

Wisconsin Community Health Report Cards 2003 – Working Paper



**Wisconsin Public Health and
Health Policy Institute**

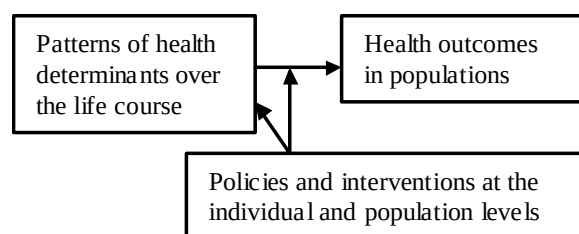
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Introduction

The Wisconsin Public Health and Health Policy Institute is pleased to present our **Wisconsin Community Health Report Card—2003**. This report supports our mission by reporting on the health of Wisconsin communities and the factors that go into improving health. We acknowledge the Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services, which provided Behavioral Risk Factor Survey, Family Health Survey, and other data for this report. 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 a model of population health improvement illustrated below. This indicates 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 our health is measured not only in years of life but also in the quality of those years. We have therefore created a health outcome

measure that also incorporates how people in Wisconsin communities rate the state of their health while alive. We also report on how this and other measures changed over a five year period, since improvement or decline is also important.

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 rating for each county based on what we know from the literature on how they should be combined.

We acknowledge that the rating of communities 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 rated communities provide insights for improvement and that the lower ones might draw additional resources for improvement.

We consider this a first version of what we intend to be an ongoing 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. The Institute plans to make this reporting, as well as research based on it, a major component of our activity over the decade. We welcome and encourage feedback and advice regarding how we might improve this effort (see page 20 for contact information) so that it is truly useful in making Wisconsin communities as healthy as they can be.

General Format of the Report Cards

Throughout this report, Wisconsin counties are rated according to where their population health lies in comparison to other Wisconsin counties. **For each health measure detailed in this report, the 72 counties are ranked and separated into 4 groups (quartiles), each containing one-fourth of the counties.** Then the counties are given a **rating** to indicate the group into which each county fell, ranging from “healthiest” to least healthy. The interpretation of the **rating symbols** follows this format:

- = most healthy (or most improved) 25% of counties (1st quartile)
- ◉ = 2nd healthiest 25% of counties (2nd quartile)
- ◐ = 3rd healthiest 25% of counties (3rd quartile)
- = least healthy (or least improved) 25% of counties (4th quartile)

The ratings are based on a total of 20 different population health measures and are hierarchical. The highest two levels of the hierarchy look like this (the numbers in parentheses indicate how many data measures are used to rate each level):

I. Health Outcomes (2 total health measures)

- Mortality (1)
- General Health Status (1)

II. Health Determinants (18 total health measures)

- Access to health care (4)
- Health-related behaviors (10)
- Socioeconomic factors related to health (3)
- The physical environment (1)

The health Determinants ratings are further subdivided to represent nine of the eleven Wisconsin State Health Priorities. At the base level of the hierarchy are individual population health measures such as prevalence of smoking, prevalence of health insurance coverage and mortality. Each level of the hierarchy receives a population health rating. Ratings for higher levels of the hierarchy are based on weighted scores of lower levels. The manner in which the individual health measures are weighted and combined is briefly described in the “Overview of Methods” section of this report. Ratings are given for “**Current**” health (the most recent data available) and health “**Change**” (improved or diminished health in an approximate five-year period prior to current health measures).

Overall health outcomes and determinants ratings

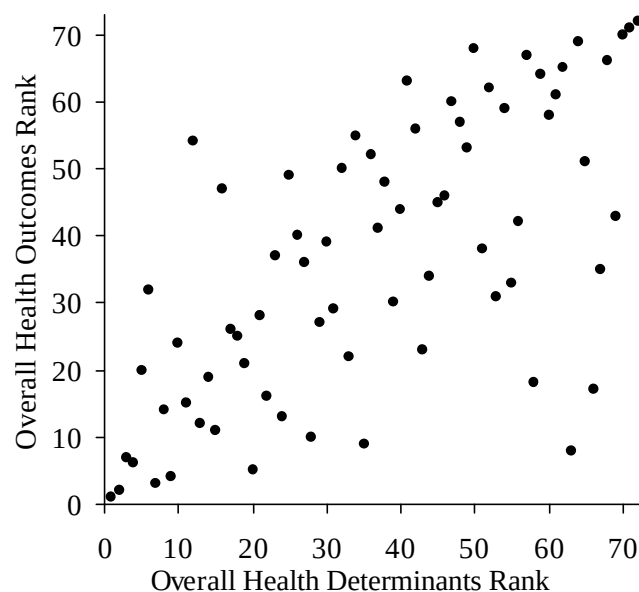
The table on the facing page presents the overall summary population health ratings for **current and five-year change in health Outcomes** and **current and five-year change in health Determinants**. Each of these ratings is a summary of a number of individual health measures.

The current and change ratings for health Outcomes are based on a combined index of mortality and general health status. Both mortality and health status are weighted equally in the summary ratings. The ratings for health Determinants are based on a combined index of 18 population health measures. A variety of different weights are given to the 18 health measures. Note that since the overall health Outcomes and Determinants ratings are based on a summary of multiple, the value of the summary measures themselves are not directly interpretable (and thus not presented in the table). The summary indices are only used to give relative ratings to counties.

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 Adams county has poorer current levels of health Determinants than most counties, the county has been improving faster in health Determinants than most other counties. We would expect that if such relative improvement continues, Adams county will rate higher in future report cards on the “current” ratings. Conversely, it can be seen that Winnebago county has high relative levels of health Outcomes, but has recently been improving slower than most other counties.

Not surprisingly, levels of current health Determinants and current health Outcomes are somewhat related. This can be seen in the figure below where the rank (1 to 72, 1 being the “healthiest”) of overall current health Outcomes index is plotted against the rank of current health Determinants index for each of the Wisconsin counties. While Outcomes and Determinants are not perfectly related, there is some correlation (correlation coefficient = 0.67).

Figure
County rank of overall summary health Outcomes index versus rank of overall summary health Determinants index. Each point represents one Wisconsin county.



Overall health outcomes and determinants summary ratings

County health ratings key	
○	= most “healthy” (or most improved) 25% of counties
⊙	= 2 nd healthiest 25% of counties
●	= 3 rd healthiest 25% of counties
●	= least healthy (or least improved) 25% of counties

County	Outcomes		Determinants	
	Current	Change	Current	Change
Adams	●	○	●	○
Ashland	●	●	●	○
Barron	●	●	●	○
Bayfield	●	○	●	○
Brown	○	●	○	●
Buffalo	○	●	○	○
Burnett	●	●	●	○
Calumet	○	●	○	●
Chippewa	●	○	○	●
Clark	○	○	●	●
Columbia	●	●	○	○
Crawford	○	○	●	●
Dane	○	●	○	●
Dodge	○	○	○	○
Door	●	●	○	○
Douglas	●	○	●	○
Dunn	○	○	○	●
Eau Claire	○	○	○	●
Florence	●	○	●	○
Fond du Lac	○	●	○	○
Forest	●	○	●	○
Grant	○	○	○	●
Green	○	●	○	○
Green Lake	○	●	●	●
Iowa	○	○	○	○
Iron	●	●	●	○
Jackson	○	○	●	○
Jefferson	○	○	○	●
Juneau	●	○	●	○
Kenosha	●	●	●	○
Kewaunee	○	●	○	○
La Crosse	○	●	○	●
Lafayette	○	●	●	○
Langlade	●	○	●	○
Lincoln	●	○	○	○
Manitowoc	●	●	○	○
Marathon	○	○	○	○
Marinette	●	●	●	●
Marquette	●	●	●	○
Menominee	●	○	●	○
Milwaukee	●	○	●	○
Monroe	○	○	●	●
Oconto	●	○	○	○
Oneida	○	○	○	○
Outagamie	○	○	○	●
Ozaukee	○	○	○	●
Pepin	○	○	○	○
Pierce	○	●	○	○
Polk	●	○	○	○
Portage	○	○	○	○
Price	●	○	○	○
Racine	●	○	○	●
Richland	○	○	●	●
Rock	●	○	●	○
Rusk	○	●	○	○
Sauk	○	○	○	○
Sawyer	●	○	●	○
Shawano	○	●	○	○
Sheboygan	○	●	○	●
St. Croix	○	●	○	●
Taylor	○	●	○	○
Trempeleau	○	○	○	○
Vernon	○	○	○	○
Vilas	●	○	○	○
Walworth	○	○	○	○
Washburn	○	○	○	○
Washington	○	○	○	○
Waukesha	○	○	○	○
Waupaca	●	●	○	○
Waushara	○	●	○	○
Winnebago	○	●	○	○
Wood	○	○	○	○

Health outcomes breakdown—mortality: Years of potential life lost per 100,000 persons (YPLL-85)

This table details counties' **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. Children who die at age 10 are considered to have lost 75 potential years of life. For each county, all years of potential life lost are summed over the relevant time period and the YPLL is then estimated on a “per 100,000 persons” basis.

YPLL-85 ratings key

The lengths of the **horizontal bars** are proportional to counties' YPLL. The gray portion of the bar indicates the level of the county with the lowest YPLL (Waukesha).

Current

- = 8,000 to 9,800 years
- ◐ = 9,800 to 10,675 years
- ◑ = 10,675 to 11,700 years
- = 11,700 to 24,000 years

WI mean = 10,683 years

Change

- = -3,800 to -800 years
- ◐ = -800 to -410 years
- ◑ = -410 to 70 years
- = 70 to 2,700 years

WI mean = -532 years

Technical information

Health Outcomes rating weight:
50%

Current time period: 1997-1999
Baseline time period: 1992-1994

Data source: U.S. Center for Disease Control and Prevention
WONDER database

• YPLL-85 is **age-adjusted** to U.S. 2000 age-distribution

County	Years of potential life lost (current)	Current	Change
Adams	12,042	●	○
Ashland	11,863	●	○
Barron	11,452	○	●
Bayfield	12,050	●	○
Brown	10,242	○	○
Buffalo	12,000	●	●
Burnett	13,711	●	●
Calumet	8,572	○	○
Chippewa	10,669	○	○
Clark	9,334	○	○
Columbia	10,851	○	○
Crawford	9,982	○	○
Dane	9,019	○	○
Dodge	10,971	○	○
Door	10,693	○	○
Douglas	12,364	●	○
Dunn	8,824	○	○
Eau Claire	8,301	○	○
Florence	10,237	○	○
Fond du Lac	10,231	○	○
Forest	13,111	●	○
Grant	10,518	○	○
Green	9,239	○	○
Green Lake	9,101	○	○
Iowa	10,101	○	○
Iron	12,562	●	○
Jackson	11,607	○	○
Jefferson	10,264	○	○
Juneau	13,343	●	○
Kenosha	10,765	○	○
Kewaunee	9,799	○	○
La Crosse	10,298	○	○
Lafayette	12,412	●	○
Langlade	11,257	○	○
Lincoln	11,639	○	○
Manitowoc	10,542	○	○
Marathon	9,060	○	○
Marinette	12,966	●	○
Marquette	11,381	○	○
Menominee	23,500	●	○
Milwaukee	13,653	●	○
Monroe	12,247	●	○
Oconto	11,390	○	○
Oneida	10,644	○	○
Outagamie	9,272	○	○
Ozaukee	8,331	○	○
Pepin	8,999	○	○
Pierce	9,156	○	○
Polk	10,608	○	○
Portage	9,476	○	○
Price	11,432	○	○
Racine	11,163	○	○
Richland	9,980	○	○
Rock	11,309	○	○
Rusk	11,130	○	○
Sauk	10,264	○	○
Sawyer	12,458	●	○
Shawano	11,518	○	○
Sheboygan	9,937	○	○
St. Croix	10,361	○	○
Taylor	11,452	○	○
Trempeleau	10,494	○	○
Vernon	10,867	○	○
Vilas	10,148	○	○
Walworth	10,860	○	○
Washburn	12,014	○	○
Washington	8,834	○	○
Waukesha	8,132	○	○
Waupaca	12,338	●	○
Waushara	14,648	●	○
Winnebago	9,457	○	○
Wood	9,387	○	○

Health outcomes breakdown—general health status: Percent of persons with poor or fair health

General Health Status measures the percent of the population that reports fair or poor health. The data are based on answers to the question, “In general, would you say that your health is excellent, very good, good, fair, or poor?” The percentage of persons reporting less-than-good health (i.e., fair or poor) is detailed here.

General health status ratings key:

Percent of persons reporting fair or poor health

The lengths of the **horizontal bars** are proportional to counties' prevalence of persons reporting fair to poor health. The grey portion of the bar indicates the level of the county with the lowest prevalence (Ozaukee).

Current

- = 5.0 to 9.1%
- ◐ = 9.1 to 10.0%
- ◑ = 10.0 to 10.4%
- = 10.4 to 13.0%

WI mean = 9.6%

Change

- = -3.0 to -0.3%
- ◐ = -0.3 to +0.6%
- ◑ = +0.6 to +1.2%
- = +1.2 to +3.0%

WI mean = +0.4%

Technical details

Health Outcomes rating **weight: 50%**

Current time period: 1997-2001

Baseline time period: 1992-1996

Data sources: Behavior Risk Factor Surveillance System and the Family Health Survey, both from Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

• Self-reported health status is **age-adjusted** to U.S. 2000 age-distribution

County	% with fair/poor health (current)	Current	Change
Adams	10.0	◐	○
Ashland	11.8	●	●
Barron	10.2	◐	●
Bayfield	10.6	◐	◐
Brown	8.7	○	●
Buffalo	9.0	○	○
Burnett	10.2	◐	◐
Calumet	10.0	◐	◐
Chippewa	10.7	◐	◐
Clark	9.9	◐	◐
Columbia	10.5	◐	●
Crawford	9.2	◐	○
Dane	8.1	○	○
Dodge	8.4	○	○
Door	9.8	○	○
Douglas	10.6	◐	◐
Dunn	10.0	◐	◐
Eau Claire	6.6	○	◐
Florence	10.1	◐	○
Fond du Lac	9.2	◐	●
Forest	10.4	◐	◐
Grant	9.3	◐	◐
Green	10.1	◐	●
Green Lake	10.3	◐	●
Iowa	9.1	○	○
Iron	11.0	◐	○
Jackson	9.0	○	○
Jefferson	9.3	◐	●
Juneau	9.7	◐	○
Kenosha	11.6	◐	●
Kewaunee	9.7	◐	◐
La Crosse	9.4	◐	◐
Lafayette	9.1	○	◐
Langlade	9.9	◐	◐
Lincoln	10.4	◐	◐
Manitowoc	10.1	◐	●
Marathon	7.3	○	○
Marinette	9.9	◐	◐
Marquette	11.0	◐	●
Menominee	10.1	◐	◐
Milwaukee	12.7	◐	◐
Monroe	8.8	○	○
Oconto	10.0	◐	◐
Oneida	10.7	◐	◐
Outagamie	6.8	○	○
Ozaukee	5.1	○	○
Pepin	9.1	○	◐
Pierce	10.3	◐	●
Polk	10.0	◐	○
Portage	9.5	◐	○
Price	10.4	◐	◐
Racine	11.1	◐	○
Richland	9.3	◐	◐
Rock	10.0	◐	◐
Rusk	10.1	◐	◐
Sauk	8.1	○	○
Sawyer	10.5	◐	◐
Shawano	10.4	◐	●
Sheboygan	9.4	◐	●
St. Croix	9.4	◐	◐
Taylor	10.0	◐	◐
Trempeleau	9.8	◐	●
Vernon	9.2	○	○
Vilas	11.4	◐	○
Walworth	9.0	○	○
Washburn	10.0	◐	◐
Washington	8.4	○	◐
Waukesha	6.0	○	○
Waupaca	10.4	◐	●
Waushara	11.3	◐	●
Winnebago	8.6	○	○
Wood	9.3	◐	○

Health Determinants ratings: Summary of major categories

On the facing page, counties are rated according to summaries of health measures representing four major categories of health determinants. Each of these categories is composed of one or more individual health measures that are summarized to create the category-level ratings. The table below details the components of the major categories, including an indication of which State Health Priorities are addressed by each of the health measures. For the most part, we view the individual health measures as imperfect proxies of the Priorities and the four major conceptual categories. However, they do reflect available data with which to examine these categories and Priorities on a local geographic level.

MAJOR DETERMINANT CATEGORY	
	State health priority
	Health measure
ACCESS TO HEALTHCARE (10% of total Determinants weight)	
	Access to Primary and Preventive Health Services
	• No health insurance • Did not receive needed health care • No recent dentist visit • No recent blood pressure check
HEALTH BEHAVIORS (40% of total Determinants weight)	
	Tobacco Use and Exposure
	• Cigarette smoking • Smoking during Pregnancy
	Overweight, Obesity, Lack of Physical Activity
	• Physical inactivity • Overweight and obesity
	Adequate and Appropriate Nutrition
	• Low fruit and vegetable consumption
	Alcohol and Other Substance Abuse and Addiction
	• Binge drinking
	High Risk Sexual Behavior
	• Teen birth rate • Sexually transmitted disease
	Intentional and Unintentional Injuries and Violence
	• Firearm deaths • Motor vehicle crash deaths
SOCIOECONOMIC ENVIRONMENT (40% of total Determinants weight)	
	Social and Economic Factors that Influence Health
	• High school graduation rate • Avg. ratio of household income to poverty level • Divorce rate
PHYSICAL ENVIRONMENT (10% of total Determinants weight)	
	Environmental and Occupational Hazards
	• Lead-poisoned children

Health Determinants ratings key

○ = most “healthy”
(or most improved)
25% of counties

◉ = 2nd healthiest
25% of counties

● = 3rd healthiest
25% of counties

● = least healthy
(or least improved)
25% of counties



Health Determinants ratings: Summary of major categories

	Access to Health Care		Health Behaviors		Socioeconomic factors		Physical environment	
County	Current	Change	Current	Change	Current	Change	Current	Change
Adams	○	○	●	○	●	○	○	○
Ashland	●	○	●	○	●	○	●	●
Barron	●	●	○	●	●	○	○	●
Bayfield	○	○	○	○	○	●	○	○
Brown	○	○	○	○	○	●	○	○
Buffalo	○	○	○	●	○	○	○	○
Burnett	○	●	○	○	●	○	○	●
Calumet	○	○	○	○	○	○	○	○
Chippewa	●	●	○	●	○	○	○	○
Clark	●	○	○	○	●	○	○	●
Columbia	○	○	○	○	○	○	○	○
Crawford	○	○	●	○	○	○	○	○
Dane	○	●	○	○	○	●	○	○
Dodge	○	○	○	○	○	○	○	○
Door	○	○	○	○	○	○	○	○
Douglas	●	○	○	○	○	○	○	○
Dunn	●	○	○	○	○	○	○	○
Eau Claire	○	○	○	○	○	○	○	○
Florence	○	○	○	○	○	○	○	○
Fond du Lac	○	○	○	○	○	○	○	○
Forest	○	○	○	○	○	○	○	○
Grant	○	○	○	○	○	○	○	○
Green	○	○	○	○	○	○	○	○
Green Lake	○	○	○	○	○	○	○	○
Iowa	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○
Jackson	○	○	○	○	○	○	○	○
Jefferson	○	○	○	○	○	○	○	○
Juneau	○	○	○	○	○	○	○	○
Kenosha	○	○	○	○	○	○	○	○
Kewaunee	○	○	○	○	○	○	○	○
La Crosse	○	○	○	○	○	○	○	○
Lafayette	○	○	○	○	○	○	○	○
Langlade	○	○	○	○	○	○	○	○
Lincoln	○	○	○	○	○	○	○	○
Manitowoc	○	○	○	○	○	○	○	○
Marathon	○	○	○	○	○	○	○	○
Marinette	○	○	○	○	○	○	○	○
Marquette	○	○	○	○	○	○	○	○
Menominee	○	○	○	○	○	○	○	○
Milwaukee	○	○	○	○	○	○	○	○
Monroe	○	○	○	○	○	○	○	○
Oconto	○	○	○	○	○	○	○	○
Oneida	○	○	○	○	○	○	○	○
Outagamie	○	○	○	○	○	○	○	○
Ozaukee	○	○	○	○	○	○	○	○
Pepin	○	○	○	○	○	○	○	○
Pierce	○	○	○	○	○	○	○	○
Polk	○	○	○	○	○	○	○	○
Portage	○	○	○	○	○	○	○	○
Price	○	○	○	○	○	○	○	○
Racine	○	○	○	○	○	○	○	○
Richland	○	○	○	○	○	○	○	○
Rock	○	○	○	○	○	○	○	○
Rusk	○	○	○	○	○	○	○	○
Sauk	○	○	○	○	○	○	○	○
Sawyer	○	○	○	○	○	○	○	○
Shawano	○	○	○	○	○	○	○	○
Sheboygan	○	○	○	○	○	○	○	○
St. Croix	○	○	○	○	○	○	○	○
Taylor	○	○	○	○	○	○	○	○
Trempeleau	○	○	○	○	○	○	○	○
Vernon	○	○	○	○	○	○	○	○
Vilas	○	○	○	○	○	○	○	○
Walworth	○	○	○	○	○	○	○	○
Washburn	○	○	○	○	○	○	○	○
Washington	○	○	○	○	○	○	○	○
Waukesha	○	○	○	○	○	○	○	○
Waupaca	○	○	○	○	○	○	○	○
Waushara	○	○	○	○	○	○	○	○
Winnebago	○	○	○	○	○	○	○	○
Wood	○	○	○	○	○	○	○	○

Health determinants rating breakdown:
Access to health care and preventive services
These keys and descriptions correspond to the table on the facing page

		No health insurance	Did not receive needed health care	No recent dentist visit	No recent blood pressure check
Health determinant description		No health insurance measures the percentage of the population without health care coverage of any kind, including prepaid plans, HMO's, or government plans such as Medicare. This measure is based on telephone survey sample data.	Did not receive needed health care measures the percentage of the population that did not get needed health care (medical care or surgery) in the twelve months prior to being interviewed. This measure is based on telephone survey sample data.	No recent dentist visit measures the percentage of the population that did not see a dentist in the last six months. This measure is based on telephone survey sample data.	No recent blood pressure check measures the percentage of the population that has not had their blood pressure taken in the past two years. This measure is based on telephone survey sample data.
Ratings Key					
C U R R E N T	healthier ○	2.0 to 6.3%	1.0 to 1.8%	30 to 46%	3.0 to 6.5%
	↓ ⊙	6.3 to 7.1%	1.8 to 2.2%	46 to 50%	6.5 to 8.0%
	↓ ⊖	7.1 to 8.0%	2.2 to 2.6%	50 to 52%	8.0 to 9.2%
	less healthy ●	8.0 to 12%	2.6 to 3.6%	52 to 58%	9.2 to 18%
	WI mean	6.5%	2.4%	46%	7.5%
C H A N G E *	healthier ○	-10 to -4.9%	-3.0 to -1.1%	-13 to -5.6%	-10 to -0.3%
	↓ ⊙	-4.9 to -3.4%	-1.1 to -0.2%	-5.6 to -3.5%	-0.3 to +1.8%
	↓ ⊖	-3.4 to -2.5%	-0.2 to +0.4%	-3.5 to -0.5%	+1.8 to +4.4%
	less healthy ●	-2.5 to 0%	+0.4 to +2.0%	-0.5 to +3.0%	+4.4 to +12%
	WI mean	-3.2%	+0.1%	-2.3%	+1.5%
Time periods					
Current		1997-2001	1997-2001	1997-2001	1997-2001
Baseline		1992-1996	1992-1996	1992-1996	1992-1996
Weight*		2.5%	2.5%	2.5%	2.5%
Data source		Family Health Survey from BHI*	Family Health Survey from BHI*	Family Health Survey from BHI*	Behavioral Risk Factor Surveillance System from BHI*
WI health priority represented		Access to Primary and Preventive Health Services	Access to Primary and Preventive Health Services	Access to Primary and Preventive Health Services	Access to Primary and Preventive Health Services

* **Change** computed as health determinant value at "current" time period minus value at "baseline."

Weight= % of contribution to overall health determinant rating.

BHI=Bureau of Health Information, Wisconsin Department of Health and Family Services.

Health determinants ratings breakdown: Access to health care and preventive services

	No health insurance		Did not receive needed health care		No recent dentist visit		No recent blood pressure check	
County	Current	Change	Current	Change	Current	Change	Current	Change
Adams	○	●	○	●	○	○	○	○
Ashland	●	○	○	○	●	○	●	●
Barron	●	○	○	○	○	○	○	○
Bayfield	○	○	○	○	○	○	○	●
Brown	○	○	○	○	○	○	○	○
Buffalo	○	○	○	○	○	○	○	○
Burnett	○	○	○	○	○	○	○	○
Calumet	○	○	○	○	○	○	○	○
Chippewa	○	○	○	○	○	○	○	○
Clark	○	○	○	○	○	○	○	○
Columbia	○	○	○	○	○	○	○	○
Crawford	○	○	○	○	○	○	○	○
Dane	○	○	○	○	○	○	○	○
Dodge	○	○	○	○	○	○	○	○
Door	○	○	○	○	○	○	○	○
Douglas	○	○	○	○	○	○	○	○
Dunn	○	○	○	○	○	○	○	○
Eau Claire	○	○	○	○	○	○	○	○
Florence	○	○	○	○	○	○	○	○
Fond du Lac	○	○	○	○	○	○	○	○
Forest	○	○	○	○	○	○	○	○
Grant	○	○	○	○	○	○	○	○
Green	○	○	○	○	○	○	○	○
Green Lake	○	○	○	○	○	○	○	○
Iowa	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○
Jackson	○	○	○	○	○	○	○	○
Jefferson	○	○	○	○	○	○	○	○
Juneau	○	○	○	○	○	○	○	○
Kenosha	○	○	○	○	○	○	○	○
Kewaunee	○	○	○	○	○	○	○	○
La Crosse	○	○	○	○	○	○	○	○
Lafayette	○	○	○	○	○	○	○	○
Langlade	○	○	○	○	○	○	○	○
Lincoln	○	○	○	○	○	○	○	○
Manitowoc	○	○	○	○	○	○	○	○
Marathon	○	○	○	○	○	○	○	○
Marinette	○	○	○	○	○	○	○	○
Marquette	○	○	○	○	○	○	○	○
Menominee	○	○	○	○	○	○	○	○
Milwaukee	○	○	○	○	○	○	○	○
Monroe	○	○	○	○	○	○	○	○
Oconto	○	○	○	○	○	○	○	○
Oneida	○	○	○	○	○	○	○	○
Outagamie	○	○	○	○	○	○	○	○
Ozaukee	○	○	○	○	○	○	○	○
Pepin	○	○	○	○	○	○	○	○
Pierce	○	○	○	○	○	○	○	○
Polk	○	○	○	○	○	○	○	○
Portage	○	○	○	○	○	○	○	○
Price	○	○	○	○	○	○	○	○
Racine	○	○	○	○	○	○	○	○
Richland	○	○	○	○	○	○	○	○
Rock	○	○	○	○	○	○	○	○
Rusk	○	○	○	○	○	○	○	○
Sauk	○	○	○	○	○	○	○	○
Sawyer	○	○	○	○	○	○	○	○
Shawano	○	○	○	○	○	○	○	○
Sheboygan	○	○	○	○	○	○	○	○
St. Croix	○	○	○	○	○	○	○	○
Taylor	○	○	○	○	○	○	○	○
Trempeleau	○	○	○	○	○	○	○	○
Vernon	○	○	○	○	○	○	○	○
Vilas	○	○	○	○	○	○	○	○
Walworth	○	○	○	○	○	○	○	○
Washburn	○	○	○	○	○	○	○	○
Washington	○	○	○	○	○	○	○	○
Waukesha	○	○	○	○	○	○	○	○
Waupaca	○	○	○	○	○	○	○	○
Waushara	○	○	○	○	○	○	○	○
Winnebago	○	○	○	○	○	○	○	○
Wood	○	○	○	○	○	○	○	○

Health determinants ratings breakdown: Behavior – smoking, inactivity, and food consumption

These keys and descriptions correspond to the table on the facing page

		Cigarette smoking	Smoking during pregnancy	Physical inactivity	Overweight and obesity	Low fruit/veg consumption
Health determinant description		Cigarette smoking measures the percentage of the population that reports themselves to be current smokers or current occasional smokers. This measure is based on telephone survey sample data.	Smoking during pregnancy measures the percentage of the pregnant women in the population who smoke. This variable also serves as an indicator of tobacco use and exposure in the population.	Physical inactivity measures the percentage of the population that reports doing moderate or vigorous physical activity <20 minutes daily or <3 times per week. This measure is based on telephone survey sample data.	Overweight and obesity measures the percentage of the population that has a body mass index (weight in kg divided by height ² in m ²) greater than 25 kg/m ² . This measure is based on telephone survey sample data.	Low fruit and vegetable consumption measures the percentage of the population that consumes <5 servings of fruits and/or vegetables per day. This measure is based on telephone survey sample data.
Ratings Key						
C U R R E N T	healthier ○	15 to 22%	8 to 16%	40 to 49%	50 to 57%	65 to 75%
	↓ ○	22 to 24%	16 to 20%	49 to 54%	57 to 61%	76 to 79%
	↓ ○	24 to 26%	20 to 24%	54 to 57%	61 to 63%	79 to 81%
	less healthy ●	26 to 40%	24 to 50%	57 to 75%	63 to 70%	81 to 84%
	WI mean	24%	17%	53%	57%	77%
C H A N G E *	healthier ○	-11 to -0.4%	-8 to -3.2%	-23 to -7.5%	-5 to +2.5%	-15 to -4.0%
	↓ ○	-0.4 to +2.5%	-3.2 to -1.5%	-7.5 to -0.5%	+2.5 to +4.8%	-4.0 to -0.8%
	↓ ○	+2.5 to +4.8%	-1.5 to +0.8%	-0.5 to +3.5%	+4.8 to +6.8%	-0.8 to +5.4%
	less healthy ●	+4.8 to +12%	+0.8 to +4.5%	+3.5 to +24%	+6.8 to +17%	+5.4 to +11%
	WI mean	+0.5%	-2.7%	-0.2%	+3.6	+3.0%
Time periods						
Current		1997-2001	1999-2000	1997-2001	1997-2001	1997-2001
	Baseline	1992-1996	1994-1995	1992-1996	1992-1996	1992-1996
Weight*		6%	6%	4%	6%	3%
Data source		Behavioral Risk Factor Surveillance System from BHI*	Recorded on birth certificates - provided BHI*	Behavioral Risk Factor Surveillance System from BHI*	Behavioral Risk Factor Surveillance System from BHI*	Behavioral Risk Factor Surveillance System from BHI*
WI health priority represented		Tobacco Use and Exposure	Tobacco Use and Exposure	Overweight, Obesity, Lack of Physical Activity	Overweight, Obesity, Lack of Physical Activity	Adequate and Appropriate Nutrition

* Change computed as health determinant value at "current" time period minus value at "baseline."

Weight= % of contribution to overall health determinant rating.

BHI=Bureau of Health Information, Wisconsin Department of Health and Family Services.

Health determinants ratings breakdown: Behavior – smoking, inactivity, and food consumption

	Cigarette smoking		Smoking during pregnancy		Physical inactivity		Overweight and obesity		Low fruit/veg consumption	
County	Current	Change	Current	Change	Current	Change	Current	Change	Current	Change
Adams	○	○	●	○	●	●	●	●	○	○
Ashland	●	○	●	○	○	○	○	○	●	●
Barron	○	○	●	○	○	○	○	○	○	○
Bayfield	○	○	●	○	○	○	●	●	○	○
Brown	○	○	○	○	○	○	○	○	○	○
Buffalo	○	○	○	○	●	○	○	○	○	○
Burnett	○	○	●	○	○	○	○	○	○	○
Calumet	○	○	○	○	○	○	○	○	○	○
Chippewa	○	○	●	○	○	○	○	○	○	○
Clark	○	○	○	○	○	○	○	○	○	○
Columbia	●	○	○	○	○	○	○	○	○	○
Crawford	○	○	○	○	○	○	○	○	○	○
Dane	○	○	○	○	○	○	○	○	○	○
Dodge	○	○	○	○	○	○	○	○	○	○
Door	○	○	○	○	○	○	○	○	○	○
Douglas	○	○	○	○	○	○	○	○	○	○
Dunn	○	○	○	○	○	○	○	○	○	○
Eau Claire	○	○	○	○	○	○	○	○	○	○
Florence	○	○	○	○	○	○	○	○	○	○
Fond du Lac	○	○	○	○	○	○	○	○	○	○
Forest	○	○	○	○	○	○	○	○	○	○
Grant	○	○	○	○	○	○	○	○	○	○
Green	○	○	○	○	○	○	○	○	○	○
Green Lake	○	○	○	○	○	○	○	○	○	○
Iowa	○	○	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○	○	○
Jackson	○	○	○	○	○	○	○	○	○	○
Jefferson	○	○	○	○	○	○	○	○	○	○
Juneau	○	○	○	○	○	○	○	○	○	○
Kenosha	○	○	○	○	○	○	○	○	○	○
Kewaunee	○	○	○	○	○	○	○	○	○	○
La Crosse	○	○	○	○	○	○	○	○	○	○
Lafayette	○	○	○	○	○	○	○	○	○	○
Langlade	○	○	○	○	○	○	○	○	○	○
Lincoln	○	○	○	○	○	○	○	○	○	○
Manitowoc	○	○	○	○	○	○	○	○	○	○
Marathon	○	○	○	○	○	○	○	○	○	○
Marinette	○	○	○	○	○	○	○	○	○	○
Marquette	○	○	○	○	○	○	○	○	○	○
Menominee	○	○	○	○	○	○	○	○	○	○
Milwaukee	○	○	○	○	○	○	○	○	○	○
Monroe	○	○	○	○	○	○	○	○	○	○
Oconto	○	○	○	○	○	○	○	○	○	○
Oneida	○	○	○	○	○	○	○	○	○	○
Outagamie	○	○	○	○	○	○	○	○	○	○
Ozaukee	○	○	○	○	○	○	○	○	○	○
Pepin	○	○	○	○	○	○	○	○	○	○
Pierce	○	○	○	○	○	○	○	○	○	○
Polk	○	○	○	○	○	○	○	○	○	○
Portage	○	○	○	○	○	○	○	○	○	○
Price	○	○	○	○	○	○	○	○	○	○
Racine	○	○	○	○	○	○	○	○	○	○
Richland	○	○	○	○	○	○	○	○	○	○
Rock	○	○	○	○	○	○	○	○	○	○
Rusk	○	○	○	○	○	○	○	○	○	○
Sauk	○	○	○	○	○	○	○	○	○	○
Sawyer	○	○	○	○	○	○	○	○	○	○
Shawano	○	○	○	○	○	○	○	○	○	○
Sheboygan	○	○	○	○	○	○	○	○	○	○
St. Croix	○	○	○	○	○	○	○	○	○	○
Taylor	○	○	○	○	○	○	○	○	○	○
Trempeleau	○	○	○	○	○	○	○	○	○	○
Vernon	○	○	○	○	○	○	○	○	○	○
Vilas	○	○	○	○	○	○	○	○	○	○
Walworth	○	○	○	○	○	○	○	○	○	○
Washburn	○	○	○	○	○	○	○	○	○	○
Washington	○	○	○	○	○	○	○	○	○	○
Waukesha	○	○	○	○	○	○	○	○	○	○
Waupaca	○	○	○	○	○	○	○	○	○	○
Waushara	○	○	○	○	○	○	○	○	○	○
Winnebago	○	○	○	○	○	○	○	○	○	○
Wood	○	○	○	○	○	○	○	○	○	○

Health determinants ratings breakdown: Behavior - drinking, unsafe sex, and injury

These keys and descriptions correspond to the table on the facing page

		Binge drinking	Teen birth rate	Sexually transmitted disease	Firearm deaths	Motor vehicle crash deaths
Health determinant description		Binge drinking measures the percentage of the population that drinks more than five alcoholic beverages in one day, at least once per month. This measure is based on telephone survey sample data.	Teen birth rate measures the average annual birth rate per 1,000 females aged 15-19 years.	Sexually-transmitted disease measures the average annual number of reported cases of chlamydia, gonorrhea, syphilis and herpes as the rate per 100,000 in the population .	Firearm deaths measures the average annual mortality rate per 100,000 in the population due to firearms.	Motor vehicle crash deaths measures the average annual mortality rate per 100,000 in the population due to motor vehicle crashes.
Ratings Key						
C U R R E N T	healthier ○	10 to 23%	10 to 24	28 to 95	0 to 5.5	8 to 15
	↓ ↓ ○	23 to 24%	24 to 28	95 to 155	5.5 to 8.2	15 to 20
	less healthy ○	24 to 26%	28 to 36	155 to 230	8.2 to 11.5	20 to 26
	healthy ●	26 to 35%	36 to 105	230 to 1,565	11.5 to 26	26 to 50
	WI mean	25%	35	471	8.7	15
C H A N G E *	healthier ○	-12 to -4.5%	-30 to -8.0	-52 to +8	-21 to -5.6	-55 to -2.6
	↓ ↓ ○	-4.5 to +0.5%	-8.0 to -2.7	+8 to +48	-5.6 to -1.8	-2.6 to +1.5
	less healthy ○	+0.5 to +3.1%	-2.7 to +0.6	+48 to +80	-1.8 to +1.0	+1.5 to +5.5
	healthy ●	+3.1 to +10%	+0.6 to +19	+80 to +865	+1.0 to +14	+5.5 to +23
	WI mean	+0.2%	-4.9	+102	-1.4	-0.5
Time periods						
Current		1997-2001	1999-2001	2000-2001	1997-1999	1997-1999
Baseline		1992-1996	1993-1995	1995-1996	1992-1994	1992-1994
Weight*		10%	1%	1%	1.5%	1.5%
Data source		Behavioral Risk Factor Surveillance System from BHI*	BHI* web-based database: Wisconsin Interactive Statistics on Health (WISH)	Wisconsin Department of Health and Family Services.	U.S. Center for Disease Control & Prevention's WONDER database	U.S. Center for Disease Control & Prevention's WONDER database
WI health priority represented		Alcohol and Other Substance Use and Addiction	High Risk Sexual Behavior	High Risk Sexual Behavior	Intentional and Unintentional Injuries and Violence	Intentional and Unintentional Injuries and Violence

* **Change** computed as health determinant value at "current" time period minus value at "baseline."

Weight= % of contribution to overall health determinant rating.

BHI=Bureau of Health Information, Wisconsin Department of Health and Family Services.

Health determinants ratings breakdown: Behavior - drinking, unsafe sex, and injury

	Binge drinking		Teen birth rate		Sexually transmitted disease		Firearm deaths		Motor vehicle crash deaths	
County	Current	Change	Current	Change	Current	Change	Current	Change	Current	Change
Adams	○	○	●	○	○	○	●	○	●	●
Ashland	○	○	●	○	○	○	●	○	○	○
Barron	●	●	○	○	○	○	●	○	○	○
Bayfield	○	○	○	○	○	○	●	○	○	○
Brown	●	●	●	●	●	○	○	○	○	○
Buffalo	○	○	○	○	○	○	○	○	○	○
Burnett	○	○	●	○	○	○	●	○	○	○
Calumet	●	○	○	○	○	○	○	○	○	○
Chippewa	○	○	○	○	○	○	○	○	○	○
Clark	○	○	○	○	○	○	○	○	○	○
Columbia	○	○	○	○	○	○	○	○	○	○
Crawford	○	○	○	○	○	○	○	○	○	○
Dane	○	○	○	○	○	○	○	○	○	○
Dodge	○	○	○	○	○	○	○	○	○	○
Door	○	○	○	○	○	○	○	○	○	○
Douglas	○	○	○	○	○	○	○	○	○	○
Dunn	○	○	○	○	○	○	○	○	○	○
Eau Claire	○	○	○	○	○	○	○	○	○	○
Florence	○	○	○	○	○	○	○	○	○	○
Fond du Lac	○	○	○	○	○	○	○	○	○	○
Forest	○	○	○	○	○	○	○	○	○	○
Grant	○	○	○	○	○	○	○	○	○	○
Green	○	○	○	○	○	○	○	○	○	○
Green Lake	○	○	○	○	○	○	○	○	○	○
Iowa	○	○	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○	○	○
Jackson	○	○	○	○	○	○	○	○	○	○
Jefferson	○	○	○	○	○	○	○	○	○	○
Juneau	○	○	○	○	○	○	○	○	○	○
Kenosha	○	○	○	○	○	○	○	○	○	○
Kewaunee	○	○	○	○	○	○	○	○	○	○
La Crosse	○	○	○	○	○	○	○	○	○	○
Lafayette	○	○	○	○	○	○	○	○	○	○
Langlade	○	○	○	○	○	○	○	○	○	○
Lincoln	○	○	○	○	○	○	○	○	○	○
Manitowoc	○	○	○	○	○	○	○	○	○	○
Marathon	○	○	○	○	○	○	○	○	○	○
Marinette	○	○	○	○	○	○	○	○	○	○
Marquette	○	○	○	○	○	○	○	○	○	○
Menominee	○	○	○	○	○	○	○	○	○	○
Milwaukee	○	○	○	○	○	○	○	○	○	○
Monroe	○	○	○	○	○	○	○	○	○	○
Oconto	○	○	○	○	○	○	○	○	○	○
Oneida	○	○	○	○	○	○	○	○	○	○
Outagamie	○	○	○	○	○	○	○	○	○	○
Ozaukee	○	○	○	○	○	○	○	○	○	○
Pepin	○	○	○	○	○	○	○	○	○	○
Pierce	○	○	○	○	○	○	○	○	○	○
Polk	○	○	○	○	○	○	○	○	○	○
Portage	○	○	○	○	○	○	○	○	○	○
Price	○	○	○	○	○	○	○	○	○	○
Racine	○	○	○	○	○	○	○	○	○	○
Richland	○	○	○	○	○	○	○	○	○	○
Rock	○	○	○	○	○	○	○	○	○	○
Rusk	○	○	○	○	○	○	○	○	○	○
Sauk	○	○	○	○	○	○	○	○	○	○
Sawyer	○	○	○	○	○	○	○	○	○	○
Shawano	○	○	○	○	○	○	○	○	○	○
Sheboygan	○	○	○	○	○	○	○	○	○	○
St. Croix	○	○	○	○	○	○	○	○	○	○
Taylor	○	○	○	○	○	○	○	○	○	○
Trempeleau	○	○	○	○	○	○	○	○	○	○
Vernon	○	○	○	○	○	○	○	○	○	○
Vilas	○	○	○	○	○	○	○	○	○	○
Walworth	○	○	○	○	○	○	○	○	○	○
Washburn	○	○	○	○	○	○	○	○	○	○
Washington	○	○	○	○	○	○	○	○	○	○
Waukesha	○	○	○	○	○	○	○	○	○	○
Waupaca	○	○	○	○	○	○	○	○	○	○
Waushara	○	○	○	○	○	○	○	○	○	○
Winnebago	○	○	○	○	○	○	○	○	○	○
Wood	○	○	○	○	○	○	○	○	○	○

Health determinants ratings breakdown: Socioeconomic factors and physical environment

These keys and descriptions correspond to the table on the facing page

		High school graduation rate	Average ratio of household income to poverty level	Divorce rate	Lead-poisoned children
Health determinant description		High school graduation rate measures the percentage of the population over age 25 that has graduated from high school.	Average ratio of household income to poverty level measures the typical ratio of household income to the poverty level in the population. This measure takes into account both income level and household size.	Divorce rate measures the percentage of adults in the population that report themselves to be divorced.	Lead-poisoned children measures the percentage of lead tests on children ages 6 and under that tested positive for lead poisoning. This measure is <i>not</i> based on a complete or random sample and should be interpreted cautiously.
Ratings Key					
C U R R E N T	healthier ○	92 to 86%	2.6 to 3.0	6 to 8%	0.5 to 2.1%
	↓ ○	86 to 84%	2.5 to 2.6	8 to 9%	2.1 to 3.2%
	↓ ○	84 to 82%	2.4 to 2.5	9 to 10%	3.2 to 4.5%
	less healthy ●	82 to 75%	1.5 to 2.4	10 to 11%	4.5 to 14%
	WI mean	85%	2.6	9%	7.2%
C H A N G E *	healthier ○	+4.7 to +8.0%	+0.09 to +0.20	+0.4 to +0.9%	-9.0 to -2.7%
	↓ ○	+4.3 to +4.7%	+0.08 to +0.09	+0.9 to +1.1%	-2.7 to -1.5%
	↓ ○	+3.6 to +4.3%	+0.05 to +0.08	+1.1 to +1.5%	-1.5 to -0.6%
	less healthy ●	+1.6 to +3.6%	-0.20 to +0.05	+1.5 to +2.0%	-0.6 to +1.0%
	WI mean	+3.2%	+0.04%	+0.9%	-4.9%
Time periods					
Current		2000	2000	2000	2002
Baseline		1995 (interpolated)	1995 (interpolated)	1995 (interpolated)	1997
Weight*					
		14%	13%	13%	10%
Data source					
		1990 and 2000 U.S. Censuses	1990 and 2000 U.S. Censuses	1990 and 2000 U.S. Censuses	Wisconsin Department of Health and Family Services.
WI health priority represented					
		Social and Economic Factors that Influence Health	Social and Economic Factors that Influence Health	Social and Economic Factors that Influence Health	Environmental and Occupational Health Hazards

* **Change** computed as health determinant value at "current" time period minus value at "baseline."

Weight= % of contribution to overall health determinant rating.

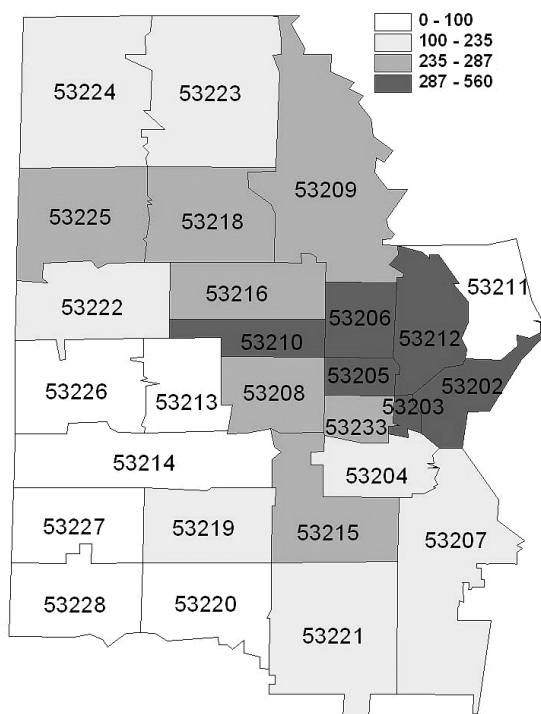
Health determinants ratings breakdown: Socioeconomic factors and physical environment

	High school graduation rate		Avg. ratio of household income to poverty level		Divorce rate		Lead-poisoned children	
County	Current	Change	Current	Change	Current	Change	Current	Change
Adams	●	○	●	○	●	○	○	○
Ashland	○	○	●	○	●	○	●	○
Barron	○	○	●	○	●	○	○	○
Bayfield	○	●	●	○	●	○	●	○
Brown	○	●	○	○	●	○	●	○
Buffalo	○	○	○	○	○	○	●	○
Burnett	○	○	○	○	●	○	○	○
Calumet	○	○	○	○	○	○	○	○
Chippewa	○	○	○	○	○	○	○	○
Clark	●	○	●	○	○	○	○	○
Columbia	○	○	○	○	○	○	○	○
Crawford	●	○	●	○	○	○	○	○
Dane	○	○	○	○	○	○	○	○
Dodge	○	○	○	○	○	○	○	○
Door	○	○	○	○	○	○	○	○
Douglas	○	○	○	○	○	○	○	○
Dunn	○	○	○	○	○	○	○	○
Eau Claire	○	○	○	○	○	○	○	○
Florence	○	○	○	○	○	○	○	○
Fond du Lac	○	○	○	○	○	○	○	○
Forest	○	○	○	○	○	○	○	○
Grant	○	○	○	○	○	○	○	○
Green	○	○	○	○	○	○	○	○
Green Lake	○	○	○	○	○	○	○	○
Iowa	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○
Jackson	○	○	○	○	○	○	○	○
Jefferson	○	○	○	○	○	○	○	○
Juneau	○	○	○	○	○	○	○	○
Kenosha	○	○	○	○	○	○	○	○
Kewaunee	○	○	○	○	○	○	○	○
La Crosse	○	○	○	○	○	○	○	○
Lafayette	○	○	○	○	○	○	○	○
Langlade	○	○	○	○	○	○	○	○
Lincoln	○	○	○	○	○	○	○	○
Manitowoc	○	○	○	○	○	○	○	○
Marathon	○	○	○	○	○	○	○	○
Marinette	○	○	○	○	○	○	○	○
Marquette	○	○	○	○	○	○	○	○
Menominee	○	○	○	○	○	○	○	○
Milwaukee	○	○	○	○	○	○	○	○
Monroe	○	○	○	○	○	○	○	○
Oconto	○	○	○	○	○	○	○	○
Oneida	○	○	○	○	○	○	○	○
Outagamie	○	○	○	○	○	○	○	○
Ozaukee	○	○	○	○	○	○	○	○
Pepin	○	○	○	○	○	○	○	○
Pierce	○	○	○	○	○	○	○	○
Polk	○	○	○	○	○	○	○	○
Portage	○	○	○	○	○	○	○	○
Price	○	○	○	○	○	○	○	○
Racine	○	○	○	○	○	○	○	○
Richland	○	○	○	○	○	○	○	○
Rock	○	○	○	○	○	○	○	○
Rusk	○	○	○	○	○	○	○	○
Sauk	○	○	○	○	○	○	○	○
Sawyer	○	○	○	○	○	○	○	○
Shawano	○	○	○	○	○	○	○	○
Sheboygan	○	○	○	○	○	○	○	○
St. Croix	○	○	○	○	○	○	○	○
Taylor	○	○	○	○	○	○	○	○
Trempeleau	○	○	○	○	○	○	○	○
Vernon	○	○	○	○	○	○	○	○
Vilas	○	○	○	○	○	○	○	○
Walworth	○	○	○	○	○	○	○	○
Washburn	○	○	○	○	○	○	○	○
Washington	○	○	○	○	○	○	○	○
Waukesha	○	○	○	○	○	○	○	○
Waupaca	○	○	○	○	○	○	○	○
Waushara	○	○	○	○	○	○	○	○
Winnebago	○	○	○	○	○	○	○	○
Wood	○	○	○	○	○	○	○	○

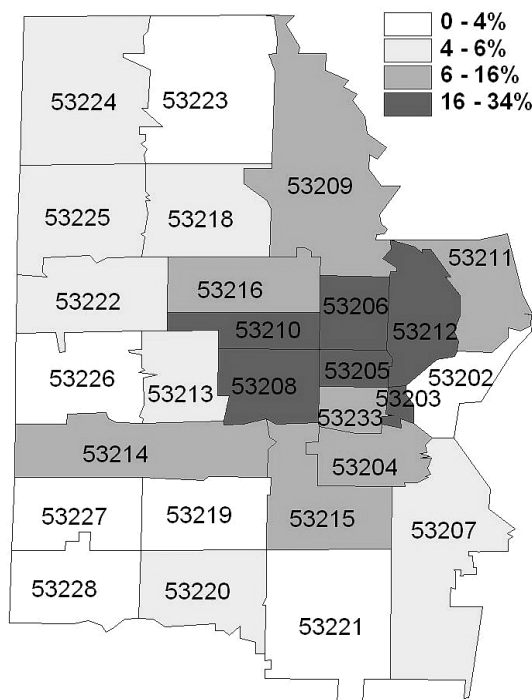
Intra-urban Population Health: Mortality and Lead Poisoning in Milwaukee County

We recognize that data presented at the county level is not very meaningful for certain regions such as large urban areas. One challenge of population health reporting is to obtain good data at sub-urban levels to allow informed policy making within cities. Through the Wisconsin Public Health and Health Policy Institute's collaboration with the **Center for Urban Population Health** (sponsored by University of Wisconsin-Milwaukee, Aurora Health Care, and University of Wisconsin-Madison Medical School, Milwaukee Clinical Campus), we obtained data for the two maps below. These are not identical elements as we use for the entire counties on the previous pages—they are presented to underscore our sensitivity to this critical issue and our commitment to moving forward toward inclusion of better data at this level in future reports. Note the similar clusterings of poor health outcomes for two substantially different types of health data: mortality in non-elderly persons and lead-poisoning prevalence in children.

Age-adjusted mortality rate per 100,000 persons under age 65 years by zip code: Milwaukee County, 2001.



Prevalence of lead-poisoning—percent of tested children under age 6 years who have blood lead level $\geq 10\mu\text{g/dl}$ by zip code: Milwaukee County, 2002



Brief overview of report card methods

I. Selection of population health measures

We decided to focus on two major 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. This distinction may seem arbitrary, as some Determinants might certainly be viewed as indicators of current population health status—and, in fact, some Determinants such as Firearm Death Rates, are clearly a health Outcome. However the Determinants are intended to be viewed as direct measures or proxies of known determinants 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 and of sufficient quantity to have stable county-level estimates (with, perhaps some temporal or geographic “smoothing”, see below);
- the data needed to be current and updated periodically, preferably annually.

Health Outcomes: two measures were used to measure Outcomes: mortality data and general health status survey data. Together, these variables conceptually summarize much of what we think of as core health outcomes: death and health status while alive. While much more specific health outcomes could be included here (e.g., disease-specific morbidity rates), for this first edition of the Report Cards, we chose a broader measure. We may focus on more specific non-mortality outcomes in future editions.

Health Determinants: the selection of Determinant measures was guided, to a large degree, by the Wisconsin State Health Priorities. We did not include measures that represented diseases or health conditions. This is not to de-emphasize the importance of these elements, but, rather, the data available did not fit well into our conceptual framework (e.g., poor health mental health days are Outcomes rather than Determinants in our framework, and we are not presenting disease specific outcomes at this time).

II. Calculation of county-level estimates.

The data used for this report came from a variety of sources:

- **Complete population** (non-sample), annually available data. These data include vital statistics (e.g., mortality, teen births, smoking during pregnancy).
- **Census data:** based on near-complete population or large-sample decennial data (e.g., graduation rate)
- **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 or the Wisconsin Department of Health and Family Service’s Family Health Surveys. These data are often quite sparse for some counties.
- **“Other” data:** such as sexually transmitted disease rates and lead-poisoning cases.

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 <http://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.

III. Ratings and weights

Individual health measures: each of the 2 health Outcomes measures and 18 health Determinants measures were estimated for the counties (averaging over years as indicated in the tables of this report, and sometimes over county groups as discussed above) for “Current” and “Baseline” time periods. Change in health measures was estimated as Current minus Baseline values (in absolute—not relative—change). For all measures except high school graduation rate and ratio of income to poverty level, higher values were deemed to reflect poorer population health. The counties were then ranked and separated into 4 equal size groups of 18 counties (quartiles) and given a rating reflective of their health measure (or change) relative to other Wisconsin counties.

Summary health measures: the mean and standard deviation of each of the 20 health measures were calculated across the 72 counties. Counties were then given a “score” for each health measure. This score was the number of standard deviation units that the county was from the county mean measure. These scores tended to range from –2 to +2 — a negative value indicating a lower than average measure.

Weighted averages of these scores were then computed using the relative weights given in the tables of this report. These averages were used to calculate the overall summary Outcomes and Determinants ratings as well as the ratings for the four major categories of Determinants.

The **weights** used to summarize the health measures into summary ratings were based on two sources: 1) literature review of the relative impact of various risk factors on summary measures of population health, and 2) our judgment as to the relative importance of various measures. One source was particularly influential in our choice of weights: Ezzati M, et al. Selected major risk factors and global and regional burden of disease. *Lancet* 2002 360:1347-60.

Further details on the Report Card methodology will be available in an upcoming Technical Report.

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This report is a “working paper” and will be followed by a final report in late 2003.

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