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CME ACTIVITY

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Contribution of Excessive Alcohol Consumption to Deaths and Years of Potential Life Lost in the United States

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Learning Objectives

Upon completion of this activity, participants will be able to:

- Analyze different forms of problem drinking in terms of promoting alcohol-attributable deaths and years of potential life lost
- Evaluate the epidemiology of alcohol-attributable deaths in the United States
- Identify the state with the highest rate of alcohol-attributable deaths and associated years of potential life lost
- Estimate the relative mortality burden of alcohol-attributable deaths in the United States

EDITORIAL

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PEER REVIEWED

Abstract

Introduction

Excessive alcohol consumption is a leading cause of premature mortality in the United States. The objectives of this study were to update national estimates of alcohol-attributable deaths (AAD) and years of potential life lost (YPLL) in the United States, calculate age-adjusted rates of AAD and YPLL in states, assess the contribution of AAD and YPLL to total deaths and YPLL among working-age adults, and estimate the number of deaths and YPLL among those younger than 21 years.

Methods

We used the Centers for Disease Control and Prevention's Alcohol-Related Disease Impact Application for 2006–2010 to estimate total AAD and YPLL across 54 conditions in the United States by sex and age. AAD and YPLL rates and the proportion of total deaths that were attributable to excessive alcohol consumption among working-age adults (20–64 y) were calculated for the United States and for individual states.

Results

From 2006 through 2010, an annual average of 87,798 (27.9/100,000 population) AAD and 2.5 million (831.6/100,000) YPLL occurred in the United States. Age-adjusted state AAD rates ranged from 51.2/100,000 in New Mexico to 19.1/100,000 in New Jersey. Among working-age adults, 9.8% of all deaths in the United States during this period were attributable to excessive drinking, and 69% of all AAD involved working-age adults.

Conclusions

Excessive drinking accounted for 1 in 10 deaths among working-age adults in the United States. AAD rates vary across states, but excessive drinking remains a leading cause of premature mortality nationwide. Strategies recommended by the Community Preventive Services Task Force to help reduce excessive drinking and harms related to it.

Introduction

Excessive alcohol use is the fourth leading preventable cause of death in the United States (1) and costs \$23.5 billion, or about \$1.90 per drink, in 2006 (2). Excessive alcohol consumption includes binge drinking (ie, ≥ 5 drinks on an occasion for men; ≥ 4 drinks on an occasion for women), heavy weekly alcohol consumption (ie, ≥ 15 drinks/week for men; ≥ 8 drinks/week for women), and any drinking by pregnant women or those younger than 21 years (2). Binge drinking, the most common form of excessive alcohol consumption, usually results in acute intoxication and is responsible for over half of deaths and three-quarters of the economic costs of excessive drinking. Excessive drinking is also responsible for many other health and social problems (3,4).

In 2004, the Centers for Disease Control and Prevention (CDC) released an online version of the Alcohol-Related Disease Impact (ARDI) Application to allow state, public health agencies, and other users to assess deaths and years of potential life lost (YPLL) attributable to excessive drinking. By using ARDI, CDC estimated approximately 75,000 deaths and 2.3 million YPLL were due to excessive drinking in the United States in 2001 (5). However, since that time, no comprehensive analysis has been conducted of US deaths and YPLL from excessive alcohol consumption. Furthermore, the ARDI Application does not provide rates of death and YPLL from excessive drinking. The assessment of these rates is important because the total number of alcohol-attributable deaths (AAD) and YPLL are known to vary substantially across states (6), as does the prevalence and intensity of binge drinking (3). Finally, the contribution of excessive drinking to deaths among working-age adults (20–64 y) and those younger than 21 years is not well understood, even though excessive drinking is known to be a major cause of premature mortality, resulting in an average of 30 years of life lost per AAD (5).

The objectives of this study were to update previous national estimates of AAD and YPLL in the United States, calculate age-adjusted rates of AAD and YPLL in states, assess the contribution of AAD and YPLL to total deaths and YPLL among working-age adults, and estimate the number of deaths and YPLL that specifically involved those younger than 21 years.

Methods

We estimated average annual deaths and YPLL from 2006 through 2010 that were attributable to excessive drinking by using the CDC's ARDI online application (6). The methods used in ARDI were developed by a scientific workgroup that comprised experts in alcohol and public health. The details of these methods have been discussed elsewhere (5). Briefly, ARDI estimates AAD by multiplying the number of age- and sex-specific deaths from 54 alcohol-related causes identified by the underlying cause of death reported on death certificates by the alcohol-attributable fractions (AAF) for that cause of death.

The majority of AAF or chronic conditions are attributed by ARDI on the basis of relative risk estimates from meta-analyses and the prevalence of alcohol use at specific risk levels (7,8). Self-reported alcohol use from the Behavioral Risk Factor Surveillance System (BRFSS) (9) was used to capture drinking at levels specific to the meta-analyses, which use slightly higher cut-points or risky drinking than those more commonly used in the United States. For the majority of acute conditions (ie, injuries), ARDI includes a direct estimate of the AAF. AAF or these conditions is based on studies assessing the proportion of deaths from a particular condition that occurred at or above a blood alcohol level of 0.10 g/dL (10). In addition, certain conditions (eg, alcohol-induced cirrhosis of the liver) are by definition 100% alcohol-attributable and therefore did not need to be estimated. To attribute YPLL attributable to excessive alcohol consumption, the age- and sex-specific AAD estimates or each cause were multiplied by the corresponding estimate of liability based on the age and sex of the decedent.

For causes of death that were considered chronic (eg, cancer, liver disease, cardiovascular disease), AAD and YPLL were estimated for decedents aged 20 years or older; for the majority of acute conditions, they were estimated for decedents aged 15 years or older. However, ARDI also estimates AAD and YPLL for chronic conditions or persons younger than 20 years who died from conditions attributable to drinking during pregnancy (eg, fetal alcohol spectrum disorders) and for acute conditions or persons younger than 15 years who died from motor-vehicle crashes or child maltreatment. ARDI provides reports of AAD and YPLL by sex, age group, and state, and for those under age 21 years.

AAD and YPLL due to excessive alcohol use including those among decedents under age 21 years were obtained directly from the ARDI application. Average annual national and state rates of AAD and YPLL per 100,000 population from 2006 through 2010 were attributed by dividing the average annual AAD and YPLL estimates from ARDI or 2006 through 2010 by the average annual population estimates from the US Census or 2006–2010, and then multiplying by 100,000. The rates were then age-adjusted to the 2000 US population (11).

The proportion of total average annual deaths and YPLL among working-age adults that were alcohol-attributable was attributed by dividing the average annual AAD and YPLL estimates for adults aged 20 to 64 years from 2006 through 2010 from ARDI by the total average annual deaths and YPLL or all causes or adults aged 20 to 64 years from vital statistics and then multiplying by 100.

Results

An average of 87,798 AAD and 2,560,290 YPLL occurred in the United States annually from 2006 through 2010 (Table 1). Overall, 44% of the AAD and 33% of the YPLL were due to chronic conditions, and 56% of the AAD and 67% of the YPLL were caused by acute conditions. Most AAD (71%) and YPLL (72%) involved males. The most common cause of chronic AAD was alcohol-induced liver disease, while the most common cause of acute AAD was motor-vehicle crashes.

A total annual average of 4,358 AAD (5%) and 249,727 YPLL (10%) involved those under age 21 years from 2006 through 2010 (data not shown). Similar to the findings for adults, about 78% of the AAD and 76% of the YPLL in those younger than 21 involved males. However, in contrast to the findings for adults, all of the top 3 causes of death or those under age 21 years—specifically, motor-vehicle crashes, homicide, and suicide—were acute conditions. In fact, motor-vehicle crashes alone accounted for 36% of the total AAD or those under age 21 years.

The average annual age-adjusted AAD rate for the United States from 2006 through 2010 was 27.9 deaths per 100,000 population, with a range of 51.2 deaths per 100,000 (New Mexico) to 19.1 deaths per 100,000 (New Jersey) (Table 2). Twenty-six states and the District of Columbia (DC) had higher average annual age-adjusted AAD rates than the national rate, and 2 states (New Mexico and Alaska) reported average annual age-adjusted AAD rates above 40 deaths per 100,000 population. The average annual age-adjusted YPLL rate for the United States from 2006 through 2010 was 831.6 per 100,000 population, with a range of 1,570 YPLL per 100,000 (New Mexico) to 570 YPLL per 100,000 (Hawaii) (Table 3). The average annual age-adjusted YPLL rates in 23 states and the District of Columbia were higher than the national rate, and 12 states and DC reported over 1,000 YPLL per 100,000 population.

Average annual AAD were responsible for an average of 9.8% of total deaths (Table 2) and an average of 11.5% of YPLL among working-age adults (20–64 y) (Table 3) from 2006 through 2010. The average proportion of total deaths among working-age adults that were alcohol-attributable ranged from 16.4% in New Mexico to 7.5% in Maryland; the average proportion of total YPLL that were alcohol-attributable ranged from 18.5% in New Mexico to 9.1% in Maryland.

From 2006 through 2010, more than two-thirds (69%) of all average annual AAD (Table 2) and 82% of average annual YPLL (Table 3) involved working-age adults (20–64 y). The proportion of average annual AAD in states that involved working-age adults ranged from 83% in Alaska to 56% in Vermont, and the proportion of average annual YPLL attributable to alcohol that involved working-age adults ranged from 88% in Alaska to 77% in Nebraska and Vermont.

Discussion

From 2006 through 2010, excessive alcohol consumption accounted for nearly 1 in 10 deaths and over 1 in 10 years of potential life lost among working-age adults in the United States. Furthermore, an average of 2 out of 3 AAD and 8 out of 10 alcohol-attributable YPLL involved working-age adults. Although AAD rates varied by state, the national annual average AAD rate of 27.9 deaths per 100,000 population was higher than the average annual death rate of 10.0, the 15 leading causes of deaths from 2006 through 2010 (12). The majority of the average annual AAD involved males (71%); however, half of AAD and two-thirds of YPLL resulted from a single cause of death, alcohol, which were, by definition, attributable to binge drinking. About 5% of all average annual AAD and 10% of average annual YPLL involved those under age 21 years, most of which were due to acute conditions.

The average annual estimates of AAD and YPLL for the United States from 2006 through 2010 are similar to the 2001 estimates (5) and emphasize the substantial and ongoing public health impact of excessive drinking in the United States. The differences in age-adjusted AAD and YPLL rates in states probably reflect differences in the prevalence of excessive drinking, particularly binge drinking, which is, as expected, by state and local laws governing the price, availability, and marketing of alcoholic beverages (13). The differences in AAD and YPLL rates in states probably also reflect other factors, including access to medical care and vehicle miles traveled, which would affect the risk of death from alcohol-related conditions (13,14). The higher rates of AAD and YPLL among men than women probably also reflect the higher prevalence and intensity of binge drinking, the most common pattern of excessive alcohol consumption among men (15).

The substantial contribution of excessive alcohol consumption to total deaths and premature mortality among working-age adults (20–64 years) in the United States, as well as the large proportion of these deaths (69%) and YPLL (82%) that involved working-age adults, is consistent with studies assessing the contribution of harmful alcohol consumption to the global burden of disease (16) and also reflects the substantial excess that excessive alcohol consumption has across the lifespan. The contribution of AAD and YPLL among working-age adults is also a major factor contributing to alcohol-attributable productivity losses from premature mortality, which, together with reduced earnings by excessive drinkers, was responsible for 72% of the estimated \$223.5 billion in economic costs from excessive alcohol consumption in 2006 (2).

The findings in this report are subject to several limitations. First, data on alcohol consumption used to calculate indirect estimates of AAF are based on self-reports and may underestimate the true prevalence of excessive alcohol consumption because of underreporting by survey respondents and sampling non-coverage (17). A recent study that used BRFSS data found that self-reports identify only 22% to 32% of presumed alcohol consumption in states on the basis of alcohol sales (18). Second, risk estimates used in ARDI were calculated by using average daily alcohol consumption levels that begin at levels greater than those typically used to define excessive drinking in the United States. Third, deaths among former drinkers who might have discontinued their drinking because of alcohol-related health problems are not included in the calculation of AAF, even though some of these deaths might have been alcohol-attributable. Fourth, ARDI does not include estimates of AAD or several causes (eg, tuberculosis, pneumonia, hepatitis C) or which alcohol is believed to be an important risk factor, but for which suitable pooled risk estimates were not available. Fifth, ARDI exclusively uses the underlying cause of death from vital statistics data to identify alcohol-related causes and does not consider contributing causes of death that might be alcohol-related. Finally, age-specific estimates of AAF were only available for motor-vehicle traffic deaths, even though alcohol involvement varies by age, particularly acute deaths. While our results do show the substantial burden of alcohol-related consequences, many of the limitations cited would result in a substantial underestimate of the true contribution of excessive alcohol consumption to total deaths and YPLL in the United States.

This analysis illustrates the magnitude and variability of the health consequences of excessive alcohol consumption in the United States and the substantial contribution of excessive drinking to premature mortality among working-age adults. More widespread implementation of interventions recommended by the Community Preventive Services Task Force (19), including increasing alcohol prices by raising alcohol taxes, enforcing commercial host (dram shop) liability, and regulating alcohol outlet density, could reduce excessive alcohol consumption and the health and economic costs related to it.

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Tables,

Table 1. Estimated Annual Number of Deaths and Years of Potential Life Lost (YPLL) attributable to the Harmful Effects of Excessive Alcohol Use, by Cause and Sex, United States, 2006–2010



Cause	Deaths			Male, n (%)	Female, n (%)	Total
	Male, n (%)	Female, n (%)	Total			
Chronic causes						
Acute pancreatitis	11 (57)	313 (73)	72	8,599 (62)	5,263 (38)	13,722
Alcohol abuse	1,587 (78)	35 (22)	2,022	39,909 (76)	12,802 (2)	52,791
Alcohol cardiomyopathy	1 (86)	73 (1)	51	10,357 (8)	1,909 (16)	12,266
Alcohol dependence syndrome	2,892 (78)	836 (22)	3,728	72,208 (75)	2,099 (25)	96,307
Alcohol polyneuropathy	7 (100)	0	7	117 (100)	0	117
Alcohol-induced chronic pancreatitis	59 (72)	23 (28)	82	1,506 (70)	673 (30)	2,219
Alcoholic gastritis	23 (79)	6 (21)	29	586 (75)	191 (25)	777
Alcoholic liver disease	10,033 (72)	3,961 (28)	14,364	251,921 (69)	11,307 (31)	366,268
Alcoholic myopathy	1 (100)	0	1	23 (100)	0	23
Alcoholic psychosis	502 (77)	151 (23)	653	10,511 (76)	3,290 (2)	13,805
Alcohol withdrawal (female only)	NA	391 (100)	391	NA	7,290 (100)	7,290
Cholelithiasis	0	0	0	0	0	0
Chronic hepatitis	1 (100)	< 1	1	20 (71)	8 (29)	28
Chronic pancreatitis	139 (55)	116 (45)	255	2,900 (56)	2,297 (4)	5,237
Development of new-onset diabetes due to alcohol	10 (83)	22 (17)	126	1,800 (79)	77 (21)	2,281
Epilepsy	108 (53)	95 (47)	203	3,170 (55)	2,612 (45)	5,783
Esophageal cancer	37 (89)	55 (11)	92	6,957 (89)	808 (11)	7,805
Esophageal varices	7 (72)	18 (28)	65	1,032 (72)	397 (28)	1,430
Fetal alcohol syndrome	3 (75)	1 (25)	4	163 (68)	78 (32)	211
Fetal alcohol syndrome affected by maternal use of alcohol	1 (50)	1 (50)	2	75 (48)	80 (52)	155
Gastroesophageal hemorrhage	19 (61)	12 (39)	31	332 (66)	173 (3)	505
Hypertension	87 (55)	729 (45)	1,603	13,680 (61)	8,737 (39)	22,421
Ischemic heart disease	516 (70)	223 (30)	738	6,705 (73)	2,030 (27)	9,178
Liver cancer	198 (86)	33 (1)	231	3,126 (8)	581 (16)	3,707
Liver cancer, unspecified	752 (75)	205 (25)	957	13,033 (77)	3,893 (23)	16,926
Liver cirrhosis, unspecified	1,592 (59)	3,255 (41)	7,847	93,308 (59)	6,110 (4)	157,422
Low birth weight, prematurity, stillbirth or growth retardation death	106 (6)	60 (36)	165	7,915 (62)	1,790 (38)	12,705
Non-Hodgkin lymphoma	309 (85)	56 (15)	365	5,001 (86)	912 (1)	6,313
Portal hypertension	2 (63)	1 (37)	3	511 (66)	261 (3)	772
Pancreatic cancer	202 (100)	NA	202	1,985 (100)	NA	1,985

Cause ⁴	Deaths ⁴			Male, n (%) ⁴	Female, n (%) ⁴	Total ⁴
	Male, n (%) ⁴	Female, n (%) ⁴	Total ⁴			
Pyomyiasis	<1	<1	<1	2 (67)	1 (33)	3
Sporotrichosis	NA	<1	<1	NA	10 (100)	10
Stroke, hemiparesis	1,357 (83)	286 (17)	1,643	21,292 (83)	4,389 (17)	25,681
Stroke, other	329 (7)	118 (26)	447	3,812 (76)	1,227 (2)	5,039
Supraventricular tachycardia	122 (3)	160 (57)	282	1,065 (3)	1,356 (56)	2,421
Subtotal	26,564 (69)	11,689 (31)	38,253	584,050 (68)	269,722 (32)	853,771
Acute causes⁴						
Amyotrophic lateral sclerosis	81 (8)	15 (16)	96	2,008 (81)	569 (19)	2,577
Alcohol poisoning	1,267 (77)	383 (23)	1,650	2,299 (75)	13,833 (25)	56,132
Amyotrophic lateral sclerosis	125 (57)	9 (3)	134	2,331 (59)	1,701 (41)	4,032
Child maltreatment	98 (59)	70 (42)	168	6,977 (57)	5,345 (43)	12,322
Drowning	770 (80)	193 (20)	963	27,802 (82)	6,199 (18)	33,999
Excessive blood alcohol level	0	0	0	0	0	0
Fall from height	3,853 (51)	3,688 (49)	7,541	53,733 (58)	39,015 (42)	92,748
Fire	675 (59)	10 (1)	685	15,919 (59)	11,019 (41)	26,938
Fires in homes	86 (88)	12 (12)	98	3,337 (87)	81 (13)	3,418
Home fire	6,221 (80)	1,535 (20)	7,756	27,753 (81)	6,612 (19)	33,365
Hypothermia	177 (67)	88 (33)	265	1,119 (72)	1,585 (28)	2,704
Motor vehicle traffic injury	171 (78)	9 (22)	180	5,345 (77)	1,559 (23)	6,904
Motor vehicle traffic injury	9,767 (78)	2,696 (22)	12,463	398,376 (77)	121,319 (23)	519,695
Occupational injury	126 (9)	8 (6)	134	3,359 (9)	201 (6)	3,560
Other road vehicle injury	176 (79)	38 (21)	214	1,857 (78)	1,363 (22)	3,220
Poisoning (not alcohol)	5,757 (65)	2,977 (35)	8,734	203,635 (65)	111,371 (35)	315,006
Suicide	6,760 (79)	1,719 (21)	8,479	210,811 (77)	62,395 (23)	273,206
Suicide by drug overdose	28 (67)	1 (33)	29	82 (62)	52 (38)	1,366
Water transport	69 (87)	10 (13)	79	2,349 (85)	27 (15)	2,376
Subtotal	35,540 (72)	14,004 (28)	49,544	1,263,023 (74)	3,497 (26)	1,266,519
Total	62,104 (71)	25,693 (29)	87,797	1,847,072 (72)	713,218 (28)	2,560,290

Abbreviation: NA, not applicable.



Table 2. Annual Number of Deaths and Alcohol-Attributable Deaths (AAD), and Percentage of Deaths from Alcohol-Attributable Deaths among 20–64 years, by State, United States, 2006–2010.



State	Ages 4				20–64 years		
	Total Deaths	Total AAD	Age-Adjusted AAD Rate per 100,000	Total Alcohol-Attributable Deaths, %	Total Deaths	Total AAD	Total Alcohol-Attributable Deaths, %
United States, total	2,532,222	87,798	27.9	3.6	620,259	60,617	9.8
Alabama	7,377	1,511	31.0	3.2	13,688	1,119	8.2
Alaska	3,531	275	1.1	7.8	1,332	229	15.9
Arizona	6,023	2,362	37.2	5.1	12,178	1,626	13.3
Arkansas	28,600	920	31.0	3.2	7,877	650	8.3
California	23,336	10,572	29.1	4.5	60,612	7,767	12.3
Colorado	30,687	1,628	33.2	5.3	8,297	1,200	14.2
Connecticut	28,797	836	22.1	2.9	5,907	517	9.2
Delaware	7,777	278	26.8	3.3	1,958	172	8.8
District of Columbia	5,035	210	37.7	7.2	1,732	155	9.0
Florida	170,507	6,637	32.6	3.9	40,970	4,937	11.0
Georgia	69,377	2,555	27.6	3.7	21,580	1,857	8.6
Hawaii	9,591	307	20.8	3.2	2,355	191	8.1
Idaho	10,985	377	28.9	4.0	2,578	291	11.3
Illinois	101,218	3,027	23.7	3.0	27,797	2,067	8.5
Indiana	55,816	1,667	25.1	2.9	17,102	1,168	8.3
Iowa	27,682	775	23.8	2.8	5,322	597	8.6
Kansas	27,508	762	26.6	3.1	5,537	518	9.5
Kentucky	40,976	1,351	30.5	3.3	11,518	997	8.6
Louisiana	40,337	1,757	32.8	3.6	12,957	1,103	8.8
Maine	12,537	372	27.8	3.0	2,722	271	8.9
Massachusetts	3,677	1,318	22.6	3.0	11,928	899	7.5
Michigan	52,957	1,525	21.8	2.9	10,920	1,022	9.7
Minnesota	87,136	2,957	28.1	3.7	21,977	2,020	9.2
Mississippi	37,897	1,257	23.3	3.3	7,896	778	9.9
Missouri	28,603	1,025	37.8	3.6	8,711	755	8.7
Montana	57,990	1,866	30.3	3.7	13,661	1,256	9.2
Nebraska	8,713	390	37.7	4.5	2,090	275	13.2
Nevada	15,121	227	22.7	2.8	3,070	261	8.6
Nevada	19,177	937	37.9	4.9	5,979	697	11.6
New Hampshire	10,186	371	23.8	3.3	2,289	222	9.7
New Jersey	69,557	1,757	19.1	2.5	15,537	1,206	7.8

State	A4 Ages4				20–64 years4		
	Total Deaths	Total AAD	Age-Adjusted AAD Rate per 100,000	Total AAD Deaths, %	Total Deaths	Total AAD	Total AAD Deaths, %
New Mexico	15,670	1,020	51.2	6.6	6,190	758	16.0
New York	17,610	1,011	19.6	2.7	33,826	2,659	7.9
North Carolina	76,780	2,761	28.9	3.6	20,999	1,977	9.3
North Dakota	5,832	179	26.2	3.1	1,123	115	10.2
Ohio	107,798	3,288	26.9	3.1	25,990	2,179	8.0
Oklahoma	36,120	1,350	35.9	3.7	9,970	1,000	10.0
Oregon	31,655	1,302	32.1	0.1	7,560	863	11.6
Pennsylvania	125,082	3,510	25.8	2.8	26,807	2,290	8.5
Rhode Island	9,625	292	25.3	3.0	1,980	188	9.7
South Carolina	0,107	1,530	32.6	3.8	11,995	1,133	9.0
South Dakota	7,003	209	30.0	3.6	1,310	158	11.0
Tennessee	58,120	2,060	31.8	3.6	16,891	1,511	8.9
Texas	162,069	6,510	27.9	0.0	7,580	660	9.8
Utah	10,171	529	22.9	3.7	3,751	393	10.5
Vermont	5,170	183	26.5	3.5	1,125	103	9.2
Virginia	58,536	1,865	23.1	3.2	15,193	1,292	8.5
Washington	7,696	1,981	29.2	0.2	11,702	1,301	11.1
West Virginia	21,195	660	33.1	3.1	5,500	680	8.0
Wisconsin	6,020	1,706	28.5	3.7	9,866	1,027	10.0
Wyoming	0,305	210	37.5	0.9	1,188	159	13.0

Table 3. c e c e c ual Number of Years of Potential Life Lost (YPLL), c Total YPLL, and Pec e c e of YPLL c m o c c l c e s and c m o c P e s o c s c e d 20 to 64 Years, by State, United States, 2006–2010



State	A4 Ages4				20–64 years4		
	Total	Total AAD	Age-Adjusted Rate per 100,000	Total AAD Deaths, %	Total	Total AAD	Total AAD Deaths, %
United States, total	38,281,133	2,560,290	831.6	6.7	18,380,927	2,106,126	11.5
Alabama	797,361	8,020	1030.1	6.1	08,573	0,535	9.9
Alaska	75,697	9,131	1299.6	12.1	5,281	8,020	17.8
Aризона	757,615	68,826	1111.8	9.1	368,170	56,603	15.0
Arkansas	69,201	28,226	991.3	6.0	23,355	23,211	9.9
California	3,700,628	300,072	822.0	8.2	1,806,358	251,821	13.9
Colorado	506,006	7,269	902.8	9.3	25,887	0,051	15.9
Connecticut	398,287	23,199	606.0	5.8	173,316	18,988	11.0

State	A4 Ages4			20-64 years4			
	Total4	Total4Attributab4	Age-4 Adjusted 4 Rate per 4 100,0004	Total4Attributab4 , %4	Total4	Total4Attributab4	Total4Attributab4 , %4
Delaware	119,510	7,53	8.05	6.2	58,397	6,079	10.4
District of Columbia	93,711	6,725	1083.9	7.2	52,568	5,26	10.3
Florida	2,580,771	187,068	999.6	7.2	1,217,229	15,77	12.7
Georgia	1,227,003	79,183	829.1	6.5	655,519	65,86	10.2
Hawaii	1,531,818	7,915	569.7	5.0	68,676	6,335	9.2
Idaho	171,131	12,311	819.7	7.2	76,901	9,873	12.8
Illinois	1,557,893	91,615	711.8	5.9	723,596	73,823	10.2
Indiana	879,690	50,02	780.9	5.7	16,119	1,253	9.9
Iowa	375,866	19,885	65.8	5.3	153,969	15,98	10.1
Kansas	36,862	22,131	792.1	6.1	161,373	18,091	11.2
Kentucky	672,103	1,780	969.0	6.2	313,312	35,393	10.4
Louisiana	715,228	9,719	1116.6	7.0	379,576	1,270	10.9
Maryland	176,731	9,929	723.2	5.6	77,630	8,06	10.0
Massachusetts	713,579	0,075	69.8	5.6	357,601	32,10	9.1
Michigan	728,381	1,501	616.0	5.7	318,262	3,389	10.8
Minnesota	1,333,335	8,215	838.0	6.3	6,275	68,738	10.7
Mississippi	537,350	32,829	616.2	6.1	231,357	26,237	11.3
Missouri	50,56	32,916	113.0	6.5	261,516	27,550	10.5
Montana	856,379	55,681	91.2	6.5	05,162	,787	11.1
Nebraska	133,08	11,331	1163.5	8.5	62,08	9,71	15.2
Nevada	21,12	11,682	651.0	5.5	88,98	9,037	10.2
Nevada	33,23	27,923	103.9	8.3	177,069	23,1	13.2
New Hampshire	1,5,90	8,789	637.1	6.0	66,05	7,260	11.0
New Jersey	1,005,669	50,856	575.8	5.1	57,22	2,068	9.2
New Mexico	268,778	31,129	1570.1	11.6	12,36	26,281	18.5
New York	2,162,819	111,986	56.5	5.2	985,558	90,878	9.2
North Carolina	1,259,703	83,125	886.8	6.6	619,963	68,82	11.1
North Dakota	81,298	5,132	785.5	6.3	33,320	,061	12.2
Ohio	1,632,999	91,851	789.8	5.6	757,93	7,828	9.9
Oklahoma	595,52	1,60	113.1	7.0	295,639	3,833	11.8
Oregon	62,860	33,933	868.3	7.3	215,51	27,93	13.0
Pennsylvania	1,789,327	100,106	79.0	5.6	785,357	81,180	10.3
Rhode Island	131,293	7,538	687.0	5.7	56,371	6,178	11.0
South Carolina	680,320	7,267	1037.5	6.9	353,61	39,66	11.2
South Dakota	101,838	7,023	889.3	6.9	2,598	5,519	13.0

State	All Age1			4 year1			
	Total 1 YPLL1	Total Alcohol1 -Attributable 1 YPLL1	Age-1 Adjusted 1 YPLL Rate 1 per 1 ,1	Total Alcohol1 -Attributable 1 YPLL, %1	Total 1 YPLL1	Total Alcohol1 -Attributable 1 YPLL1	Total Alcohol1 -Attributable 1 YPLL, %1
Tennessee	972,29	,F	999.F	.F	,F1F	2,F 1F	1F.F
Texas	2,799,F	199,F1F	2F.F	7.1F	1,429,F	1F ,17F	11.F
Utah	24F,2F4F	1F,F	7F.9F	.9F	119,42F	14,F7F	11.F
Vermont	72,7F	4,F	4.F	.F	2,292F	,F17F	1F.F
Virginia	9F1,9F	,2F2F	7.F	.9F	447,F 4F	4F,F49F	1F.1F
Washington	719,F4F	,F	7F4.1F	7.4F	42,F4F	4F,4F	12.7F
West Virginia	,F7F	19,4F4F	1F .F	.9F	1F2,4F7F	1F,477F	1F.1F
Wisconsin	,F99F	44,249F	7F9.F	.F	2F9,1F	4,77F	12.F
Wyoming	72,12F	,4F	11F .F	9.F	,F 2F	,F	1F.F

Post-Test 7 07 atio7

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Post-Test Questions

Article Title: **Attributable Mortality of Excessive Alcohol Consumption and Mortality Years of Potential Life Lost in the United States**

Questions

- You are seeing a 30-year-old woman who reports a history of binge drinking several times per week as well as past heavy drinking. You express your concern over her drinking, but you are unsure which problem drinking pattern is most harmful. Overall, which of the following problems of drinking accounts for the **highest** proportion of deaths of excessive alcohol use?
 - Heavy weekly alcohol consumption
 - Cumulative heavy drinking during a period of at least 5 years
 - Binge drinking
 - Drinking during pregnancy
- What should you consider regarding the epidemiology of alcohol-attributable deaths and years of potential life lost in the current study by Stahre and colleagues?
 - The gross number of alcohol-attributable deaths and years of potential life lost failed to decrease since the last baseline year in 2001
 - Approximately 30% of alcohol-attributable deaths occurred among individuals younger than 21 years
 - Alcohol-attributable deaths and years of potential life lost are expected to increase over the next 20 years

- D. Older adults (>65 years) accounted for most cases of alcohol-attributable deaths and years of potential life lost
- 3. Which of the following states had the **highest** rates of alcohol-attributable deaths and years of potential life lost in the current study by Stahre and colleagues?
 - A. Delaware
 - B. New York
 - C. New Mexico
 - D. Alabama
- 4. According to the current study by Stahre and colleagues, what percentage of all deaths was caused by excessive alcohol use between 2006 and 2010?
 - A. 0.4%
 - B. 2%
 - C. 3%
 - D. 10%

Evaluation

1. The activity supported the learning objectives.

Strongly Disagree

17

27

37

47

Strongly Agree

57

2. The material was organized clearly for learning purposes.

Strongly Disagree

17

27

37

47

Strongly Agree

57

3. The content learned from this activity will impact my practice.

Strongly Disagree

17

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37

47

Strongly Agree

57

4. The activity was presented objectively and free of commercial bias.

Strongly Disagree

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Strongly Agree

57

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For Questions About This Article Contact pcdeditor@cdc.gov

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