

Wisconsin County Health Rankings 2006



**environment • socioeconomic • behaviors
health care • health status • mortality**



University of Wisconsin
**SCHOOL OF MEDICINE
AND PUBLIC HEALTH**

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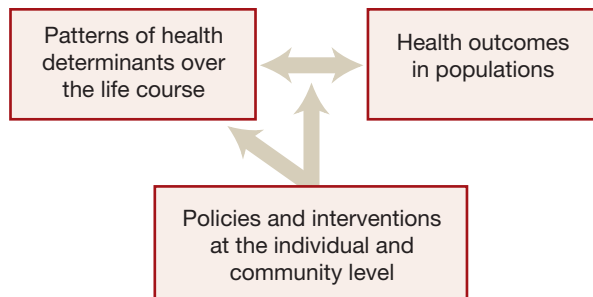
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Introduction

The University of Wisconsin Population Health Institute is pleased to present the 2006 *Wisconsin County Health Rankings*. This report is an annual publication intended to summarize the current state of health and distribution of key factors that determine future health. Our goal is that the information included in this report will engage community stakeholders (see figure to the right) in taking action to improve public health in Wisconsin, as well as provide a model for others to follow in monitoring population health.

The 2006 *Wisconsin County Health Rankings* is based upon the model of population health improvement below. This paradigm shows that health outcomes are the result of a set of health determinants and their distribution in the population, and that these determining factors may be affected by policies or interventions that alter their distribution in the community. Thus, counties and cities have the ability to improve population health through the adoption of effective programs and policies.



Source: Kindig and Stoddart, 2003.¹

Governmental public health organizations are just one of many stakeholders accountable for the health of Wisconsin residents. In the Institute of Medicine (IOM) model, many partners have been identified as having overlapping interests and resources. For example, “Communities” can include various different entities, including schools and law enforcement. This approach emphasizes the need for collaboration across the various sectors in order to successfully improve population health.

Public Health Stakeholders



Source: IOM, 2002.²

In compiling the Rankings for use by communities, it would be impossible to include all of the determinants of a population’s health. Instead, we have selected a number of population health determinants based on the health priorities of the Wisconsin state health plan, scientific relevance, importance, and availability of data at the county and city level. For a more detailed explanation of the choice of measures, see the *2006 Wisconsin County Health Rankings Full Report*.³

Two special features are included in the *Rankings* this year. The first special feature presents a measure of policies at the community level—non-smoking ordinances—in order to assess current efforts to improve one area of population health. The second feature is an in-depth look at the absolute burden of mortality in Wisconsin, in contrast to the relative ranking of mortality rates used in the summary health outcomes measure.

Three major changes were made for this year:

- Milwaukee, Wisconsin’s largest city, is included to provide information on health outcomes and determinants within Milwaukee County. (As in previous years, we still report the 72 counties.)
- To make the *Rankings* easier to interpret, a lower number in rank and in the reported value will now always represent better health.
- County estimates based on survey sample sizes less than 50 are not reported to avoid over-interpretation of less reliable estimates.

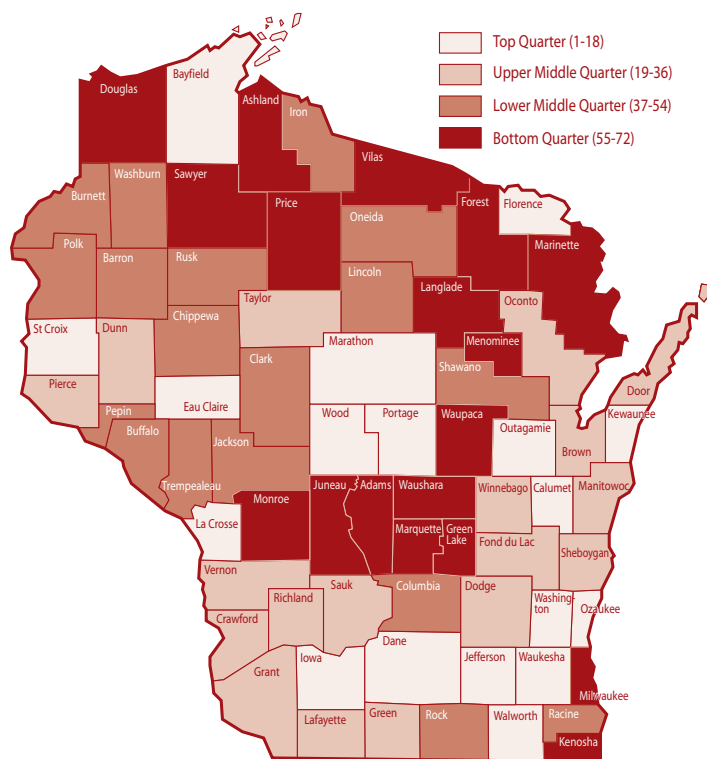
The maps on this page display Wisconsin's counties divided into quartiles by health rank. The lighter colors indicate better performance in the respective summary rankings. The map in the upper right corner shows the distribution of summary health outcomes. The map in the lower right corner displays the distribution of summary health determinants.

Through the visual display of the distribution of health outcomes and determinants, maps aid in identifying patterns in regional distribution. In addition, it becomes easier to visualize the relationship between determinants and outcomes, as the distribution of the two closely mirror each other.

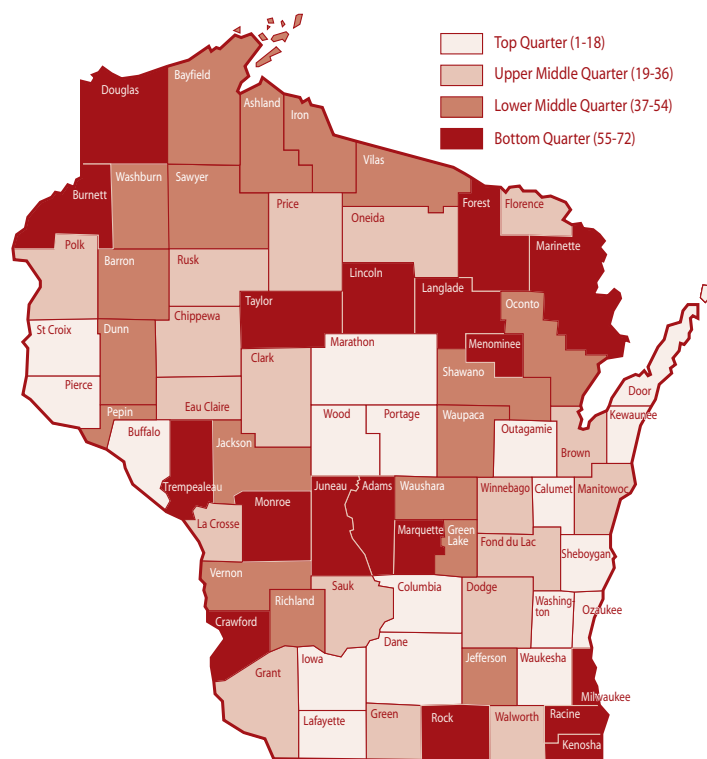
We expect high performing counties in the health outcomes map to be currently or historically high performing counties in the health determinants map. Twelve of the 18 counties ranking in the top quartile for health outcomes also rank in the top quartile for health determinants. However, it is interesting to note that of the six counties that rank in the top quartile for health determinants, but not health outcomes, three of them were counties that shared a border with another state.

Of the 18 counties in the bottom quartile for health outcomes, 11 were also in the bottom quartile for health determinants. Counties with lower health outcomes and health determinants could benefit from sound program planning and collaboration with neighboring counties. Other important strategies to improve health include ensuring sound economic development and an adequate infrastructure for education.

Health Outcomes by Quartile



Health Determinants by Quartile

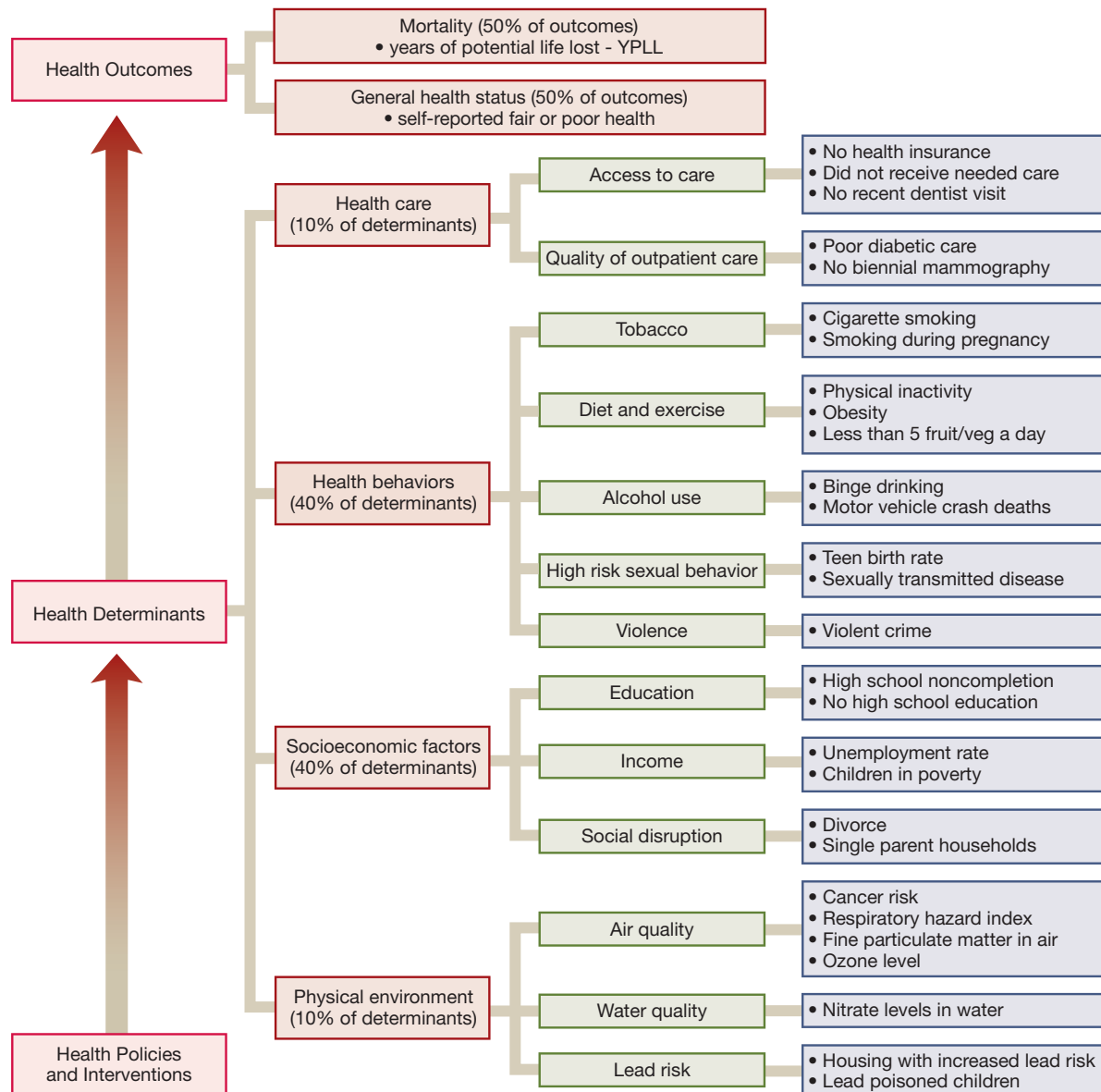


The Rankings

This report ranks places in Wisconsin according to their summary measures of **health outcomes** and **health determinants**, as well as the components used to create each summary measure. The figure below depicts the structure of the Rankings. Places receive a rank for each population health component. Places having high ranks (e.g., 1 or 2) are estimated to be the “healthiest.”

Overall summary **health outcomes** rankings are based on an equal weighting of two measures: mortality and general health status. **Health determinants** are based on weighted scores

of four major components: health care, health behaviors, socioeconomic factors, and the physical environment. The weights for the components (shown in parentheses in the figure) are based upon a review of the literature regarding how these measures combine and expert input, but represent just one way of combining the components. Each of these four health determinant components is based, in turn, on multiple population health categories listed to the right of the determinant components. Each of these categories is represented by one or more health measures (on the far right of the model).

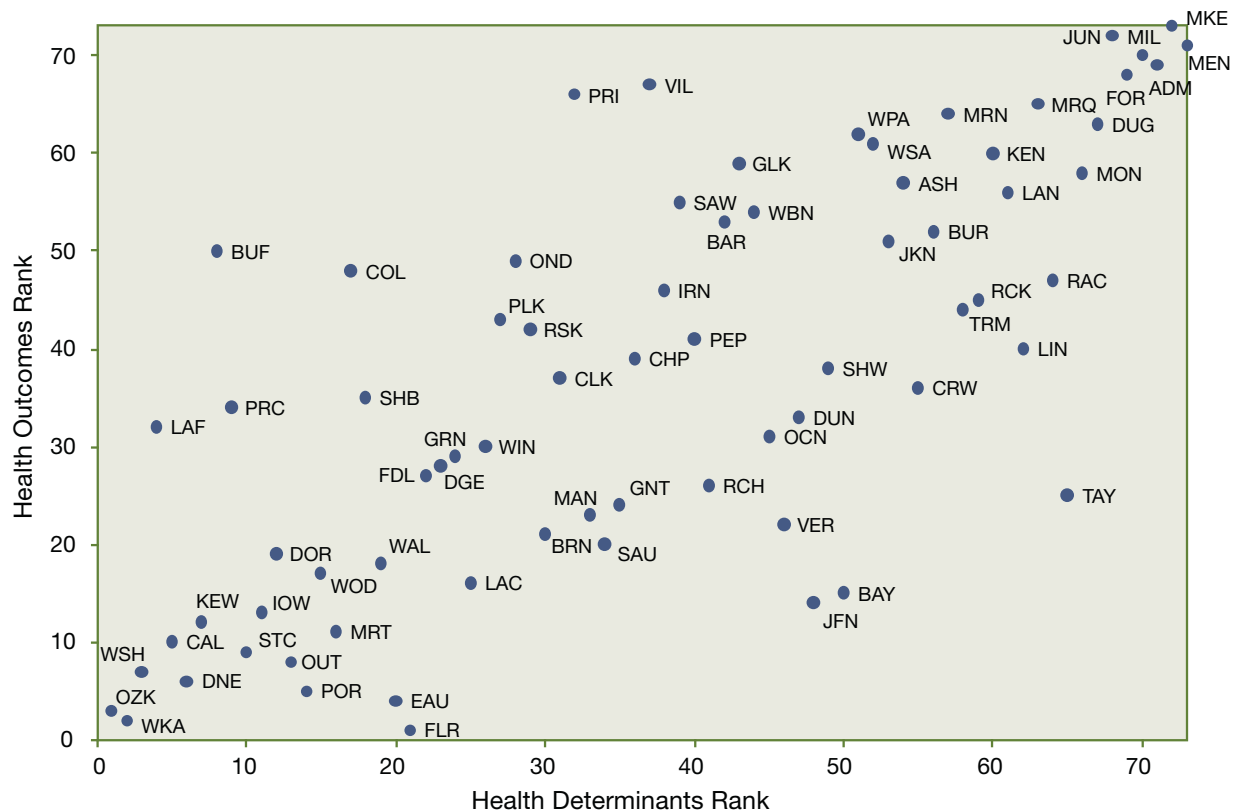


Summary Health Outcomes and Determinants Rankings

The table on the facing page presents the overall summary population health ranking for **health outcomes** and **health determinants**. Each of these rankings represents a weighted summary of a number of individual health measures.

As predicted by the model, the rankings of current health outcomes and current health determinants are closely related. This can be seen in the figure below where each county's outcomes rank is plotted against its determinants rank (each county is represented by an intuitive three letter code). The correlation between the outcomes and determinants is strong (correlation coefficient = 0.73).

There are no counties that rank highest in one aspect but lowest in the other; however, there is some variation. Columbia County, for example, ranks well (17th) in determinants, but lower (48th) in outcomes. Since health determinants are indicators of future health, Columbia County, and other counties where their determinants rank is higher than their outcomes rank, may see an improvement in future health outcomes. This lag may be a result of recently instituted policies and programs that have not yet resulted in their expected improvements in community well-being. Likewise, counties that rank low in health determinants may experience declining population health outcomes in the future.



Summary 2006 Population Health Rankings for 73 Wisconsin Places

Ranks for Health Outcomes and Determinants

RANK	HEALTH OUTCOMES	HEALTH DETERMINANTS
1	Florence	Ozaukee
2	Waukesha	Waukesha
3	Ozaukee	Washington
4	Eau Claire	Lafayette
5	Portage	Calumet
6	Dane	Dane
7	Washington	Kewaunee
8	Outagamie	Buffalo
9	St. Croix	Pierce
10	Calumet	St. Croix
11	Marathon	Iowa
12	Kewaunee	Door
13	Iowa	Outagamie
14	Jefferson	Portage
15	Bayfield	Wood
16	La Crosse	Marathon
17	Wood	Columbia
18	Walworth	Sheboygan
19	Door	Walworth
20	Sauk	Eau Claire
21	Brown	Florence
22	Vernon	Fond du Lac
23	Manitowoc	Dodge
24	Grant	Green
25	Taylor	La Crosse
26	Richland	Winnebago
27	Fond du Lac	Polk
28	Dodge	Oneida
29	Green	Rusk
30	Winnebago	Brown
31	Oconto	Clark
32	Lafayette	Price
33	Dunn	Manitowoc
34	Pierce	Sauk
35	Sheboygan	Grant
36	Crawford	Chippewa
37	Clark	Vilas
38	Shawano	Iron
39	Chippewa	Sawyer
40	Lincoln	Pepin
41	Pepin	Richland
42	Rusk	Barron
43	Polk	Green Lake
44	Trempealeau	Washburn
45	Rock	Oconto
46	Iron	Vernon
47	Racine	Dunn
48	Columbia	Jefferson
49	Oneida	Shawano
50	Buffalo	Bayfield
51	Jackson	Waupaca
52	Burnett	Waushara
53	Barron	Jackson
54	Washburn	Ashland
55	Sawyer	Crawford
56	Langlade	Burnett
57	Ashland	Marinette
58	Monroe	Trempealeau
59	Green Lake	Rock
60	Kenosha	Kenosha
61	Waushara	Langlade
62	Waupaca	Lincoln
63	Douglas	Marquette
64	Marinette	Racine
65	Marquette	Taylor
66	Price	Monroe
67	Vilas	Douglas
68	Forest	Juneau
69	Adams	Forest
70	Milwaukee County	Milwaukee County
71	Menominee	Adams
72	Juneau	Milwaukee City
73	Milwaukee City	Menominee

Outcomes Components Ranking

The summary health outcomes rankings are based on two components: mortality and general health status. The rank and actual values for each place are displayed here.

Mortality is measured as years of potential life lost prior to age 75 (YPLL). This is an indicator of county mortality that accounts for the age at which a person dies – persons who die at a younger age are considered to have lost more “potential” years of life.⁴ For example, persons who die at age 65 are considered to have lost 10 “potential” years of life. YPLL is age-adjusted and estimated on a “per 100,000 persons” basis. The average years of potential life lost from 2002-2004 for the entire state was 5,839 years per 100,000 persons.

General Health Status is measured as the percent of the population that reports fair or poor health. The data are based on answers to the telephone survey question, “In general, would you say that your health is excellent, very good, good, fair, or poor?” The age-adjusted percentage of persons reporting fair or poor health is detailed here. These data are gathered by the Wisconsin Department of Health and Family Services and the Centers for Disease Control and Prevention (CDC). For the entire state, on average, 12.5% of people reported fair or poor health.

MORTALITY: YEARS OF POTENTIAL LIFE LOST			GENERAL HEALTH STATUS: % WITH FAIR/POOR HEALTH		
RANK			RANK		
1	Waukesha	3,886 years	1	Florence	5.6%
2	Calumet	4,006 years	2	Ozaukee	7.6%
3	Ozaukee	4,140 years	3	Waukesha	8.2%
4	Portage	4,199 years	4	Bayfield	8.2%
5	Taylor	4,504 years	5	Iowa	8.7%
6	Eau Claire	4,529 years	6	Eau Claire	8.9%
7	Washington	4,615 years	7	Dane	9.5%
8	Dane	4,708 years	8	Marathon	9.7%
9	Manitowoc	4,739 years	9	Outagamie	9.9%
10	Outagamie	4,740 years	10	Grant	9.9%
11	Walworth	4,759 years	11	St. Croix	10.0%
12	Wood	4,760 years	12	Portage	10.1%
13	St. Croix	4,767 years	13	Washington	10.1%
14	Florence	4,905 years	14	Clark	10.2%
15	Crawford	4,972 years	15	Kewaunee	10.3%
16	Door	5,072 years	16	Iron	10.4%
17	Marathon	5,109 years	17	Jefferson	10.4%
18	Kewaunee	5,115 years	18	Sauk	10.5%
19	Brown	5,124 years	19	La Crosse	10.8%
20	Fond du Lac	5,138 years	20	Oconto	10.8%
21	Chippewa	5,183 years	21	Sawyer	10.9%
22	Winnebago	5,268 years	22	Burnett	11.0%
23	La Crosse	5,270 years	23	Vernon	11.4%
24	Pepin	5,274 years	24	Dodge	11.4%
25	Pierce	5,332 years	25	Door	11.5%
26	Green	5,347 years	26	Richland	11.5%
27	Jefferson	5,351 years	27	Sheboygan	11.7%
28	Dunn	5,378 years	28	Jackson	11.7%
29	Vernon	5,474 years	29	Lafayette	11.8%
30	Richland	5,482 years	30	Green	11.9%
31	Lafayette	5,494 years	31	Wood	12.0%
32	Lincoln	5,523 years	32	Walworth	12.0%
33	Dodge	5,534 years	33	Brown	12.1%
34	Oneida	5,568 years	34	Calumet	12.2%
35	Buffalo	5,659 years	35	Winnebago	12.2%
36	Shawano	5,766 years	36	Fond du Lac	12.3%
37	Sauk	5,783 years	37	Dunn	12.4%
38	Polk	5,802 years	38	Rusk	12.7%
39	Trempealeau	5,827 years	39	Shawano	12.7%
40	Sheboygan	5,882 years	40	Pierce	12.8%
41	Oconto	5,885 years	41	Menominee	12.8%
42	Iowa	6,016 years	42	Racine	12.8%
43	Columbia	6,069 years	43	Manitowoc	13.1%
44	Rusk	6,102 years	44	Polk	13.4%
45	Rock	6,117 years	45	Washburn	13.5%
46	Langlade	6,155 years	46	Lincoln	13.6%
47	Grant	6,156 years	47	Rock	13.6%
48	Price	6,202 years	48	Taylor	13.7%
49	Barron	6,255 years	49	Marquette	13.8%
50	Forest	6,266 years	50	Crawford	13.8%
51	Bayfield	6,308 years	51	Trempealeau	13.9%
52	Green Lake	6,372 years	52	Chippewa	14.1%
53	Waupaca	6,388 years	53	Monroe	14.2%
54	Ashland	6,395 years	54	Columbia	14.3%
55	Kenosha	6,409 years	55	Barron	14.5%
56	Racine	6,587 years	56	Pepin	14.5%
57	Waushara	6,612 years	57	Ashland	14.6%
58	Vilas	6,624 years	58	Langlade	15.1%
59	Adams	6,657 years	59	Waushara	15.2%
60	Monroe	6,668 years	60	Douglas	15.2%
61	Washburn	6,685 years	61	Buffalo	15.3%
62	Clark	6,795 years	62	Milwaukee County	15.3%
63	Marinette	7,033 years	63	Kenosha	15.4%
64	Douglas	7,087 years	64	Green Lake	15.4%
65	Juneau	7,203 years	65	Oneida	15.5%
66	Jackson	7,451 years	66	Marinette	15.7%
67	Iron	7,596 years	67	Waupaca	16.5%
68	Burnett	7,746 years	68	Vilas	18.0%
69	Sawyer	7,931 years	69	Milwaukee City	18.3%
70	Marquette	8,065 years	70	Adams	18.8%
71	Milwaukee County	8,153 years	71	Price	18.8%
72	Milwaukee City	10,577 years	72	Forest	19.0%
73	Menominee	11,760 years	73	Juneau	19.6%

Determinants Components Ranking

RANK	HEALTH CARE	HEALTH BEHAVIORS	SOCIOECONOMIC FACTORS	PHYSICAL ENVIRONMENT
1	Wood	Waukesha	Ozaukee	Menominee
2	Outagamie	Ozaukee	Waukesha	Vilas
3	Marathon	Lafayette	Calumet	Florence
4	Portage	Iron	St. Croix	Burnett
5	Ozaukee	Florence	Kewaunee	Oneida
6	Eau Claire	Rusk	Washington	Oconto
7	Waukesha	Washington	Pierce	Bayfield
8	Washington	Iowa	Outagamie	Price
9	Door	Dane	Lafayette	Marinette
10	Winnebago	Buffalo	Portage	Ashland
11	Sauk	Washburn	Dane	Juneau
12	Trempealeau	Price	Buffalo	Polk
13	Manitowoc	Sawyer	Sheboygan	Lincoln
14	Dane	Clark	Dodge	Marquette
15	Fond du Lac	Polk	Grant	Rusk
16	Jefferson	Door	Columbia	Washburn
17	Sheboygan	Wood	Manitowoc	Sawyer
18	La Crosse	Bayfield	Eau Claire	Barron
19	Price	Vernon	Marathon	Dunn
20	Vilas	Walworth	La Crosse	St. Croix
21	Oneida	Calumet	Door	Jackson
22	Calumet	Richland	Winnebago	Adams
23	Lincoln	Oneida	Fond du Lac	Forest
24	St. Croix	Kewaunee	Green Lake	Shawano
25	Florence	Columbia	Pepin	Buffalo
26	Brown	Green	Green	Waushara
27	Dodge	Marathon	Wood	Trempealeau
28	Rock	Pierce	Iowa	Waukesha
29	Buffalo	Chippewa	Walworth	Taylor
30	Chippewa	Fond du Lac	Brown	Douglas
31	Columbia	La Crosse	Jefferson	Clark
32	Kewaunee	Sheboygan	Oconto	Brown
33	Clark	Portage	Sauk	Eau Claire
34	Grant	Eau Claire	Dunn	Outagamie
35	Washburn	Barron	Waupaca	Sauk
36	Walworth	Brown	Shawano	Washington
37	Langlade	Winnebago	Oneida	Ozaukee
38	Monroe	Outagamie	Vilas	Calumet
39	Green	Vilas	Chippewa	Iron
40	Douglas	Dodge	Polk	Pierce
41	Green Lake	Sauk	Marquette	Vernon
42	Rusk	Milwaukee County	Marinette	Walworth
43	Racine	Jackson	Barron	Richland
44	Barron	St. Croix	Clark	Dodge
45	Bayfield	Kenosha	Crawford	Wood
46	Polk	Forest	Ashland	Kewaunee
47	Forest	Waushara	Waushara	Pepin
48	Dunn	Rock	Monroe	Fond du Lac
49	Adams	Racine	Langlade	Green Lake
50	Pierce	Ashland	Price	Crawford
51	Waupaca	Burnett	Richland	Waupaca
52	Oconto	Trempealeau	Florence	Winnebago
53	Taylor	Shawano	Jackson	Jefferson
54	Kenosha	Juneau	Burnett	Grant
55	Waushara	Crawford	Vernon	Iowa
56	Marinette	Dunn	Sawyer	Marathon
57	Jackson	Oconto	Rusk	Lafayette
58	Shawano	Manitowoc	Rock	Langlade
59	Milwaukee County	Waupaca	Lincoln	Green
60	Marquette	Lincoln	Taylor	Dane
61	Lafayette	Taylor	Trempealeau	Kenosha
62	Vernon	Pepin	Kenosha	Racine
63	Burnett	Douglas	Racine	Chippewa
64	Sawyer	Jefferson	Douglas	Door
65	Pepin	Grant	Bayfield	Manitowoc
66	Richland	Marinette	Washburn	Columbia
67	Crawford	Langlade	Iron	Portage
68	Milwaukee City	Green Lake	Juneau	Monroe
69	Menominee	Monroe	Adams	La Crosse
70	Ashland	Adams	Forest	Sheboygan
71	Iowa	Marquette	Milwaukee County	Milwaukee County
72	Juneau	Milwaukee City	Milwaukee City	Milwaukee City
73	Iron	Menominee	Menominee	Rock

Counties are ranked in the table to the left, according to measures representing four major components of health determinants.

Each of these categories reflects a composite of multiple health measures that are summarized to create the component-level rankings (see the Figure on page 3 for a list of the health measures corresponding to the major components ranked here). For example, the health behaviors rank is calculated from data on cigarette smoking, maternal smoking during pregnancy, physical inactivity, obesity, diet, binge drinking, deaths from motor vehicle crashes, teen pregnancy, sexually transmitted diseases, and violent crime.

Comparisons to previous years' rankings for each component should be made with caution. Each year we re-evaluate the measures within each component to ensure that we incorporate the most valid and reliable measures available. Although most measures have been maintained from year to year, some measures have been changed. Information about the details of each measure are included in the **Full Report**. Just as those in the education and medical field continually refine the ways that progress is evaluated, we continue to refine the measurement of progress in population health.

Special Feature: Examining Non-Smoking Ordinances as Public Health Policies

In order to begin to capture programs and policies that affect population health, we present an example of non-smoking policies in the table to the right. Following the model proposed by Kindig and Stoddart (see Introduction), one can affect health outcomes by implementing policies and interventions to directly affect the health determinants in the population or to affect how the determinants transfer into health outcomes. Adopting non-smoking ordinances is an example of a policy in a community to actively affect one important determinant of health—cigarette smoking and environmental tobacco smoke (ETS) exposure.

In this analysis, we report the proportion of the locality covered by a written non-smoking ordinance in municipal or county buildings. Also included in the table is a measure obtained from asking people about their work environments: whether or not there is an official non-smoking policy in work areas and common areas at work. Having a non-smoking policy at work has been shown to dramatically reduce ETS exposure in the workplace,^{5,6} even in non-smokers.⁷

The local population covered by a smoking ban in municipal or county buildings ranged from 8.8% to 100%, with a median of 58.7%. The proportion of the population covered by a smoking ban across the State was 79.7%. The proportion of the population who reported that they work in a place that has a non-smoking policy ranged from 12.8% to 39.9%, with a median of 24.6%. The proportion of the population reporting a non-smoking policy at work throughout Wisconsin was 24.2%. Because of the low proportion of people covered by a non-smoking policy in their place of employment, a useful public health policy action might be to enact non-smoking policies in businesses and places of employment throughout the community.

It is important to note that these two data sources may not reflect all the smoking policies in effect at the local level. For example, county officials in Menominee report that all Menominee County and Tribal worksites and vehicles, as well as many other places in the county currently have non-smoking policies in place.

For a guide to evidence-based programs and policies that have been evaluated by the CDC's Preventive Services Task Force, please see the Community Guide website at www.thecommunityguide.org.

Place	Population covered by smoking ban in municipal buildings		Official non-smoking policy at the workplace	
	Value	Rank (of 73)	Value	Rank (of 47)
Adams	45.6%	52	NR	NR
Ashland	84.4%	8	NR	NR
Barron	30.6%	64	23.4%	26
Bayfield	49.5%	49	NR	NR
Brown	31.7%	63	22.3%	29
Buffalo	57.9%	38	NR	NR
Burnett	72.5%	18	NR	NR
Calumet	19.7%	71	21.6%	34
Chippewa	59.5%	35	18.7%	40
Clark	27.8%	67	22.1%	32
Columbia	80.2%	10	18.1%	41
Crawford	51.8%	48	NR	NR
Dane	86.0%	6	14.6%	46
Dodge	52.4%	47	24.7%	22
Door	64.6%	30	25.5%	19
Douglas	87.4%	5	12.8%	47
Dunn	59.4%	36	22.1%	31
Eau Claire	84.8%	7	20.2%	38
Florence	69.0%	25	NR	NR
Fond du Lac	63.7%	31	27.7%	14
Forest	64.8%	29	NR	NR
Grant	26.7%	68	31.1%	8
Green	39.1%	61	22.8%	28
Green Lake	43.3%	56	NR	NR
Iowa	45.6%	53	NR	NR
Iron	57.3%	40	NR	NR
Jackson	54.1%	45	NR	NR
Jefferson	76.1%	11	16.6%	43
Juneau	57.5%	39	39.9%	1
Kenosha	29.6%	65	29.8%	10
Kewaunee	57.2%	42	NR	NR
La Crosse	40.0%	60	14.9%	45
Lafayette	42.7%	57	NR	NR
Langlade	72.3%	20	NR	NR
Lincoln	58.7%	37	39.0%	3
Manitowoc	80.5%	9	29.4%	12
Marathon	70.2%	23	22.1%	33
Marinette	72.6%	17	35.1%	5
Marquette	43.5%	55	NR	NR
Menominee	100.0%	1	NR	NR
Milwaukee City	100.0%	1	27.1%	16
Milwaukee County	92.7%	4	26.8%	17
Monroe	55.8%	44	24.6%	23
Oconto	57.3%	41	39.7%	2
Oneida	44.7%	54	17.4%	42
Outagamie	74.7%	13	22.2%	30
Ozaukee	61.8%	34	25.3%	21
Pepin	18.6%	72	NR	NR
Pierce	76.0%	12	27.2%	15
Polk	47.4%	51	20.7%	37
Portage	73.8%	16	26.4%	18
Price	23.5%	70	NR	NR
Racine	74.2%	15	31.9%	6
Richland	53.1%	46	NR	NR
Rock	25.7%	69	29.6%	11
Rusk	48.8%	50	NR	NR
Sauk	68.9%	26	24.2%	25
Sawyer	8.8%	73	NR	NR
Shawano	67.2%	28	38.7%	4
Sheboygan	72.4%	19	28.1%	13
St. Croix	70.0%	24	15.3%	44
Taylor	28.1%	66	NR	NR
Trempealeau	42.5%	58	21.2%	35
Vernon	37.0%	62	NR	NR
Vilas	61.9%	33	NR	NR
Walworth	62.4%	32	24.4%	24
Washburn	72.1%	22	NR	NR
Washington	72.1%	21	30.0%	9
Waukesha	68.8%	27	19.6%	39
Waupaca	56.6%	43	31.2%	7
Waushara	40.5%	59	21.0%	36
Winnebago	95.6%	3	23.3%	27
Wood	74.4%	14	25.4%	20

* NR = Not reported. Places with less than 50 respondents are censored in this analysis.

Special Feature: The Burden of Excess Deaths in Wisconsin

Examining only the rate of death in each county does not provide a complete picture regarding the magnitude of the burden of mortality across Wisconsin. An alternative approach for measuring burden is to use a measure of **excess deaths** which incorporates both elements of the death rate and the population size. Excess deaths are calculated by counting how many more deaths occur in a county above the number that would be expected if that county instead had the age-specific death rates of the healthiest counties in the state. These death rates in the healthiest counties are referred to as the target death rates.

There are on average about 17,700 total deaths each year among Wisconsin residents under 75 years of age. Of these deaths, 4,782 (27%) are in excess of what would be expected if every county was able to achieve the target rates.⁸

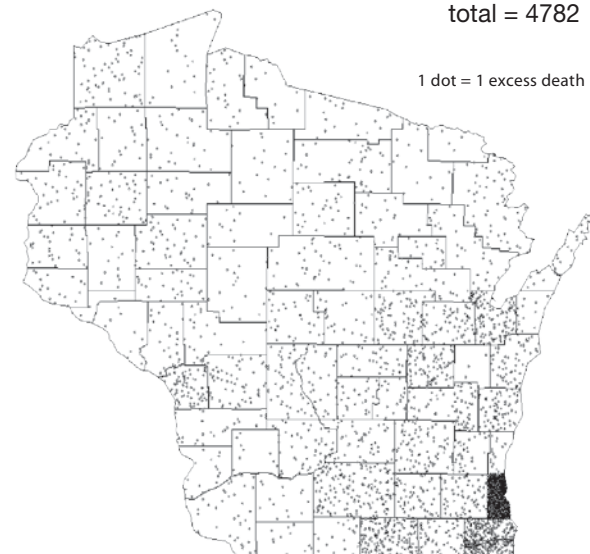
The distribution of total excess deaths across Wisconsin counties is displayed in the table and map on this page. Three counties have excess deaths which account for less than 10% of their total annual deaths; in contrast the majority of the total deaths occurring in Menominee County (63%) and the City of Milwaukee (51%) could be avoided with significant improvements in mortality rates.

Milwaukee County contains approximately 18% of the state's population but accounts for 35% of the state's excess deaths. Within Milwaukee County, the City of Milwaukee has 1,330 excess deaths compared to only 320 in the remaining areas of the county, demonstrating that the City has a larger burden of excess deaths than would be expected by population distribution alone.

Including the distribution of excess deaths across Wisconsin in examinations of the mortality burden can assist in program planning, allocation of resources, and targeting approaches for reaching state and local health goals such as those included in *Healthiest Wisconsin 2010*.

Place	Annual number of excess deaths	Annual number of total deaths	Percent of deaths which are in excess
Adams	30	102	30%
Ashland	26	68	38%
Barron	45	165	27%
Bayfield	19	65	29%
Brown	122	614	20%
Buffalo	10	49	20%
Burnett	29	84	35%
Calumet	3	94	3%
Chippewa	42	185	23%
Clark	19	104	19%
Columbia	46	181	26%
Crawford	15	63	25%
Dane	164	1,026	16%
Dodge	81	291	28%
Door	21	105	20%
Douglas	66	176	37%
Dunn	17	101	17%
Eau Claire	26	230	12%
Florence	6	22	28%
Fond du Lac	69	310	22%
Forest	16	46	34%
Grant	39	166	24%
Green	22	106	20%
Green Lake	18	75	24%
Iowa	17	73	23%
Iron	12	35	34%
Jackson	24	74	32%
Jefferson	58	238	24%
Juneau	47	117	40%
Kenosha	178	511	35%
Kewaunee	13	65	21%
La Crosse	79	320	25%
Lafayette	13	57	22%
Langlade	21	84	26%
Lincoln	30	112	27%
Manitowoc	58	279	21%
Marathon	40	343	12%
Marinette	62	185	33%
Marquette	26	76	34%
Menominee	18	28	63%
Milwaukee City	1,330	2,615	51%
Milwaukee County	1,650	3,822	43%
Monroe	59	160	37%
Oconto	32	129	24%
Oneida	38	158	24%
Outagamie	69	420	16%
Ozaukee	17	227	7%
Pepin	3	23	15%
Pierce	18	92	19%
Polk	36	143	25%
Portage	29	175	17%
Price	17	66	26%
Racine	210	664	32%
Richland	12	61	19%
Rock	183	559	33%
Rusk	20	64	31%
Sauk	48	187	26%
Sawyer	29	85	35%
Shawano	40	151	26%
Sheboygan	71	345	21%
St. Croix	31	166	18%
Taylor	12	61	20%
Trempealeau	26	97	27%
Vernon	25	101	25%
Vilas	24	104	23%
Walworth	68	285	24%
Washburn	19	68	28%
Washington	35	305	12%
Waukesha	70	941	7%
Waupaca	79	213	37%
Waushara	34	110	31%
Winnebago	96	463	21%
Wood	35	230	15%

Distribution of Annual Excess Deaths in Wisconsin
total = 4782



Health Outcomes Ranks Sorted by County

This table lists the county health outcomes presented on previous pages, but in a format that provides summaries by county.

COUNTY	SUMMARY	MORTALITY (YPLL)		HEALTH STATUS (% REPORTING FAIR/POOR HEALTH)	
	Rank	Rank	Value	Rank	Value
Adams	69	59	6,657 years	70	18.6%
Ashland	57	54	6,395 years	57	14.6%
Barron	53	49	6,255 years	55	14.5%
Bayfield	15	51	6,308 years	4	8.2%
Brown	21	19	5,124 years	33	12.1%
Buffalo	50	35	5,659 years	61	15.3%
Burnett	52	68	7,746 years	22	11.0%
Calumet	10	2	4,006 years	34	12.2%
Chippewa	39	21	5,183 years	52	14.1%
Clark	37	62	6,795 years	14	10.2%
Columbia	48	43	6,069 years	54	14.3%
Crawford	36	15	4,972 years	50	13.8%
Dane	6	8	4,708 years	7	9.5%
Dodge	28	33	5,534 years	24	11.4%
Door	19	16	5,072 years	25	11.5%
Douglas	63	64	7,087 years	60	15.2%
Dunn	33	28	5,378 years	37	12.4%
Eau Claire	4	6	4,529 years	6	8.9%
Florence	1	14	4,905 years	1	5.6%
Fond du Lac	27	20	5,138 years	36	12.3%
Forest	68	50	6,266 years	72	19.0%
Grant	24	47	6,156 years	10	9.9%
Green	29	26	5,347 years	30	11.9%
Green Lake	59	52	6,372 years	64	15.4%
Iowa	13	42	6,016 years	5	8.7%
Iron	46	67	7,596 years	16	10.4%
Jackson	51	66	7,451 years	28	11.7%
Jefferson	14	27	5,351 years	17	10.4%
Juneau	72	65	7,203 years	73	19.6%
Kenosha	60	55	6,409 years	63	15.4%
Kewaunee	12	18	5,115 years	15	10.3%
La Crosse	16	23	5,270 years	19	10.8%
Lafayette	32	31	5,494 years	29	11.8%
Langlade	56	46	6,155 years	58	15.1%
Lincoln	40	32	5,523 years	46	13.6%
Manitowoc	23	9	4,739 years	43	13.1%
Marathon	11	17	5,109 years	8	9.7%
Marinette	64	63	7,033 years	66	15.7%
Marquette	65	70	8,065 years	49	13.8%
Menominee	71	73	11,760 years	41	12.8%
Milwaukee City	73	72	10,577 years	69	18.3%
Milwaukee County	70	71	8,153 years	61	15.3%
Monroe	58	60	6,668 years	53	14.2%
Oconto	31	41	5,885 years	20	10.8%
Oneida	49	34	5,568 years	65	15.5%
Outagamie	8	10	4,740 years	9	9.9%
Ozaukee	3	3	4,140 years	2	7.6%
Pepin	41	24	5,274 years	56	14.5%
Pierce	34	25	5,332 years	40	12.8%
Polk	43	38	5,802 years	44	13.4%
Portage	5	4	4,199 years	12	10.1%
Price	66	48	6,202 years	71	18.8%
Racine	47	56	6,587 years	42	12.8%
Richland	26	30	5,482 years	26	11.5%
Rock	45	45	6,117 years	47	13.6%
Rusk	42	44	6,102 years	38	12.7%
Sauk	20	37	5,783 years	18	10.5%
Sawyer	55	69	7,931 years	21	10.9%
Shawano	38	36	5,766 years	39	12.7%
Sheboygan	35	40	5,882 years	27	11.7%
St. Croix	9	13	4,767 years	11	10.0%
Taylor	25	5	4,504 years	48	13.7%
Trempealeau	44	39	5,827 years	51	13.9%
Vernon	22	29	5,474 years	23	11.4%
Vilas	67	58	6,624 years	68	18.0%
Walworth	18	11	4,759 years	32	12.0%
Washburn	54	61	6,685 years	45	13.5%
Washington	7	7	4,615 years	13	10.1%
Waukesha	2	1	3,886 years	3	8.2%
Waupaca	62	53	6,388 years	67	16.5%
Waushara	61	57	6,612 years	59	15.2%
Winnebago	30	22	5,268 years	35	12.2%
Wood	17	12	4,760 years	31	12.0%

Health Determinants Ranks Sorted by County

COUNTY	SUMMARY	HEALTH CARE	HEALTH BEHAVIORS	SOCIOECONOMIC FACTORS	PHYSICAL ENVIRONMENT
Adams	71	49	70	69	22
Ashland	54	70	50	46	10
Barron	42	44	35	43	18
Bayfield	50	45	18	65	7
Brown	30	26	36	30	32
Buffalo	8	29	10	12	25
Burnett	56	63	51	54	4
Calumet	5	22	21	3	38
Chippewa	36	30	29	39	63
Clark	31	33	14	44	31
Columbia	17	31	25	16	66
Crawford	55	67	55	45	50
Dane	6	14	9	11	60
Dodge	23	27	40	14	44
Door	12	9	16	21	64
Douglas	67	40	63	64	30
Dunn	47	48	56	34	19
Eau Claire	20	6	34	18	33
Florence	21	25	5	52	3
Fond du Lac	22	15	30	23	48
Forest	69	47	46	70	23
Grant	35	34	65	15	54
Green	24	39	26	26	59
Green Lake	43	41	68	24	49
Iowa	11	71	8	28	55
Iron	38	73	4	67	39
Jackson	53	57	43	53	21
Jefferson	48	16	64	31	53
Juneau	68	72	54	68	11
Kenosha	60	54	45	62	61
Kewaunee	7	32	24	5	46
La Crosse	25	18	31	20	69
Lafayette	4	61	3	9	57
Langlade	61	37	67	49	58
Lincoln	62	23	60	59	13
Manitowoc	33	13	58	17	65
Marathon	16	3	27	19	56
Marinette	57	56	66	42	9
Marquette	63	60	71	41	14
Menominee	73	69	73	73	1
Milwaukee City	72	68	72	72	72
Milwaukee County	70	59	42	71	71
Monroe	66	38	69	48	68
Oconto	45	52	57	32	6
Oneida	28	21	23	37	5
Outagamie	13	2	38	8	34
Ozaukee	1	5	2	1	37
Pepin	40	65	62	25	47
Pierce	9	50	28	7	40
Polk	27	46	15	40	12
Portage	14	4	33	10	67
Price	32	19	12	50	8
Racine	64	43	49	63	62
Richland	41	66	22	51	43
Rock	59	28	48	58	73
Rusk	29	42	6	57	15
Sauk	34	11	41	33	35
Sawyer	39	64	13	56	17
Shawano	49	58	53	36	24
Sheboygan	18	17	32	13	70
St. Croix	10	24	44	4	20
Taylor	65	53	61	60	29
Trempealeau	58	12	52	61	27
Vernon	46	62	19	55	41
Vilas	37	20	39	38	2
Walworth	19	36	20	29	42
Washburn	44	35	11	66	16
Washington	3	8	7	6	36
Waukesha	2	7	1	2	28
Waupaca	51	51	59	35	51
Waushara	52	55	47	47	26
Winnebago	26	10	37	22	52
Wood	15	1	17	27	45

This table lists the county health determinants presented on previous pages, but in a format that provides summaries by county.

Overview of Methods

I. Selection of population health measures

We focus on two categories of health measures—health outcomes and health determinants. Outcomes are intended to measure the current state of health, while determinants are viewed as predictors of future health outcomes.

Health Outcomes: Two components were used to represent health outcomes: mortality and health status while alive. Death and health status are each assessed with a single measure, with mortality measured in years of potential life lost, and health status measured by self-reported health status.

Health Determinants: The selection of determinant measures was largely guided by the Wisconsin state health plan priorities. Within the four major components (health care, health behaviors, socioeconomic factors related to health, and the physical environment), we include a total of 28 individual health determinant measures.

II. Data sources

The figure on page 3 lists the outcomes and determinants components and their associated health measures. The data used for this report came from the following sources:

- **Complete population** (non-sample): These annually available data include vital statistics such as mortality, teen births, and smoking during pregnancy, obtained from the Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health and Family Services. This year, mortality data were obtained from the Wisconsin Interactive Statistics on Health (WISH), rather than CDC WONDER, as has been done in past years. Though there may be comparability issues with comparing mortality from past years of *Rankings*, the ranks themselves should be largely unaffected.
- **Census data:** These data, based on nearly complete population data or large-sample decennial surveys, include measures such as divorce, no high school education, and unemployment rates. These were obtained online from the U.S. Census Bureau.
- **Sample survey data:** Based on moderate-sized annual samples primarily from the CDC's Behavioral Risk Factor Surveillance System (e.g.,

cigarette smoking, physical inactivity, and obesity) or the Wisconsin Department of Health and Family Service's Family Health Survey (no health insurance, did not receive needed health care, and no recent dentist visit). These data were obtained from the Bureau of Health Information and Policy. Multiple years of data were combined to provide more robust sample sizes.

- **Other data:** Additional measures were obtained from the Wisconsin Department of Health and Family Services, Wisconsin Department of Natural Resources, Wisconsin Department of Public Instruction, Wisconsin Office of Justice Assistance, the U.S. Environmental Protection Agency, MetaStar, Inc., the City of Milwaukee Health Department, and the Center for Health Systems Research and Analysis at the University of Wisconsin–Madison.

The specific time periods, sources corresponding to each health measure, and more detailed information by measure are available in the *2006 Rankings Full Report*.³

III. Rankings

Estimates for health measures were calculated from the most recently available data. For the majority of the measures, an average of several years of recent data was used to obtain more stable estimates. However, estimates of population health are not measured perfectly, and minor differences in the rankings among the 73 places should be interpreted cautiously. For example, the data used for these rankings are not precise enough to indicate that a place ranked 40th is meaningfully healthier than a place ranked 45th.

The mean and standard deviation of each of the health measures were calculated across the 72 counties, and then the 73 places were given a Z-score for each measure. This score was the number of standard deviation units that the place was from the mean of all the counties. To avoid one place's rank being strongly influenced by one score, we truncated the score at -3.0 or 3.0 if the actual score fell outside of this range. Weighted averages of these scores were used to calculate the summary outcomes and determinants rankings and the rankings for the four components of determinants. The weights used to calculate summary outcome and determinant rankings are given in the Figure on page 3.

IV. Special feature methodology

Examining Non-Smoking Ordinances as Public Health Policies: Two different data sources were used to obtain information about non-smoking ordinances in Wisconsin. To obtain data about the proportion of the population covered by a written ordinance, we used a UW Comprehensive Cancer Center Report which assessed the proportion of the population living in a municipality that banned smoking in government buildings.⁹ In order to obtain estimates of non-smoking policies in the workplace, we used data from the Behavioral Risk Factor Surveillance System for 1999-2005. This measure was obtained by analyzing the responses to the question, “Which of the following best describes your place of work’s official smoking policy for indoor public or common areas, such as lobbies, rest rooms, and lunchrooms?” and “Which of the following best describes your place of work’s official smoking policy for work areas?” with responses including not allowed in any area, allowed in some or all areas, and no official policy. Respondents who answered that smoking was not allowed in any public and work area, respectively, were counted as covered by a non-smoking policy.

The Burden of Excess Deaths in Wisconsin: For a more detailed discussion and description of methods, please see the source report.⁸

V. Changes from the *Wisconsin County Health Rankings, 2005*.

The annual production of the *Wisconsin County Health Rankings* provides us with the opportunity to incorporate improvements from the previous year’s document. Based on feedback received through a survey of the recipients of the 2005 edition, continued investigation into available data sources and alternative methodological approaches, and discussion and advice obtained from personal communications and monthly teleconferences, we made a number of changes to the 2006 edition.

One of the major differences this year was the holding of monthly teleconferences to invite feedback and open lines of communication with Wisconsin’s public health workers. Also, counties with sample sizes less than 50 on survey measures are now censored for that measure. Finally, this year we have decided to include the City of Milwaukee in the *Rankings* in order to better understand differences across the

state, and we hope to continue adding more places in the future. For more information, see *Results from the 2005 Wisconsin County Health Rankings User Survey*, available online at www.pophealth.wisc.edu/uwphi/publications/briefReports/briefReports.htm.

As the *Wisconsin County Health Rankings* continues to evolve, as always, we invite the readers and users of this publication to advise us on points of potential improvement. Feedback from users of this material is invaluable as we tailor the *Wisconsin County Health Rankings* to best meet the needs of local, city, and county officials and organizations.

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