	-0.56	Safe neighborhoods ( <i>parent report</i> )	0.75
Dating violence ( <i>youth</i> )	-0.54	Safe schools ( <i>parent report</i> )	0.75
Violent crime	-0.51	Reading to children	0.59
SOCIAL AND ECONOMIC FACTORS			
Poverty ( <i>Supplemental def</i> )	-0.81	Children with employed parents	0.70
People living amid racial segregation + concentrated (>20%) poverty	-0.64	Higher educated household head	0.59
Racial segregation	-0.62	Married	0.58
Severe housing cost burden	-0.60	Employment	0.57
Overcrowding	-0.59	Proficient in math ( <i>grade 8</i> )	0.57
Food insecurity ( <i>children</i> )	-0.58		
Income inequality	-0.57		
HEALTH SYSTEM			
Could not afford doctor	-0.52	Private insurance	0.54

\*Correlation coefficients ( $r_s$ ) range from zero to 1.0 and measure how strongly one variable correlates with another. Factors on the left (negative coefficients) are inversely related (e.g., one goes up when the other goes down).

High correlations were noted for other measures of the **Physical and Social Environment**: weapon injury in school ( $r_s = -0.56$ ); and **Social and Economic Factors**: poverty (children) (-0.61), poor living amid racial segregation (-0.57), poor people living amid racial segregation + concentrated (>20%) poverty (-0.57), poor living in concentrated (>20%) poverty (-0.57), single-parent households (-0.52), proficient in reading (grade 8) (0.52), and residents in concentrated (>20%) poverty (-0.51).

FIGURE 4  
**POVERTY AND SEGREGATION IN TOP 10 AND BOTTOM 10 STATES FOR CHILD HEALTH STATUS**



e. The very high inverse correlation (-0.71) between teen contraceptive use and overweight/obesity bears further study. Our data showed a high inverse correlation between teen contraceptive use and intimate partner violence and nonconsensual sex, traumatic experiences that have been linked with eating disorders.<sup>7</sup> There are other explanations, however: States where teens used more contraceptives are also states where children had healthier habits that affect body weight; teen contraceptive use correlated highly with eating fruits and breakfast, physical activity, and wearing bicycle helmets. Contraceptive use also correlated highly with socioeconomic status, correlating positively with education of the head of household and negatively with poverty).

## CHILDHOOD AND ADOLESCENT OVERWEIGHT

The prevalence of overweight and obesity in U.S. children is a major public health concern;<sup>2</sup> the disturbing obesity epidemic in adults over the past two decades has been accompanied by corresponding increases among children that have only recently begun to stabilize.<sup>3</sup> In particular, the 2013–2014 National Health and Nutrition Examination Survey showed that obesity had decreased among children ages 2–5 years.<sup>4</sup> Because the National Health and Nutrition Examination Survey does not report data at the state level, we relied on data from the NSCH. In the 2011–12 NSCH survey, the percentage of children age 10–17 years with a body mass index (BMI) consistent with overweight or obesity (above the 85<sup>th</sup> percentile) ranged

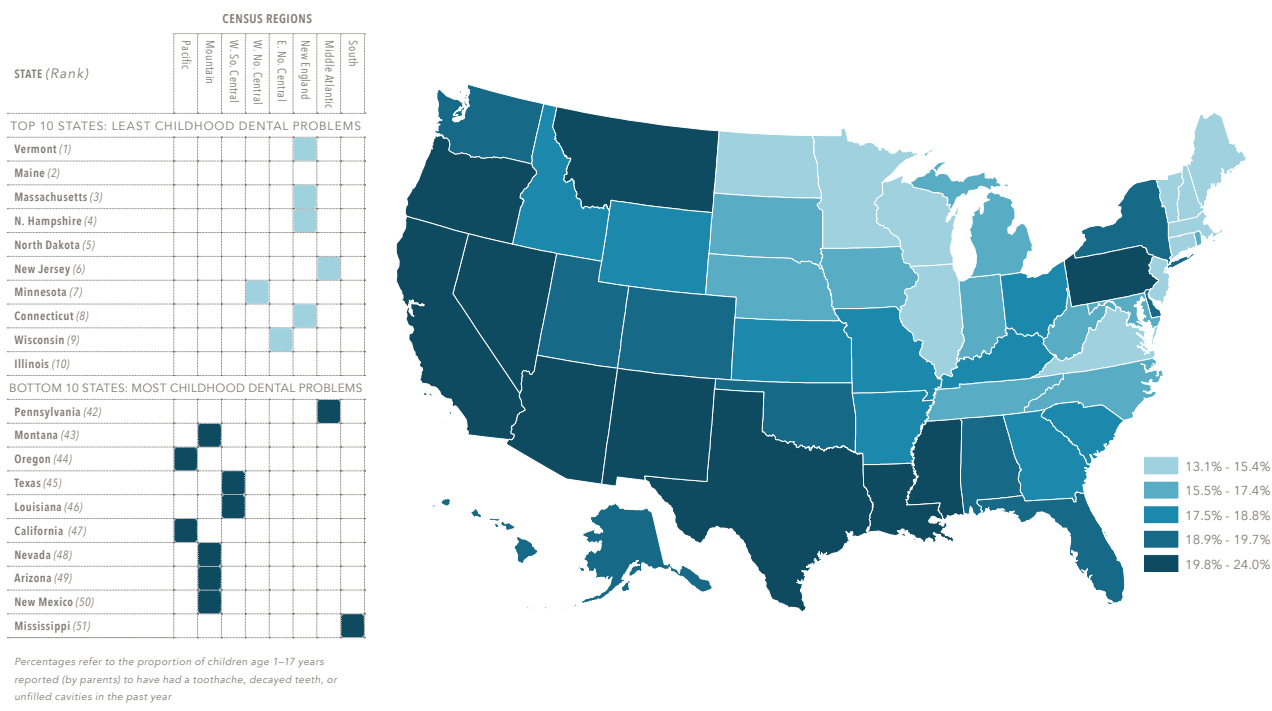
from 22.1 percent in Utah to 39.8 percent in Louisiana. Obesity rates in Utah and Colorado were distinctly lower than those of the other Top 10 states (Figure 1). The Top 10 states (lowest rates of childhood overweight/obesity) were not concentrated in one geographic region, but the Bottom 10 states (highest rates) were primarily in the South (Figure 7). Rates in Mississippi, Louisiana, and South Carolina were notably higher than those of other Bottom 10 states (Figure 1).

### *What correlates the most with childhood and adolescent overweight?*

State rankings on pediatric overweight and obesity correlate highly with health behaviors\* such as physical activity. In the Bottom 10 states, those with the highest rates of



FIGURE 5  
CHILDHOOD DENTAL PROBLEMS (%) BY STATE (2011-2012)



childhood overweight and obesity, only 60.2 percent of children engaged in 60 minutes of physical activity at least three days per week, compared with 71.8 percent in Top 10 states. We also observed a correlation with breastfeeding: in Top 10 states with the lowest rates of childhood overweight and obesity, 22.0 percent of women reported exclusive breastfeeding, compared with 12.9 percent in Bottom 10 states.

But childhood and adolescent overweight and obesity were even more strongly correlated with socioeconomic status (Figure 8), as others have reported.<sup>6</sup> States where children were more likely to be overweight were also states where they were more likely to live in poverty and single-parent homes (see Figure 9). Conversely, states with lower rates of childhood/adolescent overweight and obesity spent more on income support relative to the

FIGURE 6  
WHAT CORRELATES WITH CHILDREN'S DENTAL PROBLEMS?

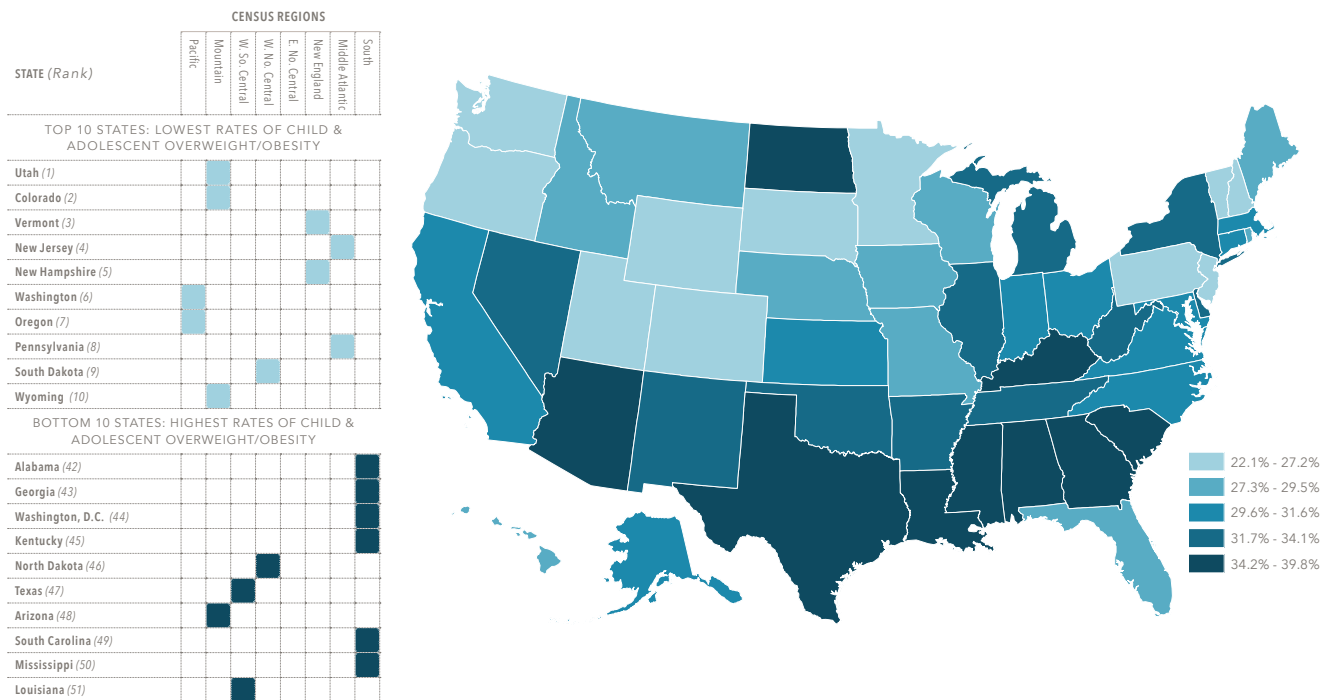
THE CORRELATION COEFFICIENTS ( $r_s$ )\*

PHYSICAL AND SOCIAL ENVIRONMENT			
		Teens with adults to talk to	-0.52
		Safe Schools	-0.50
SOCIAL AND ECONOMIC FACTORS			
Food insecurity (children)	0.60	Higher educated household head	-0.67
Poverty (children)	0.54	Proficient in reading (grade 4)	-0.56
HEALTH SYSTEM			
Uninsured	0.64	Annual dental visit (adult)	-0.55
Could not afford doctor	0.52	Cervical (Pap) screening	-0.51

\*Correlation coefficients ( $r_s$ ) range from zero to 1.0 and measure how strongly one variable correlates with another. Factors on the right (negative coefficients) are inversely related (e.g., one goes up when the other goes down).

High correlations were noted for other measures of **Socioeconomic Factors**: proficient in math (grade 4) ( $r_s = -0.54$ ), poverty (supplemental def.) (0.53), proficient in math (grade 8) (-0.51), proficient in reading (grade 8) (-0.51), and food insecurity (households) (0.50); and **Health Systems**: private insurance (-0.51).

**FIGURE 7**  
**CHILD AND ADOLESCENT OVERWEIGHT AND OBESITY (%) BY STATE (2011-2012)**



size of the population living in poverty ( $r_s = -0.51$ ). States with higher rates of overweight and obesity also had poorer educational outcomes. In Top 10 states, 41.5 percent of eighth graders were proficient in math, compared with 28.1 percent in Bottom 10 states (highest overweight/obesity rates).

Rates of childhood/adolescent overweight and obesity also correlated with features of neighborhood environments (Figure 8). States with lower rates had a higher proportion of neighborhood resources that promote physical activity among children; and adults were more likely to commute by walking or cycling to work. Conversely, states with higher

rates of childhood/adolescent overweight and obesity seemed less safe. We found an inverse correlation with the proportion of parents who felt their children were safe at school and the rate of childhood/adolescent overweight and obesity. We found a positive correlation with the violent crime rate and the proportion of teens who felt unsafe at school. The average rate of violent crimes in Bottom 10 states (highest rates of childhood overweight and obesity) was 459.3 per 100,000, compared with 244.4 per 100,000 in Top 10 states. Teens were more likely to report dating (intimate partner) violence and rape in states with higher rates of overweight and obesity.

## CHILDHOOD AND ADOLESCENT ASTHMA

In the 2011–12 NSCH, the percentage of children and adolescents (ages 0–17) with asthma, as reported by their parents, varied 2.5-fold, from 8.6 percent in South Dakota to 21.5 percent in the District of Columbia. The Top 10 states (where asthma rates were lowest) were dominated by a contiguous cluster of states stretching from Washington through the Mountain and West North Central regions of the country (Figure 10). The Bottom 10 states (where asthma rates were highest) were primarily in the South. The asthma prevalence in the District of Columbia—the highest in the country—was distinctly higher than those of other Bottom 10 states (Figure 1). In a departure from its characteristically favorable health rankings, Hawaii ranked in the Bottom 10 for asthma, as did two New England states. These included Rhode Island and Connecticut, a state that ranked in the Top 10 healthiest states for 20 health outcomes examined in this report. Massachusetts, a state that ranked in the Top 10 healthiest states for 21 health outcomes, a total matched only by Utah, also had notably higher rates of asthma than expected, ranking in the fourth (second to lowest) quintile for asthma.

FIGURE 8  
WHAT CORRELATES WITH CHILDHOOD AND ADOLESCENT OVERWEIGHT AND OBESITY?

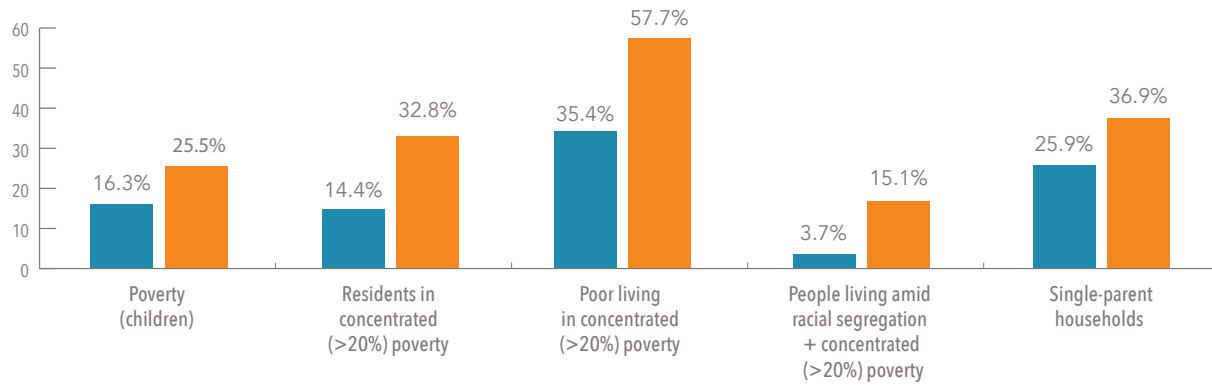
THE CORRELATION COEFFICIENTS ( $r_s$ )\*

HEALTH BEHAVIORS			
Physical inactivity ( <i>children</i> )	0.61	Birth control ( <i>youth</i> )	-0.71
Current smokers	0.50	Bicycle helmet ( <i>youth</i> )	-0.67
		Exclusive breastfeeding	-0.61
		Breakfast ( <i>youth</i> )	-0.57
PHYSICAL AND SOCIAL ENVIRONMENT			
Dating violence ( <i>youth</i> )	0.60	Safe schools ( <i>parent report</i> )	-0.60
Violent crime rate	0.55	Commuting by walking/cycling	-0.54
Teens who consider school unsafe	0.53	Neighborhood resources for children	-0.53
Rape ( <i>youth</i> )	0.50	Reading to children	-0.51
SOCIAL AND ECONOMIC FACTORS			
Residents in concentrated (>20%) poverty	0.68	Proficient in reading ( <i>grade 8</i> )	-0.70
Poverty ( <i>children</i> )	0.67	Higher educated household head	-0.61
Single-parent households	0.62	Employment	-0.51
People living amid racial segregation + very concentrated (>40%) poverty	0.58		
Income inequality	0.55		
HEALTH SYSTEM			
Avoidable hospitalization	0.54	Private insurance	-0.52

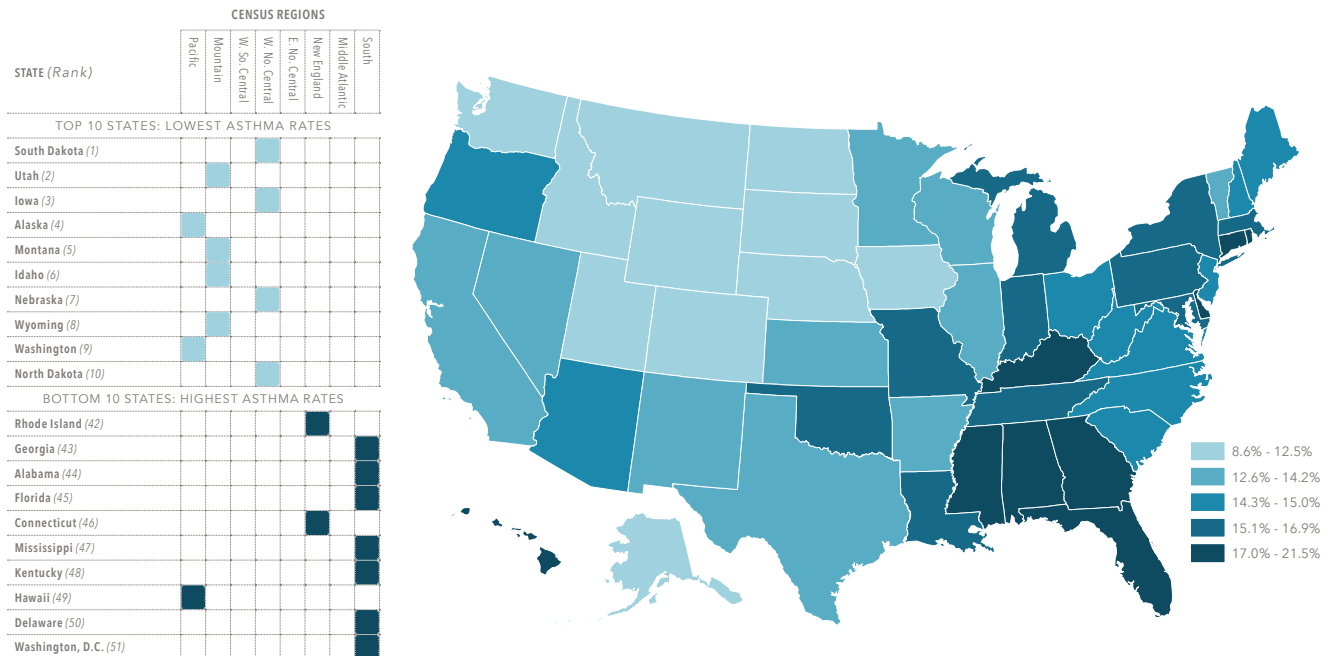
\*Correlation coefficients ( $r_s$ ) range from zero to 1.0 and measure how strongly one variable correlates with another. Factors on the right (negative coefficients) are inversely related (e.g., one goes up when the other goes down).

High correlations were noted for other measures of **Health Behaviors**: physical inactivity (adult) ( $r_s = 0.59$ ), fruit intake (youth) (-0.54), any breastfeeding (-0.53); and **Social and Economic Factors**: poor living in concentrated (>20%) poverty (0.67), poverty (adults) (0.65), proficient in math (grade 8) (-0.64), residents in very concentrated (>40%) poverty (0.61), proficient in reading (grade 4) (-0.60), proficient in math (grade 4) (-0.60), poverty (supplemental def.) (0.53), people living amid racial segregation + concentrated (>20%) poverty (0.52), and poor people living amid racial segregation + very concentrated (>40%) poverty (0.50).

**FIGURE 9**  
**POVERTY, SEGREGATION, AND SINGLE-PARENT HOUSEHOLDS IN TOP 10 AND BOTTOM 10 STATES FOR CHILDHOOD OVERWEIGHT/OBESITY**



**FIGURE 10**  
**CHILD AND ADOLESCENT ASTHMA (%) BY STATE (2011-2012)**



## What correlates the most with pediatric asthma?

We found weak correlations between asthma rankings and children’s exposure to secondhand smoke in the home ( $r_s = 0.32$ ) and air pollution with fine particulate matter ( $r_s = 0.29$ ), but the weak correlation probably reflects deficiencies in the data, given the evidence that asthma can be triggered by exposure to ozone, particulate matter, and sulfur dioxide.<sup>7</sup> Air toxicity, as measured by the Environmental Protection Agency, is higher in many states with high asthma prevalence rates.<sup>8</sup> Ozone levels in cities vary between the Bottom 10 and Top 10 states. For example, in 2009–2011, in the Bottom 10 (high asthma prevalence) states of Delaware, Kentucky, and Connecticut, the number of high ozone days in the counties surrounding their largest cities (Wilmington, Louisville, and Fairfield) averaged 9.7, 11.7, and 11.7 days, respectively.<sup>f</sup> In contrast, in the Top 10 states of South Dakota, Utah, and Iowa, the number of high ozone days in the counties surrounding Sioux Falls, Salt Lake City, and Des Moines averaged zero, 5.0, and zero days, respectively.<sup>9</sup> Unique contextual factors may also affect asthma rates: for example, the high asthma prevalence in Hawaii may relate to high sulfur dioxide emissions from the Kilauea Volcano, which generate an acidic haze called “vog.”<sup>10</sup>

In our data, asthma rankings correlated highly with healthy behaviors,

FIGURE 11  
WHAT CORRELATES WITH CHILD AND ADOLESCENT ASTHMA?

THE CORRELATION COEFFICIENTS ( $r_s$ )\*

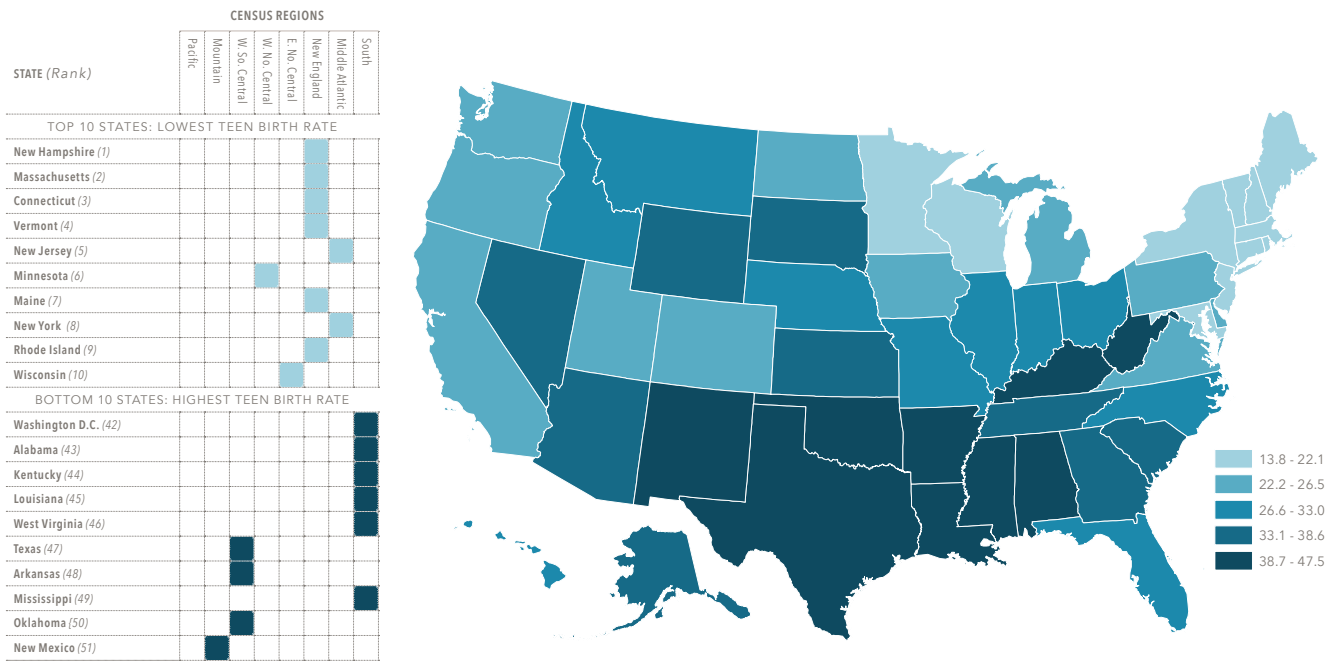
HEALTH BEHAVIORS			
Screen time ( <i>youth</i> )	0.64	Physical activity ( <i>children</i> )	-0.58
		Exclusive breastfeeding	-0.54
PHYSICAL AND SOCIAL ENVIRONMENT			
		Safe neighborhoods ( <i>parent report</i> )	-0.52
		Safe schools ( <i>parent report</i> )	-0.51
SOCIAL AND ECONOMIC FACTORS			
Income inequality	0.55	Married	-0.64
Poverty ( <i>supplemental def.</i> )	0.50		
HEALTH SYSTEM			
Rehospitalization	0.64		
PUBLIC POLICIES AND SPENDING			
		Natural Resources	-0.51

\*Correlation coefficients ( $r_s$ ) range from zero to 1.0 and measure how strongly one variable correlates with another. Factors on the right (negative coefficients) are inversely related (e.g., one goes up when the other goes down).

High correlations were noted for other measures of **Social and Economic Factors**: single-parent households ( $r_s = 0.64$ ); and **Health Systems**: rehospitalization (heart attack) (0.66), rehospitalization (pneumonia) (0.64), and rehospitalization (heart failure) (0.61).

f. It was 10.5 days in the District of Columbia, which had the highest asthma rate in the Bottom 10.

**FIGURE 12  
TEEN BIRTH RATES (PER 1,000) BY STATE (2012)**



such as physical activity and breastfeeding (Figure 11). The proportion of women reporting exclusive breastfeeding was 13.4 percent in Bottom 10 states (with high asthma rates), compared to 22.8 percent in Top 10 states. Whether that breastfeeding confers protective benefits against asthma remains controversial.<sup>11</sup> Asthma rates also correlated with socioeconomic characteristics (Figure 11). We found that 36.8 percent of households in Bottom 10 states were headed by a single parent, compared to 24.3 percent in Top 10 states (with low asthma rates). Asthma rates correlated inversely with state spending per capita on natural resources ( $r_s = -0.51$ ), which includes conservation and management of resources (e.g., oil, water, energy) and the

regulation of related industries that may emit pollutants.

### TEEN BIRTHS

Based on our calculations of Centers for Disease Control and Prevention/National Center for Health Statistics data from 2012, the number of births to adolescents age 15–19 years varied more than threefold—from 13.8 per 1,000 teens in New Hampshire to 47.5 per 1,000 in New Mexico. States in the Top 10 (with low teen birth rates) were primarily in the New England area—all six states in that region ranked in the Top 10, as did two adjacent Middle Atlantic states (New York and New Jersey). The Bottom 10 states (with high

rates of teen births) were primarily in the Southern and West South Central regions of the country (Figure 12).

### What correlates the most with teen births?

State rankings for births among teens ages 15–17 years correlated highly with early onset of sexual activity and use of contraceptives<sup>g</sup> but were even more highly correlated with socioeconomic status, notably education and poverty (Figure 13). As shown in Figure 14, the child poverty rate in the Bottom 10 states (with high teen birth rates) was 27.0 percent, more than 1.6 times the child poverty rate (16.1 percent) in the Top 10 states (with low teen birth rates).

Limited access to health care also correlated with teen birth rates (Figure 13). States with high teen birth rates had a higher proportion of uninsured persons and greater shortages of primary care and mental health care providers. In Bottom 10 states (high teen birth rates), 46.1 percent of the population lived in a shortage area for mental health services, more than four times that of the Top 10 states (10.9 percent). The proportion of persons who could not afford their doctor was 17.0 percent and 10.3 percent in Bottom 10 and Top 10 states, respectively. We also observed very high inverse correlations between rates of teen birth and health services (e.g., dental visits and screening for colorectal cancer) that have no direct association with teen births. We suspect these factors reflect other health care services that we did

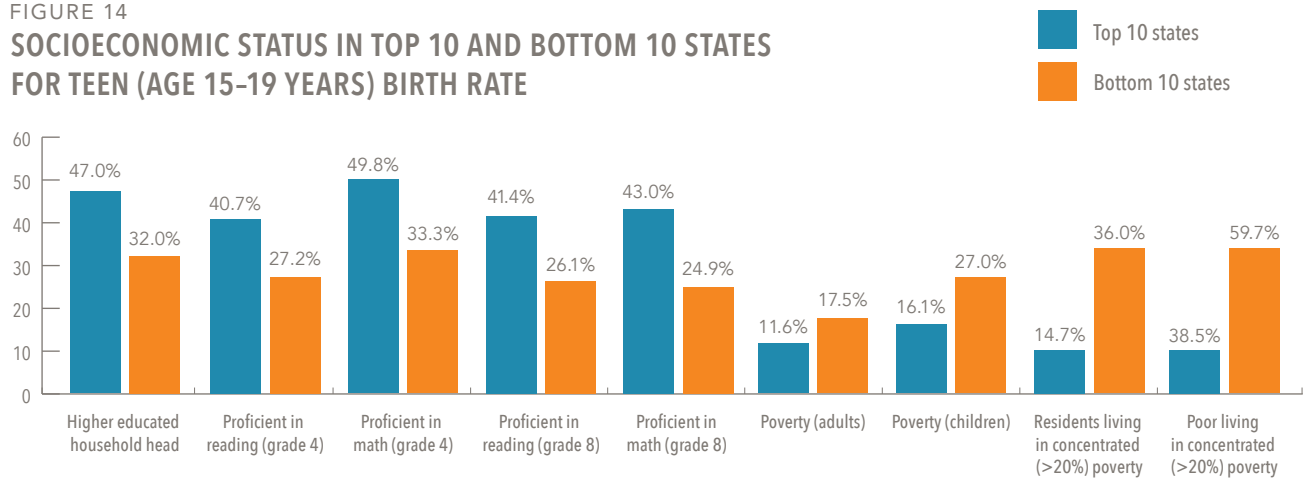
FIGURE 13  
WHAT CORRELATES WITH TEEN BIRTHS?  
THE CORRELATION COEFFICIENTS ( $r_s$ )\*

HEALTH BEHAVIORS			
Carrying weapons ( <i>youth</i> )	0.68	Birth control ( <i>youth</i> )	-0.65
Current smokers	0.64	Physical activity ( <i>adult</i> )	-0.55
Soda intake ( <i>youth</i> )	0.61	Fruit intake ( <i>youth</i> )	-0.52
Sexual activity before age 18	0.56		
PHYSICAL AND SOCIAL ENVIRONMENT			
Childhood trauma	0.66	Neighborhoods that are walkable	-0.68
Commuting by motor vehicle	0.58	Neighborhood resources for children	-0.57
Smokers in household ( <i>child present</i> )	0.56	Safe schools ( <i>parent report</i> )	-0.54
Children exposed to violence	0.53	Reading to children	-0.50
SOCIAL AND ECONOMIC FACTORS			
Poverty ( <i>children</i> )	0.75	Educated household head	-0.85
Residents in concentrated (>20%) poverty	0.71	Proficient in reading ( <i>grade 4</i> )	-0.77
Adults in prison	0.63	Bachelor's degree/higher	-0.76
Food insecurity ( <i>households</i> )	0.62	Median household income	-0.67
Severe housing disrepair	0.61		
HEALTH SYSTEM			
Uninsured	0.63	Annual dental visit ( <i>adult</i> )	-0.79
Could not afford doctor	0.62	Colon cancer screening	-0.74
Primary care shortage	0.62	Diabetes management	-0.60
Mental care shortage	0.54		

\*Correlation coefficients ( $r_s$ ) range from zero to 1.0 and measure how strongly one variable correlates with another. Factors on the right (negative coefficients) are inversely related (e.g., one goes up when the other goes down). High correlations were noted for other measures of **Health Behaviors**: breakfast (*youth*) ( $r_s = -0.51$ ); **Physical and Social Environment**: residents in walkable neighborhoods (-0.68); **Social and Economic Factors**: proficient in reading (*grade 8*) (-0.76), poverty (*adults*) (0.73), proficient in math (*grade 8*) (-0.70), proficient in math (*grade 4*) (-0.66), poor living in concentrated (>20%) poverty (0.60), and food insecurity (*children*) (0.56); and **Health Systems**: private insurance (-0.59).

- g. Teen births were also lower in states where youth were more likely to use bicycle helmets and limit soda intake.

**FIGURE 14**  
**SOCIOECONOMIC STATUS IN TOP 10 AND BOTTOM 10 STATES**  
**FOR TEEN (AGE 15-19 YEARS) BIRTH RATE**



not measure but that are relevant, such as prescriptions for contraceptives and family planning counseling.

States with lower teen birth rates tended to have healthier neighborhoods; for example, states with lower teen birth rates had more walkable neighborhoods, more resources that promote physical activity among children, and less commuting by motor vehicle (Figure 13). In the Top 10 states (low teen birth rates), the percentage of neighborhoods that were walkable was twice as high (18.0 percent) as in Bottom 10 states (9.1 percent).

In states with higher teen birth rates, adult incarceration rates were higher; parents were less likely to consider their children safe at school; and children had more exposure to adverse events, violence, and trauma (Figure 13). In Bottom 10 states (high teen birth rates), youth in 9<sup>th</sup>-12<sup>th</sup> grade carried weapons an average of 21.0 days,

**FIGURE 15**  
**CORRELATIONS BETWEEN TEEN BIRTHS AND STATE SPENDING AND TAX POLICY**

State income support ÷ pop. <100% FPL	-0.65
Housing & redevelopment ÷ pop. <100% FPL	-0.60
Tobacco taxes	-0.56
Unemployment benefits ÷ pop. <100% FPL	-0.56
Federal public assistance ÷ pop. <100% FPL	-0.53

FPL = Federal poverty level. <100% FPL and <200% FPL refers to spending divided by the population living with incomes below 100 percent and 200 percent of the FPL, respectively. Correlation coefficients range from zero to 1.0 and measure how strongly one variable correlates with another. Factors shown with negative coefficients are inversely related (e.g., one goes up when the other goes down). High inverse correlations were also noted for spending on state/fed income support ÷ pop. <100% FPL ( $r_s = -0.64$ ) and ÷ pop. <200% FPL (-0.54), state income support ÷ pop. <200% FPL (-0.62), housing & redevelopment ÷ pop. <200% FPL (-0.57), federal public assistance ÷ pop. <200% FPL (-0.52), and unemployment benefits ÷ pop. <200% FPL (-0.51).



compared with 12.2 days in Top 10 states.

Support for public health policies may be stronger in states with lower teen birth rates. For example, tobacco taxes averaged \$2.93 per pack in Top 10 states, almost triple the average tobacco tax in Bottom 10 states (\$1.04). Consistent with the strong connections we observed between teen birth rates and socioeconomic conditions, we also found that states with lower teen birth rates spent more on income support and public assistance for the low-income population (Figure 15). We found that per capita spending on income support for the

poor/near-poor (incomes below 200 percent of the Federal Poverty Level, or FPL) was, on average, more than twice as high (\$2,469) in Top 10 states than in Bottom 10 states (\$1,133). Combined federal and state spending on income support per poor person averaged \$26,655 and \$15,989 in the Top and Bottom 10 states, respectively. States with lower teen birth rates also spent more on unemployment benefits as well as housing and redevelopment—but only when calculated per poor person; *per capita* spending was not highly correlated with outcomes



### ***What The Data Affirm: The Takeaway***

Although the health of children and adolescents depends on healthy behaviors, such as regular exercise and access to good pediatric care, what distinguishes states with the healthiest children is good education, higher household incomes, and less poverty. Neighborhood conditions matter too: states where parents are more likely to describe their children's health as "good" or "excellent" tend to be the states with less residential segregation, safer neighborhoods and schools, and stronger social support.

The bottom line? Children's health is linked not only with education and income but also with supportive communities.

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