



# County Health Rankings

Mobilizing Action Toward Community Health

2010

**North Carolina**



Robert Wood Johnson Foundation



UNIVERSITY OF WISCONSIN

**Population Health Institute**

*Translating Research into Policy and Practice*

## Introduction

Where we live matters to our health. The health of a community depends on many different factors, including quality of health care, individual behavior, education and jobs, and the environment. We can improve a community's health through programs and policies. For example, people who live in communities with ample park and recreation space are more likely to exercise, which reduces heart disease risk. People who live in communities with smoke-free laws are less likely to smoke or to be exposed to second-hand smoke, which reduces lung cancer risk.

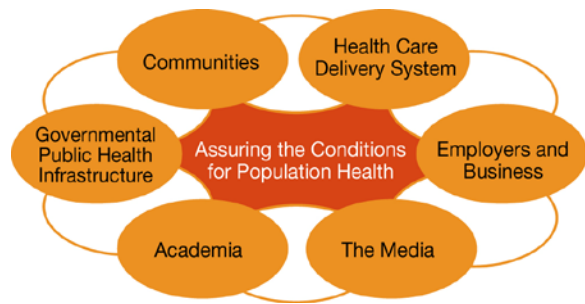
The problem is that there are big differences in health across communities, with some places being much healthier than others. And up to now, it has been hard to get a standard way to measure how healthy a county is and see where they can improve.

The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute are pleased to present the 2010 *County Health Rankings*, a collection of 50 reports that reflect the overall health of counties in every state across the country. For the first time, counties can get a snapshot of how healthy their residents are by comparing their overall health and the factors that influence their health, with other counties in their state. This will allow them to see county-to-county where they are doing well and where they need to improve. Everyone has a stake in community health. We all need to work together to find solutions. The *County Health Rankings* serve as both a call to action and a needed tool in this effort.

All of the *County Health Rankings* are based upon this model of population health improvement:



In this model, health outcomes are measures that describe the current health status of a county. These health outcomes are influenced by a set of health factors. These health factors and their outcomes may also be affected by community-based programs and policies designed to alter their distribution in the community. Counties can improve health outcomes by addressing all health factors with effective, evidence-based programs and policies.



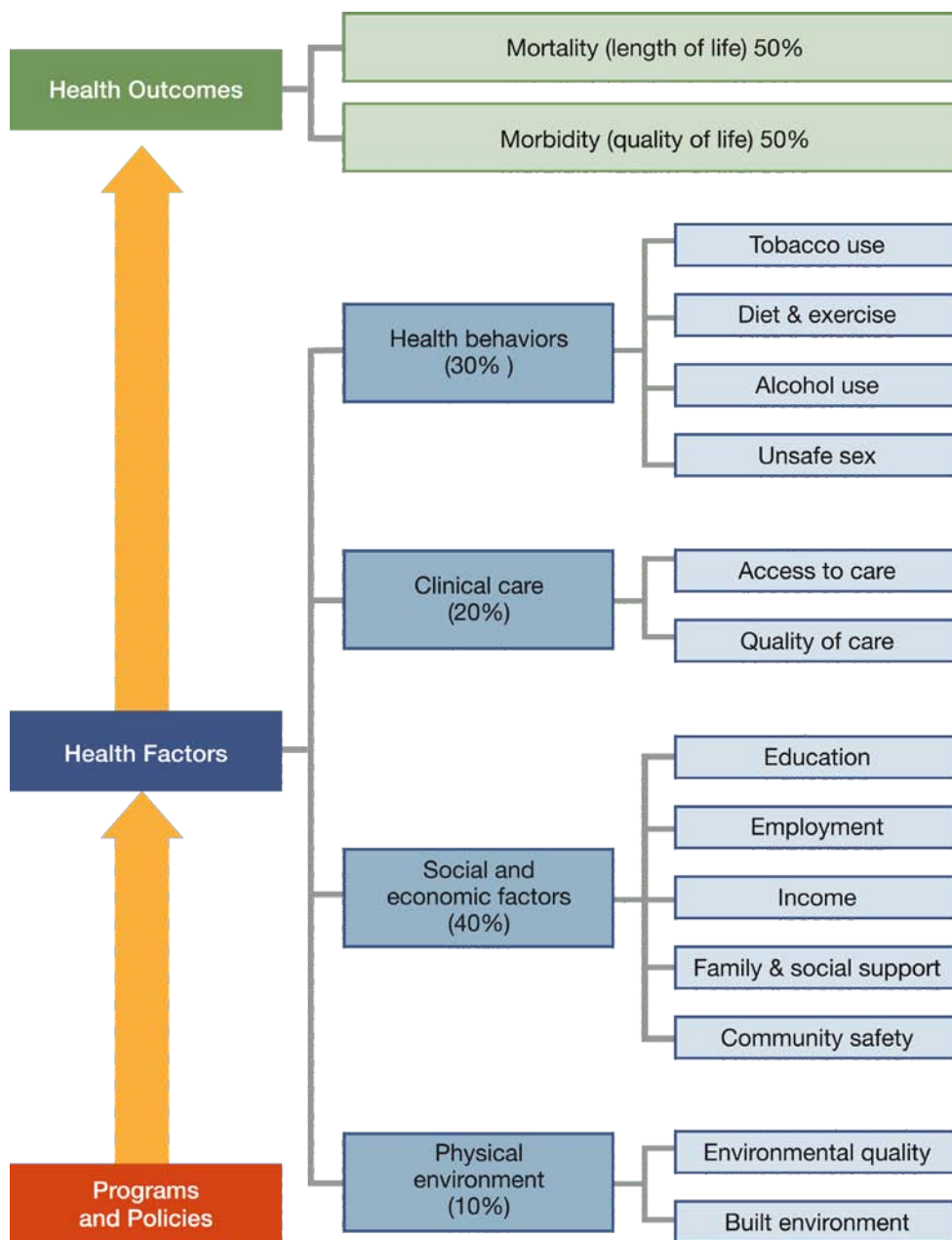
Institute of Medicine, 2002

To compile the *Rankings*, we built on our prior work in Wisconsin, worked closely with staff from the Centers for Disease Control and Prevention and Dartmouth College, and obtained input from a team of expert advisors. Together we selected a number of population health measures based on scientific relevance, importance, and availability of data at the county level. For a more detailed explanation of the choice of measures, see [www.countyhealthrankings.org](http://www.countyhealthrankings.org).

## The Rankings

This report ranks North Carolina counties according to their summary measures of **health outcomes** and **health factors**, as well as the components used to create each summary measure. The figure below depicts the structure of the *Rankings* model. Counties receive a rank for each population health component; those having high ranks (e.g., 1 or 2) are estimated to be the “healthiest.”

Our summary **health outcomes** rankings are based on an equal weighting of mortality and morbidity measures. The summary health **factors** rankings are based on weighted scores of four types of factors: behavioral, clinical, social and economic, and environmental. The weights for the factors (shown in parentheses in the figure) are based upon a review of the literature and expert input, but represent just one way of combining these factors.

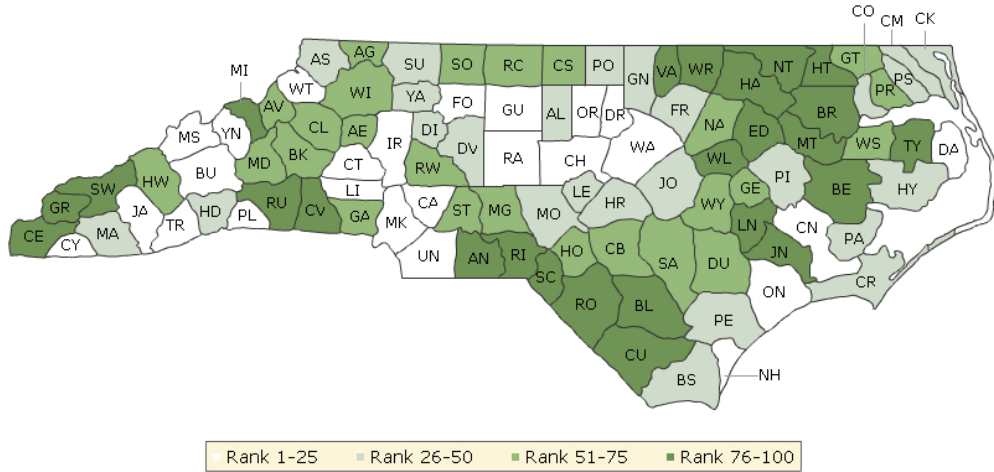


County Health Rankings model ©2010 UWPHI

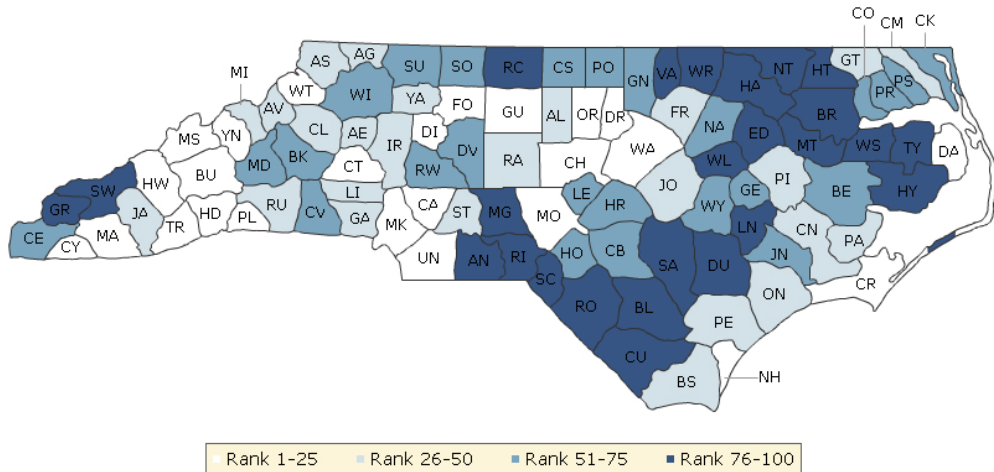
The maps on this page display North Carolina's counties divided into groups by health rank. The lighter colors indicate better performance in the respective summary rankings. The green map shows the distribution of summary health outcomes. The blue displays the distribution of the summary rank for health factors.

Maps help locate the healthiest and least healthy counties in the state. The health factors map appears similar to the health outcomes map, showing how health factors and health outcomes are closely related.

### HEALTH OUTCOMES



### HEALTH FACTORS



## Summary Health Outcomes & Health Factors Rankings

Counties receive two summary ranks:

- Health Outcomes
- Health Factors

Health outcomes represent how healthy a county is while health factors are what influences the health of the county.

Each of these ranks represents a weighted summary of a number of measures.

Rank	Health Outcomes	Rank	Health Factors
1	Wake	1	Orange
2	Orange	2	Wake
3	Union	3	Buncombe
4	Chatham	4	Polk
5	Mecklenburg	5	Henderson
6	New Hanover	6	Transylvania
7	Dare	7	New Hanover
8	Watauga	8	Durham
9	Cabarrus	9	Moore
10	Guilford	10	Union
11	Durham	11	Chatham
12	Jackson	12	Catawba
13	Randolph	13	Yancey
14	Madison	14	Mecklenburg
15	Onslow	15	Macon
16	Yancey	16	Watauga
17	Transylvania	17	Guilford
18	Catawba	18	Madison
19	Clay	19	Haywood
20	Forsyth	20	Forsyth
21	Iredell	21	Clay
22	Lincoln	22	Cabarrus
23	Polk	23	Davie
24	Craven	24	Carteret
25	Buncombe	25	Dare
26	Alamance	26	Craven
27	Carteret	27	Mitchell
28	Pasquotank	28	Alamance
29	Ashe	29	Iredell
30	Camden	30	Yadkin
31	Moore	31	Jackson
32	Johnston	32	Brunswick
33	Henderson	33	Lincoln
34	Hyde	34	Alexander
35	Harnett	35	Pamlico
36	Franklin	36	Stanly
37	Davie	37	Ashe
38	Pender	38	Camden
39	Pamlico	39	Pitt
40	Currituck	40	Pender

Rank	Health Outcomes	Rank	Health Factors
41	Davidson	41	Randolph
42	Yadkin	42	Rutherford
43	Brunswick	43	Onslow
44	Macon	44	Franklin
45	Pitt	45	Caldwell
46	Lee	46	Avery
47	Person	47	Gates
48	Surry	48	Alleghany
49	Granville	49	Gaston
50	Chowan	50	Johnston
51	McDowell	51	Currituck
52	Avery	52	McDowell
53	Stokes	53	Stokes
54	Cumberland	54	Cumberland
55	Caswell	55	Cherokee
56	Haywood	56	Burke
57	Hoke	57	Wayne
58	Caldwell	58	Davidson
59	Montgomery	59	Lee
60	Alexander	60	Surry
61	Nash	61	Nash
62	Rowan	62	Wilkes
63	Wayne	63	Harnett
64	Wilkes	64	Rowan
65	Washington	65	Cleveland
66	Gates	66	Pasquotank
67	Sampson	67	Beaufort
68	Stanly	68	Jones
69	Greene	69	Chowan
70	Gaston	70	Granville
71	Rockingham	71	Caswell
72	Burke	72	Perquimans
73	Duplin	73	Greene
74	Alleghany	74	Person
75	Perquimans	75	Hoke
76	Graham	76	Wilson
77	Tyrrell	77	Bladen
78	Swain	78	Hertford
79	Cleveland	79	Montgomery
80	Beaufort	80	Washington
81	Wilson	81	Hyde
82	Jones	82	Sampson
83	Cherokee	83	Duplin
84	Mitchell	84	Lenoir
85	Rutherford	85	Rockingham
86	Scotland	86	Graham
87	Anson	87	Martin
88	Lenoir	88	Tyrrell
89	Northampton	89	Bertie
90	Richmond	90	Richmond

Rank	Health Outcomes	Rank	Health Factors
91	Vance	91	Swain
92	Warren	92	Anson
93	Hertford	93	Halifax
94	Edgecombe	94	Northampton
95	Martin	95	Scotland
96	Halifax	96	Vance
97	Bladen	97	Columbus
98	Robeson	98	Warren
99	Bertie	99	Edgecombe
100	Columbus	100	Robeson

## Health Outcomes Rankings

The summary health outcomes ranking is based on measures of mortality and morbidity. Each county's ranks for mortality and morbidity are displayed here. The mortality rank, representing length of life, is based on a measure of premature death: the years of potential life lost prior to age 75.

The morbidity rank is based on measures that represent health-related quality of life and birth outcomes. We combine four morbidity measures: self-reported fair or poor health, poor physical health days, poor mental health days, and the percent of births with low birthweight.

Rank	Mortality	Morbidity
1	Wake	Wake
2	Orange	Chatham
3	Union	Polk
4	New Hanover	Orange
5	Mecklenburg	Union
6	Watauga	Jackson
7	Madison	Dare
8	Durham	Clay
9	Chatham	Mecklenburg
10	Camden	Moore
11	Guilford	Craven
12	Cabarrus	Cabarrus
13	Dare	Transylvania
14	Onslow	Guilford
15	Randolph	New Hanover
16	Davie	Lincoln
17	Pasquotank	Macon
18	Johnston	Carteret
19	Alamance	Yancey
20	Catawba	Randolph
21	Yancey	Onslow
22	Forsyth	Pamlico
23	Currituck	Catawba
24	Iredell	Iredell
25	Buncombe	Durham
26	Ashe	Forsyth
27	Jackson	Harnett
28	Transylvania	Watauga
29	McDowell	Lee
30	Lincoln	Buncombe
31	Hyde	Person
32	Henderson	Henderson
33	Pender	Nash
34	Clay	Brunswick
35	Franklin	Granville
36	Davidson	Swain
37	Craven	Yadkin
38	Caswell	Hyde
39	Carteret	Ashe
40	Surry	Franklin

Rank	Mortality	Morbidity
41	Stokes	Wayne
42	Rowan	Alamance
43	Harnett	Madison
44	Pitt	Montgomery
45	Gates	Pender
46	Yadkin	Sampson
47	Chowan	Pasquotank
48	Polk	Pitt
49	Alleghany	Hoke
50	Moore	Davidson
51	Tyrrell	Avery
52	Cumberland	Johnston
53	Wilkes	Cumberland
54	Brunswick	Greene
55	Avery	Haywood
56	Pamlico	Chowan
57	Caldwell	Alexander
58	Haywood	Gaston
59	Granville	Surry
60	Alexander	Caldwell
61	Person	Camden
62	Stanly	Cherokee
63	Burke	Washington
64	Lee	Davie
65	Washington	Currituck
66	Jones	Rockingham
67	Hoke	Duplin
68	Montgomery	Stokes
69	Macon	Stanly
70	Perquimans	Wilson
71	Rockingham	Rutherford
72	Duplin	Wilkes
73	Mitchell	Beaufort
74	Gaston	Caswell
75	Cleveland	Graham
76	Greene	Burke
77	Wayne	Anson
78	Graham	Perquimans
79	Nash	McDowell
80	Sampson	Gates
81	Beaufort	Martin
82	Lenoir	Rowan
83	Wilson	Scotland
84	Warren	Cleveland
85	Northampton	Alleghany
86	Cherokee	Edgecombe
87	Richmond	Robeson
88	Rutherford	Vance
89	Scotland	Mitchell
90	Hertford	Jones

Rank	Mortality	Morbidity
91	Swain	Tyrrell
92	Anson	Richmond
93	Vance	Northampton
94	Edgecombe	Hertford
95	Halifax	Bladen
96	Bladen	Columbus
97	Bertie	Halifax
98	Columbus	Lenoir
99	Robeson	Bertie
100	Martin	Warren

## Health Factors Rankings

The summary health factors ranking is based on four factors: health behaviors, clinical care, social and economic, and physical environment factors. In turn, each of these factors is based on several measures. Health behaviors include measures of smoking, diet and exercise, alcohol use, and risky sex behavior. Clinical

care includes measures of access to care and quality of care. Social and economic factors include measures of education, employment, income, family and social support, and community safety. The physical environment includes measures of environmental quality and the built environment.

Rank	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
1	Orange	Orange	Orange	Hoke
2	Yancey	Durham	Wake	Yadkin
3	Polk	Buncombe	Currituck	Madison
4	Mecklenburg	Transylvania	Transylvania	Clay
5	Wake	New Hanover	Union	Onslow
6	Buncombe	Pitt	Watauga	Halifax
7	New Hanover	Forsyth	Camden	Tyrrell
8	Henderson	Catawba	Chatham	Polk
9	Moore	Rutherford	Polk	Ashe
10	Clay	Henderson	Dare	Craven
11	Avery	Haywood	Henderson	Brunswick
12	Macon	Guilford	Buncombe	Moore
13	Watauga	Wake	Davie	Buncombe
14	Union	Macon	Carteret	Swain
15	Catawba	Mecklenburg	Cabarrus	Nash
16	Chatham	Moore	Haywood	Mitchell
17	Transylvania	Madison	New Hanover	Richmond
18	Forsyth	Cleveland	Madison	Jones
19	Durham	Cumberland	Jackson	Robeson
20	Guilford	Mitchell	Iredell	Rutherford
21	Mitchell	Chowan	Mecklenburg	Franklin
22	Cabarrus	Yancey	Yadkin	Montgomery
23	Gates	Bladen	Johnston	Chowan
24	Alleghany	Alamance	Durham	Dare
25	Ashe	Burke	Moore	Scotland
26	Lincoln	Nash	Onslow	Pasquotank
27	Alexander	Scotland	Guilford	Cleveland
28	Greene	Vance	Pamlico	Duplin
29	Cherokee	Cabarrus	Stokes	Bladen
30	Brunswick	Caldwell	Forsyth	Henderson
31	Rutherford	Pamlico	Craven	Cherokee
32	Stanly	Polk	Catawba	Orange
33	Carteret	Hertford	Macon	Randolph
34	Alamance	Craven	Pender	Davie
35	Haywood	Edgecombe	Lincoln	Jackson
36	Iredell	Gaston	Clay	Alexander
37	Davie	Wayne	Alamance	Surry
38	Graham	McDowell	Franklin	Vance
39	Jackson	Stanly	Stanly	Perquimans
40	Pitt	Randolph	Avery	Graham

Rank	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
41	Washington	Pasquotank	Brunswick	Alamance
42	Wilkes	Rowan	Alexander	Harnett
43	Pender	Wilson	Granville	Wayne
44	Craven	Lee	Rowan	Yancey
45	Caldwell	Union	Ashe	Sampson
46	Madison	Bertie	Gates	Washington
47	Randolph	Halifax	Randolph	Gaston
48	Dare	Chatham	Harnett	Rockingham
49	Surry	Beaufort	McDowell	Chatham
50	Yadkin	Caswell	Wayne	Carteret
51	Cleveland	Clay	Yancey	Macon
52	Camden	Brunswick	Davidson	Catawba
53	Lee	Lincoln	Hoke	Warren
54	McDowell	Alexander	Cumberland	Stokes
55	Davidson	Davie	Person	Hertford
56	Jones	Person	Gaston	Pamlico
57	Tyrrell	Columbus	Caldwell	Pender
58	Gaston	Surry	Alleghany	Johnston
59	Harnett	Iredell	Mitchell	Lenoir
60	Wilson	Cherokee	Burke	Anson
61	Duplin	Hoke	Beaufort	Lee
62	Franklin	Carteret	Caswell	Pitt
63	Chowan	Davidson	Wilkes	Caldwell
64	Bladen	Richmond	Perquimans	Bertie
65	Pamlico	Lenoir	Pitt	Edgecombe
66	Burke	Robeson	Lee	Durham
67	Johnston	Granville	Surry	Cumberland
68	Nash	Anson	Pasquotank	New Hanover
69	Hyde	Washington	Rockingham	Burke
70	Perquimans	Franklin	Duplin	Wilson
71	Rowan	Hyde	Cherokee	Alleghany
72	Montgomery	Northampton	Sampson	Haywood
73	Stokes	Ashe	Nash	Beaufort
74	Hertford	Graham	Greene	Wilkes
75	Halifax	Jones	Jones	Hyde
76	Lenoir	Wilkes	Rutherford	Union
77	Wayne	Onslow	Montgomery	Davidson
78	Cumberland	Montgomery	Martin	Guilford
79	Martin	Pender	Swain	Transylvania
80	Onslow	Stokes	Hyde	McDowell
81	Richmond	Warren	Lenoir	Camden
82	Beaufort	Alleghany	Hertford	Caswell
83	Pasquotank	Rockingham	Wilson	Northampton
84	Anson	Perquimans	Chowan	Iredell
85	Caswell	Watauga	Cleveland	Greene
86	Sampson	Jackson	Bladen	Avery
87	Person	Dare	Northampton	Stanly
88	Currituck	Tyrrell	Washington	Gates
89	Bertie	Yadkin	Bertie	Currituck
90	Granville	Gates	Anson	Watauga

Rank	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
91	Columbus	Sampson	Tyrrell	Person
92	Rockingham	Martin	Richmond	Lincoln
93	Warren	Swain	Warren	Martin
94	Scotland	Greene	Columbus	Columbus
95	Northampton	Harnett	Graham	Cabarrus
96	Vance	Johnston	Vance	Granville
97	Swain	Currituck	Scotland	Forsyth
98	Hoke	Camden	Halifax	Wake
99	Robeson	Avery	Edgecombe	Rowan
100	Edgecombe	Duplin	Robeson	Mecklenburg

## 2010 County Health Rankings: Measures, Data Sources, and Years of Data

	Measure	Data Source	Years of Data
<b>HEALTH OUTCOMES</b>			
<b>Mortality</b>	Premature death	National Center for Health Statistics	2004-2006
<b>Morbidity</b>	Poor or fair health	Behavioral Risk Factor Surveillance System	2002-2008
	Poor physical health days	Behavioral Risk Factor Surveillance System	2002-2008
	Poor mental health days	Behavioral Risk Factor Surveillance System	2002-2008
	Low birthweight	National Center for Health Statistics	2000-2006
<b>HEALTH FACTORS</b>			
<b>HEALTH BEHAVIORS</b>			
<b>Tobacco</b>	Adult smoking	Behavioral Risk Factor Surveillance System	2002-2008
<b>Diet and Exercise</b>	Adult obesity	National Center for Chronic Disease Prevention and Health Promotion	2006-2008
<b>Alcohol Use</b>	Binge drinking	Behavioral Risk Factor Surveillance System	2002-2008
	Motor vehicle crash death rate	National Center for Health Statistics	2000-2006
<b>High Risk Sexual Behavior</b>	Chlamydia rate	National Center for Health Statistics	2006
	Teen birth rate	National Center for Health Statistics	2000-2006
<b>CLINICAL CARE</b>			
<b>Access to Care</b>	Uninsured adults	Small Area Health Insurance Estimates, U.S. Census	2005
	Primary care provider rate	Health Resources & Services Administration	2006
<b>Quality of Care</b>	Preventable hospital stays	Medicare/Dartmouth Institute	2005-2006
	Diabetic screening	Medicare/Dartmouth Institute	2003-2006
	Hospice use	Medicare/Dartmouth Institute	2001-2005
<b>SOCIOECONOMIC FACTORS</b>			
<b>Education</b>	High school graduation	National Center for Education Statistics <sup>1</sup>	2005-2006
	College degrees	U.S. Census/American Community Survey	2000/2005-2007
<b>Employment</b>	Unemployment	Bureau of Labor Statistics	2008
<b>Income</b>	Children in poverty	Small Area Income and Poverty Estimates, U.S. Census	2007
	Income inequality	U.S. Census/American Community Survey <sup>2</sup>	2000/2005-2007
<b>Family and Social Support</b>	Inadequate social support	Behavioral Risk Factor Surveillance System	2005-2008
	Single-parent households	U.S. Census/American Community Survey	2000/2005-2007
<b>Community Safety</b>	Violent crime <sup>3</sup>	Uniform Crime Reporting, Federal Bureau of Investigation	2005-2007
<b>PHYSICAL ENVIRONMENT</b>			
<b>Air Quality<sup>4</sup></b>	Air pollution-particulate matter days	U.S. Environmental Protection Agency / Centers for Disease Control and Prevention	2005
	Air pollution-ozone days	U.S. Environmental Protection Agency / Centers for Disease Control and Prevention	2005
<b>Built Environment</b>	Access to healthy foods	Census Zip Code Business Patterns	2006
	Liquor store density	Census County Business Patterns	2006

<sup>1</sup> State data sources for KY, NH, NC, PA, SC, and UT (2007-2008).

<sup>2</sup> Income inequality estimates for 2000 were calculated by Mark L. Burkey, North Carolina Agricultural & Technical State University, [www.ncat.edu/~burkeym/Gini.htm](http://www.ncat.edu/~burkeym/Gini.htm).

<sup>3</sup> Homicide rate (2000-2006) from National Center for Health Statistics for AK, AZ, AR, CO, CT, GA, ID, IN, IA, KS, KY, LA, MN, MS, MT, NE, NH, NM, NC, ND, OH, SD, UT, and WV. State data source for IL.

<sup>4</sup> Not available for AK and HI.

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