UNIVERSITY OF WISCONSIN
Population Health Institute
Translating Research into Policy and Practice

Brief Report

The Causes of Excess Deaths in Wisconsin by Life Stage

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Deaths due to preventable or treatable cancers, ischemic heart disease, motor vehicle accidents and other unintentional injuries, homicide, suicide, and other avoidable causes of infant death account for nearly 80 percent of the total excess deaths in Wisconsin. Since these seven causes also include the leading avoidable causes of death in each life stage, identifying and implementing interventions that target these eight causes should improve health across all life stages.

This is the third of a series of brief reports from work on the "Making Wisconsin the Healthiest State" project. With funding from the Wisconsin Partnership Fund for a Healthy Future (Blue Cross Program), our goal for this 4-year project is to identify the most effective investments for Wisconsin to become the nation's healthiest state with less health disparity. This report examines trends in deaths by life stage and cause and analyzes how many deaths might be avoided among infants, children, adolescents, young adults, middle-aged adults, and older adults.

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Introduction

In a previous *Brief Report* (Kempf et al, 2006), we examined the concept of excess deaths (the number of deaths that could be averted if each county's death rate was reduced to that of the lowest or target rate) and looked at the geographic distribution of these deaths in Wisconsin. We found that close to 5000 deaths could be averted each year among people under age 75, if people died at the same rate in every Wisconsin county as they do in the county with the lowest death rate.

In this report, we delve further into this concept by looking at deaths in six specific life stages: infants (less than 1 year old), children aged 1-14, adolescents and young adults aged 15-24, adults aged 25-44, middle-aged adults aged 45-64, and young elderly adults aged 65-74. For each life stage, we examine

1) trends in overall death rates for Wisconsin in comparison to the entire US and the states with the lowest (best) and highest (worst) death rates,
2) the leading causes of death in Wisconsin, and
3) the number of excess deaths from potentially avoidable causes in Wisconsin.

Rutstein et al (1976) suggested that the concept of avoidable causes of death could be used as a mechanism for evaluating the quality of medical care. Twenty-five years later, the concept was applied to the "assessment of a population's capacity for health improvement via analysis of the causal structure of mortality at the level of diseases and injuries, seeking to distinguish potentially avoidable from unavoidable causes" with the recognitions that this requires the "accurate assignment of cause of death and attribution of causes of death as 'avoidable' and 'unavoidable'" (Tobias and Jackson, 2001).

Simonato et al (1998) grouped "avoidable conditions" into 3 categories:

> "*1. Causes avoidable through primary prevention*, i.e. by reducing the incidence of the disease. This category includes causes whose etiology is in part attributable to lifestyle factors (such as alcohol and/or tobacco consumption) and/or to occupational risk factors. It also includes deaths from injury and poisoning, which are influenced in part by legal and societal measures such as traffic safety and crime reduction policies."
>
> "*2. Causes amenable to secondary prevention through early detection and treatment.* This group includes causes of death for which screening modalities have been established such as cancer of breast and cervix, as well as causes for which death is avoidable through early detection combined with adequate treatment, such as skin cancer."
>
> "*3. Causes amenable to improved treatment and medical care.* This group includes infectious diseases, deaths from which are 'avoidable' largely through antibiotic treatment and immunization as well as causes that require medical and/or surgical intervention such as hypertension, appendicitis, deaths of which are related to complex interactions within the health care system, such as accurate diagnosis, transport to hospital, adequate medical and surgical care."

Nolte and McKee (2004) conducted a comprehensive review of avoidable mortality methodology but their primary focus was on the use of avoidable mortality as a measure of health system performance. For this reason, they only selected causes of death that could be categorized as amenable to secondary prevention (group 2 above) or causes amenable to improved treatment and medical care (group 3) in their studies of 'amenable mortality' or mortality that is amenable to medical prevention or treatment. In other words 'amenable mortality' can be considered a subset of all 'avoidable mortality.'

Methodology

Trends in mortality rates

For each life stage, we report on the trends in overall mortality rates in Wisconsin (i.e., all-cause mortality) from 1979 to 2004 (Figures 1a-6a). We compare each of these rates with all-cause mortality for the United States as a whole and with the best (lowest) and worst (highest) rate for an individual state each year through 2002 (the most current year mortality data are available outside of Wisconsin). In this way, for any particular life stage, the "best state" and "worst state" can vary each year. However, in practice, for any particular life stage, the same state was often the "best state" for several years.

Avoidable deaths

Since our intent for the analysis reported here is to identify *all* opportunities for overall health improvement (not just those within the health care environment), we

chose to group all three types of conditions together under the premise that deaths due to any of these causes could be avoided. Appendix 1 includes a complete listing of the conditions that we identified where death could be avoided due to primary prevention, secondary prevention (early detection and treatment), or tertiary prevention (conditions amenable to medical care).

Excess deaths

We identified leading causes of death for each life stage and then calculated the number of ***excess*** deaths that could have been averted each year if the rate of death in Wisconsin for each *avoidable* cause were reduced to that of the state with the lowest reliable rate during the period from 1999-2002 (the most current years available nationally). "Reliable" rates are defined by CDC as rates based on at least 20 cases. Appendix 2 provides the specific data and calculations for each life stage:

- *the average rate by cause in Wisconsin from 1999-2002,*
- *the maximum rate (the highest reliable rate) for a U.S. state,*
- *the minimum rate (the lowest reliable rate) for a U.S. state,*
- *the state with the target rate (i.e., the minimum rate),*
- *the risk difference (i.e., the difference between Wisconsin's rate and the target rate), and*
- *the number of excess deaths in Wisconsin per year (the risk difference applied to the 2002 population in that life stage in Wisconsin).*

We report the annual average number of excess and other deaths per year for each of the leading causes of death for each life stage (Figures 1b-6b). Wisconsin's rates were always higher than the target rates for each avoidable cause and life stage, resulting in at least a few excess deaths for each avoidable cause. Consequently, causes of death where there are no excess deaths are those not classified as "avoidable."

Although the causes of deaths among those aged 75 and over often mirror those in younger age groups, we excluded deaths among those aged 75 and over from this particular analysis. There are inherent difficulties in classifying the cause of death among the elderly because of both the presence of multiple conditions and the distinction between immediate and underlying causes of death. Furthermore, the issue of appropriate measures of quality of life is arguably far more salient for this age group than avoidable causes of death.

Infants (under 1 year)

All-cause mortality rates for infants have declined steadily since 1979 nationally and in Wisconsin (Figure 1a). Wisconsin's infant death rate was close to the best (lowest) state rate in the early 1980s. More recently, the gap between Wisconsin's rate and the best rate has increased.

From 2000-2004, there was an average of 459 deaths per year among infants in Wisconsin. Of these 459 deaths, on average, 123 or 27 percent, can be considered excess deaths (the grey shaded portions in Figure 1b). Excess deaths are identified when Wisconsin's mortality rates are higher than the target rates for causes that are considered avoidable (through primary, secondary, or tertiary prevention). Deaths due to short gestation and low birthweight and sudden death syndrome accounted for over 100 of these excess deaths among infants in Wisconsin.

Figure 1a: Trends in All-Cause Mortality Rates for Infants

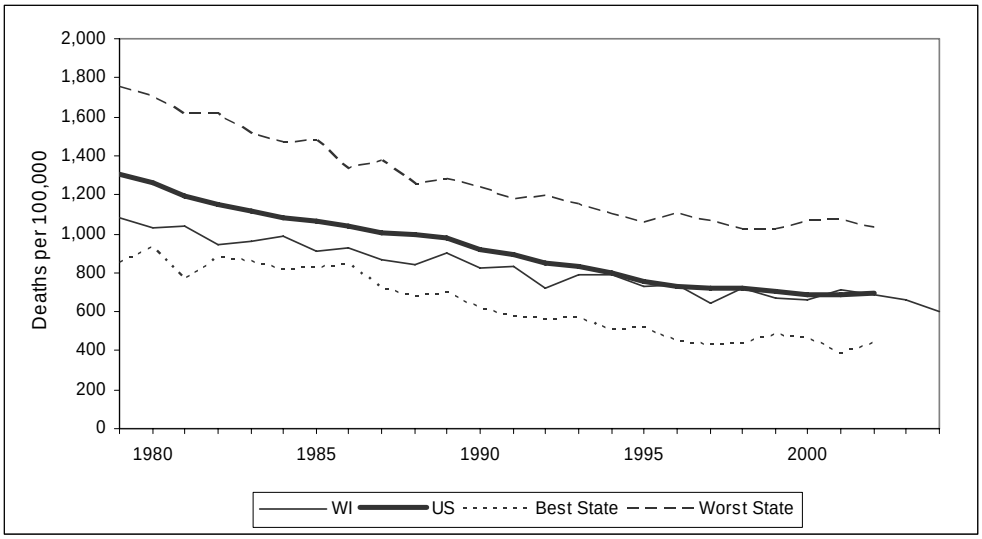
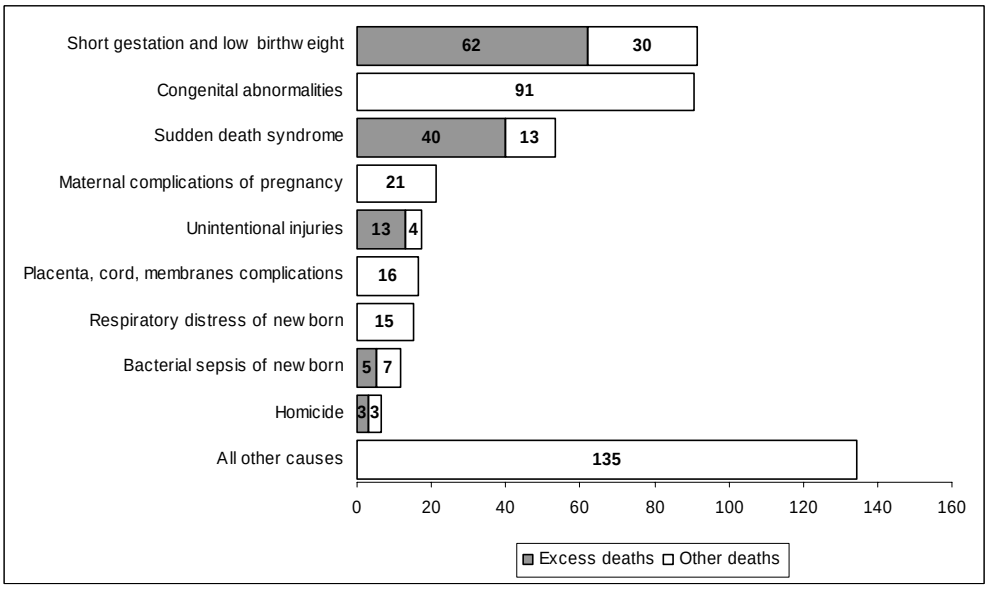


Figure 1b: Average Number of Deaths per Year by Cause for Infants in Wisconsin



Children (1-14)

All-cause mortality rates for children ages 1-14 in Wisconsin have declined since 1979 (Figure 2a) but have remained consistently higher than the best (lowest) state rate.

From 2000-2004, there was an average of 206 deaths per year among children ages 1-14 in Wisconsin. Of these 206 deaths, on average, 66 or 32 percent, can be considered excess deaths (the grey shaded portions in Figure 2b). Excess deaths are identified when Wisconsin's mortality rates are higher than the target rates for causes that are considered avoidable (through primary, secondary, or tertiary prevention). Almost four out of five of the excess deaths from avoidable causes were due to motor vehicle accidents or other unintentional injuries.

Figure 2a: Trends in All-Cause Mortality Rates for Children ages 1-14

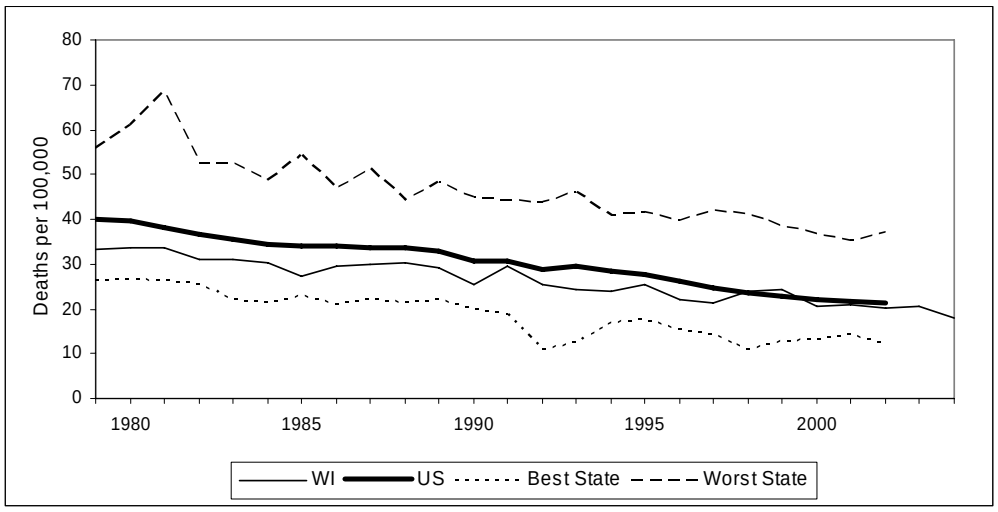
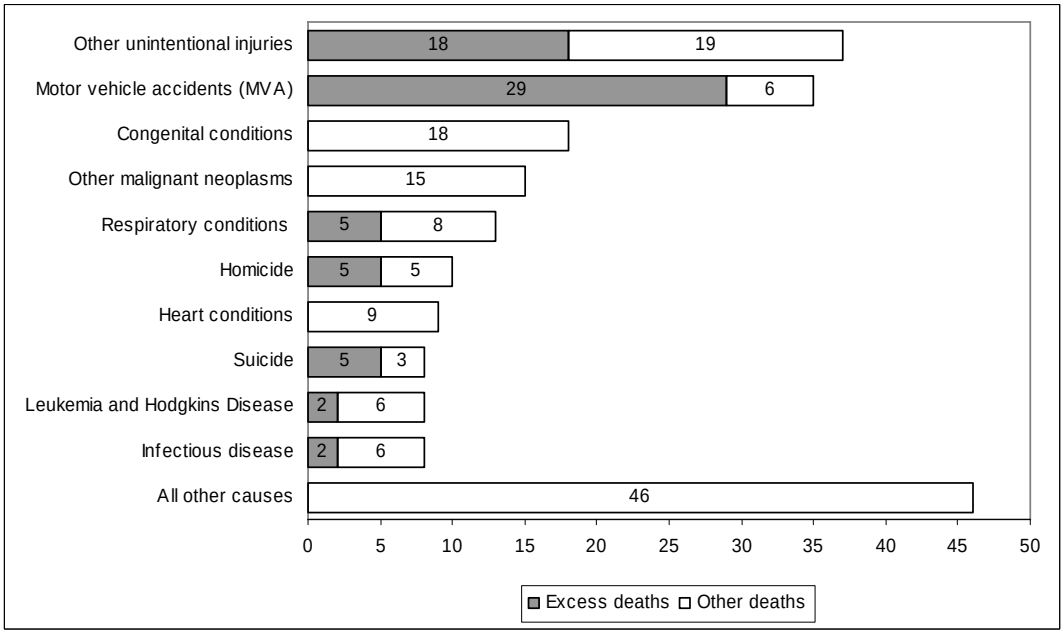


Figure 2b: Average Number of Deaths per Year by Cause for Children ages 1-14 in Wisconsin



Youth and young adults (15-24)

Mortality rates among young adults decreased steadily from 1979 to 1999 but now appear to have stabilized nationally and in Wisconsin (Figure 3a).

From 2000-2004, there was an average of 584 deaths per year among youth and young adults ages 15 to 25. Of those 584 deaths, on average, 250 or 43 percent can be considered excess deaths (the grey shaded portion in Figure 3b). Excess deaths are identified when Wisconsin's mortality rates are higher than the target rates for causes that are considered avoidable (through primary, secondary, or tertiary prevention). Motor vehicle accidents accounted for almost half of these excess deaths from avoidable causes, followed by suicide and homicide that each accounted for 22 percent.

Figure 3a: Trends in All-Cause Mortality Rates for Youth and Young Adults ages 15-24

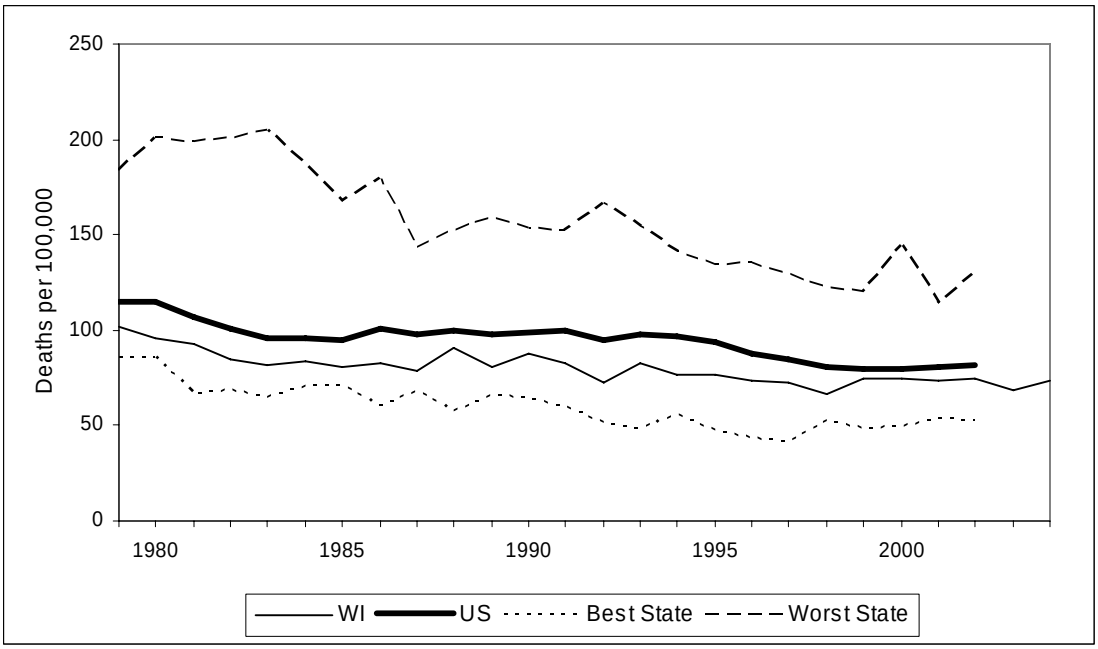
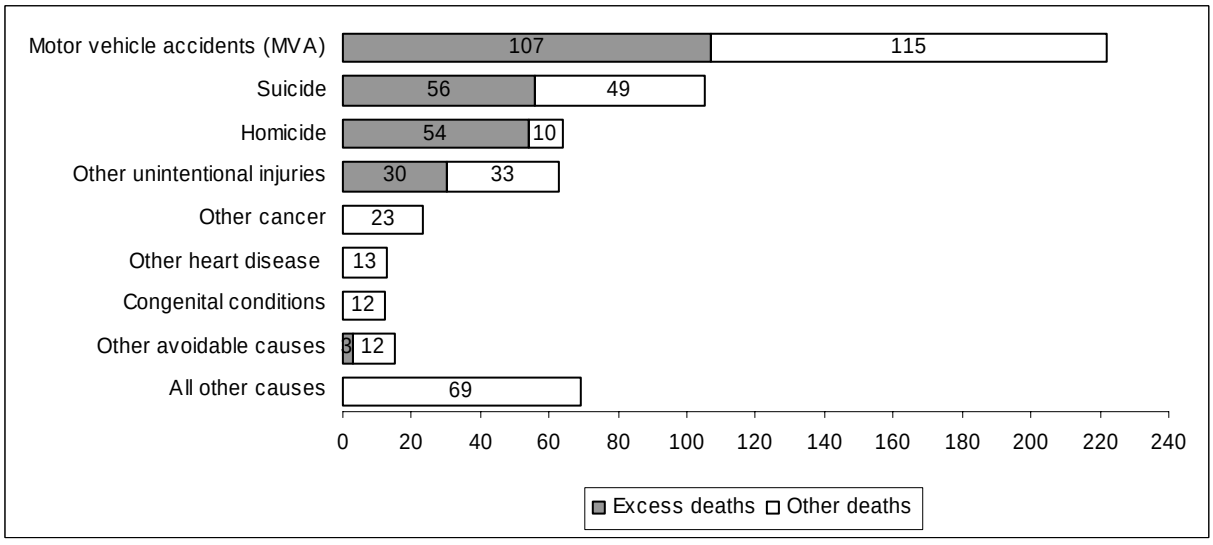


Figure 3b Average Number of Deaths per Year by Cause for Ages 15-24 in Wisconsin (2000-2004)



Adults (25-44)

Mortality rates for adults ages 25 to 44 have remained fairly steady over the past 25 years (Figure 4a). Wisconsin's mortality rate has remained closer to that for the best (lowest) state than to the national rate.

On average, from 2000-2004, there were 1920 deaths per year among adults ages 25 to 44. Of these 1920 deaths, 593 or 31 percent, can be considered excess deaths (the grey shaded portion in Figure 4b). Excess deaths are identified when Wisconsin's mortality rates are higher than the target rates for causes that are considered avoidable (through primary, secondary, or tertiary prevention). Motor vehicle accidents, other unintentional injuries, and suicide each accounted for about 1 in 5 of the excess deaths in this age group.

Figure 4a: Trends in All-Cause Mortality Rates for Adults ages 25-44

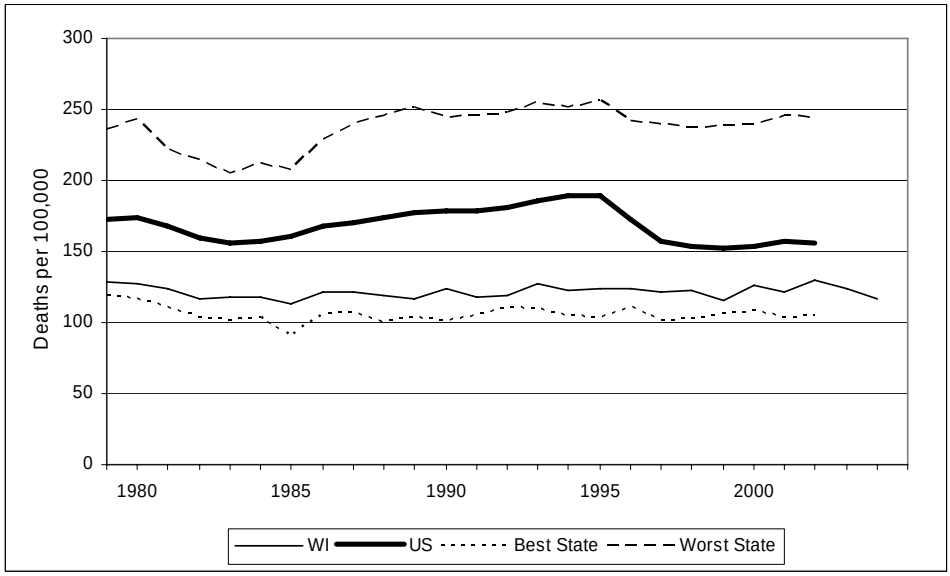
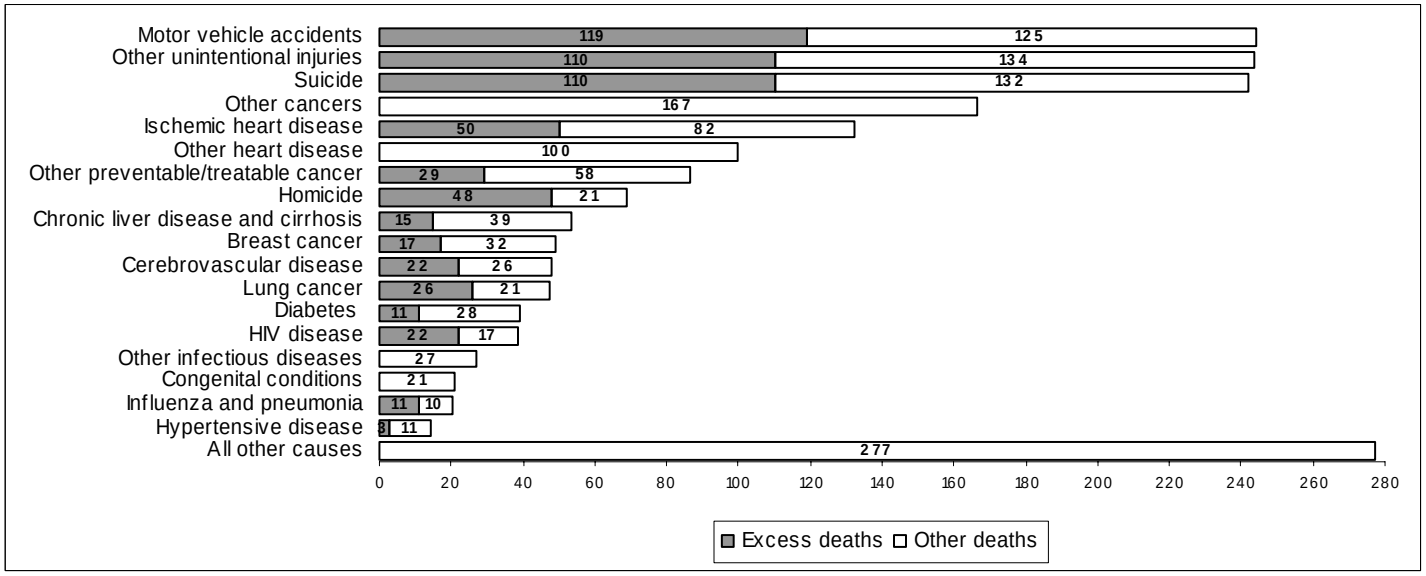


Figure 4b: Average Number of Deaths per Year by Cause for Adults ages 25-44 in Wisconsin



Middle-aged Adults (45-64)

All-cause mortality rates for middle-aged adults have declined steadily since 1979 in Wisconsin (Figure 5a). Wisconsin's mortality rate has remained fairly consistently midway between the US average and the best state rate.

From 2000-2004, an average of 6833 deaths occurred per year among middle-aged adults. Of these 6833 deaths, on average 1719 or 25 percent can be considered excess deaths (the grey shaded portion in Figure 5b). Excess deaths are identified when Wisconsin's mortality rates are higher than the target rates for causes that are considered avoidable (through primary, secondary, or tertiary prevention). One third of all excess deaths in this age group were due to preventable/ treatable cancers (primarily lung cancer) and ischemic heart disease accounted for a quarter of these excess deaths from avoidable causes.

Figure 5a: Trends in All-Cause Mortality Rates for Adults ages 45-64

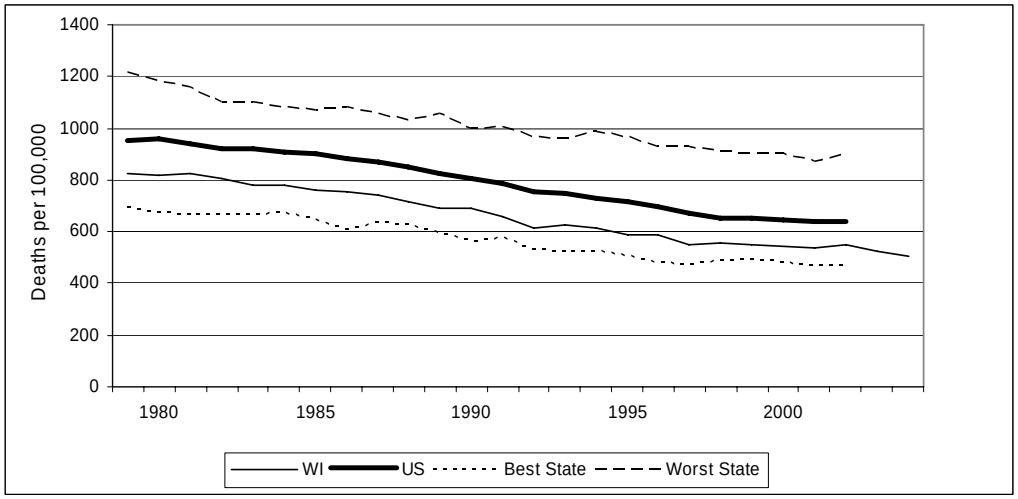
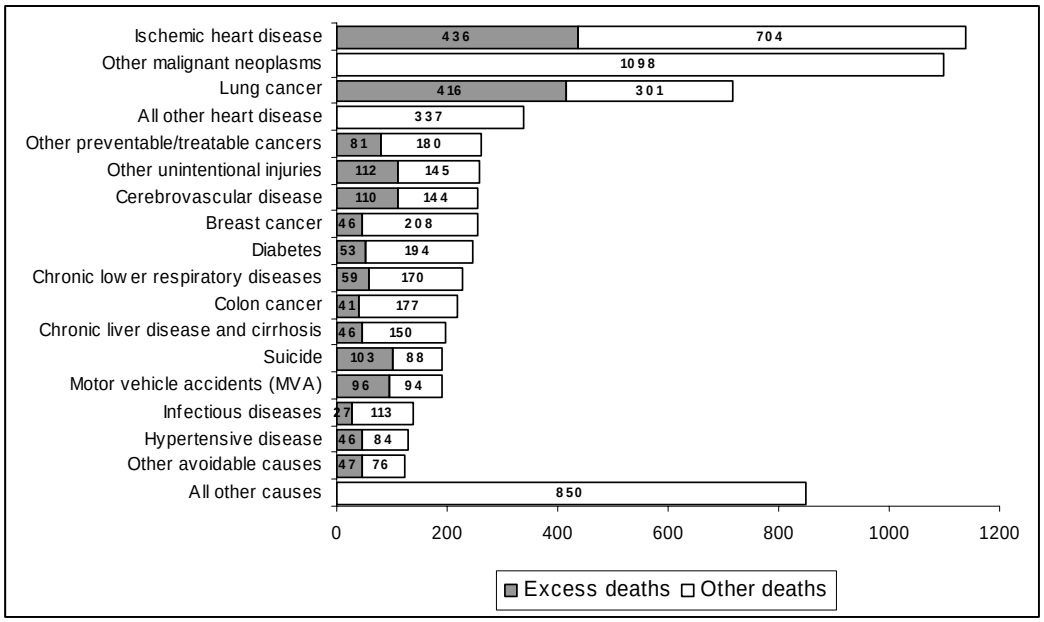


Figure 5b: Average Number of Deaths per Year by Cause for Adults ages 45-64 in Wisconsin



Young Elderly (65-74)

All-cause mortality rates for the young elderly ages 65 to 74 have declined steadily since 1979 in Wisconsin (Figure 6a). Wisconsin's rate has remained consistently close to the national average and well above the best state rate.

From 2000-2004, an average of 7341 deaths occurred per year among the young elderly. Of these 7341 deaths, 1986 or 27 percent, can be considered excess deaths (the grey shaded portion in Figure 6b). Excess deaths are identified when Wisconsin's mortality rates are higher than the target rates for causes that are considered avoidable (through primary, secondary, or tertiary prevention). Ischemic heart disease and lung cancer each accounted for about one-fourth of the excess deaths from avoidable causes in this age group. The next most frequent cause of excess death was chronic lower respiratory disease.

Figure 6a: Trends in All-Cause Mortality Rates for Adults ages 65-74

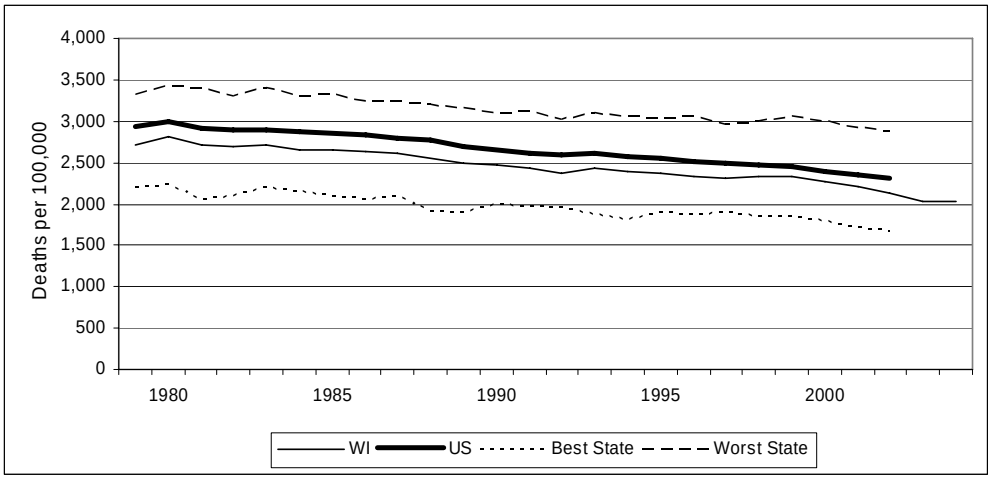
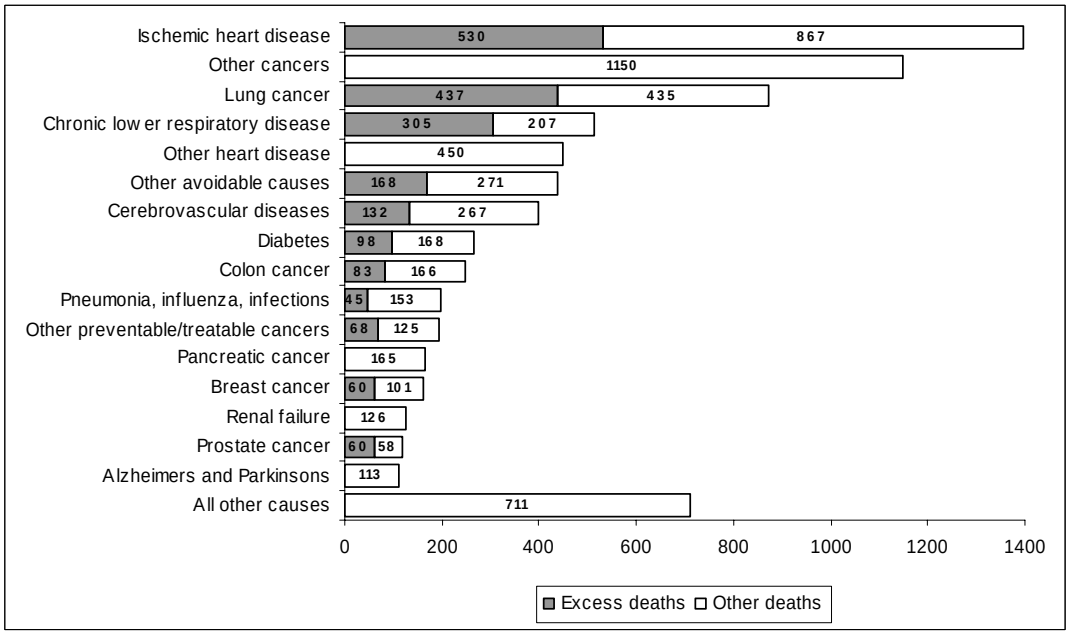


Figure 6b: Average Number of Deaths per Year by Cause for the Young Elderly ages 65-74 in Wisconsin



Summary

The close to 5,000 excess deaths in Wisconsin each year vary by life stage and cause; several specific causes are primarily responsible in each life stage and suggest priority interventions to reduce these deaths. Table 1 summarizes the excess deaths in Wisconsin by cause across the five age groups.

The cells outlined with a solid line represent the leading cause of excess deaths for each age group (motor vehicle accidents for those under age 45 and preventable/ treatable cancer for those ages 45-74). The cells outlined with a dotted line represent the next most common cause of excess deaths for each age group.

The far right column indicates the percent of all excess deaths accounted for by a particular cause. The shaded cells in this column highlight the collection of conditions that represent the two leading sources of excess deaths for each age group. By focusing efforts on identifying interventions to reduce these seven groups of conditions (preventable/treatable cancers, ischemic heart disease, motor vehicle accidents, other unintentional injuries, suicide, homicide, and other avoidable causes of infant death), we would be well positioned to impact nearly 80% of the excess deaths due to avoidable causes in Wisconsin residents under age 75.

Table 1: Summary of Excess Deaths from Avoidable Causes in Wisconsin across Age Groups

	< 1	1-14	15-24	25-44	45-64	65-74	Total	Percent Excess Deaths
Preventable/treatable cancers	na	2	1	72	584	708	1367	30%
Ischemic heart disease	na	na	na	50	436	530	1016	22%
Motor vehicle accidents	x	29	107	119	96	27	378	8%
Chronic lower respiratory diseases	na	x	x	0	59	305	364	8%
Other unintentional injuries	13	18	30	110	112	43	326	7%
Suicide	na	5	56	110	103	21	295	6%
Cerebrovascular disease	na	na	na	22	110	132	264	6%
Diabetes	na	x	x	11	53	98	162	4%
Homicide	3	5	54	48	9	1	120	3%
Other avoidable causes of infant death[1]	107	na	na	na	na	na	107	2%
Liver disease	na	na	na	15	46	27	88	2%
Hypertensive disease	na	x	x	3	46	38	87	2%
Infectious disease	x	2	2	22	27	19	72	2%
Influenza and pneumonia	x	5	x	11	26	26	68	1%
Treatable digestive conditions	x	x	x	x	9	10	19	<1%
Rheumatic heart disease	na	x	x	x	3	1	4	<1%
Excess deaths per year	123	66	250	593	1719	1986	4737	100%
Total deaths per year (2000-2004)	459	206	584	1920	6833	7341	16884	
Excess deaths as percent of all deaths	27%	32%	43%	31%	25%	27%	28%	

x indicates unreliable rates due to small numbers of deaths

na indicates deaths from this cause are not avoidable for this age group

indicates the leading cause of excess deaths for this age group

indicates the 2nd leading cause of excess deaths for this age group

[1] Includes short gestation and low birthweight, sudden death syndrome, and bacterial sepsis of newborn

Discussion and Conclusions

Ideally, our review of mortality trends would have examined trends by cause rather than overall mortality but we chose not to do this due to a number of issues in interpretation of trends in death rates for specific conditions that include changes in coding, changes in incidence of disease, changes in diagnostic ability, and differences in access to care (care seeking, availability, and affordability). Our attribution of causes of death as avoidable and unavoidable was also clearly not without controversy: "any list of indicators of 'avoidable' mortality used is, to some extent, arbitrary as a death from any cause is typically the final event in a complex chain of events" (Nolte and McKee, 2004). Also, the selection of the most appropriate target rate for identifying the number of excess deaths due to avoidable causes involves a subjective judgment. Others, such as McGinnis and Foege (1993) and Mokdad et al (2004), base their estimates of 'preventable' deaths on the premise that the target rate for certain preventable causes should be zero. Others might suggest that the target should be the rate found for the least vulnerable subgroup, e.g., white females. We chose to use the lowest reliable rate found among U.S. states as an *achievable* target. Clearly, however, the ultimate goal is to eliminate all the deaths from avoidable causes.

A balanced portfolio approach for improving Wisconsin's health implies the need for balance across all life stages not just reducing the most common deaths, e.g., motor vehicle accidents only account for eight percent of excess deaths overall but 48 percent of excess deaths among 1-14 year olds. A balanced portfolio should also address other outcomes beyond mortality, such as health-related quality of life and disparities across outcomes. Identification of excess deaths due to avoidable causes is one step towards the identification of the most effective interventions and policies and the development of a balanced portfolio to improve both overall health and health within each life stage.

Data Sources:

United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Compressed Mortality File (CMF) compiled from CMF 1999-2002, Series 20, No. 2H 2004 on CDC WONDER On-line Database.

Wisconsin Department of Health and Family Services (DHFS), Division of Public Health, Bureau of Health Information and Policy, WISH On-line Database.

Citations:

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Appendix I: Classification of Avoidable Causes of Death

	Refs	ICD10 Codes
Preventable/treatable cancers		
1) Lung cancer	A, B	C33-C34
Cancers of oral cavity	B	C00-C014
Cancer of the larynx	A	C32
Liver cancer	A, B	C22
2) Breast cancer	A, B, C	C50
Cervical cancer	A, B, C	C53
Colon cancer	B, C	C18-C21
Skin cancer	A, B, C	C44
3) Hodgkins disease	A, B, C	C81
Leukemia	A, B, C[2]	C91-C95
Uterine cancer	A, B, C	C54-C55
Bladder cancer	A	C67
Prostate cancer		C61
Testicular cancer	B, C	C62
Diabetes Mellitus	B, C[3]	E10-E14
Ischemic heart disease (including acute myocardial infarction, other acute ischemic heart diseases, all other forms of chronic ischemic heart disease, and atherosclerotic cardiovascular disease)	B, C	I20-I25
Hypertensive Heart Disease (including hypertensive heart disease, essential (primary) hypertension and hypertensive renal disease, hypertensive heart and renal disease)	A, B, C	I10-I13, I15
Rheumatic Heart Disease		
Acute rheumatic fever	B	I01-I04
Chronic rheumatic heart diseases	B, C	I05-I09
Cerebrovascular disease	A, B, C	I60-I69
Chronic Lower Respiratory Diseases		
Chronic and unspecified bronchitis, emphysema, other chronic lower respiratory diseases	B	J40-J44
Asthma	B, C[4]	J45-J46
Influenza and Pneumonia	B, C	J10-J18
Treatable digestive system conditions,	A, B, C	
Peptic ulcer, hernia, appendicitis		K25-K27, K35-K38, K40-K46
Gallbladder disease		K80-K81
Chronic Liver Disease and Cirrhosis (alcoholic liver disease and other chronic liver disease and cirrhosis)	A, B	K70, K73-K74
Motor vehicle accidents	A, B	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Other unintentional injuries	A, B	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9, V90-X59, Y40-Y86,Y88
Homicide		X93-X95, X85-X92, X96-Y09, Y87.1
Suicide	B	X72-X74, X60-X71, X75-X84, Y87.0

[2] < 45 only
[3] < 50 only
[4] 1-14 only

Infectious Diseases		
Salmonella Infections	A, B, C[5]	A01-A02
Shigellosis And Amebiasis	A, B, C[6]	A03, A06
Certain Other Intestinal Infections	A, B, C	A04, A07-A09
Respiratory Tuberculosis	A, B, C[7]	A16
Other Tuberculosis	A, B, C	A17-A19
Whooping Cough	A, B, C	A37
Scarlet Fever And Erysipelas	A, B	A38, A46
Meningococcal Infection	A, B	A39
Septicemia	A, B, C	A40-A41
Syphilis	A, B	A50-A53
Acute Poliomyelitis	A, B	A80
Arthropod-Borne Viral Encephalitis	A, B	A83-A84, A85.2
Measles	A, B, C	B05
Viral Hepatitis	A, B	B15-B19
Human Immunodeficiency Virus (HIV) Disease	A, B	B20-B24
Malaria	A, B	B50-B54
Other And Unspecified Infectious/Parasitic Diseases	A, B	A00, A05, A20-A36, A42-A44, A48-A49, A54-A79, A81-A82, A85.0-A85.1, A85.8, A86-B04, B06-B09, B25-B49, B55-B99

A. Simonato et al (1998)
B. Tobias and Jackson (2001)
C. Nolte and McKee (2004)

[5] 1-14 only
[6] 1-14 only
[7] 1-14 only

Appendix 2: Calculation of Excess Deaths from Avoidable Causes by Life Stage

Table A: Excess Deaths in Wisconsin for Ages <1

	Average Wisconsin rate per 100,000	Min rate	Max rate	State with lowest reliable rate	Risk difference	Excess deaths per year
Short gestation and low birthweight	131.9	41.9	212.2	Nevada	90.0	62
Sudden death syndrome	83.9	24.9	140.3	New York	59.0	40
Unintentional injuries	26.9	8.0	65.2	California	18.9	13
Bacterial sepsis of newborn	17.1	10.4	33.9	California	6.7	5
Homicide	9.4	5.0	13.2	California	4.4	3
						123

Table B: Excess Deaths in Wisconsin for Ages 1-14

	Average Wisconsin rate per 100,000	Min rate	Max rate	State with lowest reliable rate	Risk difference	Excess deaths per year
Motor vehicle accidents	3.9	1.1	10.3	Connecticut	2.8	29
Other unintentional injuries	3.7	2.0	10.5	Massachusetts	1.7	18
Suicide	1.2	0.7	1.9	Ohio	0.5	5
Influenza and Pneumonia	0.9	0.4	2.3	Massachusetts	0.5	5
Homicide	0.8	0.3	1.0	California	0.5	5
Leukemia and Hodgkins Disease	0.8	0.6	1.3	Ohio	0.2	2
Infectious diseases	0.7	0.5	1.3	California	0.2	2
						66

Table C: Excess Deaths in Wisconsin for Ages 15-24

	Average Wisconsin rate per 100,000	Min rate	Max rate	State with lowest reliable rate	Risk difference	Excess deaths per year
Motor vehicle accidents	27.8	14.5	47.1	Rhode Island	13.3	107
Suicide	12.8	5.8	34.5	New Jersey	7.0	56
Homicide	9.2	2.5	101.5	Iowa	6.7	54
Other unintentional injuries	7.0	3.2	23.8	Massachusetts	3.8	30
Infectious diseases	0.8	0.6	2.5	Washington	0.2	2
Preventable/treatable cancer	1.3	1.2	2.0	Multiple	0.1	1
						250

Table D: Excess Deaths in Wisconsin for Ages 25-44

	Average Wisconsin rate per 100,000	Min rate	Max rate	State with lowest reliable rate	Risk difference	Excess deaths per year
Motor vehicle accidents	15.8	8.1	37.3	Massachusetts	7.7	119
Suicide	15.0	7.9	26.1	New York	7.1	110
Other unintentional injuries	13.0	5.9	46.6	Massachusetts	7.1	110
Ischemic heart disease	9.0	5.8	22.8	Utah	3.2	50
Homicide	4.6	1.5	40.5	New Hampshire	3.1	48
Other preventable/ treatable cancers	6.0	4.1	9.4	Alaska	1.9	29
Lung cancer	3.0	1.3	7.0	Utah	1.7	26
Cerebrovascular disease	3.1	1.7	8.0	Utah	1.4	22
HIV disease	2.8	1.4	66.9	Idaho	1.4	22
Breast cancer	3.6	2.5	5.6	New Hampshire	1.1	17
Liver disease	3.2	2.2	12.5	Hawaii	1.0	15
Diabetes	2.5	1.8	6.3	Rhode Island	0.7	11
Influenza and pneumonia	1.4	0.7	3.0	Minnesota	0.7	11
Hypertensive disease	0.8	0.6	11.0	Colorado	0.2	3
Other infectious diseases	1.5	1.5	5.9	Wisconsin	0.0	0
Chronic lower respiratory disease	0.9	0.9	2.3	Wisconsin	0.0	0
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Table E: Excess Deaths in Wisconsin for Ages 45-64

	Average Wisconsin rate per 100,000	Min rate	Max rate	State with lowest reliable rate	Risk difference	Excess deaths per year
Ischemic heart disease	96.8	63.0	174.1	Utah	33.8	436
Lung cancer	57.6	25.4	105.4	Utah	32.2	416
Other unintentional injuries	17.2	8.5	41.0	Massachusetts	8.7	112
Cerebrovascular disease	20.6	12.1	46.2	Vermont	8.5	110
Suicide	14.1	6.1	29.5	District of Columbia	8.0	103
Motor vehicle accidents	14.5	7.1	30.7	Massachusetts	7.4	96
Other preventable/treatable cancers	21.0	14.7	37.4	Alaska	6.3	81
Chronic lower respiratory disease	17.0	12.4	35.9	Hawaii	4.6	59
Diabetes	17.5	13.4	43.5	Colorado	4.1	53
Breast cancer	19.6	16.0	28.1	South Dakota	3.6	46
Chronic liver disease and cirrhosis	15.4	11.8	38.6	Hawaii	3.6	46
Hypertensive disease	7.1	3.5	76.2	North Dakota	3.6	46
Colon cancer	17.2	14.0	26.9	Idaho	3.2	41
Infectious disease	9.1	7.0	116.1	North Dakota	2.1	27
Influenza and pneumonia	5.4	3.4	10.5	Maine/ New Hampshire	2.0	26
Homicide	2.0	1.3	8.9	Massachusetts	0.7	9
Treatable digestive diseases	1.8	1.1	3.5	Massachusetts	0.7	9
Rheumatic heart disease	0.7	0.5	3.1	Massachusetts	0.2	3
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Table F: Excess Deaths in Wisconsin for Ages 65-74

	Average Wisconsin rate per 100,000	Min rate	Max rate	State with lowest reliable rate	Risk difference	Excess deaths per year
Ischemic heart disease	443.7	292.2	631.5	Utah	151.5	530
Lung cancer	254.6	129.7	401.7	Utah	124.9	437
Chronic lower respiratory disease	154.6	67.3	247.2	Hawaii	87.3	305
Cerebrovascular diseases	127.6	89.8	172.4	New York	37.8	132
Diabetes	81.1	53.1	151.3	Hawaii	28.0	98
Colon cancer	77.3	53.6	101.3	Utah	23.7	83
Other preventable/ treatable cancers	55.7	36.3	71.2	Hawaii	19.4	68
Breast cancer	48.9	31.6	65.4	Alaska	17.3	60
Prostate cancer	35.7	18.6	50.8	Hawaii	17.1	60
Other unintentional injuries	30.3	18.1	55.6	Delaware	12.2	43
Hypertensive heart disease	16.1	5.1	130.1	Massachusetts	11.0	38
MVA	16.1	8.3	36.6	Rhode Island	7.8	27
Chronic liver disease and cirrhosis	28.2	20.5	44.5	Nebraska	7.7	27
Influenza/pneumonia	31.5	24.2	52.9	Minnesota	7.3	26
Suicide	11.6	5.6	27.5	Massachusetts	6.0	21
Infectious diseases	28.5	23.2	77.3	Minnesota	5.3	19
Treatable digestive diseases	8.6	5.8	12.4	Pennsylvania	2.8	10
Rheumatic heart disease	3.3	3.0	8.8	Arizona	0.3	1
Homicide	1.5	1.3	5.9	New Jersey	0.2	1
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