

Wisconsin County Health Rankings 2004

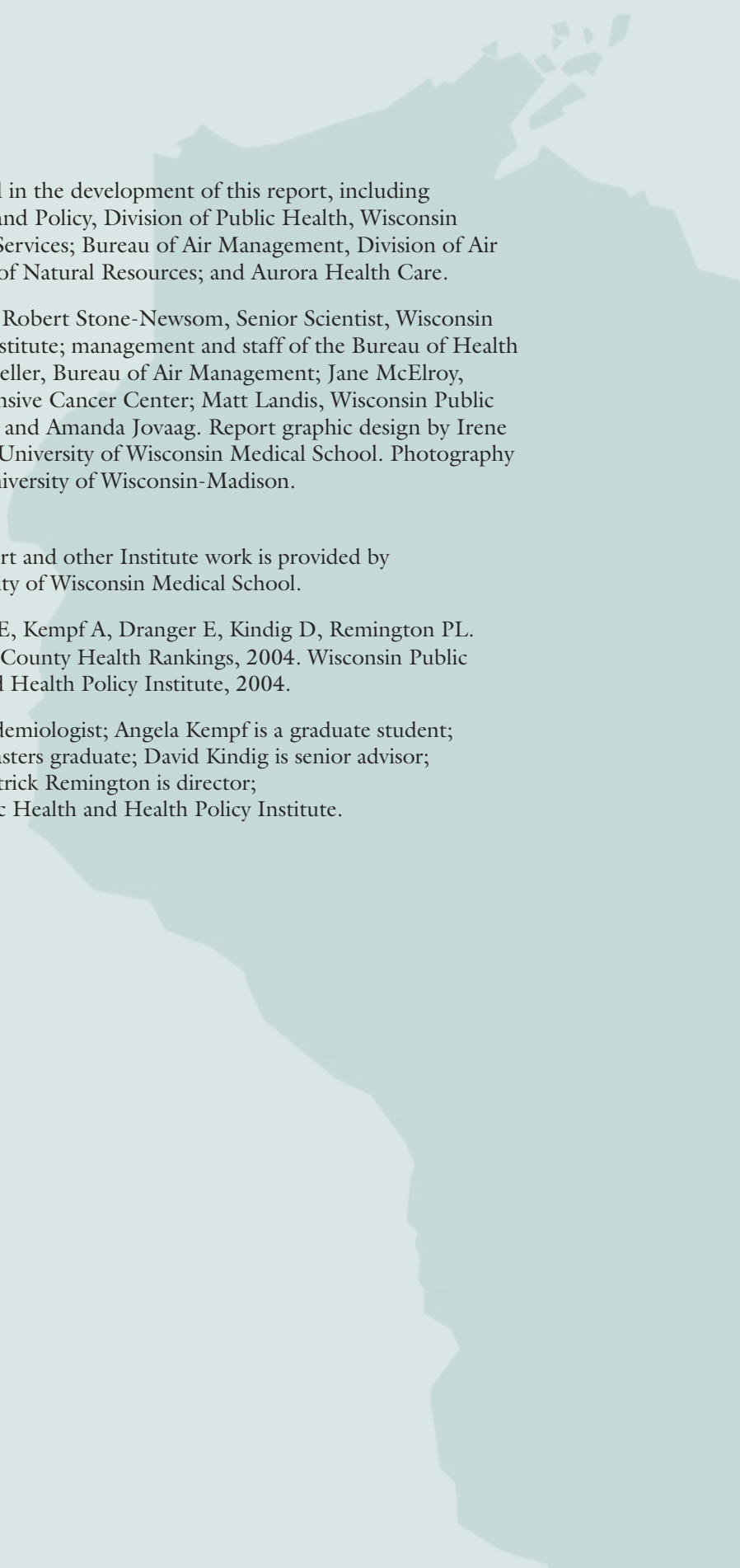
**socioeconomic • environment • health care
mortality • health status • behaviors**



**Wisconsin Public Health & Health Policy Institute
Department of Population Health Sciences
University of Wisconsin Medical School**



**THE UNIVERSITY
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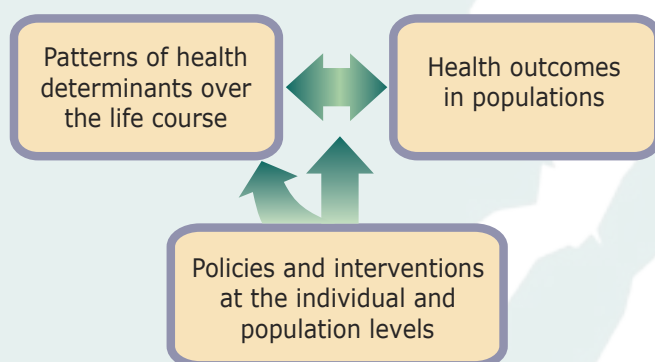
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Paul Peppard is a senior epidemiologist; Angela Kempf is a graduate student; Elizabeth Dranger is a masters graduate; David Kindig is senior advisor; and Patrick Remington is director; Wisconsin Public Health and Health Policy Institute.

Introduction

The Wisconsin Public Health and Health Policy Institute is pleased to present our *Wisconsin County Health Rankings—2004*. This annual 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.



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.

We acknowledge that the ranking of counties may 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.

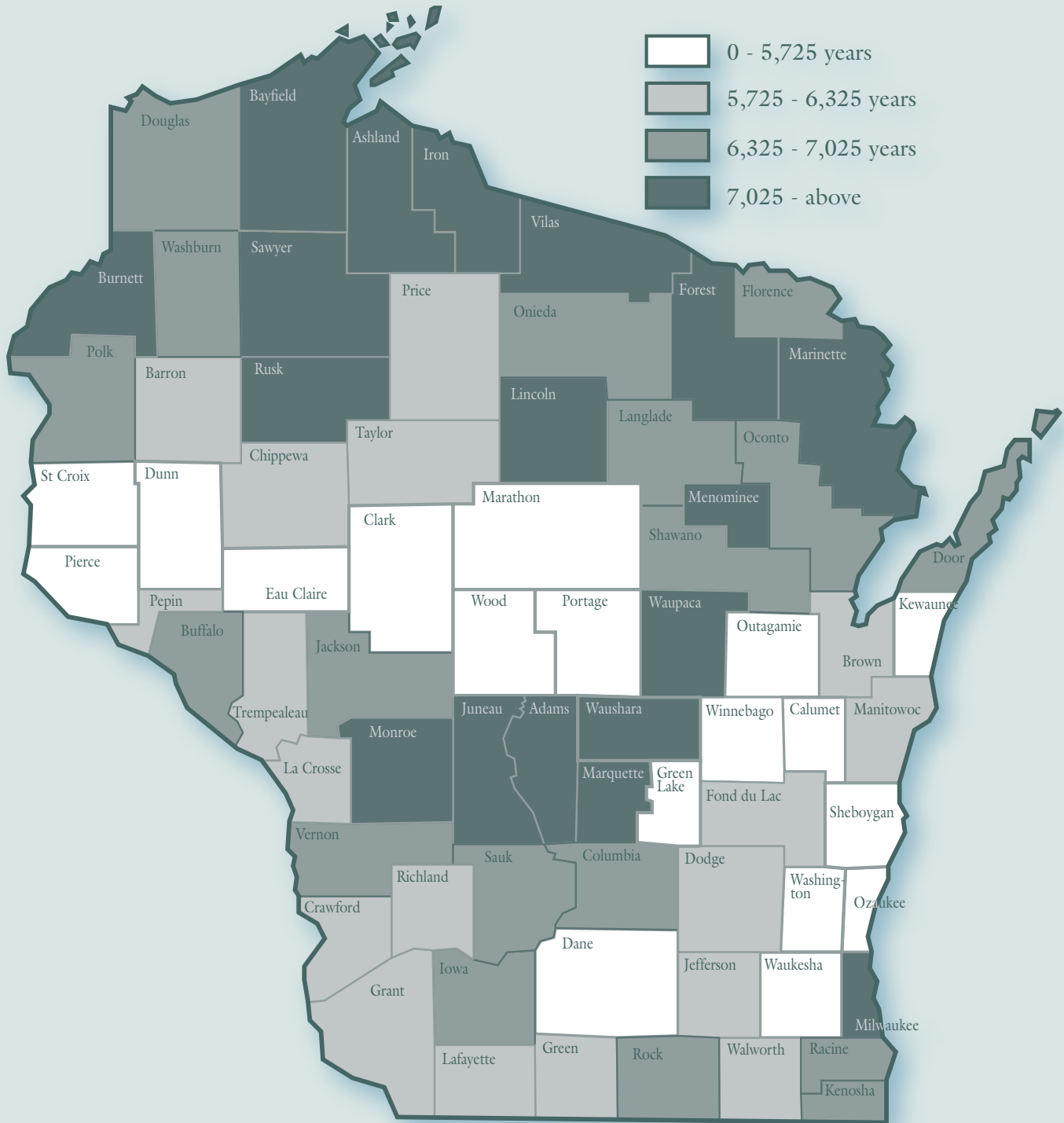
In addition to the tables of county rankings, this year's report highlights two special topics: health change and health disparities. A discussion of how mortality outcomes have changed in counties over the past decade emphasizes the value of recognizing improvement or decline in community health over time. In light of the state health plan goal of eliminating health disparities, we also believe that it is important to examine not only differences between counties but disparities within counties as well.

While it is not possible to include all of the data used for each county and component in this report, it may be of value for readers to have access to this detailed local data. For that purpose, data tables of each health outcome and health determinant component can be accessed online at the Wisconsin Public Health and Health Policy Institute web site (www.pophealth.wisc.edu/wphi/), along with this rankings document and a more detailed description of the data and methods used.

We are pleased to present our second edition of this annual reporting process. This edition improves upon the 2003 county rankings. Improvements are based upon formally-solicited feedback and informal comments regarding the usefulness, limitations and strengths of the first edition. Through our continued research and the invaluable feedback provided regarding last year's report, you will notice some changes have been made. A summary of these changes is included in the *Overview of Methods*. We continue to 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 Mortality Among Wisconsin Counties:

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



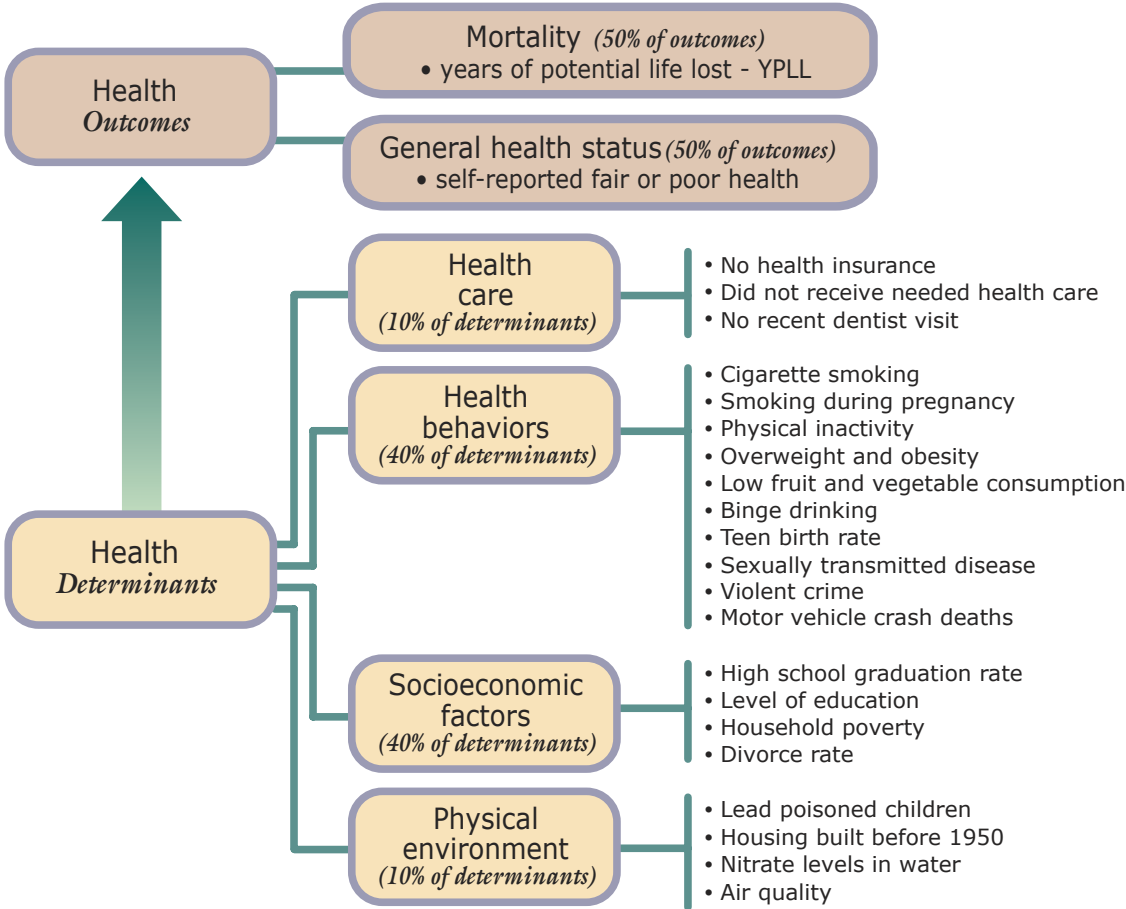
- Darker shade indicates higher (worse) mortality.
- Corresponding county ranks and the definition of years of potential life lost prior to age 75 (YPLL-75) are presented on page 6.
- YPLL-75 is calculated using data from U.S. Centers for Disease Control and Prevention WONDER database for years 1999-2001.

The Rankings

This report ranks Wisconsin counties according to their summary measures 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. Counties having high rankings (e.g., 1 or 2) are estimated to be the “healthiest.”

Overall summary **health outcomes** rankings are based on weighted scores (the weights are shown in parentheses in the figure) 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. Each of these four health determinant components is based, in turn, on multiple population health measures listed to the right of the determinant components.

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



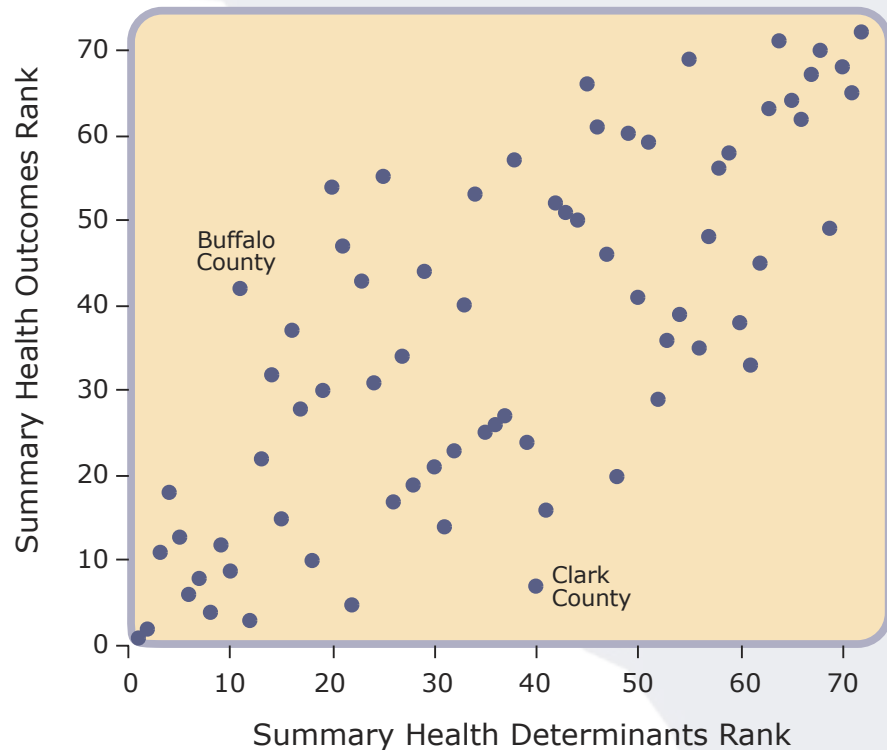
Summary Health Outcomes and Determinants Rankings

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 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 health outcomes is plotted against the rank of summary health determinants for each of the counties. While outcomes and determinants are not perfectly related, there is a strong correlation (correlation coefficient = 0.75).

However, some counties who rank high in determinants or outcomes rank low in the other. For example, Buffalo County (labeled below) ranks high in health determinants (#11) but among the bottom half of counties in health outcomes (#42). The relationship for Clark County is just the opposite, demonstrating a rank of 40th for health determinants and 7th for health outcomes. It is reasonable to speculate that counties with determinants ranks much lower than their outcomes rank may expect lower outcomes in the future; similarly those with much higher determinants ranks than outcome ranks may be on the way to improvement.

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County rank of overall summary health outcomes index versus rank of overall summary health determinants index. Each point represents one Wisconsin county.
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Summary 2004 Population Health Rankings for the 72 Wisconsin Counties: Ranks for Health Outcomes and Determinants

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

Outcomes Components Ranking

The summary outcomes rankings are based on two components: mortality and general health status. The 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 75 years (YPLL-75). 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 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 entire state average years of potential life lost was 6,334 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 12.0%.

RANK		MORTALITY: YEARS OF POTENTIAL LIFE LOST	GENERAL HEALTH STATUS: % WITH FAIR/POOR HEALTH
1	Waukesha	4,255 years	Ozaukee 7.6 %
2	Calumet	4,326 years	Eau Claire 8.0 %
3	Ozaukee	4,422 years	Waukesha 8.2 %
4	Eau Claire	4,671 years	Iowa 8.5 %
5	St Croix	4,861 years	Portage 8.5 %
6	Washington	5,045 years	Bayfield 8.6 %
7	Pierce	5,085 years	Outagamie 8.8 %
8	Kewaunee	5,159 years	Florence 9.0 %
9	Wood	5,162 years	St Croix 9.0 %
10	Portage	5,182 years	Clark 9.1 %
11	Green Lake	5,208 years	Rusk 9.4 %
12	Outagamie	5,344 years	Dane 9.8 %
13	Marathon	5,362 years	Kewaunee 9.9 %
14	Dane	5,368 years	Marathon 9.9 %
15	Winnebago	5,375 years	Jefferson 10.1 %
16	Dunn	5,424 years	Sauk 10.3 %
17	Sheboygan	5,632 years	Door 10.4 %
18	Clark	5,642 years	La Crosse 10.5 %
19	Brown	5,804 years	Jackson 10.5 %
20	Fond du Lac	5,860 years	Lafayette 10.5 %
21	Walworth	5,871 years	Vernon 10.7 %
22	La Crosse	5,911 years	Langlade 10.7 %
23	Pepin	5,944 years	Washington 10.7 %
24	Taylor	5,972 years	Iron 10.8 %
25	Richland	5,994 years	Richland 11.1 %
26	Jefferson	6,054 years	Winnebago 11.2 %
27	Crawford	6,064 years	Pierce 11.4 %
28	Trempealeau	6,105 years	Buffalo 11.5 %
29	Chippewa	6,154 years	Monroe 11.5 %
30	Dodge	6,172 years	Grant 11.6 %
31	Green	6,174 years	Wood 11.6 %
32	Lafayette	6,180 years	Oconto 11.6 %
33	Price	6,184 years	Fond du Lac 11.8 %
34	Barron	6,200 years	Walworth 11.8 %
35	Manitowoc	6,291 years	Crawford 11.9 %
36	Grant	6,303 years	Brown 12.0 %
37	Door	6,343 years	Dodge 12.1 %
38	Oconto	6,416 years	Green Lake 12.3 %
39	Iowa	6,433 years	Dunn 12.4 %
40	Washburn	6,444 years	Manitowoc 12.6 %
41	Vernon	6,494 years	Taylor 12.6 %
42	Langlade	6,517 years	Sheboygan 12.7 %
43	Oneida	6,552 years	Polk 12.9 %
44	Sauk	6,570 years	Rock 13.0 %
45	Shawano	6,710 years	Douglas 13.0 %
46	Polk	6,837 years	Pepin 13.1 %
47	Columbia	6,902 years	Calumet 13.3 %
48	Florence	6,907 years	Green 13.4 %
49	Rock	6,927 years	Columbia 13.6 %
50	Douglas	6,946 years	Oneida 13.7 %
51	Jackson	6,968 years	Shawano 13.8 %
52	Kenosha	6,969 years	Barron 13.9 %
53	Buffalo	6,973 years	Racine 14.1 %
54	Racine	7,025 years	Lincoln 14.3 %
55	Lincoln	7,030 years	Sawyer 14.4 %
56	Bayfield	7,204 years	Waupaca 14.6 %
57	Ashland	7,276 years	Waushara 14.6 %
58	Marinette	7,281 years	Trempealeau 14.7 %
59	Marquette	7,421 years	Milwaukee 14.8 %
60	Monroe	7,475 years	Chippewa 14.8 %
61	Vilas	7,571 years	Kenosha 14.8 %
62	Waupaca	7,618 years	Price 15.3 %
63	Iron	7,793 years	Marquette 15.8 %
64	Adams	7,939 years	Marinette 15.8 %
65	Rusk	8,178 years	Ashland 16.1 %
66	Waushara	8,418 years	Washburn 16.2 %
67	Milwaukee	8,629 years	Burnett 17.1 %
68	Juneau	8,705 years	Vilas 17.6 %
69	Burnett	8,790 years	Juneau 17.6 %
70	Sawyer	9,474 years	Forest 17.7 %
71	Forest	9,984 years	Adams 18.5 %
72	Menominee	15,913 years	Menominee 20.2 %

Determinants Components Ranking

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

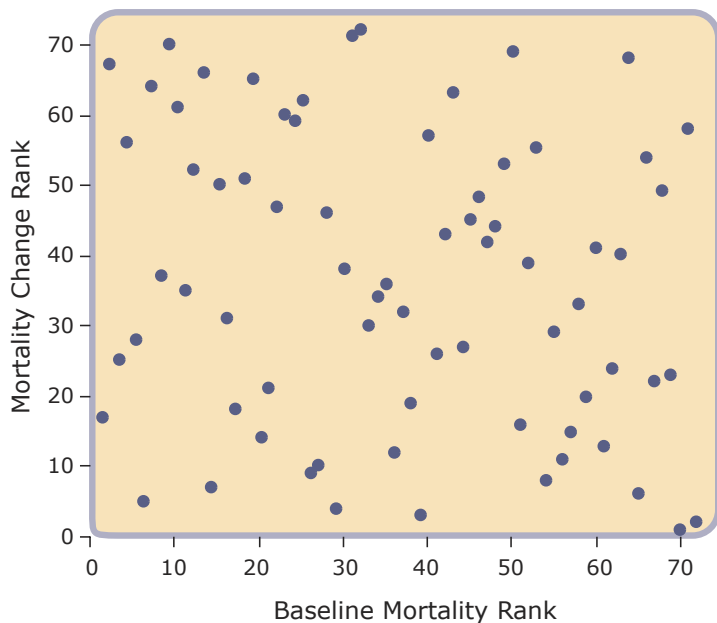
Here, counties are ranked according to measures representing four major categories of health determinants.

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, physical activity, overweight and obesity, diet, binge drinking, teen pregnancy, sexually transmitted diseases, violent crime, and deaths from motor vehicle crashes (intended to act as a proxy of behaviors at high risk for causing injury or death).

Examining Change in Health Outcomes

The table to the right ranks counties based on the extent to which their mortality (YPLL-75) has improved over 10 years. Baseline is defined as 1989-1991 and current as 1999-2001. **A negative percent change indicates improvement (decline in years lost), while a positive percent change indicates worse mortality (increase in years lost).** The final column lists the county ranks for mortality at baseline (based on 1989-1991 data).

Examining the table, one can see that baseline levels of health are not necessarily indicative of the direction, relative to other counties, that health measures are changing. The figure below shows that there is virtually no correlation between baseline mortality rank and mortality change rank. The top ten counties for health improvement include some of the healthiest counties, some of the least healthy counties, and even some counties that fell in the middle of the baseline mortality rankings. Thus, current levels of mortality may not predict future mortality improvements, indicating that counties have the potential for improvement regardless of their current rank.



County baseline mortality rank versus mortality change rank. Each point represents one Wisconsin county.

MORTALITY CHANGE RANK	COUNTY	CHANGE	BASELINE MORTALITY RANK
1	Washburn	-33 %	70
2	Menominee	-28 %	72
3	Green Lake	-28 %	39
4	St Croix	-28 %	29
5	Calumet	-28 %	6
6	Langlade	-27 %	65
7	Eau Claire	-25 %	14
8	Price	-24 %	54
9	Pierce	-23 %	26
10	Kewaunee	-23 %	27
11	Oneida	-20 %	56
12	Clark	-20 %	36
13	Jackson	-19 %	61
14	Wood	-19 %	20
15	Shawano	-19 %	57
16	Iowa	-18 %	51
17	Waukesha	-18 %	1
18	Portage	-18 %	17
19	Walworth	-18 %	38
20	Columbia	-17 %	59
21	Marathon	-17 %	21
22	Vilas	-17 %	67
23	Adams	-17 %	69
24	Bayfield	-17 %	62
25	Ozaukee	-16 %	3
26	Trempealeau	-16 %	41
27	Barron	-16 %	44
28	Washington	-15 %	5
29	Douglas	-15 %	55
30	Crawford	-14 %	33
31	Winnebago	-14 %	16
32	Lafayette	-13 %	37
33	Ashland	-13 %	58
34	Chippewa	-13 %	34
35	Dane	-13 %	11
36	Dodge	-13 %	35
37	Outagamie	-12 %	8
38	Taylor	-12 %	30
39	Racine	-11 %	52
40	Iron	-11 %	63
41	Monroe	-11 %	60
42	Polk	-10 %	47
43	Sauk	-10 %	42
44	Lincoln	-9 %	48
45	Rock	-8 %	45
46	Green	-8 %	28
47	Richland	-8 %	22
48	Buffalo	-8 %	46
49	Juneau	-6 %	68
50	Fond du Lac	-6 %	15
51	Pepin	-6 %	18
52	Brown	-6 %	12
53	Marquette	-5 %	49
54	Milwaukee	-5 %	66
55	Waupaca	-5 %	53
56	Sheboygan	-4 %	4
57	Kenosha	-4 %	40
58	Forest	-4 %	71
59	Manitowoc	-4 %	24
60	Grant	-3 %	23
61	La Crosse	-3 %	10
62	Oconto	-3 %	25
63	Marinette	-1 %	43
64	Jefferson	0 %	7
65	Vernon	2 %	19
66	Door	2 %	13
67	Dunn	4 %	2
68	Sawyer	8 %	64
69	Burnett	12 %	50
70	Florence	13 %	9
71	Rusk	20 %	31
72	Waushara	21 %	32

Examining Health Disparities

COUNTY	MORTALITY RATE / 100,000 POP.		RATE RATIO
	High School Education or Less	More Than a High School Education	
Adams	471	123	3.8
Ashland	405	226	1.8
Barron	369	172	2.1
Bayfield	365	162	2.2
Brown	369	161	2.3
Buffalo	299	144	2.1
Burnett	393	181	2.2
Calumet	279	110	2.5
Chippewa	398	129	3.1
Clark	353	146	2.4
Columbia	382	173	2.2
Crawford	329	168	2.0
Dane	438	146	3.0
Dodge	392	143	2.7
Door	419	182	2.3
Douglas	305	122	2.5
Dunn	354	123	2.9
Eau Claire	360	131	2.7
Florence	261	80	3.3
Fond du Lac	399	136	2.9
Forest	516	217	2.4
Grant	294	164	1.8
Green	338	124	2.7
Green Lake	382	239	1.6
Iowa	361	152	2.4
Iron	319	143	2.2
Jackson	422	164	2.6
Jefferson	423	147	2.9
Juneau	543	257	2.1
Kenosha	452	164	2.8
Kewaunee	275	187	1.5
La Crosse	422	165	2.6
Lafayette	376	160	2.4
Langlade	337	192	1.8
Lincoln	426	159	2.7
Manitowoc	398	146	2.7
Marathon	331	132	2.5
Marinette	420	154	2.7
Marquette	488	154	3.2
Menominee	1015	228	4.5
Milwaukee	633	226	2.8
Monroe	427	201	2.1
Oconto	405	147	2.7
Oneida	460	183	2.5
Outagamie	323	131	2.5
Ozaukee	392	140	2.8
Pepin	343	169	2.0
Pierce	188	83	2.3
Polk	287	137	2.1
Portage	324	158	2.1
Price	420	200	2.1
Racine	487	178	2.7
Richland	341	219	1.6
Rock	463	161	2.9
Rusk	326	195	1.7
Sauk	378	168	2.2
Sawyer	390	218	1.8
Shawano	411	174	2.4
Sheboygan	356	145	2.5
St Croix	224	105	2.1
Taylor	322	121	2.7
Trempealeau	333	128	2.6
Vernon	404	171	2.4
Vilas	451	220	2.1
Walworth	417	158	2.6
Washburn	396	185	2.1
Washington	318	128	2.5
Waukesha	325	134	2.4
Waupaca	406	164	2.5
Waushara	445	175	2.5
Winnebago	376	151	2.5
Wood	343	149	2.3

One of the overarching goals of the *Healthiest Wisconsin 2010* state health plan is to eliminate health disparities, an aim shared by the national *Healthy People 2010* initiative. While disparities are often discussed in terms of differences in health status between ethnic or racial groups, such gaps can also be examined in terms of socioeconomic status, level of education, or gender. Summary health measures reported only at the county level may mask disparities that exist within the county. It can, therefore, be very informative to examine disparities within counties since recognizing disparities can play an important role in decisions regarding what steps to take to improve the health of a county.

In the table on the right, we present **mortality rates of persons aged less than 65 years by level of educational attainment**. These rates are adjusted for age and sex (important correlates of educational attainment and mortality). Mortality rates are given for those with a high school education or less, and for those with at least some college education. As a measure of mortality disparity related to educational attainment, the ratio of rates for less educated vs. more educated is given in the final column. Every county demonstrated a ratio of 1.5 or higher, indicating *at least* a 50% greater mortality rate among those with less education.

The individual numbers used to create the rate ratio are also important. In the table to the left, Milwaukee and Dunn counties have very similar ratios, indicating that the relative disparities by education in the two counties are similar. But Milwaukee County has much higher levels of mortality in both of the education groups (633 and 226) than Dunn County (354 and 123).

Ranks Sorted by County – Outcomes

This table re-lists the county health outcomes ranks presented on the previous pages. They are intended to make it easier to read the ranks for specific counties.

COUNTY	SUMMARY		MORTALITY YPLL-75)		HEALTH STATUS (% FAIR/POOR)		MORTALITY CHANGE	
	Rank	Rank	Value	Rank	Value	Rank	Value	
Adams	68	64	7,939 years	71	18.5 %	23	-17 %	
Ashland	63	57	7,276 years	65	16.1 %	33	-13 %	
Barron	46	34	6,200 years	52	13.9 %	27	-16 %	
Bayfield	20	56	7,204 years	6	8.6 %	24	-17 %	
Brown	31	19	5,804 years	36	12.0 %	52	-6 %	
Buffalo	42	53	6,973 years	28	11.5 %	48	-8 %	
Burnett	69	69	8,790 years	67	17.1 %	69	12 %	
Calumet	18	2	4,326 years	47	13.3 %	5	-28 %	
Chippewa	53	29	6,154 years	60	14.8 %	34	-13 %	
Clark	7	18	5,642 years	10	9.1 %	12	-20 %	
Columbia	54	47	6,902 years	49	13.6 %	20	-17 %	
Crawford	33	27	6,064 years	35	11.9 %	30	-14 %	
Dane	9	14	5,368 years	12	9.8 %	35	-13 %	
Dodge	37	30	6,172 years	37	12.1 %	36	-13 %	
Door	22	37	6,343 years	17	10.4 %	66	2 %	
Douglas	49	50	6,946 years	45	13.0 %	29	-15 %	
Dunn	26	16	5,424 years	39	12.4 %	67	4 %	
Eau Claire	3	4	4,671 years	2	8.0 %	7	-25 %	
Florence	19	48	6,907 years	8	9.0 %	70	13 %	
Fond du Lac	28	20	5,860 years	33	11.8 %	50	-6 %	
Forest	71	71	9,984 years	70	17.7 %	58	-4 %	
Grant	34	36	6,303 years	30	11.6 %	60	-3 %	
Green	43	31	6,174 years	48	13.4 %	46	-8 %	
Green Lake	23	11	5,208 years	38	12.3 %	3	-28 %	
Iowa	12	39	6,433 years	4	8.5 %	16	-18 %	
Iron	44	63	7,793 years	24	10.8 %	40	-11 %	
Jackson	35	51	6,968 years	19	10.5 %	13	-19 %	
Jefferson	16	26	6,054 years	15	10.1 %	64	0 %	
Juneau	70	68	8,705 years	69	17.6 %	49	-6 %	
Kenosha	58	52	6,969 years	61	14.8 %	57	-4 %	
Kewaunee	8	8	5,159 years	13	9.9 %	10	-23 %	
La Crosse	17	22	5,911 years	18	10.5 %	61	-3 %	
Lafayette	21	32	6,180 years	20	10.5 %	32	-13 %	
Langlade	29	42	6,517 years	22	10.7 %	6	-27 %	
Lincoln	57	55	7,030 years	54	14.3 %	44	-9 %	
Manitowoc	40	35	6,291 years	40	12.6 %	59	-4 %	
Marathon	10	13	5,362 years	14	9.9 %	21	-17 %	
Marinette	61	58	7,281 years	64	15.8 %	63	-1 %	
Marquette	62	59	7,421 years	63	15.8 %	53	-5 %	
Menominee	72	72	15,913 years	72	20.2 %	2	-28 %	
Milwaukee	65	67	8,629 years	59	14.8 %	54	-5 %	
Monroe	45	60	7,475 years	29	11.5 %	41	-11 %	
Oconto	36	38	6,416 years	32	11.6 %	62	-3 %	
Oneida	50	43	6,552 years	50	13.7 %	11	-20 %	
Outagamie	6	12	5,344 years	7	8.8 %	37	-12 %	
Ozaukee	1	3	4,422 years	1	7.6 %	25	-16 %	
Pepin	39	23	5,944 years	46	13.1 %	51	-6 %	
Pierce	13	7	5,085 years	27	11.4 %	9	-23 %	
Polk	47	46	6,837 years	43	12.9 %	42	-10 %	
Portage	5	10	5,182 years	5	8.5 %	18	-18 %	
Price	55	33	6,184 years	62	15.3 %	8	-24 %	
Racine	56	54	7,025 years	53	14.1 %	39	-11 %	
Richland	24	25	5,994 years	25	11.1 %	47	-8 %	
Rock	48	49	6,927 years	44	13.0 %	45	-8 %	
Rusk	41	65	8,178 years	11	9.4 %	71	20 %	
Sauk	25	44	6,570 years	16	10.3 %	43	-10 %	
Sawyer	67	70	9,474 years	55	14.4 %	68	8 %	
Shawano	52	45	6,710 years	51	13.8 %	15	-19 %	
Sheboygan	32	17	5,632 years	42	12.7 %	56	-4 %	
St Croix	4	5	4,861 years	9	9.0 %	4	-28 %	
Taylor	38	24	5,972 years	41	12.6 %	38	-12 %	
Trempealeau	51	28	6,105 years	58	14.7 %	26	-16 %	
Vernon	27	41	6,494 years	21	10.7 %	65	2 %	
Vilas	66	61	7,571 years	68	17.6 %	22	-17 %	
Walworth	30	21	5,871 years	34	11.8 %	19	-18 %	
Washburn	59	40	6,444 years	66	16.2 %	1	-33 %	
Washington	11	6	5,045 years	23	10.7 %	28	-15 %	
Waukesha	2	1	4,255 years	3	8.2 %	17	-18 %	
Waupaca	60	62	7,618 years	56	14.6 %	55	-5 %	
Waushara	64	66	8,418 years	57	14.6 %	72	21 %	
Winnebago	14	15	5,375 years	26	11.2 %	31	-14 %	
Wood	15	9	5,162 years	31	11.6 %	14	-19 %	

Ranks Sorted by County – Determinants

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

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This table re-lists the county health determinants ranks presented on the previous pages. They are intended to make it easier to read the ranks for specific counties.

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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 in a county, while determinants are viewed as predictors of future health outcomes. Twenty-three 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). While much more specific health outcomes could be included here, these two address both length and quality of life.

Health Determinants: the selection of determinant measures was largely guided by the Wisconsin state health plan priorities. However, we do not include measures that represent specific diseases. We divided the 21 health determinant measures into four major components: health care, health behaviors, socioeconomic factors related to health, and the physical environment. Each of these four major components is comprised of multiple 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) and were obtained from the Bureau of Health Information and Policy, Division Public Health, Wisconsin Department of Health and Family Services and the U.S. Centers for Disease Control and Prevention (CDC) WONDER database.
- **Census data:** based on near-complete population or large-sample decennial data (education level, income, divorce rate, and year housing structure built). These were obtained online from the U.S. Census Bureau.
- **Sample survey data:** based on moderate-sized annual samples primarily from the U.S. Centers for Disease Control and Prevention’s Behavioral Risk Factor Surveillance System (cigarette smoking, 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 the Bureau of Health Information and Policy.
- **Other data** 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, and Aurora Health Care’s *Community Health Assessments*.

The specific time periods and sources corresponding to each health measure are further detailed on the Wisconsin Public Health and Health Policy Website (see the end of this section).

Overview of Methods continued

III. Rankings

Each of the 2 health outcomes measures and 21 health determinants measures were estimated for each county (often averaging over years). 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 mean of all the counties. To avoid a county’s rank being strongly influenced by one extreme component score, we truncated the score at (-3.0) or (3.0) if the actual score fell outside of this range. Weighted averages of the (truncated) 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.

IV. Changes from the *Wisconsin County Health Rankings—2003*

The annual production of the *Wisconsin County Health Rankings* provides us the opportunity to incorporate improvements from the previous year’s document. Based on feedback received after the 2003 edition, discussion and advice from groups in many fields, and continued investigation into available data sources, a number of changes have been made for this year’s edition.

- **County-level estimates:** In cases of low-population, counties were previously grouped together and a county-specific estimate was calculated by combining both county-level and county-group-level data. This approach effectively reduced random error in the county-specific estimates, but at the expense of using data from outside the county to estimate within-county measures. For the current edition we have eliminated this procedure and instead combined additional years of data, when possible, to increase sample sizes. In this way, we prevent neighboring counties with very different levels of health from influencing county-level estimates.

• Data elements

- **Mortality:** Years of potential life lost (YPLL) is measured prior to 75 instead of 85 years of age as in the previous edition.
- **Health care (previously “access to health care”):** “No recent blood pressure check” has been removed from the rankings because it has not been included as a question in recent Behavioral Risk Factor Surveillance System surveys.
- **Health behaviors:** Violent crime has replaced firearm deaths.
- **Socioeconomic factors:** In addition to Census 2000 data on the level of educational achievement of the general population, we have added the current high school graduation rates.
- **Physical environment:** Percent of children tested who were positive for lead poisoning has been joined by an additional measure to strengthen the estimate of lead danger (pre-1950s housing), as well as estimates of water (nitrate levels) and air (pollution data) quality.

A more detailed methods description, as well as county-level component values, can be found on the Wisconsin Public Health and Health Policy Institute website: www.pophealth.wisc.edu/wphi/.



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Contact Information

Wisconsin Public Health and Health Policy Institute

Department of Population Health Sciences

University of Wisconsin Medical School

760 WARF Building

610 Walnut Street

Madison, WI 53726-2397

Phone: (608) 263-6294

Fax: (608) 262-6404

<http://www.pophealth.wisc.edu/wphi>