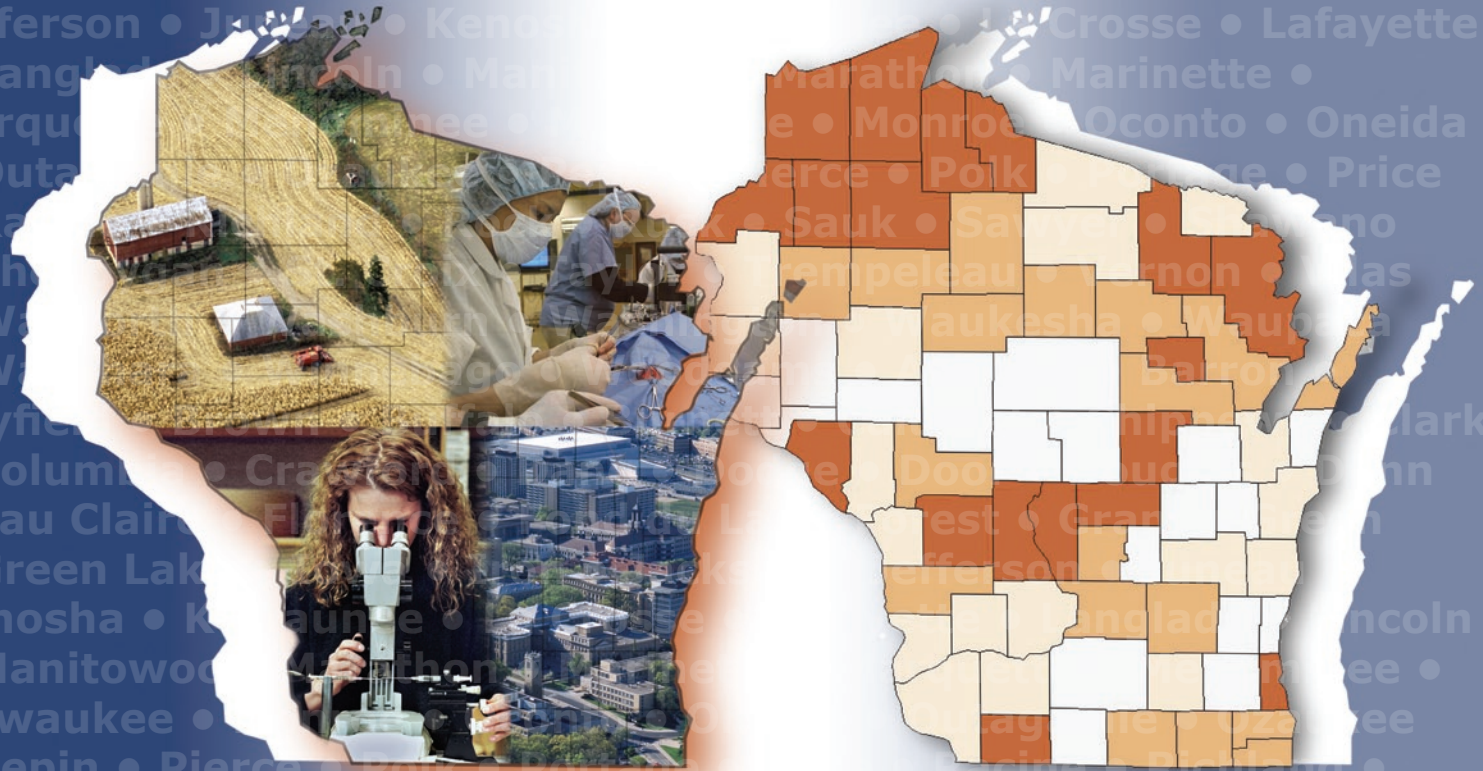
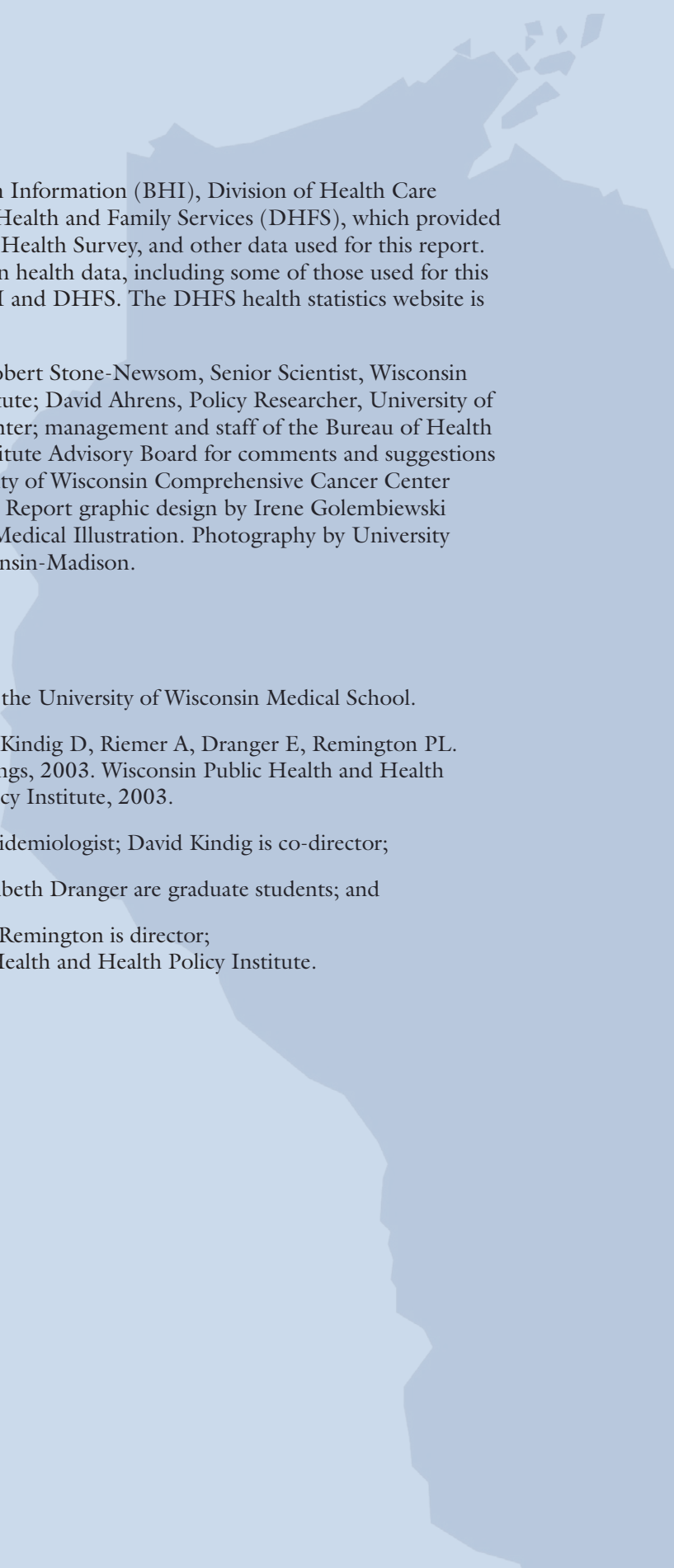


Wisconsin County Health Rankings 2003

socioeconomic • environment • access
mortality • health status • behaviors



**Wisconsin Public Health and
Health Policy Institute**



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We would also like to acknowledge Robert Stone-Newsom, Senior Scientist, Wisconsin Public Health and Health Policy Institute; David Ahrens, Policy Researcher, University of Wisconsin Comprehensive Cancer Center; management and staff of the Bureau of Health Information; and members of the Institute Advisory Board for comments and suggestions on this report. Jane McElroy, University of Wisconsin Comprehensive Cancer Center produced the Wisconsin county maps. Report graphic design by Irene Golembiewski of University of Wisconsin-Madison, Medical Illustration. Photography by University Communications, University of Wisconsin-Madison.

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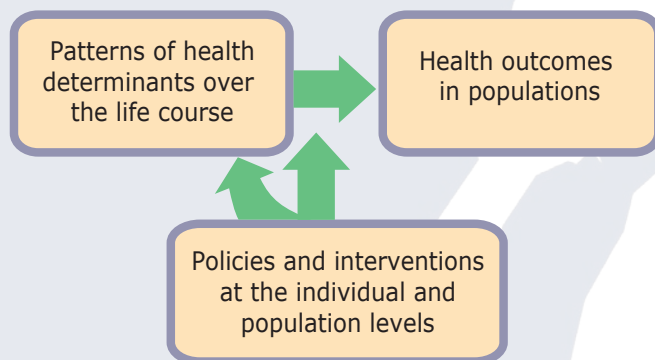
Paul Peppard is a senior epidemiologist; David Kindig is co-director;

Amanda Riemer and Elizabeth Dranger are graduate students; and

Patrick Remington is director;
Wisconsin Public Health and Health Policy Institute.

The Wisconsin Public Health and Health Policy Institute is pleased to present our **Wisconsin County Health Rankings—2003**. This report supports our mission by reporting on the health of Wisconsin communities and the factors that go into improving health. We hope that our efforts to summarize and communicate such information to broad audiences will add value to Wisconsin public health and health policy discussions.

The conceptual framework underpinning this effort is based on the model of population health improvement depicted below. This illustrates that health outcomes and their distribution across the population are produced by a set of health determinants, which in turn are influenced by policies and interventions which enhance or limit the determinants. We believe it is important to separate the measurement and reporting of outcomes from their determinants.



Health outcomes are often reported in terms of mortality, since years of life are very important and mortality data are available and reliable. However, most of us believe that health is measured not only in years of life but also in the quality of those years. Thus, we have created a health outcome ranking that incorporates how people in Wisconsin communities rate the state of their health while alive.

There are many health determinants with varying degrees of importance in influencing health outcomes. Data on many of them are not available at the county level. We have based our choice of health determinants data used in this report on the Health Priorities of the Wisconsin State Health Plan, and produced a determinants ranking for each county based on what we know from the literature on how they should be combined.

In addition, we also report on how health outcomes and determinants changed over a five year period, since improvement or decline is also important. Thus, county rankings for health outcomes and determinants—for both current status and 5-year change—are reported herein.

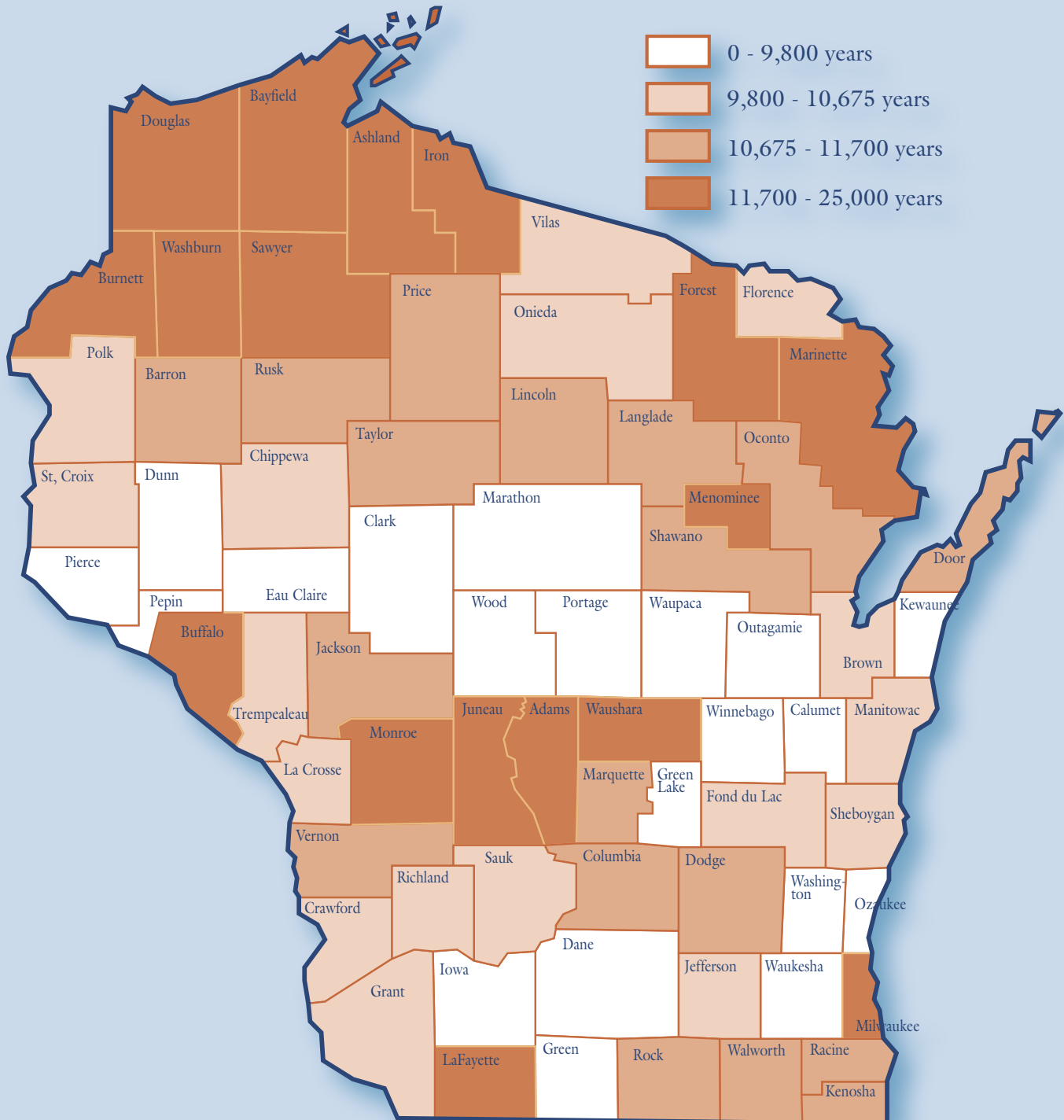
We acknowledge that the ranking of counties can be controversial. We present this report in the spirit of encouraging improvement and discussion, not judgment. Every community has strengths and weaknesses; we hope that the higher ranked counties provide insights for improvement and that the lower ones might draw additional resources for improvement.

This ranking report is released in conjunction with a companion document, the **Wisconsin County Health Report Cards 2003**. The Report Cards present county-level ratings and more detailed information about the range of actual values of the variety of population health measures that were used to construct the Rankings in this report. Both the Report Cards and this Rankings document can be accessed at the Wisconsin Public Health and Health Policy Institute web site www.pophealth.wisc.edu/wphi/.

We consider this report a first version of what we intend to be an annual reporting process. There is much to be done to improve the methodology we have used here, as well as to investigate the relationships about how health outcomes are produced and can be improved. We welcome feedback and advice regarding how we might improve this effort so that it is truly useful in making Wisconsin communities as healthy as they can be.

Distribution of “Current” Mortality Among Wisconsin Counties:

Annual years of potential life lost per 100,000 population.

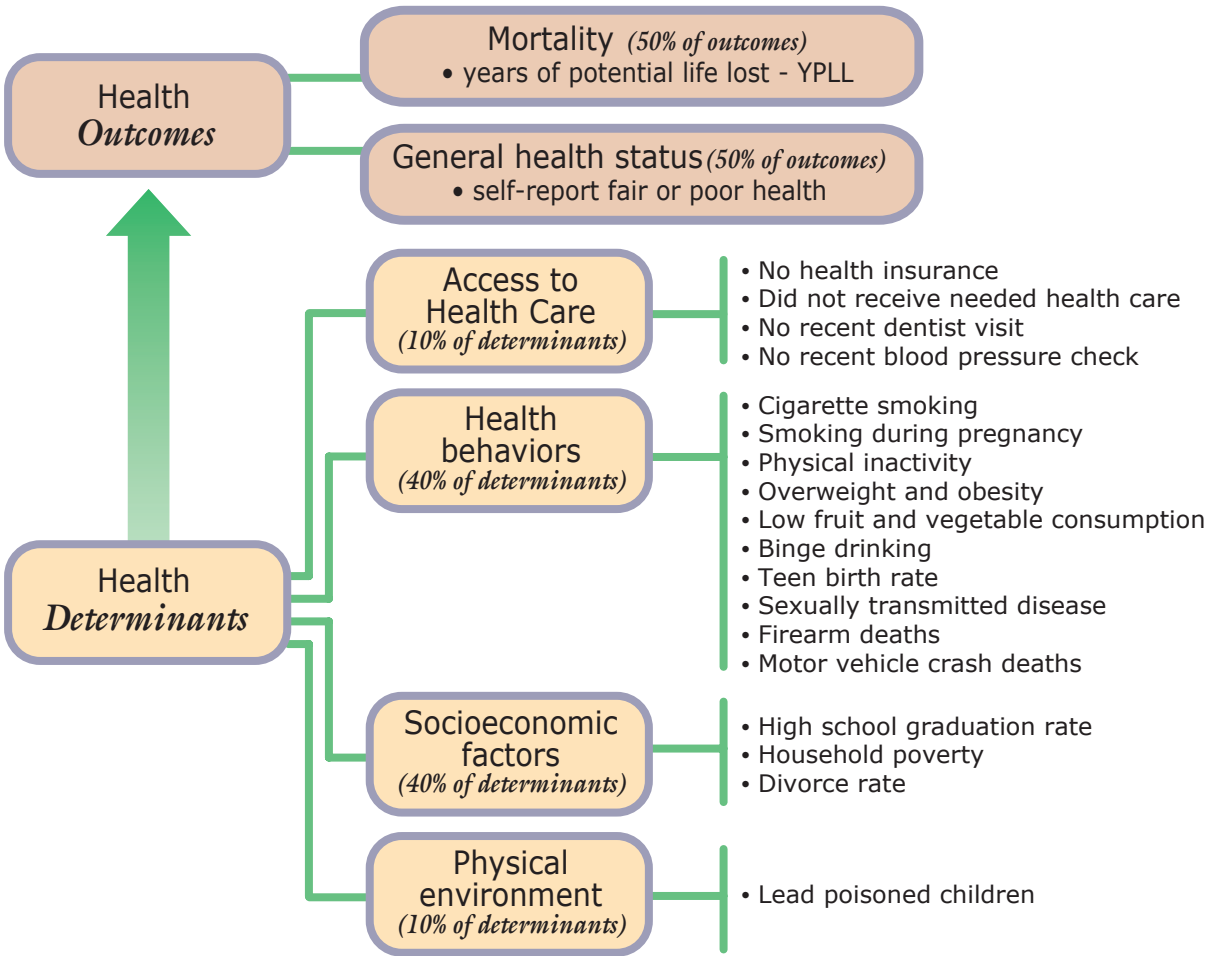


- Darker shade indicates more (worse) mortality.
- Corresponding county ranks are presented on page 6.
- Years of potential life lost (see page 6 for definition) is calculated using data from U.S. Centers for Disease Control and Prevention WONDER database for years 1997-1999.

This report ranks Wisconsin counties according to where their population health lies in comparison to other Wisconsin counties. Rankings are given for a summary of health **outcomes** and health **determinants** as well as components of outcomes and determinants. The figure below depicts the structure of the rankings. Counties receive a ranking for each population health component shown in a box.

Overall summary **health outcomes** rankings are based on weighted scores (the weights are shown in parentheses in the figure) of two components: mortality and general health status. **Health determinants** are based on weighted scores of four major components: access to health care, health behaviors, socioeconomic factors and the physical environment. Each of these four health determinant components is based, in turn, on one or more population health measures listed to the right of the determinant components.

Rankings are given for “**current**” health (the most recent data available) and health “**change**.” Counties having high current rankings (e.g., 1 or 2) are estimated to be the “healthiest.” Counties ranking high on change had the most beneficial change in population health over a prior 5-year period. Counties ranking lower on “change” had diminishing levels of health over a prior 5-year period.



Summary Health Outcomes and Determinants Rankings

The table on the facing page presents the overall summary population health ranking for **current and five-year change in health outcomes and current and five-year change in health determinants**. Each of these rankings represents a summary of a number of individual health measures.

Not surprisingly, rankings of current health determinants and current health outcomes are related. This is seen in the figure below where the rank (1 being the “healthiest”) of summary current health outcomes is plotted against the rank of summary current health determinants for each of the counties. While outcomes and determinants are not perfectly related, there is some correlation (correlation coefficient = 0.67).

Examining the table, one can see that “current” levels of health are not necessarily indicative of the direction, relative to other counties, that health measures are changing. For example, while some counties have poorer “current” levels of health determinants than others, these counties may have been improving faster (ranked highly for “change”) in health determinants over time.

.....
County rank of
overall summary
health outcomes
index versus rank
of overall summary
health determinants
index. Each point
represents one
Wisconsin county.
.....



Summary 2003 Population Health Rankings for the 72 Wisconsin Counties: Current and Change Ranks for Health Outcomes and Determinants

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

The summary outcomes rankings are based on two components: mortality and general health status. The “current” county rank and actual values for each county for those components are displayed here.

Mortality is measured as years of potential life lost prior to age 85 years (YPLL-85). 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. For example, persons who die at age 75 are considered to have lost 10 “potential” years of life. YPLL is age-adjusted and estimated on a “per 100,000 persons” basis. The entire state average years of potential life lost was 10,683 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 less-than-good health (i.e., fair or poor) is detailed here. These data are gathered by the Wisconsin Department of Health and Family Services and the U.S. Centers for Disease Control and Prevention. The entire state average percent reporting fair or poor health is 9.6%.

Outcomes Components Ranking – Current

RANK	MORTALITY: YEARS OF POTENTIAL LIFE LOST			GENERAL HEALTH STATUS: % WITH FAIR/POOR HEALTH		
1	Waukesha	8,132	years	Ozaukee	5.1	%
2	Eau Claire	8,301	years	Waukesha	6.0	%
3	Ozaukee	8,331	years	Eau Claire	6.6	%
4	Calumet	8,572	years	Outagamie	6.8	%
5	Dunn	8,824	years	Marathon	7.3	%
6	Washington	8,834	years	Sauk	8.1	%
7	Pepin	8,999	years	Dane	8.1	%
8	Dane	9,019	years	Washington	8.4	%
9	Marathon	9,060	years	Dodge	8.4	%
10	Green Lake	9,101	years	Winnebago	8.6	%
11	Pierce	9,156	years	Brown	8.7	%
12	Green	9,239	years	Monroe	8.8	%
13	Outagamie	9,272	years	Jackson	9.0	%
14	Clark	9,334	years	Buffalo	9.0	%
15	Wood	9,387	years	Walworth	9.0	%
16	Winnebago	9,457	years	Pepin	9.1	%
17	Portage	9,476	years	Iowa	9.1	%
18	Kewaunee	9,799	years	Lafayette	9.1	%
19	Sheboygan	9,937	years	Crawford	9.2	%
20	Richland	9,980	years	Vernon	9.2	%
21	Crawford	9,982	years	Fond du Lac	9.2	%
22	Iowa	10,101	years	Richland	9.3	%
23	Vilas	10,148	years	Jefferson	9.3	%
24	Fond du Lac	10,231	years	Grant	9.3	%
25	Florence	10,237	years	Wood	9.3	%
26	Brown	10,242	years	St. Croix	9.4	%
27	Sauk	10,264	years	Sheboygan	9.4	%
28	Jefferson	10,264	years	La Crosse	9.4	%
29	La Crosse	10,298	years	Portage	9.5	%
30	St. Croix	10,361	years	Kewaunee	9.7	%
31	Trempealeau	10,494	years	Juneau	9.7	%
32	Grant	10,518	years	Trempealeau	9.8	%
33	Manitowoc	10,542	years	Door	9.8	%
34	Polk	10,608	years	Clark	9.9	%
35	Oneida	10,644	years	Langlade	9.9	%
36	Chippewa	10,669	years	Marinette	9.9	%
37	Door	10,693	years	Polk	10.0	%
38	Kenosha	10,765	years	Adams	10.0	%
39	Columbia	10,851	years	Calumet	10.0	%
40	Walworth	10,860	years	Oconto	10.0	%
41	Vernon	10,867	years	Rock	10.0	%
42	Dodge	10,971	years	Washburn	10.0	%
43	Rusk	11,130	years	Dunn	10.0	%
44	Racine	11,163	years	Taylor	10.0	%
45	Langlade	11,257	years	Rusk	10.1	%
46	Rock	11,309	years	Green	10.1	%
47	Marquette	11,381	years	Manitowoc	10.1	%
48	Oconto	11,390	years	Menominee	10.1	%
49	Price	11,432	years	Florence	10.1	%
50	Barron	11,452	years	Burnett	10.2	%
51	Taylor	11,452	years	Barron	10.2	%
52	Shawano	11,518	years	Green Lake	10.3	%
53	Jackson	11,607	years	Pierce	10.3	%
54	Lincoln	11,639	years	Lincoln	10.4	%
55	Ashland	11,863	years	Price	10.4	%
56	Buffalo	12,000	years	Shawano	10.4	%
57	Washburn	12,014	years	Waupaca	10.4	%
58	Adams	12,042	years	Forest	10.4	%
59	Bayfield	12,050	years	Sawyer	10.5	%
60	Monroe	12,247	years	Columbia	10.5	%
61	Waupaca	12,338	years	Douglas	10.6	%
62	Douglas	12,364	years	Bayfield	10.6	%
63	Lafayette	12,412	years	Chippewa	10.7	%
64	Sawyer	12,458	years	Oneida	10.7	%
65	Iron	12,562	years	Iron	11.0	%
66	Marinette	12,966	years	Marquette	11.0	%
67	Forest	13,111	years	Racine	11.1	%
68	Juneau	13,343	years	Waushara	11.3	%
69	Milwaukee	13,653	years	Vilas	11.4	%
70	Burnett	13,711	years	Kenosha	11.6	%
71	Waushara	14,648	years	Ashland	11.8	%
72	Menominee	23,500	years	Milwaukee	12.7	%

Outcomes Components Ranking – Change

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

The outcomes components “change” rankings are presented here. Counties ranking lower on these scales had increasing mortality (years of potential life lost) and declines in general health status (increasing percent reporting fair or poor health).

Over the prior 5-year period, the entire state experienced a reduction (change) of 582 potential years of life lost (from 11,215 years to 10,683 years) per 100,000 persons. However, the entire state experienced an average increase of 0.4% (from 9.2% to 9.6%) in the proportion of persons reporting fair or poor health. Note that general health status is collected from sample survey data and random sampling variation can affect estimates. Thus the rankings for general health status (current and change) should be interpreted with caution.

Determinants Components Ranking – Current

Here, counties are ranked according to “current” measures representing four major categories of health determinants.

Each of these categories reflects a composite of one or more individual 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 ranking is calculated from data on smoking, overweight and obesity, diet, binge drinking, high risk sexual behavior and deaths from firearm and motor vehicle injuries (the latter intended to act as a proxy of behaviors at high risk for causing injury or death).

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

Determinants Components Ranking – Change

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

Here, counties are ranked according to “change” in the four major components of health determinants.

In general, the highest ranked counties for each component have seen improvements in health determinants over the prior 5 years. The lowest ranked counties have experienced diminishing socioeconomic indicators, access to health care, and/or healthy behaviors.

Re-listing of Ranks by County – Current

This table re-lists the county health “current” ranks presented on the previous pages. It is intended to make it easier to read the ranks for specific counties.

Gold shading indicates counties ranked in the lower 25% of all counties and green in the upper 25%.

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

Re-listing of Ranks by County – Change

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

This table re-lists the county health “change” ranks presented on the previous pages. It is intended to make it easier to read the ranks for specific counties.

Gold shading indicates counties ranked in the lower 25% of all counties and green in the upper 25%.



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 in a county, while determinants are viewed as predictors of future health outcomes. Twenty measures of health outcomes and determinants were selected using the following criteria:

- the measure is a direct or proxy measure of an important aspect of population health;
- the data are reasonably valid;
- the data are publicly available;
- the data are available at the county-level;
- the data are current and updated periodically.

HEALTH OUTCOMES: two components were used to represent health outcomes: death and health status while alive. Death and health status are each assessed with a single measure (years of potential life lost and self-reported health status).

HEALTH DETERMINANTS: the selection of determinant measures was largely guided by the Wisconsin State Health Priorities. However, we do not include measures that represent specific diseases. We divided the 18 health determinant measures into four major components: access to healthcare, health behaviors, socioeconomic factors related to health, and the physical environment. Each of these four major components is comprised of one or more health 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 a variety of sources:

- **COMPLETE POPULATION** (non-sample), annually available data. These data include vital statistics (mortality/YPLL, teen births, smoking during pregnancy). These were obtained from the Bureau of Health Information (BHI), Division of Health Care Financing, Wisconsin Department of Health and Family Services and from the U.S Centers for Disease Control and Prevention WONDER database (firearm and motor vehicle deaths).
- **CENSUS DATA:** based on near-complete population or large-sample decennial data (graduation rate, income, and divorce rate). These were obtained from the U.S. Census Bureau (www.census.gov).
- **SAMPLE SURVEY DATA:** based on moderate-sized annual samples primarily from the U.S. Center for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (cigarette smoking, no recent blood pressure check, physical inactivity, overweight and obesity, low fruit and vegetable consumption, and binge drinking) or the Wisconsin Department of Health and Family Service's Family Health Surveys (no health insurance, did not receive needed health care, and no recent dentist visit). These data are often quite sparse for some counties and were obtained from BHI.
- **"OTHER" DATA,** including sexually transmitted disease rates and lead-poisoning cases, obtained from the Wisconsin Department of Health and Family Services.

The specific time periods and sources corresponding to each health measure are further detailed in the Wisconsin County Health Report Cards 2003 companion piece (see the end of this section).

III. Calculation of county-level estimates

For all but Census data, county-level estimates of health measures were based on cumulative or average data over 2 or more years. For health measures where there were few data (i.e., health behavior and access to health care measures) for low-population counties, counties were grouped according to Wisconsin Department of Health and Family Services groupings used for their publications summarizing county-level health access or behavior data (see, e.g., “*County and Regional Estimates of Behavioral Risk Factors and Health Screening Practices, Wisconsin 1989-1994 and 1993-1998*” available at www.dhfs.state.wi.us/stats/BRFS.htm). Then, county-specific estimates were calculated using an (approximate inverse-variance-weighted) average of county-level data and county-group-level data. This approach effectively reduces random error in the county-specific estimates, but at the expense of using data from outside the county to estimate within-county measures. We believe that this is an improvement on simply reporting data in county groups when there are too few data to estimate at the county level. This approach was unnecessary for many of the counties since larger-population counties had sufficient data available to independently estimate their health measures.

IV. Rankings

Each of the 2 health outcomes measures and 18 health determinants measures were estimated for the counties (averaging over years and sometimes over county groups as discussed above) for “current” and “baseline” (5-years prior to “current”) time periods. Change in health measures—used to assign “change” rankings—was estimated as current minus baseline values. The mean and standard deviation of each of the health measures were calculated across the 72 counties. Counties were then given a “score” for each measure. This score was the number of standard deviation units that the county was from the county mean measure. Weighted averages of the scores were used to calculate the overall summary outcomes and determinants rankings and the rankings for the four major categories of determinants. The weights used for the components to calculate summary outcome and determinant rankings are given in the figure on page 3.

A more detailed methods description, including data sources, county-level health measure estimation, and weighting and scoring approaches can be found in the online companion piece, **Wisconsin County Health Report Cards 2003**, at the Wisconsin Public Health and Health Policy website: www.pophealth.wisc.edu/wphi/.



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