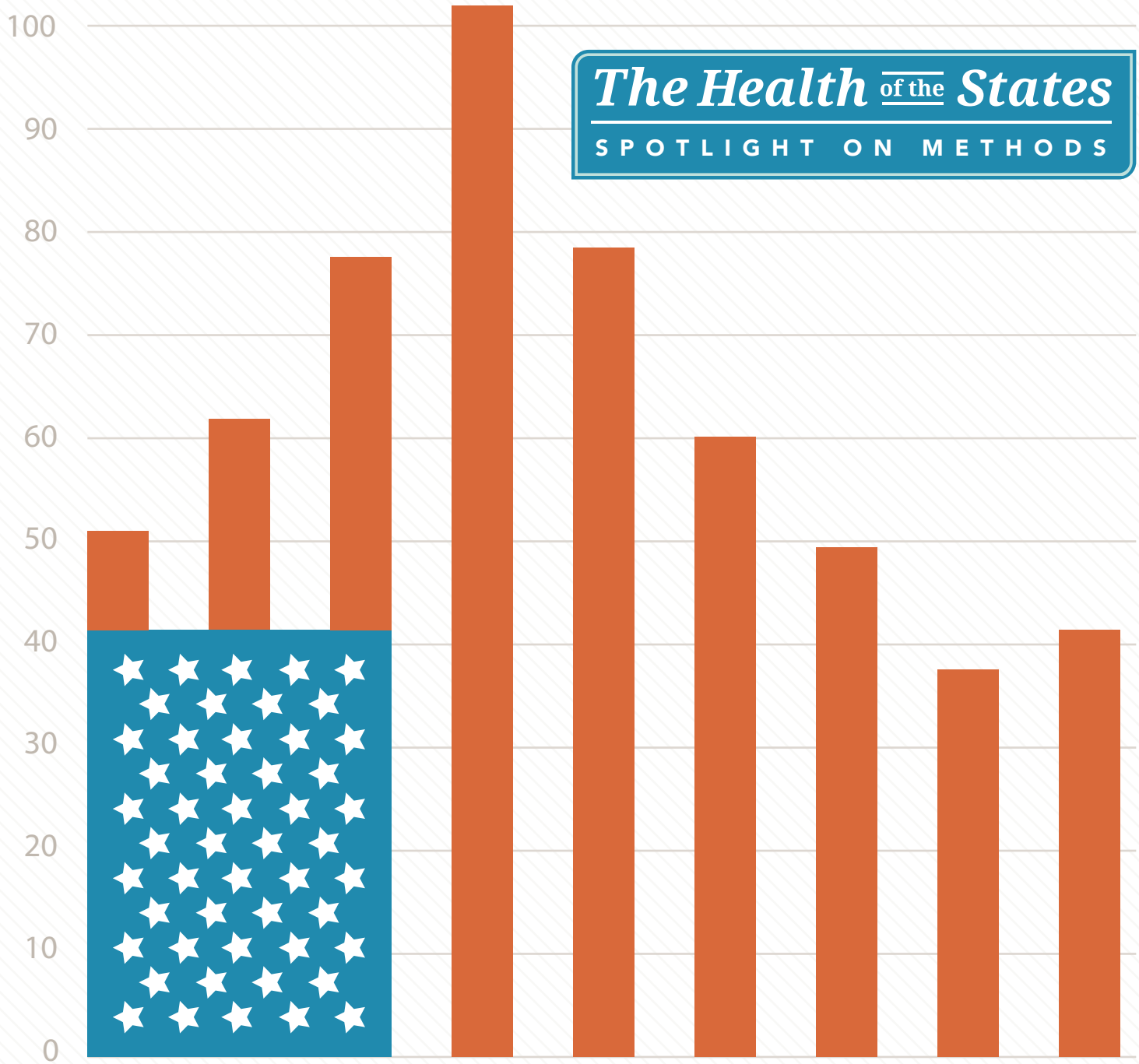

The Health of the States

SPOTLIGHT ON METHODS

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Spotlight on Methods

Given the exploratory nature of the *Health of the States* project, its specific focus on U.S. states, and our goal to include a wider set of measures than is commonly used when studying health, we began this project by first considering all of the indicators that would be potentially relevant and then undertaking a comprehensive examination of available state-level data. This project takes a "deep dive" on examining the health of the states, looking at how 123 potential determinants of health from five broad domains correlate with 39 different health outcomes that span mortality and illness/injury across the life course.

The data were drawn from publicly available websites or obtained on request from the sources—most of them Federal agencies—listed in Tables 1–6. Data sources included established state-level data sets from the National Center for Health Statistics (NCHS) and Centers for Disease Control and Prevention (CDC), the Agency for Healthcare Research and Quality (AHRQ), the Health Resources and Services Administration (HRSA), and other sources such as the Health Indicators Warehouse, which assembles data from across multiple agencies and offices within the U.S. Department of Health and Human Services, including the Centers for Medicare & Medicaid Services (CMS). The data are from the most current year (or several years combined) for which data were available at the time this project began. Although the data range from a time period of 2002 to 2015, most measures are from 2009 to 2013.

HEALTH OUTCOMES

Our analysis of health outcomes began with, but was not limited to, composite measures such as life expectancy or all-cause mortality. To better understand the factors that shape survival across the lifespan and how they differ across states, one must look at data for specific causes of death, which vary dramatically and include such diverse conditions as low birth weight, gun violence, diabetes, and cancer. Further, to really understand the health of the states, one must look beyond causes of death to diseases that affect the *quality*, if not the *length*, of life. In addition to the prevalence rates of specific diseases, we examined self-reported health status, sick days, and activity limitations. We also looked carefully at the different kinds of health challenges that appear at different stages of life, from newborns, to children and youth,

a. We reviewed health indicators used in other projects (including the National Research Council and Institute of Medicine report, *Shorter Lives, Poorer Health*,[23] discussed in the Summary Report) and state-level data available from major national health statistics agencies that met our inclusion criteria.

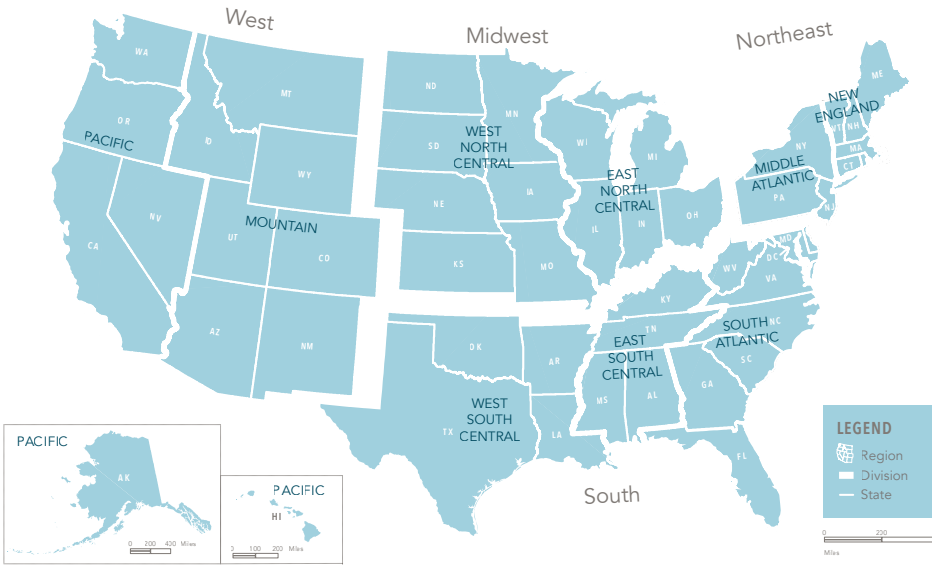
b. Mandatory inclusion criteria: (a) derived from reputable public sources, (b) available for more than 45 states and the District of Columbia, (c) acceptable scientific quality. Preferred: (a) Substantial variation across states, (b) updated regularly, (c) not duplicative of superior measures.

and finally adults and older Americans.

As a first step, for each state and the District of Columbia, we collected data on 56 health outcome measures of mortality (e.g., all-cause and cause-specific mortality rates, life expectancy); morbidity (prevalence rates) for diseases, injuries, and risk factors (e.g., obesity); and self-reported health and functional status. After researching many data sources,[a] we applied the inclusion criteria[b] and used the process described in the Appendix to narrow the list to 39 health outcomes for analysis (Table 1), spanning the life course from cradle to grave.

FIGURE 1.

CENSUS REGIONS USED IN *THE HEALTH OF THE STATES* PROJECT



Source: U.S. Census Bureau

QUINTILES: THE TOP TEN AND BOTTOM TEN

We ranked the states on each outcome to identify the "Top 10" and "Bottom 10" states for each condition. We compared the health of the states by quintiles, dividing the results into five equal sections and comparing the Top 10 and Bottom 10 states. For consistency, the Top 10 refers to states with the most favorable health outcomes and the Bottom 10 refers to those with the most unfavorable outcomes.[c] Readers should understand that this cutoff is somewhat arbitrary; although the rate of the 11th state may not differ substantially from that of the 10th, it will not be listed among the Top or Bottom 10. A listing of states in the intermediate quintiles can be can be found in the Appendix (Table A-2).

GEOGRAPHIC AREAS

The U.S. Census Bureau divides the United States into four Regions—West, Midwest, South, and Northeast—and these in turn are divided into nine census Divisions (Figure 1). The West includes Pacific states (including Alaska and Hawaii), as well as the Mountain states. The Midwest includes West North Central and East North Central states. The South includes West South Central, East South Central, and South Atlantic states. The Northeast includes New England and Middle Atlantic states. We used these divisions to classify states, except that we merged East South Central and South Atlantic as Southern states because their disease patterns are so similar. Although many readers may think of the District of Columbia, Delaware, Maryland, and

c. In the case of ties at the quintile cutoffs, we added the tied states to the better quintile. States tied at the cutoff for the top quintile (Top 10) were included, while those tied at the cutoff for the bottom quintile (Bottom 10) were excluded. On three occasions this resulted in 11 states in the Top 10 and 9 states in the Bottom 10.

Virginia as Mid-Atlantic states, we followed the U.S. Census Bureau convention and labeled these as Southern states.

THE DISTRICT OF COLUMBIA

The District of Columbia is not a state but is included in this analysis. Its health statistics sometimes differ sharply from state averages and, as an urban center, may more closely resemble other cities rather than states. Throughout our reporting on this project, the District of Columbia may have the highest or lowest rates in our rankings but might not have the same standing if compared to other U.S. cities.

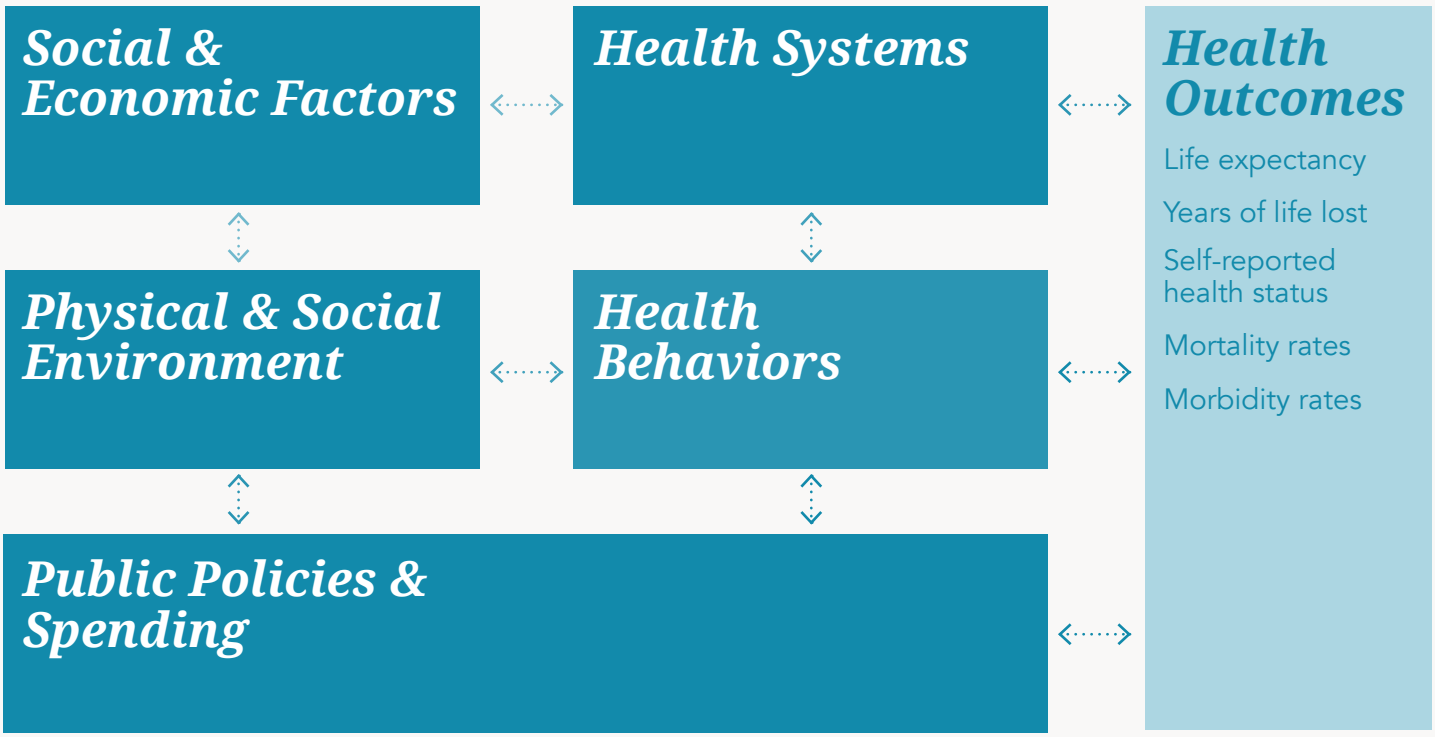
DOMAINS THAT SHAPE HEALTH

Following the National Research Council (NRC) and Institute of Medicine's (IOM) cross-national report, *Shorter Lives, Poorer Health*, we examined factors in five broad domains (Figure 2):

Health behaviors: the prevalence of healthy and unhealthy habits among state residents, such as how often they smoke cigarettes, engage in physical activity, eat healthy diets, practice safe sex, and take steps to reduce the risk of injuries

The physical and social environment: the typical conditions of neighborhoods and communities in the state, including physical features

FIGURE 2.
CONCEPTUAL MODEL



Source: Adapted from Woolf SH, Aron L, eds. *U.S. Health in International Perspective: Shorter Lives, Poorer Health. Panel on Understanding Cross-National Health Differences Among High-Income Countries.* National Research Council, Committee on Population, Division of Behavioral and Social Sciences and Education, and Board on Population Health and Public Health Practice, Institute of Medicine. Washington, DC: The National Academies Press, 2013.

such as air pollution and places for safe outdoor activity, and social conditions such as support from neighbors and residential segregation

Social and economic factors of individuals and households: the level of education among state residents and other individual and household characteristics, such as household composition, average income, poverty, food security, and housing conditions

Health care: the clinical services available to patients in the states, both as outpatients (ambulatory care) and in hospitals and other health care settings

Public policies and spending: policies in the state that directly or indirectly affect the health of residents (e.g., tobacco taxes and expansion of state Medicaid programs after the passage of the Affordable Care Act) and state and Federal spending that affect services and programs related to health and social welfare

Below we briefly describe each domain and list the specific indicators retained and the data sources. (Details about this data reduction process, based on Spearman rank correlation indices, and about factors that we considered but ultimately did not include in this report, are provided in the Appendix.)

HEALTH BEHAVIORS

Many of the chronic diseases and acute injuries that afflict Americans are the result of lifestyle and unhealthy habits.[1] One study estimated that 38.2 percent of all deaths in the United States are attributable to four health behaviors: smoking, diet, physical activity, and problem drinking.[2] Tobacco use is the leading cause of death in the United States. Even historical smoking patterns have left an imprint on the population and continue to affect mortality rates among Americans who smoked in the past. Differences in health behaviors across the states may contribute to geographic health disparities. Table 2 lists the health behaviors we examined. The health quality of diets is notoriously difficult to measure with brief survey questions. For diet, sexual practices, and travel safety, we found little state-level data on adults and relied largely on data on the behaviors of youth. We did not find any state-level data on adult dietary practices.

PHYSICAL AND SOCIAL ENVIRONMENT

The environment in which we live shapes our ability to follow a healthy lifestyle; to learn about and act on health preferences; to access health-promoting resources such as nutritious foods, good doctors, and good jobs; and to obtain social supports to cope with health and life challenges.[3–5] Table 3 lists aspects of the physical and social environment that we were able to measure at the state level. Some factors that might be considered

health behaviors, such as smoking in the home, were classified as environmental variables because they affect the health of others in the environment. Table 2 lists other variables that we used to measure smoking rates. Similarly, the share of the population that walks or cycles to work or uses public transportation was not classified as a physical activity measure, but as an indicator of the transportation environment—whether it supports pedestrian activity, provides public transportation options, or requires commuters to rely on their own automobiles.

SOCIAL AND ECONOMIC CONDITIONS

The ability of Americans to maintain healthy behaviors, obtain health care, and avoid adverse conditions that harm their health and the health of their children is influenced by a variety of social and economic circumstances, ranging from household income to parental education and housing conditions.[6,7] Table 4 lists the social and economic data we measured. We included food insecurity because low income and other economic difficulties can make it difficult to obtain adequate meals, which can contribute to overweight, obesity, and poor health. We also examined incarceration, because the socioeconomic wellbeing and stability of families and communities are disrupted when members are incarcerated.

We did not examine race-ethnicity as independent variables because racial-ethnic health disparities are intertwined with the social determinants of health already included in our indicator set. We did not examine how correlations varied by race-ethnicity or within racial and ethnic groups, the focus of many important studies and commissions concerned with racial-ethnic health disparities. Instead we focused on the socioeconomic and neighborhood conditions that often account for these disparities. However, as discussed more fully in HOTS Summary Report (see "*What About Race?*"), the domains we examined do not fully address the social factors surrounding the experience of race in America, including discrimination, acculturation, immigration, and bias, which play central roles in shaping racial and ethnic disparities.[8–10]

ACCESS TO HEALTH CARE

Health care accounts for an estimated 10–20 percent of health outcomes.[11] Differences in access to and the quality of health care could very well contribute to health disparities across the states. Table 5 details the state-level data we examined on health care access and quality. In the absence of better measures for the quality of outpatient care in each

state, we examined hospitalizations and readmissions to hospitals that can be avoided by better management of chronic diseases at home and through clinical care obtained in primary care and other outpatient practice settings. We found few state-level indicators of hospital infrastructure or ambulatory practices related to quality of care. Data on infection rates in hospitals were considered but found to be unreliable for cross-state comparisons. Instead, we adopted the use of electronic medical records as a crude proxy.

PUBLIC POLICIES AND SPENDING

All four domains above—health care, health behaviors, social and economic conditions, and the environment in which we live—are shaped by policy decisions at the national, state, and local levels and also by the dollars invested in (or removed from) programs and services that affect health and life conditions.[12,13] We examined available data for state policies and per capita spending on education, income security, health services, and other categories of potential relevance to health. We did not examine the ratio of social-to-health spending as reported elsewhere[14] and instead sought more detailed information about how health outcomes correlated with specific areas of spending as measured per capita. Table 6 lists the specific spending categories we examined and our data sources. We also examined categorical information about state policies, such as whether state law banned indoor smoking or smoking in workplaces.

WHAT MATTERS MOST? THE CORRELATION ANALYSIS

Across these five domains, we examined an extensive list of 387 factors that are known or suspected to affect health outcomes, including 30 indicators of health systems, 39 indicators of health behaviors, 51 indicators of social and economic factors, 44 indicators of the physical and social environment, and 223 indicators[d] of public policies and spending.[e] We then set out to identify—based on empirical observations—which state characteristics in each domain appeared to be most strongly correlated with these health outcomes.

We chose this approach as a first step toward understanding how state characteristics might contribute to health disparities across the states, recognizing that definitive evidence requires advanced research methods and the analysis of multiple years of data that were beyond the scope of this two-year project. It was neither our goal nor feasible within our time frame to attempt

d. Some of these measures are related in that they cover the same measure but are recalculated to look at the measure per person (for all residents, poor residents, etc.).

e. Criteria for consideration included: reputable public sources, data available for > 45 states and District of Columbia, good scientific quality, documented relationship with meaningful health outcomes, and modifiable through policy and/or practice. Preferred criteria included: substantial variation across states, place-based influences at the community/neighborhood level, easily described to a lay audience (e.g., policy makers), data updated regularly, and data stratifiable by desired covariates.

FIGURE 3.

SCREEN SHOT OF CORRELATION MATRICES

1. Birth Outcomes		2. Child and Adolescent Health						3. Sexually Transmitted Infection			4. injuries					5. Adult Health Status				6. Chronic Diseases - Cardiovascular					
HO27_LBW	HO17_InfantMort	HO23a_HealthStatExGood	HO36_CurrDevDelay	HO39_OralProbs	HO35_OverwtChild	HO40_AdolAsthma	HO28a_TeenBirth15to19	HO30_Chlamydia	HO31_Gonorrhea	HO32_HIV	HO14_UnInjuryMort	HO11_MotorVehMort	HO12_DrugMort	HO15_SuicideMort	HO16_HomicideMort	HO22_ExVgGoodHealthStatAdult	HO24_PhysUnhealthyDays	HO25_MentUnhealthyDays	HO53_ActivityLimit	HO33_OverwtAdult	HO49_Diabetes	HO07_DiabetesMort	HO47_CVD	HO02_CVDMort	HO48_Stroke	HO05_CerebroMort
-0.47	-0.60	0.07	-0.07	-0.13	-0.53	-0.25	-0.57	-0.37	-0.46	-0.16	-0.54	-0.75	-0.16	-0.21	-0.54	0.65	-0.69	-0.71	-0.65	-0.74	-0.67	-0.62	-0.68	-0.52	-0.64	-0.66
-0.42	-0.53	0.12	0.19	-0.24	-0.45	-0.07	-0.68	-0.34	-0.40	-0.04	-0.49	-0.73	-0.06	-0.38	-0.43	0.57	-0.59	-0.53	-0.53	-0.67	-0.56	-0.60	-0.53	-0.47	-0.60	-0.68
-0.39	-0.42	-0.08	-0.28	0.06	-0.33	-0.19	-0.39	-0.10	-0.22	0.00	-0.53	-0.67	-0.24	-0.27	-0.33	0.51	-0.57	-0.64	-0.58	-0.58	-0.54	-0.41	-0.64	-0.43	-0.50	-0.48
-0.43	-0.50	0.13	0.22	-0.26	-0.44	-0.04	-0.68	-0.35	-0.38	-0.03	-0.46	-0.71	-0.04	-0.38	-0.42	0.55	-0.54	-0.50	-0.50	-0.64	-0.52	-0.58	-0.48	-0.45	-0.57	-0.67
0.47	0.56	-0.06	0.01	0.06	0.50	0.16	0.58	0.28	0.44	0.06	0.50	0.73	0.23	0.20	0.46	-0.59	0.61	0.58	0.51	0.78	0.63	0.63	0.72	0.62	0.65	0.65
-0.63	-0.58	0.29	0.04	-0.07	-0.54	-0.39	-0.44	-0.38	-0.60	-0.49	-0.18	-0.45	-0.17	0.14	-0.60	0.62	-0.59	-0.70	-0.33	-0.66	-0.74	-0.45	-0.57	-0.60	-0.64	-0.58
-0.07	-0.32	-0.27	0.11	0.05	-0.27	0.22	-0.50	-0.08	-0.08	0.40	-0.63	-0.84	0.01	-0.52	-0.18	0.31	-0.35	-0.23	-0.50	-0.60	-0.24	-0.56	-0.54	-0.31	-0.35	-0.50
-0.73	-0.48	0.75	-0.02	-0.50	-0.60	-0.51	-0.54	-0.61	-0.65	-0.70	0.06	-0.13	-0.08	0.31	-0.67	0.69	-0.52	-0.61	-0.18	-0.25	-0.68	-0.28	-0.25	-0.51	-0.65	-0.24
0.52	0.38	-0.56	0.07	0.47	0.53	0.24	0.37	0.44	0.39	0.49	0.08	0.27	0.03	0.00	0.53	-0.48	0.39	0.37	0.28	0.24	0.37	0.13	0.13	0.33	0.43	0.23
0.48	0.32	-0.56	0.15	0.31	0.42	0.16	0.26	0.56	0.49	0.54	-0.19	0.04	-0.20	-0.29	0.55	-0.30	0.12	0.25	0.00	0.22	0.33	0.09	-0.04	0.23	0.21	0.08
-0.44	-0.21	0.75	-0.08	-0.42	-0.49	-0.52	-0.23	-0.56	-0.59	-0.75	0.30	0.25	-0.21	0.50	-0.52	0.41	-0.28	-0.38	0.07	-0.01	-0.47	-0.02	-0.10	-0.29	-0.38	0.10
0.37	0.44	-0.37	0.26	0.47	0.40	0.37	0.53	0.45	0.36	0.14	0.40	0.17	0.43	0.16	0.45	-0.41	0.44	0.41	0.43	0.20	0.36	0.31	0.22	0.35	0.47	0.22
0.55	0.41	-0.54	0.16	0.24	0.60	0.32	0.37	0.47	0.50	0.59	-0.16	0.12	0.00	-0.27	0.55	-0.56	0.37	0.47	0.16	0.33	0.53	0.19	0.21	0.49	0.40	0.31
-0.05	-0.22	-0.29	0.06	0.26	0.05	-0.26	-0.08	0.22	0.06	0.28	-0.38	-0.17	-0.42	0.02	0.10	0.19	-0.33	-0.23	-0.25	-0.24	-0.22	-0.38	-0.38	-0.10	-0.18	-0.11
0.29	0.23	-0.43	-0.01	0.18	0.50	0.07	0.39	0.42	0.31	0.33	0.00	0.12	0.01	-0.02	0.45	-0.29	0.20	0.20	0.05	0.23	0.17	0.01	-0.06	0.27	0.20	0.25
-0.30	0.05	0.67	0.12	-0.47	-0.33	-0.17	-0.30	-0.22	-0.27	-0.51	0.07	0.00	-0.18	0.05	-0.24	0.56	-0.41	-0.45	-0.20	-0.09	-0.41	-0.31	-0.07	-0.15	-0.24	-0.14
-0.39	-0.49	-0.01	0.24	-0.18	-0.36	0.04	-0.56	-0.22	-0.29	-0.08	-0.35	-0.67	-0.05	-0.29	-0.38	0.55	-0.49	-0.43	-0.40	-0.49	-0.43	-0.47	-0.38	-0.47	-0.48	-0.64
-0.16	-0.36	-0.10	0.28	-0.19	-0.15	0.05	-0.41	-0.21	-0.23	-0.04	-0.32	-0.58	0.12	-0.25	-0.24	0.39	-0.37	-0.27	-0.36	-0.43	-0.32	-0.37	-0.32	-0.31	-0.32	-0.59
-0.08	-0.33	-0.18	0.27	-0.10	-0.10	0.13	-0.36	-0.16	-0.16	0.06	-0.34	-0.55	0.12	-0.31	-0.15	0.27	-0.29	-0.21	-0.32	-0.40	-0.21	-0.32	-0.27	-0.22	-0.21	-0.58
-0.08	0.05	0.25	0.17	-0.25	-0.05	-0.24	0.00	0.00	-0.07	-0.34	0.21	0.09	0.04	0.10	0.00	0.33	-0.27	-0.25	-0.16	0.12	-0.27	0.06	0.01	0.13	-0.20	0.03
-0.45	-0.33	0.60	0.13	-0.58	-0.53	-0.30	-0.60	-0.45	-0.51	-0.47	-0.16	-0.35	-0.08	-0.06	-0.49	0.79	-0.68	-0.55	-0.48	-0.26	-0.59	-0.46	-0.27	-0.34	-0.62	-0.33
-0.22	-0.26	0.10	0.35	-0.35	-0.30	0.12	-0.54	-0.22	-0.21	-0.04	-0.35	-0.71	0.19	-0.33	-0.24	0.46	-0.38	-0.30	-0.38	-0.37	-0.30	-0.46	-0.38	-0.25	-0.40	-0.44
-0.36	-0.43	0.16	0.27	-0.34	-0.45	-0.07	-0.62	-0.37	-0.39	-0.16	-0.37	-0.74	0.14	-0.25	-0.39	0.59	-0.52	-0.45	-0.46	-0.52	-0.48	-0.54	-0.51	-0.40	-0.57	-0.56
0.14	0.03	-0.30	0.29	0.06	0.14	0.20	0.04	0.15	0.21	0.21	-0.03	-0.32	0.38	-0.17	0.15	-0.19	0.22	0.20	0.11	-0.04	0.15	0.11	-0.06	0.15	0.09	-0.03
-0.29	-0.36	-0.01	0.25	-0.17	-0.34	-0.10	-0.44	-0.28	-0.29	-0.11	-0.26	-0.65	0.21	-0.15	-0.27	0.39	-0.32	-0.34	-0.29	-0.48	-0.39	-0.39	-0.46	-0.30	-0.45	-0.46
0.28	0.27	-0.06	0.26	0.14	0.25	0.24	0.28	0.32	0.31	0.07	0.34	0.11	0.25	0.00	0.28	-0.18	0.27	0.32	0.24	0.26	0.22	0.13	0.22	0.27	0.27	0.15
0.29	0.28	-0.07	0.25	0.14	0.26	0.23	0.31	0.32	0.31	0.08	0.34	0.13	0.24	0.00	0.28	-0.20	0.28	0.33	0.25	0.27	0.23	0.14	0.22	0.28	0.28	0.17
-0.12	-0.08	0.30	0.19	-0.29	-0.22	0.15	-0.35	-0.08	-0.13	-0.12	-0.06	-0.36	0.06	-0.25	-0.15	0.46	-0.34	-0.17	-0.30	-0.18	-0.24	-0.46	-0.20	-0.17	-0.28	-0.28
-0.14	-0.11	0.32	0.21	-0.31	-0.25	0.13	-0.37	-0.12	-0.16	-0.15	-0.07	-0.36	0.06	-0.25	-0.19	0.49	-0.36	-0.19	-0.31	-0.19	-0.26	-0.48	-0.20	-0.19	-0.30	-0.31
-0.24	-0.19	0.29	0.44	-0.48	-0.17	0.13	-0.43	-0.15	-0.17	-0.16	-0.09	-0.40	0.20	-0.28	-0.17	0.49	-0.38	-0.19	-0.34	-0.17	-0.29	-0.40	-0.06	-0.22	-0.34	-0.43
0.09	0.17	-0.04	0.14	0.06	0.25	0.08	0.36	0.23	0.13	-0.18	0.41	0.27	0.13	0.22	0.18	-0.06	0.12	0.13	0.22	0.24	0.05	0.21	0.18	0.06	0.17	0.16
-0.28	-0.13	0.40	0.32	-0.53	-0.26	0.04	-0.51	-0.30	-0.27	-0.21	-0.15	-0.29	0.02	-0.26	-0.39	0.45	-0.32	-0.19	-0.29	-0.05	-0.24	-0.32	0.04	-0.17	-0.38	-0.25
-0.15	-0.17	0.15	0.42	-0.34	-0.01	0.16	-0.34	0.00	-0.02	0.01	-0.06	-0.41	0.27	-0.31	0.01	0.35	-0.27	-0.12	-0.30	-0.16	-0.19	-0.32	-0.06	-0.15	-0.24	-0.47
-0.18	-0.13	0.18	0.18	-0.23	-0.10	-0.01	-0.10	-0.08	-0.20	-0.31	0.11	-0.08	0.04	0.06	-0.16	0.39	-0.29	-0.18	-0.13	-0.05	-0.28	-0.18	-0.07	-0.26	-0.23	-0.18
0.10	0.15	0.04	0.45	-0.21	0.29	0.29	0.04	0.21	0.22	0.03	0.26	-0.02	0.35	-0.13	0.20	-0.01	0.07	0.19	0.07	0.16	0.09	0.06	0.29	0.18	0.12	-0.09

to validate causal models or to make *a priori* claims about causal pathways or connections. We report correlations that are understood to not have direct causal interrelationships—such as the correlation between breastfeeding and gonorrhea, homicide, and strokes—because our goal is not necessarily to infer causality, but to explore which state characteristics "travel together" and co-occur in states with specific health outcomes. We do draw attention to correlations that are consistent with causal relationships discussed elsewhere in the literature, but we cannot responsibly make claims about causal links. Instead our aim is to point out relationships that future studies should investigate more thoroughly.

With these goals in mind, we calculated the Spearman rank order coefficient (r_s) between the original set of 387 indicators and each of the 56 health outcomes—21,672 calculations. These rank-order coefficients measure the degree to which a state's ranking on one indicator (e.g., poverty) matches the state's ranking for the health outcome (e.g., strokes), where zero represents no association between the two rankings and 1.0 represents an exact match. A positive correlation means that a high rank on the indicator is linked to a high rank on the health outcome, or vice versa; a negative correlation means that a high rank on the indicator is linked to a low rank on the health outcome, or vice versa. Figure 3 presents a screen shot of a section of the spreadsheet. Approximately two-thirds

of the original 387 indicators were eliminated because they had only weak correlations with the health outcomes on our list or were highly redundant with selected indicators, leaving a final set of 123 indicators for analysis.

Some indicators were eliminated because they appeared spurious based on existing knowledge. Table A-1 in the Appendix lists the indicators that fell into this category. Notable among these was spending on health care, which consistently exhibited a *positive* correlation with adverse health outcomes. For example, Medicare spending for personal health care correlated strongly with the prevalence of angina/coronary heart disease: Medicare spending averaged $1,894 per capita in the 10 states with the highest prevalence of heart disease and $1,142 in the 10 states with the lowest rates. For this project we viewed higher spending as a *consequence* of disease rates, and did not find this correlation instructive.

We defined correlation coefficients in the ±0.30–0.49 range as "moderate," those in the ±0.50–0.69 range as "high," and those ±0.70–1.00 as "very high."[15] This project focuses on the indicators that were most highly correlated with health outcomes ($r_s \geq \pm 0.50$). Whereas tables and figures are agnostic and avoid "cherry picking" by reporting *all* correlations greater than ±0.50,[f] the text engages in a more selective discussion of the data to help readers make sense of the correlations and place them in the context of the socioecological framework. The text does this by (a) highlighting "expected" relationships that previous research has documented, such as the correlation between smoking rates and heart disease, and (b) identifying patterns of correlations that characterize behavioral profiles or social and environmental conditions that co-occur in Top 10 and Bottom 10 states. These patterns are explored to help paint a more nuanced picture about broader conditions in the states, such as their socioeconomic status, the built environment within communities, or the social support offered to children. They also set the stage for developing new hypotheses and testing them in future studies using rigorous multivariate methods.

CAVEATS AND LIMITATIONS

The measures used in this analysis are subject to important limitations that readers should keep in mind. For example, we entered into the analysis without specifying an *a priori* causal model. We relied heavily on cross-sectional analyses—comparing the characteristics of groups at a single point in time—an approach that has inherent limitations. For example, the very large number of ecological correlations in the HOTS

f. When we encounter high correlations for related variables, such as for "any breastfeeding" and "exclusive breastfeeding," tables and figures emphasize the variable with the highest correlation coefficient and report the coefficient for the related variable in footnotes. For ease of presentation in figures, the positive or negative sign of the correlation coefficient is sometimes reversed and assigned to the binary alternative condition; for example, a r_s of 0.74 for current smokers might be reversed to -0.74 for current non-smokers for graphic design purposes.

project reports are vulnerable to bias due to compositional and contextual factors. The cross-sectional analysis also ignores the temporal nature of relationships—conditions facing today's children are unlikely to explain the health status of today's older adults—nor can cross-sectional correlations determine the directionality of relationships.

We also caution readers that *correlation* does not prove *causation*. This report focuses on *bivariate* relationships—examining the relationship between only two variables at a time—and does not account for confounding and collinearity among independent variables: measures that appear closely related to a health outcome may actually reflect the common influence of other (unmeasured) factors. For example, health insurance may be correlated with life expectancy, but what accounts for this correlation may be a third factor, such as educational attainment, which is lower among uninsured populations.

Our findings must therefore be interpreted with care; we examine factors that are part of a complex web of factors that often move together as a "package"—within individuals, families, and neighborhoods and communities. For example, poverty does not occur in isolation; it often coexists with racial residential segregation, poor education, air pollution, inadequate access to health care, food deserts, and crime—each of which has independent effects on health but also interacts in complex ways with other social factors.[16] In the future, we hope to move beyond bivariate comparisons to apply *multivariate* analyses or statistical learning techniques to account for the complex linkages between multiple variables. This type of analysis would allow us to identify which factors are most important in predicting health outcomes and derive composite indices for correlated independent variables, such as state scores for healthy behaviors or social resources. Until then, readers should view these results only as associations and not evidence of causality.

Readers should also note that data were not available for many important factors that affect health. This report treats some measures as "proxies" (substitutes) for factors that may matter more, but for which data were not readily available. For example, we examine data on texting and driving by teens in 9th through 12th grade, which is reported in youth surveys, but reliable state data are lacking to compare the driving practices of adult motorists. We lack data to compare the quality of health care services across state lines and rely on an assortment of performance indicators as proxies. Legislation by state governments has important implications for health and is

cataloged in several data sources.[17] The qualitative nature of this information requires special methods for analysis beyond the scope of this project, and quantitative data were lacking except for a handful of proxies examined here (e.g., state tobacco taxes).

The source data for this project are subject to the imprecision of sampling methods and the quality of the data collection methods used by the source agencies, and the data reported in this project have other limitations. For example, we only present statistics for *the most current year* available at the time of the analysis; new data that emerged after our analysis are not reflected, nor have we examined longitudinal trends over time. Space limitations compelled us to present averages for the entire state population — a gross oversimplification of large differences that occur by age, race/ethnicity, socioeconomic status, and locale within states. Cross-state comparisons ignore unmeasured contextual differences that exist between states. For example, California and Mississippi differ in size, wealth, economies, population characteristics, immigration patterns, geography, and other factors not incorporated into our analysis. Finally, the data cover the 50 states and the District of Columbia but exclude U.S. territories.

Our ranking methods also have limitations, such as the assumption of linearity imposed by the forced ranking of states on each dependent variable. In addition, correlations based on *rank order*, as used in this project, may differ from correlations between absolute values. For example, in the 10 states with the highest rates of childhood/adolescent asthma, 25.9 percent of the population was living in racially segregated census tracts — seven times the percentage in the 10 states with the lowest childhood/adolescent asthma rates. While this suggests that children in racially segregated areas are at much higher risk for asthma, the rank order correlation coefficient was only 0.43.

Finally, state-level data do not describe the stark variation in conditions that exist *within* a state, including areas of concentrated poverty or wealth, areas with declining or booming economies, and areas with different types of physical infrastructure or environmental hazards. To address this challenge, we have tried whenever possible to avoid using simple averages for the whole state but to instead measure the percentage of state residents living in areas with certain characteristics. For example, given the diversity of community conditions in a state, we cannot measure "walkability" at the state level; instead we look at the share of the state population that lives in a "walkable" community.

More details about our methods are available below in the Appendix.

TABLE 1.

HEALTH OUTCOMES EXAMINED IN *THE HEALTH OF THE STATES* PROJECT

OUTCOME	DEFINITION	DATA SOURCE*
Newborn life expectancy	Average number of years a newborn can expect to live (years)	CDC
Life expectancy at age 65	Average number of years an individual at age 65 years can expect to live (years)	KFF
All-cause mortality rate	Age-adjusted death rate (from any cause) per 100,000 persons (2013)	CDC
Years of life lost before age 75	Premature death as measured by total years of life lost before age 75 per 100,000 (2009–2011)	HIW
LIFE COURSE CONDITIONS		
Low birth weight	Percentage of newborns of low birth weight (less than 2500 g) (2009–2012, 3-year average)	CDC/NCHS
Infant mortality	Infant deaths per 1,000 live births (2007–2009)	CDC
Child health status	Percentage of parents who rated their child's health as "good" or "excellent" (versus "fair"/"poor") (2011/2012)	NSCH
Children's dental problems	Percentage of children age 1–17 years whose parents reported that the child had experienced a toothache, decayed teeth, or unfilled cavities in the past year (2011/2012)	NSCH
Childhood overweight/obesity	Percentage of children age 10–17 years whose reported body mass index was at or above the 85th percentile (2011/2012)	NSCH
Childhood asthma	Percentage of children and adolescents (age 0–17 years) whose parents were told by a doctor that the child has asthma (2011/2012)	NSCH
Teen births	Births to adolescents age 15–19 years per 1,000 teens (2012)	CDC/NCHS
Chlamydia infection	Incidence of reported new cases of chlamydia per 100,000 persons (2012)	CDC
Gonorrhea infection	Incidence of reported new cases of gonorrhea per 100,000 persons (2012)	CDC
HIV infection	Incidence of reported new cases of HIV infection per 100,000 persons (2012)	CDC
Unintentional injury deaths	Age-adjusted death rate from unintentional injuries per 100,000 persons (2013)	CDC
Motor vehicle fatalities	Age-adjusted death rate from motor vehicle crashes per 100,000 persons (2013)	CDC
Drug overdose deaths	Age-adjusted death rate from accidental drug overdose per 100,000 persons (2013)	CDC
Suicide	Age-adjusted death rate from suicide per 100,000 persons (2013)	CDC
Homicide	Age-adjusted death rate from homicide per 100,000 persons (2013)	CDC
Adult health status	Percentage of adults age 18 years and older who rated their health as "excellent," "very good," or "good" (versus "fair"/"poor") (2013)	BRFSS
Physically unhealthy days	Average number of days respondents (age 18 years and older) considered themselves physically unhealthy in the past 30 days (2013)	BRFSS
Mentally unhealthy days	Average number of days respondents (age 18 years and older) considered themselves mentally unhealthy in the past 30 days (2013)	BRFSS
Activity limitations	Percentage of persons age 18 years and older who considered themselves limited in any activity due to physical, mental, or emotional problems (2013)	BRFSS
Adult overweight/obesity	Percentage of persons age 18 years and older with a body mass index of 25.0 or greater kg/m^2 (2010)	BRFSS
Diabetes prevalence	Percentage of persons age 18 years and older who has ever been told by a doctor that they have diabetes (2010)	BRFSS
Diabetes mortality	Age-adjusted death rate from diabetes per 100,000 persons (2013)	CDC
Heart disease prevalence	Percentage of persons age 18 years and older who has ever been told by a doctor that they have had angina or [coronary] heart disease (2010)	BRFSS
Cardiovascular mortality	Age-adjusted death rate from cardiovascular diseases per 100,000 persons (2013)	CDC
Stroke prevalence	Percentage of persons age 18 years and older who reported ever having had a stroke (2010)	BRFSS
Cerebrovascular mortality	Age-adjusted death rate from cerebrovascular diseases per 100,000 persons (2013)	CDC
Cancer mortality	Age-adjusted death rate from cancer per 100,000 persons (2013)	CDC
Lung cancer prevalence	Age-adjusted death rate from lung cancer per 100,000 persons (2013)	CDC
Colorectal cancer prevalence	Age-adjusted prevalence per 100,000 persons (2012)	CDC
Breast cancer prevalence	Age-adjusted prevalence per 100,000 persons (2012)	CDC
Prostate cancer prevalence	Age-adjusted prevalence per 100,000 persons (2012)	CDC
Lower respiratory mortality	Age-adjusted death rate from lower respiratory disease per 100,000 persons (2013)	CDC
Renal mortality	Age-adjusted death rate from renal disease per 100,000 persons (2013)	CDC
Influenza/pneumonia mortality	Age-adjusted death rate from influenza/pneumonia per 100,000 persons (2013)	CDC
Alzheimer's mortality	Age-adjusted death rate from Alzheimer's disease per 100,000 persons (2013)	CDC

*See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

TABLE 2.
HEALTH BEHAVIOR MEASURES

INDICATOR	DEFINITION	DATA SOURCE*
TOBACCO USE		
Current smoker; Ever smoker	Percentage of adults age 18 years and older who classified themselves as current, or as current or former (i.e., ever) smokers (2010)	BRFSS/ CPS
Teen smoking	Percentage of adolescents (age 12 years and older) who reported smoking cigarettes in the past month (2012–2013)	NSDUH
PHYSICAL ACTIVITY		
Physical activity (children)	Percentage of students in 9th–12th grade who were physically active for at least 60 minutes on 3 or more days in the past 7 days (2013 for most states)	YRBSS
Screen time	Percentage of students in 9th-12th grade who spent more than 2 hours a day on an average school day playing video or computer games or using a computer for something that was not school work (2013 for most states)	YRBSS
Physical inactivity (adult)	Percentage of adults age 18 years and older who reported no physical activity in the past 30 days outside of their job (proxy for adult sedentary activity) (2010)	BRFSS
DIET		
Fruit intake (youth); Breakfast (youth); Soda intake (youth)	Percentage of students in 9th-12th grade who reported eating fruit, breakfast, or soda "once a day or more" (vs. "less than once a day") in the past seven days (2013 for most states)	YRBSS
Exclusive breastfeeding; Any breastfeeding	Percentage of mothers who fed breast milk to their child, ever or exclusively (for the first six months of life) (2007)	CDC
SUBSTANCE ABUSE		
Illicit drug abuse	Percentage of persons age 12 years and older who used illicit drugs (except marijuana) in the past month	NSDUH
Prescription drug abuse	Percentage of persons age 12 years and older who used prescription drugs for non-medical purposes in the past year	NSDUH
Children living with user	Percentage of children age 12–17 years living with someone who had a problem with alcohol or drugs (2012/2013)	NSDUH
SAFE SEX		
Birth control (youth)	Percentage of students in 9th–12th grade who reported using some form of birth control (vs. no method) when they last had sexual intercourse (2013 for most states)	YRBSS
Alcohol/drugs before sex (youth)	Percentage of students in 9th–12th grade who drank alcohol or used drugs before their last sexual intercourse (2013 for most states)	YRBSS
Sexual activity before age 18	Percentage of students in 9th–12th grade who began having sexual intercourse before age 18 (2013 for most states)	YRBSS
TRAVEL SAFETY		
Texting & driving (youth)	Percentage of students in 9th–12th grade who had texted or emailed once or more in the past 30 days while driving (2013 for most states)	YRBSS
Bicycle helmet use (youth)	Percentage of students in 9th–12th grade who wore a helmet "most of the time/always" (vs. "never/ rarely/ sometimes") when they rode a bicycle in the past 12 months (2013 for most states)	YRBSS
VIOLENT BEHAVIORS		
Fighting (youth)	Percentage of teens (ages 12–17 years) who reported getting into a serious fight at school or work at least once during the past 12 months (2012/2013)	NSDUH
Fights with injury (youth)	Percentage of teens (ages 12–17 years) who reported getting into a physical fight at least once during the past 12 months in which they were injured and had to be treated by a doctor or nurse (2012/2013)	NSDUH
Carrying weapons (youth)	Average number of days students in 9th–12th grade reported carrying any weapon (e.g., gun, knife, club) in any setting (2013 for most states)	YRBSS

* See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

TABLE 3.
PHYSICAL AND SOCIAL ENVIRONMENTAL MEASURES

INDICATOR	DEFINITION	DATA SOURCE*
PHYSICAL ENVIRONMENT		
AIR QUALITY		
Air pollution	Average daily density of fine particulate matter ($PM_{2.5}$ µg/m^3)	CHR
ENVIRONMENTAL TOBACCO SMOKE IN HOME		
Smokers in household (child present)	Percentage of children age 0–17 years who live in households where anyone uses cigarettes, cigars, or pipe tobacco (2011/2012)	NSCH
Indoor smoking (child present)	Percentage of children age 0–17 years who live in households where tobacco is used inside the home (2011/2012)	NSCH
Smoke-free homes	Percentage of adults age 18 years and older living in homes where smoking is not permitted (2010/2011)	CPS supplement
Indoor smoking (nonsmokers present)	Percentage of nonsmoking adults (never/former smokers) age 18 and older who live in homes where smoking is permitted (2010/2011)	CPS supplement
BUILT ENVIRONMENT		
Neighborhood resources for children	Average number of amenities (out of four[g]) in the neighborhood of children (age 0–17 years) (2011/2012)	NSCH
Proximity to parks	Percentage of the population living within half a mile of a park (2010)	NEPHTR
Neighborhoods that are walkable	Percentage of neighborhoods in metropolitan areas that have walkable access (Walkscore 70–100) (2010)	Walkscore
Residents in walkable neighborhoods	Percentage of the population in metropolitan areas that live in a walkable neighborhood (Walkscore 70–100) (2010)	Walkscore
TRANSPORTATION		
Commuting by motor vehicle; walking/cycling; or public transit	Percentage of the population age 18 years and older who use a motor vehicle (car, taxi, motorcycle), public transportation (bus, train, subway), or walking/cycling to get to work (2012)	ACS
SOCIAL ENVIRONMENT		
SOCIAL CAPITAL/SUPPORT CHILDREN		
Social capital index	Penn State Social Capital Measure[h] (2009)	Penn State[21]
Reading to children	Percentage of parents who read to their children (2011)	NSCH
Childhood trauma	Percentage of children age 0–17 years with prior exposure to at least two adverse childhood events (2011/2012)	NSCH
Children in supportive neighborhoods	Percentage of children age 0–17 years who live in a supportive neighborhood[i] (2011/2012)	NSCH
Teens with adults to talk to	Percentage of teens with adults they can talk to (2010/2011)	NSDUH
SAFETY		
Violent crime rate	Violent crimes per 100,000 inhabitants (2013)	UCR
Safe schools (parent report)	Percentage of parents who considered their children safe at school (2011)	NSCH
Safe neighborhoods (parent report)	Percentage of parents who considered their children as "usually/always" safe in their neighborhood (2011/2012)	NSCH
Children exposed to violence	Percentage of children age 0–17 years who were ever victims of violence or witnessed violence in their neighborhood (2011/2012)	NSCH
Teens who consider school unsafe	Percentage of students in 9th–12th grade who did not go to school on one or more days in the past 30 days because it felt unsafe at school or on way to/from school (2013 for most states)	YRBSS
Weapon injury in school	Percentage of students in 9th–12th grade who have been threatened or injured one or more times in the past 12 months with a weapon (e.g., gun, knife, club) at school (2013 for most states)	YRBSS
Dating violence (youth)	Percentage of students in 9th–12th grade who reported having been physically hurt on purpose at least once in the past 12 months by someone they were dating (2013 for most states)	YRBSS
Rape (youth)	Percentage of students in 9th–12th grade who have ever been physically forced to have non-consensual sexual intercourse (2013 for most states)	YRBSS

* See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

[g] Parents could count up to four amenities: a park, sidewalk, a library, or community center.

[h] Comprehensive social capital measures have been used to examine national trends[18] in specific states[19] or cities[20] but only more limited indices exist for all 50 states. We used a measure developed through factor analysis by the Penn State Northeast Regional Center for Rural Development. The index incorporates religious organizations; civic/social associations; business associations; political organizations; professional organizations; labor organizations, bowling centers; physical fitness facilities; public golf courses; and sport clubs, managers, and promoters measured per 100,000 persons at the county level.[21]

[i] A neighborhood was considered supportive if the parent agreed with at least three out of the following four statements: "People in my neighborhood help each other out;" "We watch out for each other's children in this neighborhood;" "There are people I can count on in this neighborhood;" and "If my child were outside playing and got hurt or scared, there are adults nearby who I trust to help my child."

TABLE 4.
SOCIAL AND ECONOMIC CONDITIONS

INDICATOR	DEFINITION	DATA SOURCE*
HOUSEHOLD CHARACTERISTICS		
Married	Percentage of adults who are married (2012)	ACS
Single-parent households	Percentage of households with related children under age 18 that were headed by a single parent (2012)	ACS
Adults in prison	Percentage of adults age 18 years and older who were in state or Federal prisons (most data for 2012)	BJS
EDUCATION		
Higher educated household head	Percentage of children under age 18 years living in households headed by an individual with more than a high school education (2012)	Kids Count
No preschool/Head Start	Percentage of children age 3–4 years who were not enrolled in preschool or Head Start (2010–2012)	Kids Count
Proficient in math (grade 4); reading (grade 4); math (grade 8); reading (grade 8)	Percentage of 4th and 8th grade students at or above NAEP proficiency scores for math or reading (2013)	NCES
Bachelor's degree/higher	Percentage of adults age 18 years and older who had obtained a Bachelor's degree or higher education (e.g., graduate school) (2012)	ACS
INCOME AND EMPLOYMENT		
Median household income	Median household income (2012)	ACS
Employment	Percentage of population age 16 years and older who were employed (2012)	ACS
Children with employed parents	Percentage of children/adolescents (age 0–17 years) living with someone employed at least 50 out of 52 weeks (2011/2012)	NSCH
POVERTY		
Poverty (adults)	Proportion of persons age 18 years and older with an income below the Federal poverty level (2012)	ACS
Poverty (supplemental def.)	Proportion of persons age 18 years and older with an income below the supplemental poverty measure [j] (2011–2013)	ACS
Poverty (children)	Percentage of children living in households with an income below 200 percent of the Federal poverty level (2010–2012)	ACS
Residents in concentrated (>20%) poverty; Residents in very concentrated (>40%) poverty	Percentage of the population living in a census tract with concentrated poverty (a measure of neighborhood poverty), defined as more than 20 percent or more than 40 percent of the population living in poverty (2010)	NCD
Poor living in concentrated (>20%) poverty; Poor living in very concentrated (>40%) poverty	Percentage of poor persons in each state who lived in areas of concentrated poverty, defined as more than 20 percent or 40 percent (measure of the convergence of household and neighborhood poverty) (2006–2010)	NCD
INCOME INEQUALITY		
Income inequality	Gini coefficient index (the most common measure of income inequality) (2011–2013)	ACS
RACE-ETHNICITY		
Racial segregation	Percentage of population living in a census tract that was less than 35 percent non-Hispanic white (i.e., majority-minority population) (2006–2010)	NCD
People living amid racial segregation + concentrated (>20%) poverty; People living amid racial segregation + very concentrated (>40%) poverty	Percentage of population living in census tracts that were racially segregated and had concentrated poverty at the 20 percent or 40 percent level (convergence of racial segregation and poverty) (2006–2010)	NCD
Poor living amid racial segregation	Percentage of population living in poverty and in racially segregated census tracts (2006–2010)	NCD
Poor people living amid racial segregation + concentrated (>20%) poverty; Poor people living amid racial segregation + very concentrated (>40%) poverty	Percentage of population living in poverty and in census tracts that were racially segregated and had concentrated poverty at the 20 percent or 40 percent level (2006–2010)	NCD
FOOD INSECURITY		
Food insecurity (households)	Percentage of households with food insecurity	USDA
Food insecurity (children)	Proportion of children living in households with food insecurity	USDA
HOUSING		
Severe housing cost burden	Proportion of homeowners or renters who spent >50 percent of their income on rent/mortgage (2011)	Center for Housing Policy
Severe housing disrepair	Percentage of residents with severe housing problems, such as lack of plumbing or kitchen facilities (2012)	ACS
Overcrowding	Average number of occupants per room (2012)	ACS

* See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

j This alternative definition of poverty incorporates the value of tax and transfer benefits not included in the official poverty measure. Thresholds are calculated based on consumer expenditure data and take into account geographic differences in the cost of living. The calculation uses a different definition of family membership than the official poverty measure.

TABLE 5.
HEALTH SYSTEM MEASURES

INDICATOR	DEFINITION	DATA SOURCE*
HEALTH INSURANCE COVERAGE		
Private insurance; Public insurance; Uninsured	Percent of the population (all ages) with private/commercial health insurance (ESI, Tricare, non-group) and public insurance (i.e., Medicaid, Medicare, Veterans Administration) and the percentage who were uninsured (2013)	ACS
Could not afford doctor	Percentage of adults age 18 years and older who reported not being able to visit their doctor at least once in the past 12 months due to cost (2010)	BRFSS
HEALTH PROFESSIONAL SHORTAGES		
Primary care shortage	Percentage of population living in an area with a population:primary care provider ratio of 2000 or greater	ACS/AHRF
Mental health care shortage	Percentage of population living in a mental health care shortage area (2014)	HRSA
Annual dental visit (adult)	Percentage of adults age 18 years and older with at least one dental visit in the past 12 months (a proxy for access to dentists)	BRFSS
CLINICAL PREVENTIVE SERVICES		
Colon cancer screening	Percentage of adults age 50–75 years who were up-to-date with colorectal cancer screening (2012)	BRFSS
Mammography screening	Percentage of women age 50 years or older who reported getting a mammogram in the past two years (2011/2012)	BRFSS
Cervical (Pap) screening	Percentage of women age 18 years or older who reported having had a Pap test in the past three years (2011/2012)	BRFSS
OUTPATIENT (AMBULATORY) MANAGEMENT OF CHRONIC CONDITIONS		
Avoidable hospitalization	Number of hospital discharges for "ambulatory care sensitive" conditions[k] per 1,000 Medicare enrollees (only available for Medicare patients but used as a proxy for all patients) (2010)	Dartmouth
Rehospitalization; Rehospitalization (heart attack); Rehospitalization (heart failure); Rehospitalization (pneumonia)	Percentage of acute hospitalizations for Medicare beneficiaries that are followed within 30 days by an acute readmission for all conditions combined or for heart attacks, heart failure, and pneumonia in particular (2011/2012)	CMS
Diabetes management	Percentage of Medicare enrollees who had diabetes and received "appropriate management" (2010)	Dartmouth
QUALITY OF HEALTH CARE INFRASTRUCTURE		
Electronic health record system	Percentage of office-based physicians in each state who reported having any electronic medical record system (2012)	NAMCS

* See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

[k] The National Quality Foundation defines *ambulatory care sensitive conditions* as those "where appropriate ambulatory care prevents or reduces the need for admission to the hospital." Examples include chronic obstructive pulmonary disease, asthma, diabetes, heart failure, hypertension, and angina.

TABLE 6.

PUBLIC POLICIES AND SPENDING MEASURES

INDICATOR	DEFINITION	DATA SOURCE*
PUBLIC POLICIES		
Tobacco taxes	State cigarette tax (dollars per pack)[l]	CDC
Medicaid eligibility limits; Medicaid eligibility (other)	Medicaid income eligibility limits for adults-parents of dependent children and other non-disabled adults as a percent of the FPL (August 2014)	KFF
PUBLIC SPENDING		
EDUCATION		
State education spending per capita	Education spending by state programs (in aggregate[m] and for elementary and secondary [E12] and higher education [E16/18]), calculated per capita (2011)	SLFS
State/Fed education spending per capita	Education spending by state and Federal programs (including Pell grants[n] and Head Start[o]), calculated per capita (2011)	SLFS
INCOME SECURITY		
State income support ÷ pop. <100% FPL; ÷ pop. <200% FPL	Income security spending by state programs[p], calculated per persons with incomes below 100% or 200% of the FPL. Correlations also analyzed separately for: • Federal public assistance • Public welfare workers • Unemployment benefits	SLFS
State/Fed income support ÷ pop. <100% FPL; ÷ pop. <200% FPL	Income security spending by state and Federal programs[q] (including EITC and SNAP), calculated per persons with incomes below 100% or 200% of the FPL.	SLFS/other[r]
OTHER SPENDING RELEVANT TO HEALTH OUTCOMES		
State spending on other non-health services per capita	Other state expenses relevant to health, calculated per capita and per low-income persons (income < 100% or 200% of the FPL). The following spending categories were analyzed only (per [a] 100% and [b] 200% FPL, respectively) for: • Housing & redevelopment (E50) Spending in the following categories was generally examined only per capita: • Parks & recreation • Natural resources[s] (E55/E56/E59) • Sewers/waste management (E80/E81) • Mass transit[t] (E94) • Highways/toll roads (E44/E55)	SLFS

FPL=Federal poverty level
GDP=Gross domestic product (state)

* See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

l This was treated as a proxy for how avidly states enforce laws or taxes to promote public health (e.g., laws that promote healthy diets, green space, motor vehicle safety, and clean air).

m Includes Elementary and Secondary Education (E12), Higher Education Auxiliary Expenses (E16); Other Higher Education (E18); State Scholarships and Other Subsidies (J19); Current Op. – State Education, Other (E21)

n Includes total spending (data from http://www2.ed.gov/finaid/prof/resources/data/pell-2011-12/pell-eoy-2011-12.html, Table 21, total awards) and by state of residence (data from http://www2.ed.gov/finaid/prof/resources/data/pell-2011-12/pell-eoy-2011-12.html – Table 22, total awards by state of residence)

o See: https://eclkc.ohs.acf.hhs.gov/hslc/data/factsheets/docs/hs-program-fact-sheet-2011-final.pdf

p Includes federal public assistance (e.g., SSI and TANF) (J67); Public Welfare, Cash Assistance Programs – other (Refugee, etc.) (J68); Public Welfare, Vendor Payment for Other Services (e.g. energy) (E75); Public Welfare – Other (e.g., foster care, adoption) (E79); Unemployment Compensation – Benefit Payments (Y05), Extended and Special Payments (Y06); Workers Compensation – Benefit Payments (Y14)

q Includes Social Insurance Administration (E22) OASI (data from http://www.ssa.gov/policy/docs/statcomps/supplement/2012/5j.html) and DI (data from http://www.ssa.gov/policy/docs/statcomps/supplement/2012/5j.html), EITC (data from http://www.brookings.edu/research/interactives/eitc), SNAP (data from http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap).

r Spending data were adjusted to reflect relative price parities across states using data from the Bureau of Economic Analyses.

s Conservation, promotion, and development of natural resources (soil, water, energy, minerals, etc.) and the regulation of industries which develop, utilize, or affect natural resources.

t E.g., bus, rail, light rail.

Appendix

DATA REDUCTION PROTOCOL

As noted earlier, this project began with a "deep dive" to examine the full spectrum of potential health outcomes and determinants that we could potentially examine, and was followed by a methodical process of narrowing the list based on specific criteria. Here we provide more detail about the process for reducing the list of health outcomes and determinants of health.

Reduction of health outcome measures: We reviewed health indicators used in other projects (including the NRC and IOM's *Shorter Lives, Poorer Health* report, and state-level data available from major national health statistics agencies that met our inclusion criteria).An effort was made to capture measures of morbidity, mortality, and overall health status, and to address conditions throughout the life course, from birth to old age. Mandatory inclusion criteria included: (a) derived from reputable public sources, (b) available for more than 45 states and the District of Columbia, and (c) acceptable scientific quality. Preferred criteria included: (a) substantial variation across states, (b) updated regularly, and (c) not duplicative of superior measures. The original list of 56 health outcomes was ultimately reduced to a final list of 39 health outcomes. For example, we had data on births to teens age 15–17 and age 18–19 but chose the single metric of births to teens age 15–19. We did not include prevalence rates that seemed vulnerable to screening biases—i.e., where rates might be higher in states where screening for the condition was more common and/or where residents had greater access to health care and could obtain screening. For example, prevalence rates for childhood developmental delay were not included. We examined prevalence rates for breast, colorectal, and prostate cancer but did not report the correlations in our charts because they were overwhelmingly more common in states with higher socioeconomic status and greater access to health care.

REDUCTION OF DETERMINANTS

We found data for 387 state-level determinants of health across the five domains of Health Behaviors, Physical and Social Environment, Social and Economic Factors, Health Systems, and Public Policies and Spending. We calculated Spearman rank order correlation coefficients between each of these variables and each of the health outcomes and eliminated 264 determinants, which are listed in Table A-1. This left 123 determinants for analysis. The 264 determinants were eliminated for several reasons. Notably, we eliminated determinants that did not achieve a high correlation (e.g., $r_s \geq 0.50$) with any health outcome. In some cases, we found multiple data sources for the same measure and chose one for simplicity; for example, data on smoking rates were available from the

Behavioral Risk Factor Surveillance Survey and from the Current Population Survey, and we chose the former. We obtained data on state policies (e.g., whether states had indoor air bans) but excluded them from calculations because they were non-continuous variables.

We identified closely related "package" variables and would often choose one for simplicity. For example, we measured the share of the population that was employed but chose not to also measure the unemployment rate or the share of the population not in the workforce. We measured married couples and single-parent households but not two-parent households. We measured the proportion of adults with a Bachelor's degree or higher education but did not separately measure the proportion with a high school diploma, a GED, less than a Bachelor's degree, or a Bachelor's degree with no higher education.

We eliminated a number of variables that appeared to have spurious correlations with health outcomes. As noted earlier, we found a positive correlation between health care spending and poor health outcomes and did not find this information instructive, because sicker populations require greater health care. We also omitted other correlations that seemed spurious, or for which the significance was likely due to confounding variables, as these could puzzle readers. Examples include the following:

Alcohol consumption: We found a positive correlation between alcohol consumption (e.g., binge drinking) and better health outcomes. A likely explanation is that alcohol consumption is associated with educational attainment.[22] We also removed a metric on the concentration of warehouse liquor stores per 10,000, which was also correlated with better health outcomes. We suspected confounding variables and did not want to suggest a benefit from unhealthy drinking.

Use of alcohol or drugs before sex: We found that some health outcomes were better in states where more youth reported drinking alcohol or using drugs before sexual activity.

Bullying: We found a positive correlation between bullying (and electronic bullying) and better health outcomes. We suspected a confounding variable and did not want to confuse the public about a serious public health issue.

Housing cost burden: We often found a positive correlation between housing cost burden—spending more than 30 percent of income on mortgages or rent—and improved health outcomes, potentially reflecting the ability of more affluent homeowners to spend more of their income on housing.

INTERMEDIATE QUINTILES

This project focuses on the Top 10 and Bottom 10 states—those in the highest and lowest quintiles for health outcomes. Space did not permit a listing of states in the intermediate quintiles but Table A-2 provides an indication of how often the states ranked in each quintile.

TABLE A-1.

VARIABLES EXAMINED IN ANALYSIS BUT NOT INCLUDED IN *THE HEALTH OF THE STATES* REPORTS

INDICATOR	DATA SOURCE*
HEALTH OUTCOMES	
Maternal mortality	CDC WONDER
Preterm births	KFF
Child health status (good)	NSCH
Child health status (fair/poor)	NSCH
CHILD DEVELOPMENTAL DISORDERS	
Current development delays	NSCH
Risk for developmental, behavioral or social delays (high)	NSCH
Risk for developmental, behavioral or social delays (moderate)	NSCH
Risk for developmental, behavioral or social delays (low)	NSCH
CHILDREN'S DENTAL HEALTH	
Condition of children's teeth (excellent/good)	NSCH
Condition of children's teeth (good)	NSCH
Condition of children's teeth (fair/poor)	NSCH
TEEN BIRTHS	
Teen births (less than age 18)	Various CDC/NCHS data
Teen births (age 15–17)	Various CDC/NCHS data
Teen births (age 18–19)	Various CDC/NCHS data
SERIOUS MENTAL ILLNESS	
Behavioral health services needed for SMI (total population)	ACS-PUMS
Behavioral health services needed for SMI (pop. in households)	ACS-PUMS
Behavioral health services needed for SMI (pop. below 200% FPL)	ACS-PUMS
HEALTH BEHAVIOR MEASURES	
SMOKING	
Current smokers	CPS
Former smokers	CPS
Smoking during pregnancy	CDC MMWR (2004)
PHYSICAL ACTIVITY	
Children's exercise (days of activity)	NSCH
DIET	
Green salad intake (youth)	YRBSS
SUBSTANCE ABUSE	
Excessive alcohol use	BRFSS
Excessive alcohol use	NSDUH
Binge drinking	BRFSS
Adolescents who have never used drugs	NSDUH
TRAVEL SAFETY	
Traffic fatalities due to alcohol	NHTSA
Seatbelt use (youth)	YRBSS
Riding with drunk driver (youth)	YRBSS
Drinking & driving (youth)	YRBSS
VIOLENT BEHAVIORS	
Physical fights (youth)	YRBSS
Carrying weapon at school (youth)	YRBSS
Carrying gun (youth)	YRBSS
PHYSICAL AND SOCIAL ENVIRONMENTAL MEASURES	
PHYSICAL ENVIRONMENT	
Fluoridated water	CDC fluoridation data
Tobacco use outside children's home	NSCH
Detracting neighborhood elements	NSCH
Pre-1960 housing stock	ACS
Units in walkable neighborhood	Walkscore

TABLE A-1. (CONTINUED)

VARIABLES EXAMINED IN ANALYSIS BUT NOT INCLUDED IN *THE HEALTH OF THE STATES* REPORTS

Warehouse liquor store density	HIW
Food desert	USDA
Food desert (children)	USDA
Food desert (seniors)	USDA
SOCIAL ENVIRONMENT	
Positive parent communication	NSCH
Bullying at school	YRBSS
Electronic bullying	YRBSS
Non-consensual sexual activity (youth)	YRBSS
Voter turnout	CPS
Unionized workers	BLS
Worksite OSHA inspections	AFL-CIO
Indoor worksite smoking bans	CDC STATE
Workplace injuries	BLS
SOCIAL AND ECONOMIC CONDITIONS	
HOUSEHOLD CHARACTERISTICS	
Two-parent households	ACS
Military enrollment	ACS
Homelessness (unhoused/shelters/temporary housing)	ICOH
Overall incarceration	BJS
Youth incarceration	CJRP
Parole	Annual Parole Survey
Probation	Annual Probation Survey
EDUCATION	
Completion of high school	ACS
GED	ACS
Event dropout rate 9–12th graders	NCES
Some college	ACS
Bachelor's degree (only)	ACS
Lower education of household head	Kids Count
INCOME AND EMPLOYMENT	
Household net worth	CFED
Asset poverty rate	CFED
Unemployment rate	ACS
Population out of workforce	ACS
Youth in school, employed or military	ACS
Housing cost burden	ACS
HEALTH SYSTEM MEASURES	
Delayed care (child)	NSCH
Children's dental visits	NSCH
Proportion of population living in an area with a population:primary care provider ratio $\geq$ 3500	ACS-AHRF
Population:primary care ratio > 2000	ACS-AHRF
Average population:primary care ratio	ACS-AHRF
Dental care shortage	ACS-AHRF
Pediatric immunization	HIW
Influenza vaccination	CDC
Pneumococcal immunization (age > 65)	BRFSS
HIV testing	BRFSS
IISAR participation	IISAR annual report
Electronic records (basic)	Various CDC/NCHS data
Hospital-associated infections	ISIRR

TABLE A-1. (CONTINUED)

VARIABLES EXAMINED IN ANALYSIS BUT NOT INCLUDED IN *THE HEALTH OF THE STATES* REPORTS

PUBLIC POLICIES AND SPENDING MEASURES	
INCOME AND EMPLOYMENT	
Indoor air bans/smoking laws	CDC STATE
Tobacco control spending per capita	CDC STATE
Enforcement of laws against smoking by minors	SAMHSA SYNAR report
Food outlet incentives	CDC STATE
Primary seat belt laws	NHTSA
Age when juveniles transfer to adult corrections	NRS
EDUCATION SPENDING	
Education, state spending ÷ pop. <100% FPL	SLFS
Education, state spending ÷ pop. <200% FPL	SLFS
Education, state spending ÷ TPI	SLFS
Education, state spending ÷ GDP	SLFS
Education, state and Federal spending ÷ pop. <100% FPL	SLFS, misc Federal websites
Education, state and Federal spending ÷ pop. <200% FPL	SLFS, misc Federal websites
Education, state and Federal spending ÷ TPI	SLFS, misc Federal websites
Education, state and Federal spending ÷ GDP	SLFS, misc Federal websites
Elementary and secondary education	SLFS
Elementary and secondary education ÷ pop. <100% FPL	SLFS
Elementary and secondary education ÷ pop. <200% FPL	SLFS
Higher education (auxiliary and other)	SLFS
Higher education (auxiliary and other) ÷ pop. <100% FPL	SLFS
Higher education (auxiliary and other) ÷ pop. <200% FPL	SLFS
State scholarships/other subsidies	SLFS
State scholarships/other subsidies ÷ pop. <100% FPL	SLFS
State scholarships/other subsidies ÷ pop. <200% FPL	SLFS
State scholarships/other subsidies (per capita)	SLFS
Head Start	Misc Federal Websites
Head Start ÷ pop. <100% FPL	Misc Federal Websites
Head Start ÷ pop. <200% FPL	Misc Federal Websites
Head Start (per capita)	Misc Federal Websites
Pell grants	Misc Federal Websites
Pell grants ÷ pop. <100% FPL	Misc Federal Websites
Pell grants ÷ pop. <200% FPL	Misc Federal Websites
Pell grants (per capita)	Misc Federal Websites
Pell grants, state of residence	Misc Federal Websites
Pell grants, state of residence ÷ pop. <100% FPL	Misc Federal Websites
Pell grants, state of residence ÷ pop. <100% FPL	Misc Federal Websites
Pell grants, state of residence (per capita)	Misc Federal Websites
INCOME SECURITY SPENDING	
Income security, state spending (per capita)	SLFS
Income security, state spending ÷ TPI	SLFS
Income security, state spending ÷ GDP	SLFS
Income security, state and Federal (per capita)	SLFS, misc federal websites
Income security, state and Federal ÷ TPI	SLFS, misc federal websites
Income security, state and Federal ÷ GDP	SLFS, misc federal websites
Federal Categorical Assistance (e.g., SSI, TANF)	SLFS
Federal Categorical Assistance (per capita)	SLFS
Cash assistance programs	SLFS
Cash assistance programs ÷ pop. <100% FPL	SLFS
Cash assistance programs ÷ pop. <200% FPL	SLFS
Cash assistance programs (per capita)	SLFS
Private vendors for low-income services	SLFS
Private vendors for low-income services ÷ pop. <100% FPL	SLFS

TABLE A-1. (CONTINUED)

VARIABLES EXAMINED IN ANALYSIS BUT NOT INCLUDED IN *THE HEALTH OF THE STATES* REPORTS

Private vendors for low-income services ÷ pop. <200% FPL	SLFS
Private vendors for low-income services (per capita)	SLFS
Public welfare, other (e.g., foster care, adoption)	SLFS
Public welfare, other (e.g., foster care, adoption) (per capita)	SLFS
Unemployment compensation	SLFS
Unemployment compensation (per capita)	SLFS
Workers compensation	SLFS
Workers compensation ÷ pop. <100% FPL	SLFS
Workers compensation ÷ pop. <200% FPL	SLFS
Workers compensation (per capita)	SLFS
Social Insurance Administration programs	SLFS
Social Insurance Administration programs ÷ pop. <100% FPL	SLFS
Social Insurance Administration programs ÷ pop. <200% FPL	SLFS
Social Insurance Administration programs (per capita)	SLFS
SNAP	Misc Federal Websites
SNAP ÷ pop. <100% FPL	Misc Federal Websites
SNAP ÷ pop. <200% FPL	Misc Federal Websites
SNAP (per capita)	Misc Federal Websites
Old-Age and Survivors Insurance	Misc Federal Websites
Old-Age and Survivors Insurance ÷ pop. <100% FPL	Misc Federal Websites
Old-Age and Survivors Insurance ÷ pop. <200% FPL	Misc Federal Websites
Old-Age and Survivors Insurance (per capita)	Misc Federal Websites
Disability Insurance	Misc Federal Websites
Disability Insurance ÷ pop. <100% FPL	Misc Federal Websites
Disability Insurance ÷ pop. <200% FPL	Misc Federal Websites
Disability Insurance (per capita)	Misc Federal Websites
Earned Income Tax Credit	Misc Federal Websites
Earned Income Tax Credit ÷ pop. <100% FPL	Misc Federal Websites
Earned Income Tax Credit ÷ pop. <200% FPL	Misc Federal Websites
Earned Income Tax Credit (per capita)	Misc Federal Websites
Earned Income Tax Credit available on state taxes	Misc Federal Websites
INFRASTRUCTURE SPENDING	
Housing and redevelopment	SLFS
Housing and redevelopment (per capita)	SLFS
Libraries	SLFS
Libraries ÷ pop. <100% FPL	SLFS
Libraries ÷ pop. <200% FPL	SLFS
Libraries (per capita)	SLFS
Parks and recreation	SLFS
Parks and recreation ÷ pop. <100% FPL	SLFS
Parks and recreation ÷ pop. <200% FPL	SLFS
Natural resources	SLFS
Natural resources ÷ pop. <100% FPL	SLFS
Natural resources ÷ pop. <200% FPL	SLFS
Sewers/waste management	SLFS
Sewers/waste management ÷ pop. <100% FPL	SLFS
Sewers/waste management ÷ pop. <200% FPL	SLFS
Police	SLFS
Police ÷ pop. <100% FPL	SLFS
Police ÷ pop. <200% FPL	SLFS
Police (per capita)	SLFS
Fire protection	SLFS
Fire protection ÷ pop. <100% FPL	SLFS
Fire protection ÷ pop. <200% FPL	SLFS

TABLE A-1. (CONTINUED)

VARIABLES EXAMINED IN ANALYSIS BUT NOT INCLUDED IN *THE HEALTH OF THE STATES* REPORTS

Fire protection (per capita)	SLFS
Transit utilities	SLFS
Transit utilities ÷ pop. <100% FPL	SLFS
Transit utilities ÷ pop. <200% FPL	SLFS
Highways and toll roads	SLFS
Highways and toll roads ÷ pop. <100% FPL	SLFS
Highways and toll roads ÷ pop. <200% FPL	SLFS
Air, sea, inland ports, parking	SLFS
Air, sea, inland ports, parking ÷ pop. <100% FPL	SLFS
Air, sea, inland ports, parking ÷ pop. <200% FPL	SLFS
Air, sea, inland ports, parking	SLFS
Corrections	SLFS
Corrections ÷ pop. <100% FPL	SLFS
Corrections ÷ pop. <200% FPL	SLFS
Corrections (per capita)	SLFS
STATE HEALTH SPENDING	
Health care expenditures (per capita)	KFF
State health spending	SLFS
State health spending ÷ pop. <100% FPL	SLFS
State health spending ÷ pop. <200% FPL	SLFS
State health spending ÷ TPI	SLFS
State health spending ÷ GDP	SLFS
State health spending (excl. nursing homes)	SLFS
State health spending (excl. nursing homes) ÷ pop. <100% FPL	SLFS
State health spending (excl. nursing homes) ÷ pop. <200% FPL	SLFS
State health spending (excl. nursing homes) ÷ TPI	SLFS
State health spending (excl. nursing homes) ÷ GDP	SLFS
CHIP	SLFS
CHIP ÷ pop. <100% FPL	SLFS
CHIP ÷ pop. <200% FPL	SLFS
CHIP (per capita)	SLFS
Nursing homes	SLFS
Nursing homes ÷ pop. <100% FPL	SLFS
Nursing homes ÷ pop. <200% FPL	SLFS
Nursing homes (per capita)	SLFS
Hospitals	SLFS
Hospitals ÷ pop. <100% FPL	SLFS
Hospitals ÷ pop. <200% FPL	SLFS
Hospitals (per capita)	SLFS
Other health care spending÷ pop. <100% FPL	SLFS
Other health care spending ÷ pop. <200% FPL	SLFS
Other health care spending ÷ TPI	SLFS
Other health care spending ÷ GDP	SLFS
Public health	SLFS
Public health ÷ pop. <100% FPL	SLFS
Public health ÷ pop. <200% FPL	SLFS
Public health (per capita)	SLFS
HEALTH CARE SPENDING, NATIONAL HEALTH EXPENDITURE ACCOUNTS	
Health care spending (per capita)	NHEA
Medicaid spending (per enrollee)	NHEA
Medicare spending (per enrollee)	NHEA
PERSONAL HEALTH CARE SPENDING	
Personal health care	NHEA
Personal health care (per capita)	NHEA

TABLE A-1. (CONTINUED)

VARIABLES EXAMINED IN ANALYSIS BUT NOT INCLUDED IN *THE HEALTH OF THE STATES* REPORTS

Personal health care, Medicaid	NHEA
Personal health care, Medicaid (per enrollee)	NHEA
Personal health care, Medicaid ÷ pop. <100% FPL	NHEA
Personal health care, Medicare	NHEA
Personal health care, Medicare (per enrollee)	NHEA
Personal health care, Medicare (> age 65)	NHEA
HOSPITAL CARE SPENDING	
Hospital care, per capita	NHEA
Hospital care, Medicaid, per enrollee	NHEA
Hospital care, Medicare, per enrollee	NHEA
PROFESSIONAL HEALTH CARE SPENDING	
Professional services	NHEA
Professional services, Medicaid	NHEA
Professional services, Medicaid ÷ pop. <100% FPL	NHEA
Professional services, Medicare	NHEA
Physician and clinical services (per capita)	NHEA
Physician and clinical services, Medicaid (per enrollee)	NHEA
Physician and clinical services, Medicare (per enrollee)	NHEA
Dental services (per capita)	NHEA
Dental services, Medicaid (per enrollee)	NHEA
Dental services, Medicare (per enrollee)	NHEA
Other professional services (per capita)	NHEA
Other professional services, Medicaid (per enrollee)	NHEA
Other professional services, Medicare (per enrollee)	NHEA
OTHER HEALTH, RESIDENTIAL, AND PERSONAL CARE	
Other health, residential, and personal care	NHEA
Other health, residential, and personal care, Medicaid (per enrollee)	NHEA
Other health, residential, and personal care, Medicare (per enrollee)	NHEA
HOME HEALTH CARE	
Home health care (per capita)	NHEA
Home health care, Medicaid (per enrollee)	NHEA
Home health care, Medicare (per enrollee)	NHEA
NURSING HOME/OTHER CONTINUING CARE SPENDING	
Nursing home/other personal care	NHEA
Nursing home/other personal care (per capita)	NHEA
Nursing home/other personal care, Medicaid	NHEA
Nursing home/other personal care, Medicaid (per enrollee)	NHEA
Nursing home/other personal care, Medicaid ÷ pop. <100% FPL	NHEA
Nursing home/other personal care, Medicare	NHEA
Nursing home/other personal care, Medicare (per enrollee)	NHEA
PRESCRIPTION DRUGS/MEDICAL PRODUCTS	
Prescription drugs/non-durable products (per capita)	NHEA
Prescription drugs/non-durable products, Medicaid (per enrollee)	NHEA
Prescription drugs/non-durable products, Medicare (per enrollee)	NHEA
Durable medical products (per capita)	NHEA
Durable medical products, Medicaid (per enrollee)	NHEA
Durable medical products, Medicare (per enrollee)	NHEA
OTHER ACUTE CARE HEALTHCARE SPENDING,	
All payers/State Population	NHEA
Medicaid/State Population	NHEA
Medicaid/Poor Population	NHEA
Medicare/State Population	NHEA

* See Table A-3 in the Appendix for the definition of abbreviations and the full names of data sources.

FPL=Federal poverty level; GDP=gross domestic product; GED=General Educational Development

TABLE A-2.

FOR HOW MANY HEALTH OUTCOMES DID EACH STATE RANK, BY QUINTILE?

STATE	1ST AND 2ND QUINTILE COMBINED (TOP 20)	1ST QUINTILE (TOP 10)	2ND QUINTILE	3RD QUINTILE	4TH QUINTILE	5TH QUINTILE (BOTTOM 10)
Minnesota	35	20	15	2	1	1
Utah	31	21	10	2	4	2
Washington	29	11	18	5	3	2
Massachusetts	28	21	7	4	6	1
Connecticut	28	20	8	7	2	2
Colorado	28	16	12	6	4	1
New Hampshire	28	15	13	6	3	2
Nebraska	28	6	22	9	2	0
Hawaii	27	20	7	7	2	3
Vermont	26	20	6	7	3	2
Idaho	25	10	15	8	5	1
California	24	16	8	10	2	3
Iowa	24	11	13	7	7	1
New Jersey	23	15	8	8	6	2
Rhode Island	23	5	18	11	2	3
South Dakota	22	13	9	5	8	4
North Dakota	22	10	12	9	2	4
Oregon	21	12	9	10	4	4
Wyoming	21	10	11	7	7	3
Alaska	20	13	7	7	9	3
New York	20	12	8	8	7	4
Wisconsin	19	7	12	17	3	0
District of Columbia	18	14	4	4	3	14
Virginia	18	5	13	14	6	1
Maryland	18	5	13	13	6	2
Montana	17	6	11	12	4	6
Illinois	15	6	9	15	6	3
New Mexico	14	9	5	8	6	11
Florida	14	5	9	9	7	9
Arizona	13	10	3	10	11	5
Maine	13	8	5	16	7	3
Texas	12	6	6	10	11	6
Kansas	12	0	12	18	8	1
Nevada	9	3	6	10	10	6
Georgia	9	1	8	7	13	10
Delaware	7	1	6	15	13	4
Pennsylvania	6	2	4	11	15	7
Michigan	5	0	5	14	16	4
West Virginia	4	2	2	6	4	25
North Carolina	4	0	4	12	18	5
Missouri	3	2	1	7	23	6
Arkansas	3	2	1	3	10	23
Indiana	3	1	2	10	21	5
Mississippi	2	1	1	1	5	31
Ohio	2	0	2	14	19	4
South Carolina	2	0	2	7	14	16
Kentucky	2	0	2	7	5	25
Oklahoma	2	0	2	4	10	23
Louisiana	2	0	2	2	6	29
Tennessee	1	0	1	2	13	23
Alabama	1	0	1	2	6	30

TABLE A-3.
DATA SOURCES EXAMINED

ABBREVIATION	DATA SOURCE
ACS	American Community Survey, US Census Bureau
AFL-CIO	American Federation of Labor and Congress of Industrial Organizations
AHRF	Area Health Resource File
APS	Annual Probation Survey/Annual Parole Survey
BJS	Bureau of Justice Statistics
BLS	Bureau of Labor Statistics
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CEDA	Corporation of Enterprise Development Assets and Opportunity Scorecard
CFED	Corporation for Enterprise Development
CHR	County Health Rankings
CJRP	Census of Juveniles in Residential Placement, Office of Juvenile Justice and Delinquency Prevention
CMS	Centers for Medicare/Medicaid Services Chronic Conditions Data Warehouse and Medicare Administrative Data
CPS	Current Population Survey, US Census Bureau
Dartmouth	Dartmouth Atlas of Health Care
HIW	Health Indicators Warehouse
HRSA	Health Resources and Services Administration
ICOH	US Interagency Council On Homelessness
IISAR annual report	Immunization Information Systems Annual Report
ISIRR	National and State Healthcare-Associated Infections Standardized Infection Ratio Report
KFF	Kaiser Family Foundation
NAEP	National Association for Educational Progress
NAMCS	National Ambulatory Medical Care Survey
NCD	Neighborhood Change Database
NCES	National Center for Education Statistics
NCHS	National Center for Health Statistics
NEPHTR	CDC National Environmental Public Health Tracking Program
NHEA	National Health Expenditure Accounts
NHTSA	National Highway Traffic Safety Administration
NIS	National Immunization Survey
NRS	Juvenile Offenders and Victims: National Report Series
NSCH	National Survey of Children's Health
NSDUH	National Survey of Drug Use and Health
NERCRD	Northeast Regional Center for Rural Development
PUMS	Public Use Microdata Sample
SLFS	Census of Governments State and Local Finances Survey
UCR	Uniform Crime Report
USDA	U.S. Department of Agriculture Food Environment Atlas
Walkscore	2012 street-smart Walkscore data compiled by Julia Koschinsky of Arizona State University
YRBSS	Youth Risk Behavior Surveillance System

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