

The Burden of Excessive Alcohol Use in Wisconsin

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Executive Summary

Excessive alcohol consumption in Wisconsin is a public health problem that affects every man, woman, and child living in the state. This study estimates the economic costs of excessive alcohol consumption in Wisconsin using a national study of the estimated economic cost of excessive alcohol consumption in the United States and Wisconsin's proportion of binge drinkers. Data from the national study, conducted in 2006 and published in 2011, was adjusted to 2012 dollars. The estimated cost of excessive alcohol consumption in Wisconsin was \$6.8 billion in 2012. This cost is borne by everyone in the state, not just the drinkers themselves. Revenue generated by current alcohol taxes covers less than 1% of the total economic cost.



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Introduction

Excessive alcohol consumption is one of Wisconsin's biggest public health issues. Excessive alcohol consumption is associated with many negative health and social consequences,¹⁻¹⁵ which come at a great economic cost. These consequences and associated economic costs are borne by individual users, family members, neighbors, and entire communities. Everyone who lives and works in Wisconsin is affected by the health and economic costs of excessive alcohol consumption.

In 2011, the most recent year data is available, excessive drinking in Wisconsin resulted in approximately **1529 deaths**,¹⁶ **48,578 hospitalizations**,¹⁷ **46,583 treatment admissions**,¹⁸ **60,221 arrests**,¹⁹ and **5,751 motor vehicle crashes** (2010).²⁰ Wisconsin ranks number 1 in the U.S. in rates of binge drinking and number 1 in intensity of drinking – Wisconsin adults report drinking an average of 9 drinks per occasion.²¹

The purpose of this report is to present estimates of the economic cost of excessive alcohol consumption in Wisconsin and its impact on the state. It is our hope that these estimates will be used to more fully assess the public health impact of excessive drinking and inform discussions of public policy.

Methods

Excessive Alcohol Consumption

For the purpose of this report, excessive alcohol consumption was defined as binge drinking (≥ 4 drinks per occasion for a woman, and ≥ 5 drinks per occasion for a man); heavy drinking (≥ 1 drink per day on average for a woman, and > 2 drinks per day on average for a man); any alcohol consumption by youth aged < 21 years; and any alcohol consumption by pregnant women. This definition is consistent with Centers for Disease Control and Prevention²¹ and National Institute on Alcoholism and Alcohol Abuse²² standards used to identify harmful patterns of alcohol consumption.

Economic Costs

National U.S. estimates of the economic costs of excessive alcohol consumption obtained by Bouchery, Hendrick, Sacks, Simon, and Brewer (2011)²³ were used to extrapolate economic costs in Wisconsin. Binge drinking is responsible for the majority (76%) of alcohol-related costs²³ and was therefore used to determine the percentage of the national estimates attributable to Wisconsin. The Consumer Price Index²⁴ (CPI) was used to adjust the 2006 estimates from Bouchery et al. to 2012 dollars. Other states have used a similar methodology for estimating alcohol-related costs including New Mexico²⁵, Oregon²⁶, and Minnesota.²⁷

State-level estimates:

1. National and Wisconsin binge drinking rates from the Behavioral Risk Factor Surveillance System²⁸ were multiplied by national and state adult (18 and older) population sizes²⁹ to obtain the estimated number of binge drinkers in the U.S. and Wisconsin. The number of Wisconsin binge drinkers was divided by the total number of binge drinkers in the

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U.S. to determine the percentage of U.S. binge drinkers coming from Wisconsin. (See calculations below)

- National economic cost estimates were adjusted for inflation using the CPI for 2012.
- Wisconsin's binge drinker percentage was multiplied by the adjusted national total and categorical economic cost estimates to determine the amount attributed to Wisconsin as a state.

Step 1			
<i>2010 WI Population (18+)</i>	x	<i>Binge Drinking %</i>	= <i># of Binge Drinkers in WI</i>
4,367,605		23%	999,358
<i>2010 US Population (18+)</i>	x	<i>Binge Drinking %</i>	= <i># of Binge Drinkers in US</i>
235,572,845		16%	37,691,655
<i># of Binge Drinkers in WI</i>	÷	<i># of Binge Drinkers in US</i>	= <i>Proportion of Binge Drinkers (18+) in WI</i>
999,358		37,691,655	2.65%
Step 2			
<i>US National Estimate (millions 2006 dollars)</i>	x	<i>National CPI (2006 to 2012)</i>	= <i>US National Estimate (millions 2012 dollars)</i>
\$223,478.60		1.15	\$257,000.39
Step 3			
<i>US National Estimate (millions 2012 dollars)</i>	x	<i>Proportion of Binge Drinkers in WI</i>	= <i>Costs Attributed to WI (millions 2012 dollars)</i>
\$257,000.39		2.65%	\$6,810.51

County-level estimates:

- County-level binge drinking prevalence rates from Behavioral Risk Factor Surveillance System²⁸ were multiplied by county adult (18 and older) population sizes²⁹ to obtain the number of binge drinkers in each Wisconsin county.
- The number of binge drinkers in each county was divided by the total number of binge drinkers in Wisconsin to determine the percentage of binge drinkers for each county.
- The percentage of binge drinkers in each county was used to determine what proportion of Wisconsin's total and categorical alcohol-related costs are attributed to each county (Appendix 1).



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Bouchery et al. divided costs into the following sub-categories:

⇒ Healthcare

- Specialty care for abuse/dependence
- Hospitalizations for the 54 Alcohol-Related Disease Impact (ARDI) conditions³⁰ (primary diagnosis only)
- Fetal alcohol syndrome
- Health insurance administration
- Prevention and research
- Ambulatory care for the 54 ARDI conditions (primary diagnosis only)
- Nursing home costs
- Training of substance abuse and mental health professionals

⇒ Productivity (estimated earnings levels)

- Lost productivity while at work, home, or while institutionalized
- Premature mortality
- Incarceration of perpetrators
- Absenteeism
- Crime (loss of work among victims)
- Fetal alcohol syndrome

⇒ Other

- Criminal justice (police, court system, corrections, legal costs)
- Motor vehicle crashes
- Fire losses
- Crime victim property damage
- Fetal alcohol syndrome – special education

Bouchery et al. further identified who was responsible for paying the alcohol-related costs and the following percentages were carried over to determine the breakdown of costs in Wisconsin:

Table 1: Percentage of alcohol-related costs attributed to each payer type by category*²³

	Government	Excessive drinker and family	Others in society
Healthcare	60.9	10.3	28.8
Lost productivity	35.1	54.6	10.4
Criminal justice	98.8	1.1	0
Motor vehicle crashes	0	14.2	85.8
Other	65.8	4.8	29.3

⇒ Others in society includes private health insurers, employers, crime victims, and others.

*Totals may not equal 100% due to rounding adjustments

Per capita costs were determined by dividing the estimated state and county costs by the total population in the state and each county, respectively.

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Results

Economic Costs

The estimated total annual economic cost of excessive drinking in Wisconsin is \$6.8 billion. On a per capita basis, this cost is approximately \$1,198 for each man, woman, and child in Wisconsin. Of the total cost, \$2.9 billion came from impaired productivity; \$2 billion came from premature mortality costs; \$749 million came from increased healthcare costs; \$649 million came from criminal justice costs; \$418 million came from motor vehicle costs; and \$90 million came from other effects.

Healthcare Costs

Of the \$749 million in health expenditures attributable to alcohol, \$325 million (43.4%) was from specialty treatment for alcohol abuse and dependence and \$156 million (20.8%) from hospitalizations for other medical conditions stemming from excessive drinking.

Lost Productivity Costs

The two largest productivity losses were from lost productivity at work, estimated at \$1.3 billion (45.9%) and \$1.2 billion (40.3%) in lost productivity in premature mortality.

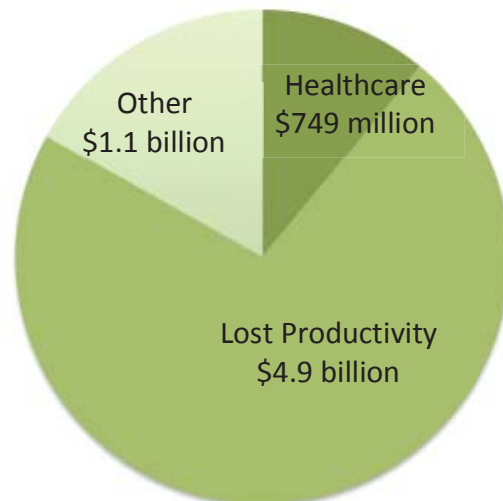
Other Costs

The two largest costs were criminal justice system costs (55.7%) and motor vehicle crashes (36.4%). Of the \$649 million in Wisconsin criminal justice system costs, Bouchery et al. determined 76.8%, or \$498 million in Wisconsin, came from crimes that would not be thought of as solely alcohol-attributable (e.g., assault) as opposed to obviously alcohol-attributable crimes like driving under the influence of alcohol.

Of the total \$498 million cost of alcohol-attributable crime, 43.8% came from crash-related costs from driving under the influence, 17.2% came from corrections costs, and 15.1% came from lost productivity associated with homicide.

Who Bears the Cost

In Wisconsin, \$2.9 billion of the total economic cost of excessive alcohol was borne by government, including federal, state, and local government agencies (Table 2); \$2.8 billion use was borne by excessive drinkers and their family members; and \$1.1 billion was borne by others in society, including private health insurers, employers, and others.



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Table 2: US National and Wisconsin alcohol cost estimates by category and payer (\$, millions)

	2006 National Estimate (Bouchery, 2011)		2012 National Estimate (adjusted for inflation)		2012 Wisconsin Estimate	
	Society ^a	Government ^b	Society	Government	Society	Government
TOTAL	223,478.6	94,195.8	257,000.4	108,325.2	6,810.5	2,867.2
Healthcare	24,555.6	14,954.4	28,238.9	17,197.5	748.7	456.0
Lost productivity	161,286.1	56,611.4	185,479.0	65,103.1	4,917.8	1,726.1
Criminal justice	20,972.7	20,742.0	24,118.6	23,853.3	639.5	632.4
Motor vehicle crashes	13,718.4	0	15,776.2	0	418.3	0
Other	2,945.9	1,938.4	3,387.8	2,229.2	89.8	59.1

^a Society refers to all payers (government, excessive drinker and family, and others in society)

^b Government refers to all government entities; Federal, State, and local.

Discussion

The burden of excessive alcohol consumption in Wisconsin is manifested in social, health, and economic damages. Although this burden is not shared equally by everyone in the state, its impact is felt by everyone because many of the costs filter throughout the economy via higher insurance rates, diverted government spending to address substance abuse related crimes and consequences, lost economic output, and higher healthcare costs.

It should be noted that, although the \$6.8 billion figure is the best currently available estimate of the cost of excessive drinking in Wisconsin, Bouchery et al. caution that it is a substantial underestimate due to data limitations, conservative estimates, and the non-inclusion of intangible costs like pain, suffering, and bereavement.

Despite these limitations, this study shows that the economic impact of excessive alcohol consumption is carried by people other than the excessive drinkers themselves. The \$70 million (2012 dollars) in 2011 state revenues from alcohol taxes³¹ do not begin to cover the economic costs (Appendix 2).

Effective interventions to reduce excessive alcohol consumption — including increasing alcohol excise taxes, limiting alcohol outlet density, maintaining and enforcing the minimum legal drinking age of 21 years, and specific countermeasures for alcohol-impaired driving such as sobriety checkpoints — are available but are underutilized in reducing the health, social, and economic impacts of excessive drinking. For more information regarding evidence-based prevention strategies, visit What Works for Health (<http://whatworksforhealth.wisc.edu/>), the Wisconsin State Council on Alcohol and Other Drug Abuse's report on Alcohol, Culture and Environment (<http://scaoda.state.wi.us/docs/ace/ACE2011reprint.pdf>), and The Community Guide (<http://www.thecommunityguide.org/index.html>).

Estimates of the economic cost of excessive alcohol consumption in each county are provided to facilitate local discussion, planning, and action.

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30. Centers for Disease Control and Prevention, Alcohol-Related Disease Impact Software (ARDI), available at <https://apps.nccd.cdc.gov/ardi/Homepage.aspx> - ARDI is an online application that provides national and state estimates of alcohol-related health impacts, including deaths and years of potential life lost (YPLL). These estimates are calculated for 54 acute and chronic causes using alcohol-attributable fractions.
31. Wisconsin Department of Revenue. Taxable liters by month for received dates from 1/1/2011 to 12/31/2011.

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Appendix 1 – Proportion of Binge Drinkers by County

Adams	0.4%	Marathon	2.2%
Ashland	0.3%	Marinette	0.8%
Barron	0.9%	Marquette	0.3%
Bayfield	0.2%	Menominee	0.1%
Brown	4.7%	Milwaukee	15.0%
Buffalo	0.2%	Monroe	0.9%
Burnett	0.2%	Oconto	1.0%
Calumet	1.4%	Oneida	0.6%
Chippewa	1.0%	Outagamie	4.0%
Clark	0.6%	Ozaukee	1.1%
Columbia	1.3%	Pepin	0.1%
Crawford	0.3%	Pierce	1.0%
Dane	9.6%	Polk	0.9%
Dodge	1.7%	Portage	1.1%
Door	0.6%	Price	0.2%
Douglas	0.9%	Racine	3.7%
Dunn	0.6%	Richland	0.2%
Eau Claire	2.4%	Rock	2.9%
Florence	0.1%	Rusk	0.2%
Fond du Lac	1.7%	St. Croix	1.5%
Forest	0.2%	Sauk	1.0%
Grant	1.1%	Sawyer	0.3%
Green	0.6%	Shawano	0.7%
Green Lake	0.2%	Sheboygan	2.8%
Iowa	0.4%	Taylor	0.4%
Iron	0.1%	Trempealeau	0.6%
Jackson	0.3%	Vernon	0.6%
Jefferson	1.5%	Vilas	0.3%
Juneau	0.4%	Walworth	1.7%
Kenosha	2.4%	Washburn	0.2%
Kewaunee	0.5%	Washington	2.3%
La Crosse	1.5%	Waukesha	5.4%
Lafayette	0.2%	Waupaca	1.0%
Langlade	0.5%	Waushara	0.4%
Lincoln	0.5%	Winnebago	3.2%
Manitowoc	1.7%	Wood	0.1%

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Appendix 2 – Wisconsin Liquor Taxable Liters, 2011

	Quantity in liters (%)	Tax (\$/liter)	Total Tax Revenue
Spirits	49,970,914 (3.7)	\$0.89	\$44,324,201
Wine (under 14%)	47,715,124 (3.5)	\$0.07	\$3,149,198
Wine (over 14%)	3,082,787 (0.2)	\$0.12	\$366,852
Cider	1,182,824 (0.1)	\$0.02	\$20,108
Beer ^a	1,255,787,612 (92.5)	\$0.02	\$21,348,389
TOTAL	1,357,739,261 (100)		\$69,208,748

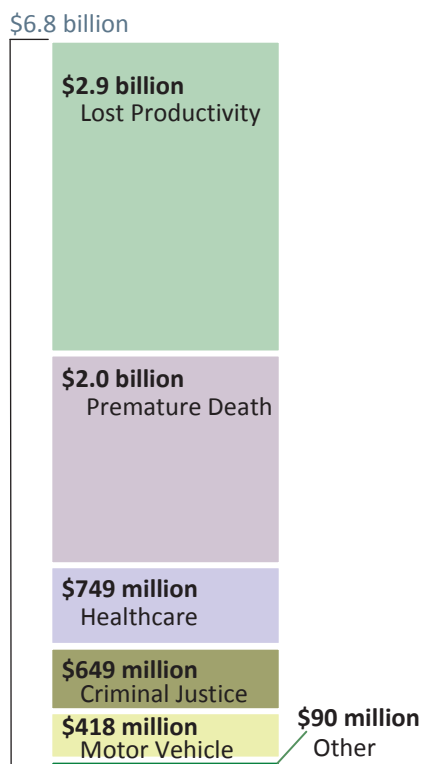
^a Beer quantity and tax was calculated based on 31-gallon barrels taxed at \$2.00/barrel with 3.785 liters/gallon

Source: Wisconsin Department Revenue 2011 Liquor Taxable Liters, 2011

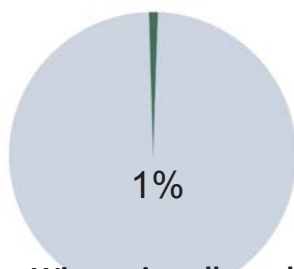
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Annual economic cost of excessive alcohol use in Wisconsin **\$6.8 BILLION**

What We Pay For^{1,2}

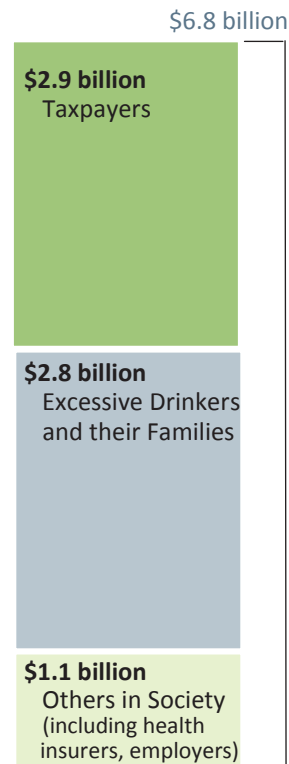


Alcohol tax collection falls short



Wisconsin collected \$69 million in alcohol taxes in 2011^{2,3} — 1% of the \$6.8 billion in economic costs attributed to excessive alcohol use.

We All Pay^{1,2}



Consequences of Excessive Alcohol Use

In 2011, excessive alcohol consumption contributed to at least:

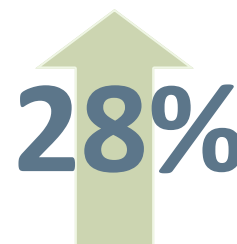
- 1,529 deaths⁴
- 48,578 hospitalizations⁵
- 46,583 treatment admissions⁶
- 60,221 arrests⁷
- 5,751 motor vehicle crashes⁸

For more details, please refer to the full report, available online at <http://uwphi.pophealth.wisc.edu/>.

How We Got Here

High Consumption

Wisconsin's annual alcohol consumption is 28% higher than the national average.⁹



#1 in Binge Drinking

Wisconsin ranks highest among all states in binge drinking, an important risk factor for alcohol related injuries and deaths.⁹

Binge drinking = 5+ drinks on an occasion for men; 4+ drinks for women.

Excessive alcohol use in Wisconsin costs

\$1,200 per person

Suggested Citation

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References and Notes

- 1 Wisconsin total and categorical economic estimates were derived from the national estimate established in Bouchery, E.E., Henrick, J.H., Sacks, J.J., Simon, C.J., Brewer, R.D. Economic Costs of Excessive Alcohol Consumption in the U.S., 2006. *American Journal of Preventive Medicine*, 41 (5):516-524, 2011.
- 2 Wisconsin Bureau of Labor Statistics. Consumer Price Index Inflation Calculator. Available at <http://data.bls.gov/cgi-bin/cpicalc.pl>. The calculator was used to inflate estimates to 2012 dollars.
- 3 Wisconsin Department of Revenue. Taxable liters by month for received dates from 1/1/2011 to 12/31/2011.
- 4 Wisconsin Department of Health Services. Wisconsin resident death certificates. Annual average numbers 2002-2010.
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For questions regarding this report, please contact Penny Black at pblack@wisc.edu



For questions regarding what to do with this report, please contact Paul Krupski at pkrupski@healthfirstwi.org



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