Prevalence of 12-Month Alcohol Use, High-Risk Drinking, and *DSM-IV* Alcohol Use Disorder in the United States, 2001-2002 to 2012-2013
Results From the National Epidemiologic Survey on Alcohol and Related Conditions

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IMPORTANCE Lack of current and comprehensive trend data derived from a uniform, reliable, and valid source on alcohol use, high-risk drinking, and *DSM-IV* alcohol use disorder (AUD) represents a major gap in public health information.

OBJECTIVE To present nationally representative data on changes in the prevalences of 12-month alcohol use, 12-month high-risk drinking, 12-month *DSM-IV* AUD, 12-month *DSM-IV* AUD among 12-month alcohol users, and 12-month *DSM-IV* AUD among 12-month high-risk drinkers between 2001-2002 and 2012-2013.

DESIGN, SETTING, AND PARTICIPANTS The study data were derived from face-to-face interviews conducted in 2 nationally representative surveys of US adults: the National Epidemiologic Survey on Alcohol and Related Conditions, with data collected from April 2001 to June 2002, and the National Epidemiologic Survey on Alcohol and Related Conditions III, with data collected from April 2012 to June 2013. Data were analyzed in November and December 2016.

MAIN OUTCOMES AND MEASURES Twelve-month alcohol use, high-risk drinking, and *DSM-IV* AUD.

RESULTS The study sample included 43 093 participants in the National Epidemiologic Survey on Alcohol and Related Conditions and 36 309 participants in the National Epidemiologic Survey on Alcohol and Related Conditions III. Between 2001-2002 and 2012-2013, 12-month alcohol use, high-risk drinking, and *DSM-IV* AUD increased by 11.2%, 29.9%, and 49.4%, respectively, with alcohol use increasing from 65.4% (95% CI, 64.3%-66.6%) to 72.7% (95% CI, 71.4%-73.9%), high-risk drinking increasing from 9.7% (95% CI, 9.3%-10.2%) to 12.6% (95% CI, 12.0%-13.2%), and *DSM-IV* AUD increasing from 8.5% (95% CI, 8.0%-8.9%) to 12.7% (95% CI, 12.1%-13.3%). With few exceptions, increases in alcohol use, high-risk drinking, and *DSM-IV* AUD between 2001-2002 and 2012-2013 were also statistically significant across sociodemographic subgroups. Increases in all of these outcomes were greatest among women, older adults, racial/ethnic minorities, and individuals with lower educational level and family income. Increases were also seen for the total sample and most sociodemographic subgroups for the prevalences of 12-month *DSM-IV* AUD among 12-month alcohol users from 12.9% (95% CI, 12.3%-17.5%) to 17.5% (95% CI, 16.7%-18.3%) and 12-month *DSM-IV* AUD among 12-month high-risk drinkers from 46.5% (95% CI, 44.3%-48.7%) to 54.5% (95% CI, 52.7%-56.4%).

CONCLUSIONS AND RELEVANCE Increases in alcohol use, high-risk drinking, and *DSM-IV* AUD in the US population and among subgroups, especially women, older adults, racial/ethnic minorities, and the socioeconomically disadvantaged, constitute a public health crisis. Taken together, these findings portend increases in many chronic comorbidities in which alcohol use has a substantial role.

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Alcohol use and specifically high-risk drinking, which often leads to alcohol use disorder (AUD), are significant contributors to the burden of disease in the United States and worldwide.[1-7] High-risk drinking and AUD are important risk factors for morbidity and mortality from fetal alcohol spectrum disorders,[8] hypertension,[9] cardiovascular diseases,[10-15] stroke,[16] liver cirrhosis,[17,18] several types of cancer[19-23] and infections,[24-26] pancreatitis,[27,28] type 2 diabetes,[29] and various injuries.[30] High-risk drinking and AUD are disabling,[31,32] are associated with numerous psychiatric comorbidities[33,34] and impaired productivity and interpersonal functioning, and place psychological and financial burdens on society as a whole and on those who misuse alcohol, their families, friends, and coworkers,[35-37] as well as through motor vehicle crashes, violence, and property crime.[38,39]

In view of the seriousness of the numerous physical and psychiatric harms of high-risk drinking and AUD, regular and detailed monitoring of their trends over time is imperative for the health of the nation. Historically, reliable national survey data on alcohol use, high-risk drinking, and AUD were not available before the early 1970s.[40] The few national trend surveys conducted between the early 1970s to the early 1990s showed stability or decreases in trends for 12-month alcohol use, various measures of high-risk drinking, and social consequence and alcohol dependence symptoms.[41-44] Between the early 1990s and the early 2000s, 12-month alcohol consumption increased from 44.0%[45] to 65.4%,[46] 12-month high-risk drinking increased from approximately 8.0%[47,48] to 9.7%,[49] and *DSM-IV*[50] AUD increased from 7.4%[45] to 8.5%.[32]

Lack of current and comprehensive trend data derived from a uniform source on alcohol use, high-risk drinking, and *DSM-IV* AUD since the early 2000s represents a major gap in public health information. Tracking patterns of alcohol consumption and AUD is essential to test temporal models of alcohol consumption behaviors and alcohol-related morbidity and mortality and to estimate the effectiveness of policy changes related to alcohol use (eg, taxes and treatment entitlements). Furthermore, monitoring of alcohol consumption patterns and AUD over time within important sociodemographic subgroups of the US population is critical for planning and targeting prevention and intervention programs.

Accordingly, this study presents data for 2001-2002 and 2012-2013 on the prevalences of 12-month alcohol use, high-risk drinking (defined as exceeding the daily drinking guidelines at least weekly in the past 12 months), and 12-month *DSM-IV* AUD overall and among important sociodemographic subgroups of the US population. We used data from the National Institute on Alcohol Abuse and Alcoholism's 2001-2002 Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)[51] and 2012-2013 NESARC-III.[52]

Methods

Sample

The 2012-2013 NESARC-III is a nationally representative, face-to-face interview survey of 36 309 US adults 18 years and older

Key Points

Question Have the 12-month prevalences of alcohol use, high-risk drinking, and *DSM-IV* alcohol use disorder increased between 2001-2002 and 2012-2013?

Findings In this study of data from face-to-face interviews conducted in 2 nationally representative surveys of US adults, including the National Epidemiologic Survey on Alcohol and Related Conditions (n = 43 093) and the National Epidemiologic Survey on Alcohol and Related Conditions III (n = 36 309), 12-month alcohol use (11.2%), high-risk drinking (29.9%), and *DSM-IV* alcohol use disorder (49.4%) increased for the total US population and, with few exceptions, across sociodemographic subgroups.

Meaning Substantial increases in alcohol use, high-risk drinking, and *DSM-IV* alcohol use disorder constitute a public health crisis and portend increases in chronic disease comorbidities in the United States, especially among women, older adults, racial/ethnic minorities, and the socioeconomically disadvantaged.

residing in households and selected group quarters,[52] with respondents selected through multistage probability sampling. The data were collected from April 2012 to June 2013. Primary sampling units were counties or groups of contiguous counties, secondary sampling units were groups of US Census–defined blocks, and tertiary sampling units were households within sampled secondary sampling units within which eligible adult respondents were selected, with black, Asian or Pacific Islander, and Hispanic individuals oversampled. The household response rate was 72.0%, the person-level response rate was 84.0%, and the overall response rate was 60.0%, which were comparable with other current US national surveys.[53,54] Data were adjusted for oversampling and nonresponse and were weighted to represent the US civilian population based on the 2012 American Community Survey.[55] Weighting adjustment compensated for nonresponse.[52] Informed consent was electronically recorded, and respondents received $90 for participation. The Combined Neuroscience Institutional Review Board of the National Institutes of Health and Westat Institutional Review Board approved the protocol and informed consent procedures.

The 2001-2002 NESARC was a nationally representative, face-to-face interview survey of 43 093 US adults, described elsewhere in detail.[51] The data were collected from April 2001 to June 2002. The target population was the US adult population 18 years and older residing in households and selected group quarters. Primary sampling units consisted of counties or county equivalents from which eligible adults were selected, with black and Hispanic individuals, and young adults oversampled. The sampling frame response rate was 98.5%, the household response rate was 88.5%, and the person response rate was 93.0%, yielding an overall survey response rate of 81.0%. Data were adjusted for oversampling and nonresponse and were weighted to represent the civilian US population based on the 2000 Decennial Census.[56] The survey protocol, including written informed consent procedures, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget.

Assessments

The Alcohol Use Disorder and Associated Disabilities Interview Schedule–*DSM-IV* Version (AUDADIS-IV)[57] used in NESARC and the AUDADIS Fifth Edition Version[58] used in NESARC-III assessed any 12-month alcohol use with identical questions. Consistent with the US dietary guidelines,[59,60] high-risk drinking was defined as drinking 4 or more standard drinks (a drink equals 14 g of pure alcohol) on any day for women and as drinking 5 or more standard drinks on any day for men. In this study, high-risk drinking was defined as exceeding the daily drinking limits at least weekly during the prior 12 months.

An individual was considered to have a *DSM-IV* AUD diagnosis if the respondent met criteria for alcohol dependence or abuse in the past 12 months. A diagnosis of dependence required 3 or more of the 7 *DSM-IV* dependence criteria, and a diagnosis of abuse required 1 or more of the 4 abuse criteria. Respondents with a 12-month abuse or dependence diagnosis were classified as having 12-month AUD.

Symptom items that assessed *DSM-IV* AUD diagnoses in NESARC and NESARC-III were virtually identical. However, 3 items were slightly reworded, and 3 additional abuse questions appeared in NESARC-III. Comparisons between *DSM-IV* 12-month AUD diagnoses with and without the additional questions yielded almost identical prevalences (8.5% and 8.2%, respectively, for NESARC and 12.7% and 12.2%, respectively, for NESARC-III), with near-perfect concordance (κ = 0.97 for NESARC and κ = 0.98 for NESARC-III), which suggested that trivial differences between AUD operationalizations were not responsible for the changes reported herein.

The test-retest reliability and validity of AUDADIS alcohol use, high-risk drinking, and *DSM-IV* AUD diagnoses are documented in clinical and general population national and international studies.[61-71] The reliability and validity of alcohol use, high-risk drinking, and *DSM-IV* AUD and their associated criteria scales were fair to excellent.

Statistical Analysis

Data were analyzed in November and December 2016. Weighted cross-tabulations estimated the prevalence of alcohol use, high-risk drinking, and *DSM-IV* AUD in the total sample and in subgroups. For 2001-2002 and 2012-2013, the prevalences of 12-month *DSM-IV* AUD among 12-month alcohol users and 12-month *DSM-IV* AUD among 12-month high-risk drinkers were also examined. To account for the complex sample design of NESARC and NESARC-III, a software program (SUDAAN, version 11.0; Research Triangle Institute[72]) was used to produce standard errors of the prevalence estimates for each survey. These data were used to test differences in prevalences between the surveys using 2-sided *t* tests for independent samples. *P* < .05 indicated significant differences in the estimates between surveys.

Results

12-Month Alcohol Use

Twelve-month alcohol use significantly increased from 65.4% in 2001-2002 to 72.7% in 2012-2013, a relative percentage increase of 11.2% (**Table 1**). Significant increases, seen across all sociodemographic subgroups, were particularly notable among women (15.8%), racial/ethnic minorities (from 17.2% among Hispanic to 29.1% among Asian or Pacific Islander individuals), adults 65 years and older (22.4%), and respondents with lower educational level and family income (range, 11.7%-22.3%).

12-Month High-Risk Drinking

The prevalence of 12-month high-risk drinking increased significantly between 2001-2002 and 2012-2013 from 9.7% to 12.6% (change, 29.9%) in the total population (**Table 2**). Significant increases in high-risk drinking were also seen for all sociodemographic subgroups except Native Americans and respondents residing in rural areas. Increases were most notable among women (57.9%), other racial/ethnic minorities (from 40.6% among Hispanic to 62.4% among black individuals), adults 65 years and older (65.2%), persons previously married (widowed, divorced, or separated) (31.9%) and married or cohabiting respondents (34.2%), those with a high school education (42.3%) and less than a high school education (34.7%), those earning incomes of $19 999 or less (35.1%), and those residing in urban areas (35.1%).

12-Month *DSM-IV* AUD

The prevalence of 12-month *DSM-IV* AUD increased significantly from 8.5% to 12.7% (change, 49.4%) in the total population (**Table 3**). Significant increases in AUD were seen in all subgroups except Native Americans and those residing in rural areas. Notable increases were found among women (83.7%), racial/ethnic minorities (51.9% for Hispanic and 92.8% for black individuals), adults 65 years and older (106.7%), those with a high school education (57.8%) and less than a high school education (48.6%), those earning incomes of $20 000 or less (65.9%), those living within 200% of the poverty threshold (range, 47.1%-55.8%), and those residing in urban areas (59.5%).

12-Month *DSM-IV* AUD Among 12-Month Alcohol Users

Twelve-month *DSM-IV* AUD among 12-month alcohol users significantly increased from 12.9% to 17.5% (change, 35.7%) in the total population (**Table 4**). Increases were significant during this time for all subgroups except Native Americans, respondents who were previously married, and those residing in rural areas. Notable increases were found among women (59.8%), those who were black (55.8%), Asian or Pacific Islander (36.2%), or Hispanic (29.5%), adults aged 45 to 64 years (61.9%) and 65 years and older (75.0%), those who were married or cohabiting (45.1%), those who had a high school education (41.2%), and those who resided in urban areas (44.8%).

12-Month *DSM-IV* AUD Among 12-Month High-Risk Drinkers

Twelve-month *DSM-IV* AUD among 12-month high-risk drinkers increased 17.2% from 46.5% in 2001-2002 to 54.5% in 2012-2013 (**Table 5**). Increases were significant for all sociodemographic subgroups except Native American, Asian or Pacific Islander, previously married respondents, those with less than a high school education, and those residing in rural areas, the

Table 1. Prevalence of and Percentage Change in 12-Month Alcohol Use by Sociodemographic Characteristics, 2001-2002 and 2012-2013

Sociodemographic Characteristic	% (95% CI)		% Change
	NESARC 2001-2002 (n = 43 093)	NESARC-III 2012-2013 (n = 36 309)[a]	
Total	65.4 (64.3-66.6)	72.7 (71.4-73.9)	11.2
Sex			
Men	71.8 (70.6-73.0)	76.7 (75.5-77.9)	6.8
Women	59.6 (58.0-61.1)	69.0 (67.5-70.5)	15.8
Race/ethnicity			
White	69.5 (68.2-70.8)	75.3 (73.7-76.9)	8.3
Black	53.2 (51.6-54.9)	66.1 (63.8-68.3)	24.2
Native American	58.2 (53.0-63.4)	73.9 (69.1-78.1)	27.0
Asian or Pacific Islander	48.4 (44.3-52.5)	62.5 (59.4-65.5)	29.1
Hispanic	59.9 (58.1-61.7)	70.2 (68.8-71.7)	17.2
Age, y			
18-29	73.1 (71.5-74.7)	80.1 (78.8-81.3)	9.6
30-44	71.9 (70.4-73.4)	79.5 (78.1-80.8)	10.6
45-64	64.3 (62.9-65.7)	71.9 (70.3-73.5)	11.8
≥65	45.1 (43.4-46.8)	55.2 (52.8-57.6)	22.4
Marital status			
Married or cohabiting	66.3 (65.0-67.6)	73.1 (71.6-74.5)	10.3
Widowed, divorced, or separated	56.8 (55.3-58.3)	67.2 (65.4-68.9)	18.3
Never married	70.1 (68.5-71.7)	76.6 (75.1-78.0)	9.3
Educational level			
Less than high school	46.4 (44.8-47.9)	55.8 (53.5-58.1)	20.3
High school	60.9 (59.5-62.3)	68.0 (66.5-69.5)	11.7
Some college or higher	73.3 (72.1-74.5)	78.3 (77.1-79.5)	6.8
Family income, $			
0-19 999	52.4 (51.1-53.6)	64.1 (62.2-65.9)	22.3
20 000-34 999	61.0 (59.5-62.4)	68.5 (66.8-70.1)	12.3
35 000-69 999	68.1 (66.7-69.4)	73.4 (71.8-74.9)	7.8
≥70 000	78.4 (76.8-80.0)	81.0 (79.5-82.4)	3.3
Poverty threshold, %			
<100	52.1 (50.4-53.9)	64.3 (62.5-66.0)	23.4
100-200	55.2 (53.8-56.6)	66.4 (64.4-68.3)	20.3
>200	71.3 (70.0-72.5)	77.8 (76.5-79.0)	9.1
Urbanicity			
Urban	67.2 (65.8-68.5)	74.0 (72.9-75.1)	10.1
Rural	58.4 (56.5-60.2)	67.9 (64.8-70.9)	16.3
Region			
Northeast	70.9 (67.2-74.4)	77.1 (75.3-78.9)	8.7
Midwest	69.9 (68.4-71.4)	76.5 (74.5-78.5)	9.4
South	59.0 (57.2-60.7)	68.2 (66.0-70.4)	15.6
West	66.1 (63.5-68.7)	72.9 (69.8-75.7)	10.3

Abbreviation: NESARC, National Epidemiologic Survey on Alcohol and Related Conditions.

[a] *P* < .05 for all comparisons for 2001-2002 compared with 2012-2013.

Northeast, and the Midwest. Notable increases were seen for women (34.7%), those who were black (25.7%) or Hispanic (16.8%), respondents aged 45 to 64 years (34.8%) and 65 years and older (58.1%), and those residing in urban areas (21.1%).

Discussion

Between 2001-2002 and 2012-2013, the 12-month prevalence of alcohol use increased 11.2% in the United States from 65.4% to 72.7%. High-risk drinking increased almost 30% from 9.7% to 12.6%, representing approximately 20.2 million and 29.6 million Americans, respectively. There was a 49.4% increase in 12-month *DSM-IV* AUD during this time from 8.5% to 12.7% (representing approximately 17.6 million and 29.9 million Americans, respectively), much greater than the corresponding 14.8% increase in *DSM-IV* AUD observed between 1991-1992 (7.4%) and 2001-2002 (8.5%).[73] While the prevalences of AUD among both 12-month alcohol users and 12-month high-risk drinkers increased, the prevalence of AUD

Table 2. Prevalence of and Percentage Change in 12-Month High-Risk Drinking by Sociodemographic Characteristics, 2001-2002 and 2012-2013

Sociodemographic Characteristic	% (95% CI)		% Change
	NESARC 2001-2002 (n = 43 093)	NESARC-III 2012-2013 (n = 36 309)	
Total	9.7 (9.3-10.2)	12.6 (12.0-13.2)[a]	29.9
Sex			
Men	14.2 (13.4-14.9)	16.4 (15.7-17.3)[a]	15.5
Women	5.7 (5.3-6.1)	9.0 (8.4-9.7)[a]	57.9
Race/ethnicity			
White	10.0 (9.6-10.5)	12.3 (11.6-13.0)[a]	23.0
Black	9.3 (8.4-10.4)	15.1 (14.0-16.2)[a]	62.4
Native American	12.4 (9.6-15.8)	17.4 (13.6-22.1)	40.3
Asian or Pacific Islander	4.6 (3.5-6.0)	7.2 (6.0-8.8)[a]	56.5
Hispanic	9.6 (8.8-10.6)	13.5 (12.5-14.6)[a]	40.6
Age, y			
18-29	16.9 (15.7-18.2)	19.3 (18.0-20.6)[a]	14.2
30-44	10.8 (10.1-11.6)	14.8 (14.0-15.7)[a]	37.0
45-64	7.5 (6.9-8.2)	11.2 (10.5-12.1)[a]	49.3
≥65	2.3 (1.9-2.8)	3.8 (3.2-4.4)[a]	65.2
Marital status			
Married or cohabiting	7.3 (6.8-7.8)	9.8 (9.2-10.5)[a]	34.2
Widowed, divorced, or separated	9.1 (8.3-9.9)	12.0 (11.1-13.0)[a]	31.9
Never married	17.4 (16.3-18.6)	20.3 (19.1-21.5)[a]	16.7
Educational level			
Less than high school	9.5 (8.5-10.6)	12.8 (11.6-14.0)[a]	34.7
High school	10.4 (9.6-11.1)	14.8 (13.9-15.9)	42.3
Some college or higher	9.5 (9.0-10.0)	11.6 (10.9-12.4)	22.1
Family income, $			
0-19 999	11.1 (10.3-12.0)	15.0 (13.9-16.3)[a]	35.1
20 000-34 999	10.3 (9.5-11.2)	12.6 (11.7-13.7)[a]	22.3
35 000-69 999	9.3 (8.7-10.1)	12.9 (12.1-13.7)[a]	38.7
≥70 000	8.4 (7.7-9.2)	10.5 (9.7-11.4)[a]	25.0
Poverty threshold, %			
<100	11.8 (10.8-13.0)	14.2 (12.9-15.5)[a]	20.3
100-200	9.7 (8.9-10.7)	12.7 (11.7-13.7)[a]	30.9
>200	9.3 (8.8-9.8)	12.1 (11.4-12.7)[a]	30.1
Urbanicity			
Urban	9.7 (9.2-10.3)	13.1 (12.5-13.7)[a]	35.1
Rural	9.6 (8.9-10.5)	10.8 (9.9-11.8)	12.5
Region			
Northeast	9.3 (8.1-10.7)	12.2 (11.5-12.9)[a]	31.2
Midwest	11.2 (10.2-12.3)	14.7 (12.9-16.6)[a]	31.3
South	9.0 (8.4-9.7)	12.1 (11.1-13.1)[a]	34.4
West	9.7 (8.9-10.5)	11.8 (11.0-12.7)[a]	21.6

Abbreviation: NESARC, National Epidemiologic Survey on Alcohol and Related Conditions.

[a] *P* < .05 for 2001-2002 compared with 2012-2013.

among high-risk drinkers (46.5% in 2001-2002 and 54.5% in 2012-2013) was much greater than the prevalence of AUD among 12-month users (12.9% in 2001-2002 and 17.5% in 2012-2013), highlighting the critical role of high-risk drinking in the increase in AUD between 2001-2002 and 2012-2013, which was 49.4%.[46-48] The smaller increase in 12-month high-risk drinking (21.3%) and the larger increase in 12-month alcohol use (48.6%) seen between the early 1900s and the early 2000s were associated with a much lower increase in AUD (14.9%), again

underscoring the more important influence of increases in high-risk drinking relative to alcohol use on increases in AUD.

Increases shown in 12-month alcohol use and high-risk drinking are consistent with other surveys during the same period. The National Health Interview Survey showed a 6.0% increase in 12-month alcohol use,[74,75] while the National Survey on Drug Use and Health showed a 9.1% increase in 12-month alcohol use.[76,77] Trends in drinking 5 or more drinks at least once in the past year increased 17.8% in the National

Table 3. Prevalence of and Percentage Change in 12-Month *DSM-IV* Alcohol Use Disorder
by Sociodemographic Characteristics, 2001-2002 and 2012-2013

Sociodemographic Characteristic	% (95% CI)		% Change
	NESARC 2001-2002 (n = 43 093)	NESARC-III 2012-2013 (n = 36 309)	
Total	8.5 (8.0-8.9)	12.7 (12.1-13.3)[a]	49.4
Sex			
Men	12.4 (11.7-13.1)	16.7 (15.8-17.6)[a]	34.7
Women	4.9 (4.5-5.3)	9.0 (8.5-9.6)[a]	83.7
Race/ethnicity			
White	8.9 (8.4-9.5)	13.1 (12.3-13.9)[a]	47.2
Black	6.9 (6.1-7.7)	13.3 (11.9-14.8)[a]	92.8
Native American	12.1 (9.3-15.6)	16.6 (12.7-21.5)	37.2
Asian or Pacific Islander	4.5 (3.5-5.9)	8.0 (6.7-9.5)[a]	77.8
Hispanic	7.9 (6.8-9.2)	12.0 (11.1-12.9)[a]	51.9
Age, y			
18-29	16.2 (15.1-17.4)	23.4 (21.9-24.9)[a]	44.4
30-44	9.7 (9.0-10.5)	14.3 (13.3-15.3)[a]	47.4
45-64	5.4 (4.9-6.0)	9.8 (9.1-10.5)[a]	81.5
≥65	1.5 (1.2-1.8)	3.1 (2.6-3.7)[a]	106.7
Marital status			
Married or cohabiting	6.0 (5.6-6.5)	9.7 (9.0-10.3)[a]	61.7
Widowed, divorced, or separated	8.1 (7.3-9.0)	10.6 (9.8-11.5)[a]	30.9
Never married	15.9 (14.7-17.1)	22.4 (20.9-23.9)[a]	40.9
Educational level			
Less than high school	7.0 (6.2-8.0)	10.4 (9.3-11.7)[a]	48.6
High school	8.3 (7.6-9.0)	13.1 (12.2-14.0)[a]	57.8
Some college or higher	9.0 (8.4-9.6)	13.0 (12.3-13.8)[a]	44.4
Family income, $			
0-19 999	8.8 (7.9-9.7)	14.6 (13.4-15.9)[a]	65.9
20 000-34 999	8.9 (8.2-9.7)	12.3 (11.3-13.4)[a]	38.2
35 000-69 999	8.1 (7.4-8.8)	12.3 (11.5-13.1)[a]	51.9
≥70 000	8.3 (7.6-9.1)	12.0 (11.2-12.8)[a]	44.6
Poverty threshold, %			
<100	9.4 (8.3-10.5)	14.3 (13.0-15.6)[a]	52.1
100-200	7.7 (6.9-8.5)	12.0 (11.1-12.9)[a]	55.8
>200	8.5 (8.0-9.0)	12.5 (11.8-13.2)[a]	47.1
Urbanicity			
Urban	8.4 (7.8-8.9)	13.4 (12.8-14.0)[a]	59.5
Rural	8.8 (8.0-9.7)	10.2 (9.0-11.5)	15.9
Region			
Northeast	7.8 (6.7-9.0)	11.9 (10.9-12.9)[a]	52.6
Midwest	10.6 (9.3-11.9)	14.8 (13.2-16.5)[a]	39.6
South	7.3 (6.6-8.0)	11.5 (10.5-12.7)[a]	57.5
West	8.8 (7.9-9.7)	13.3 (12.2-14.5)[a]	51.1

Abbreviation: NESARC, National
Epidemiologic Survey on Alcohol and
Related Conditions.

[a] *P* < .05 for 2001-2002 compared
with 2012-2013.

Health Interview Survey.[78] Parallel increases were also seen
in per capita alcohol consumption based on alcohol sales data,
which rose 6.4%.[79] The marked increases in high-risk drink-
ing and *DSM-IV* AUD between 2001-2002 and 2012-2013 also
mirror recent sharp increases in morbidity and mortality from
diseases and injuries in which alcohol use has a substantial role
or deceleration of previously seen declines. Most important,
mortality rates of all cardiovascular diseases and stroke de-
celerated between 2000-2001 and 2011-2014 after 3 decades
of decline.[80,81] Morbidity and mortality rates of hypertension

increased,[82,83] as did hypertensive emergencies seen in emer-
gency departments (EDs).[84] Age-specific death rates of liver
cirrhosis, especially alcohol-related liver cirrhosis, rose dra-
matically between 2009 and 2013 for the first time since the
early 1970s.[85] Although increases in age-adjusted rates of type
2 diabetes[86,87] since 2000 have largely been attributed to more
overweight and obesity,[88,89] increases in high-risk drinking dur-
ing this time may have contributed, an issue that merits fur-
ther investigation. During the same period, alcohol-related ED
visits associated with falls increased, and the total number of

Table 4. Prevalence of and Percentage Change in 12-Month *DSM-IV* Alcohol Use Disorder Among 12-Month Alcohol Users by Sociodemographic Characteristics, 2001-2002 and 2012-2013

Sociodemographic Characteristic	% (95% CI)		% Change
	NESARC 2001-2002 (n = 43 093)	NESARC-III 2012-2013 (n = 36 309)	
Total	12.9 (12.3-17.5)	17.5 (16.7-18.3)[a]	35.7
Sex			
Men	17.2 (16.3-18.2)	21.7 (20.6-22.9)[a]	26.2
Women	8.2 (7.5-8.9)	13.1 (12.4-13.8)[a]	59.8
Race/ethnicity			
White	12.8 (12.1-13.6)	17.4 (16.4-18.4)[a]	35.9
Black	12.9 (11.6-14.3)	20.1 (18.2-22.2)[a]	55.8
Native American	20.8 (16.3-26.0)	22.5 (17.3-28.7)	8.2
Asian or Pacific Islander	9.4 (7.3-11.9)	12.8 (10.9-15.1)[a]	36.2
Hispanic	13.2 (11.4-15.2)	17.1 (15.9-18.3)[a]	29.5
Age, y			
18-29	22.2 (20.7-23.7)	29.2 (27.5-31.0)[a]	31.5
30-44	13.5 (12.5-14.6)	17.9 (16.8-19.2)[a]	32.6
45-64	8.4 (7.6-9.3)	13.6 (12.7-14.6)[a]	61.9
≥65	3.2 (2.6-4.0)	5.6 (4.8-6.6)[a]	75.0
Marital status			
Married or cohabiting	9.1 (8.5-9.8)	13.2 (12.4-14.1)[a]	45.1
Widowed, divorced, or separated	14.2 (12.9-15.7)	15.8 (14.7-17.1)	11.3
Never married	22.6 (20.9-24.4)	29.2 (27.6-30.9)[a]	29.2
Educational level			
Less than high school	15.2 (13.4-17.2)	18.7 (16.7-20.9)[a]	23.0
High school	13.6 (12.4-14.8)	19.2 (18.0-20.5)[a]	41.2
Some college or higher	12.2 (11.5-13.0)	16.7 (15.8-17.6)[a]	36.9
Family income, $			
0-19 999	16.7 (15.2-18.3)	22.8 (21.2-24.4)[a]	36.5
20 000-34 999	14.7 (13.5-15.9)	17.9 (16.6-19.3)[a]	21.8
35 000-69 999	11.8 (11.0-12.8)	16.7 (15.7-17.8)[a]	41.5
≥70 000	10.6 (9.7-11.5)	14.8 (13.8-15.8)[a]	39.6
Poverty threshold, %			
<100	17.9 (16.1-20.0)	22.2 (20.5-24.0)[a]	24.0
100-200	13.9 (12.6-15.4)	18.0 (16.9-19.2)[a]	29.5
>200	11.9 (11.3-12.6)	16.0 (15.2-16.9)[a]	34.5
Urbanicity			
Urban	12.5 (11.7-13.2)	18.1 (17.3-19.0)[a]	44.8
Rural	15.1 (13.7-16.6)	15.0 (13.5-16.7)	-0.7
Region			
Northeast	11.0 (9.7-12.4)	15.4 (14.3-16.6)[a]	40.0
Midwest	15.1 (13.4-17.0)	19.3 (17.3-21.5)[a]	27.8
South	12.3 (11.3-13.4)	16.9 (15.7-18.2)[a]	37.4
West	13.2 (12.0-14.6)	18.3 (16.6-20.1)[a]	38.6

Abbreviation: NESARC, National Epidemiologic Survey on Alcohol and Related Conditions.

[a] *P* < .05 for 2001-2002 compared with 2012-2013.

care hours doubled, along with the intensity of care (eg, advanced imaging) received.[90] Mortality among alcohol-affected drivers who were simultaneously distracted also increased between 2005 and 2009 by 63%.[91]

Increases in high-risk drinking and AUD among women (57.9% and 83.7%, respectively) relative to men (15.5% and 34.7%, respectively) were alarming, consistent with earlier studies[92-96] demonstrating a narrowing of the gender gap in these drinking patterns and AUD between 1991-1992 and 2001-2002. Greater sensitivity to adverse health effects of heavy drinking among women are potential biological factors influencing the convergence of rates between the sexes within the context of increasing rates of high-risk drinking and AUD.[97-99] Drinking norms and values have become more permissive among women,[100,101] along with increases in educational and occupational opportunities and rising numbers of women in the workforce,[102] all of which may have contributed to increased high-risk drinking and AUD in women during the past decade. Stress associated with pursuing a career and raising a family may lead to increases in high-risk drinking and

Table 5. Prevalence of and Percent Change in 12-Month *DSM-IV* Alcohol Use Disorder Among 12-Month
High-Risk Drinkers by Sociodemographic Characteristics, 2001-2002 and 2012-2013

Sociodemographic Characteristic	% (95% CI)		% Change
	NESARC 2001-2002 (n = 43 093)	NESARC-III 2012-2013 (n = 36 309)	
Total	46.5 (44.3-48.7)	54.5 (52.7-56.4)[a]	17.2
Sex			
Men	50.7 (47.9-53.4)	57.4 (55.0-59.8)[a]	13.2
Women	36.9 (33.4-40.5)	49.7 (46.8-52.6)[a]	34.7
Race/ethnicity			
White	47.3 (44.5-50.0)	56.6 (54.1-59.0)[a]	19.7
Black	40.4 (35.8-45.2)	50.8 (46.9-54.6)[a]	25.7
Native American	63.1 (51.0-73.8)	55.2 (41.8-67.9)	−12.5
Asian or Pacific Islander	52.5 (38.5-66.2)	55.0 (45.8-64.0)	4.8
Hispanic	42.3 (37.4-47.4)	49.4 (46.0-52.9)[a]	16.8
Age, y			
18-29	56.6 (53.0-60.2)	64.6 (61.0-68.0)[a]	14.1
30-44	45.0 (41.6-48.4)	52.3 (49.2-55.4)[a]	16.2
45-64	37.1 (33.0-41.3)	50.0 (47.0-53.0)[a]	34.8
≥65	19.8 (13.7-27.8)	31.3 (24.8-38.7)[a]	58.1
Marital status			
Married or cohabiting	38.1 (35.1-41.2)	48.6 (45.7-51.5)[a]	27.6
Widowed, divorced, or separated	50.8 (46.0-55.6)	53.4 (50.0-56.8)	5.1
Never married	55.0 (51.4-58.5)	62.5 (58.9-66.0)[a]	13.6
Educational level			
Less than high school	47.2 (42.0-52.4)	51.4 (46.7-56.1)	8.9
High school	46.6 (42.7-50.5)	55.7 (52.6-58.8)[a]	19.5
Some college or higher	46.3 (43.7-48.9)	54.6 (52.0-57.3)[a]	17.9
Family income, $			
0-19 999	49.3 (45.4-53.2)	58.8 (55.2-62.4)[a]	19.3
20 000-34 999	49.6 (45.2-53.9)	55.7 (51.9-59.4)[a]	12.3
35 000-69 999	43.4 (39.7-47.1)	52.7 (49.4-56.0)[a]	21.4
≥70 000	44.4 (40.0-48.9)	51.2 (47.3-55.1)[a]	15.3
Poverty threshold, %			
<100	48.7 (43.4-54.0)	58.2 (54.3-62.0)[a]	19.5
100-200	46.2 (41.7-50.8)	55.2 (51.4-59.0)[a]	19.5
>200	46.0 (43.5-48.6)	52.9 (50.4-55.4)[a]	15.0
Urbanicity			
Urban	45.5 (43.0-48.0)	55.1 (53.0-57.1)[a]	21.1
Rural	50.7 (46.2-55.1)	52.2 (47.0-57.4)	3.0
Region			
Northeast	46.4 (42.2-50.6)	51.7 (47.6-55.8)	11.4
Midwest	48.6 (43.4-53.9)	54.4 (49.9-58.9)	11.9
South	44.9 (41.3-48.6)	53.8 (50.9-56.7)[a]	19.8
West	46.4 (41.8-51.2)	58.1 (54.4-61.8)[a]	25.2

Abbreviation: NESARC, National Epidemiologic Survey on Alcohol and Related Conditions.

[a] *P* < .05 for 2001-2002 compared with 2012-2013.

AUD[103,104] among women, results that were consistent with substantial increases in these patterns of alcohol use among married individuals and those residing in urban areas found in this study. A narrowing of the gender gap in high-risk drinking and AUD may portend substantial future increases in the types of alcohol-related morbidity and mortality to which women are more vulnerable, especially breast cancer[105,106] and liver cirrhosis,[17,18,107] as well as increases in fetal alcohol spectrum disorder and exposure to violence.[108] Women are also

more likely than men to take prescription drugs[109] that can increase the risk of severe adverse reactions when combined with alcohol.

Older adults have had consistently lower rates than others of alcohol use, high-risk drinking, and AUD over the past 40 years.[32,40,45] However, between 2001-2002 and 2012-2013, increases in alcohol use (22.4%), high-risk drinking (65.2%), and AUD (106.7%) among older adults were substantial and unprecedented relative to earlier surveys.[73] Older

adults are at higher risk for disability, morbidity, and mortality from many alcohol-related chronic diseases[110,111] that have increased over the past 15 years.[86,87] Older adults are at particular risk for falls and injuries,[112] and the unintentional injury death rate,[113] ED-treated falls,[114] hospitalized fall rates,[115] and fall-related traumatic brain injury deaths[116] have risen significantly over the past decade. Alcohol-interactive prescription medicine use is highly prevalent among older adults,[117,118] especially among current drinkers,[119] and recent trend data suggest that ED visits for adverse drug reactions involving alcohol use are on the rise.[120] Even if the rates among older adults remain stable, the projected increase in the size of this segment of the population (from 40 million in 2010 to 80 million in 2030)[121] could produce a substantial increase in the absolute number of older adults with high-risk drinking and AUD, with concomitant increases in alcohol-related multimorbidities.[122]

Between 2001-2002 and 2012-2013, increases in alcohol use, high-risk drinking, and AUD were generally much greater among minorities than among white individuals, results that are consistent with substantial increases among individuals with the lowest educational levels and family incomes seen in this study. Wealth inequality between minorities and whites has widened during and after the 2008 recession,[123,124] possibly leading to increased stress and demoralization. Adversities that disproportionately affect racial/ethnic minorities include family income and educational disparities, unemployment, residential segregation, discrimination, decreased access to health care, and increased stigma associated with drinking.[125-127] These disparities may have accumulated over recent years, leading to increased negative coping behaviors, such as high-risk drinking and the development of AUD.[125-131] Reasons for the widening of the racial/ethnic gap in alcohol use, high-risk drinking, and AUD are complex, historically rooted in racial/ethnic discrimination and persistent socioeconomic disadvantage both at the individual and community levels.[132-137] Future research is warranted to understand the interplay of socioeconomic, psychosocial, cultural, and biological factors that have contributed to the widening of the racial/ethnic gap in alcohol use, high-risk drinking, and AUD in recent years, with particular attention to the development of subracial/subethnic prevention and intervention strategies.

Limitations and Strengths

Limitations of this study are noted. NESARC and NESARC-III lacked biological testing for substance use. Like other national surveys,[53,54] some population segments were not covered in either survey (eg, the homeless and those who are incarcerated), potentially leading to underestimation of alcohol use, high-risk drinking, and *DSM-IV* AUD. AUDADIS interviewers were not clinicians, but a NESARC-III validation substudy comparing AUDADIS and clinician diagnoses of 12-month AUD showed similar prevalence and good concordance.[68] The NESARC-III response rate was acceptable (60.1%) but was lower than that of NESARC (81.0%). Weighting that compensated for nonresponse facilitated comparisons between the surveys.[51,52] The validity of increases shown between NESARC and NESARC-III is supported by their coherence with the other studies noted above showing increases in alcohol-related indicators over the same period.

These limitations are balanced by the numerous strengths of the Wave 1 NESARC and NESARC-III, including their large sample sizes and detailed measures of alcohol use, high-risk drinking, and *DSM-IV* AUD that have been extensively tested and validated,[61-71] in addition to their rigorous epidemiologic study methods. These 2 surveys are also unique in providing a uniform source of alcohol information and AUD to examine trends over time.

Conclusions

Between 2001-2002 and 2012-2013, an increase in alcohol use, high-risk drinking, and AUD occurred in the total US population and across almost all sociodemographic subgroups, especially women, older adults, racial/ethnic minorities, and the socioeconomically disadvantaged. These increases constitute a public health crisis that may have been overshadowed by increases in much less prevalent substance use (marijuana, opiates, and heroin)[138-140] during the same period. Treatment rates for AUD remain low (<10%)[141] despite the significant rise in high-risk drinking and AUD and the existence of a broad spectrum of evidence-based and effective behavioral and pharmacological approaches.[142-152] The results of this study call for a broader effort to address the individual, biological, environmental, and societal factors that influence high-risk drinking and AUD and their considerable consequences and economic costs to society ($250 billion)[153] to improve the health, safety, and well-being of the nation. The development of prevention and intervention strategies both at the population level and those targeted at high-risk subgroups of the population identified in this study[154-159] will be paramount to achieving this goal. Most important, the findings herein highlight the urgency of educating the public, policymakers, and health care professionals about high-risk drinking and AUD,[160] destigmatizing these conditions and encouraging those who cannot reduce their alcohol consumption on their own, despite substantial harm to themselves and others, to seek treatment.

REFERENCES

1. Laramée P, Leonard S, Buchanan-Hughes A, Warnakula S, Daeppen JB, Rehm J. Risk of all-cause mortality in alcohol-dependent individuals: a systematic literature review and meta-analysis. *EBioMedicine*. 2015;2(10):1394-1404.

2. Murray CJ, Vos T, Lozano R, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012;380(9859):2197-2223.

3. Rehm J. The risks associated with alcohol use and alcoholism. *Alcohol Res Health*. 2011;34(2):135-143.

4. Rehm J, Dawson D, Frick U, et al. Burden of disease associated with alcohol use disorders in the United States. *Alcohol Clin Exp Res*. 2014;38(4):1068-1077.

5. Global Burden of Disease 2015 Risk Factor Collaborators. Global, regional, and national comparative risk assessment of 79 behavioral, environmental and occupational, and metabolic risks or clusters of risk, 1990-2015: a systematic analysis for the Global Burden of Disease Study, 2015. *Lancet*. 2016;388(10053):1659-1724.

6. Roerecke M, Rehm J. Alcohol use disorders and mortality: a systematic review and meta-analysis. *Addiction*. 2013;108(9):1562-1578.

7. Shield KD, Monteiro M, Roerecke M, Smith B, Rehm J. Alcohol consumption and burden of disease in the Americas in 2012: implications for alcohol policy. *Rev Panam Salud Publica*. 2015;38(6):442-449.

8. Wilhelm CJ, Guizzetti M. Fetal alcohol spectrum disorders: an overview from the glia perspective. *Front Integr Neurosci*. 2016;9(65):65.

9. Taylor B, Irving HM, Baliunas D, et al. Alcohol and hypertension: gender differences in dose-response relationships determined through systematic review and meta-analysis. *Addiction*. 2009;104(12):1981-1990.

10. Rehm J, Shield KD, Roerecke M, Gmel G. Modelling the impact of alcohol consumption on cardiovascular disease mortality for comparative risk assessments: an overview. *BMC Public Health*. 2016;16:363.

11. Piano MR, Phillips SA. Alcoholic cardiomyopathy: pathophysiologic insights. *Cardiovasc Toxicol*. 2014;14(4):291-308.

12. Roerecke M, Rehm J. Alcohol consumption, drinking patterns, and ischemic heart disease: a narrative review of meta-analyses and a systematic review and meta-analysis of the impact of heavy drinking occasions on risk for moderate drinkers. *BMC Med*. 2014;12:182.

13. Roerecke M, Rehm J. Irregular heavy drinking occasions and risk of ischemic heart disease: a systematic review and meta-analysis. *Am J Epidemiol*. 2010;171(6):633-644.

14. Roerecke M, Rehm J. Alcohol and ischaemic heart disease risk: finally moving beyond interpretation of observational epidemiology. *Addiction*. 2015;110(5):723-725.

15. Roerecke M, Rehm J. Chronic heavy drinking and ischaemic heart disease: a systematic review and meta-analysis. *Open Heart*. 2014;1(1):e000135.

16. Patra J, Taylor B, Irving H, et al. Alcohol consumption and the risk of morbidity and mortality for different stroke types: a systematic review and meta-analysis. *BMC Public Health*. 2010;10:258.

17. Rehm J, Taylor B, Mohapatra S, et al. Alcohol as a risk factor for liver cirrhosis: a systematic review and meta-analysis. *Drug Alcohol Rev*. 2010;29(4):437-445.

18. Rehm J, Roerecke M. Patterns of drinking and liver cirrhosis: what do we know and where do we go? *J Hepatol*. 2015;62(5):1000-1001.

19. Bagnardi V, Rota M, Botteri E, et al. Alcohol consumption and site-specific cancer risk: a comprehensive dose-response meta-analysis. *Br J Cancer*. 2015;112(3):580-593.

20. Bagnardi V, Rota M, Botteri E, et al. Light alcohol drinking and cancer: a meta-analysis. *Ann Oncol*. 2013;24(2):301-308.

21. Corrao G, Bagnardi V, Zambon A, La Vecchia C. A meta-analysis of alcohol consumption and the risk of 15 diseases. *Prev Med*. 2004;38(5):613-619.

22. Praud D, Rota M, Rehm J, et al. Cancer incidence and mortality attributable to alcohol consumption. *Int J Cancer*. 2016;138(6):1380-1387.

23. Rehm J. Light or moderate drinking is linked to alcohol related cancers, including breast cancer. *BMJ*. 2015;351:h4400.

24. Samokhvalov AV, Rehm J, Roerecke M. Alcohol consumption as a risk factor for acute and chronic pancreatitis: a systematic review and meta-analysis. *EBioMedicine*. 2015;2(12):1996-2002.

25. Yadav D, Lowenfels AB. The epidemiology of pancreatitis and pancreatic cancer. *Gastroenterology*. 2013;144(6):1252-1261.

26. Baliunas DO, Taylor BJ, Irving H, et al. Alcohol as a risk factor for type 2 diabetes: a systematic review and meta-analysis. *Diabetes Care*. 2009;32(11):2123-2132.

27. Samokhvalov AV, Irving HM, Rehm J. Alcohol consumption as a risk factor for pneumonia: a systematic review and meta-analysis. *Epidemiol Infect*. 2010;138(12):1789-1795.

28. Rehm J, Samokhvalov AV, Neuman MG, et al. The association between alcohol use, alcohol use disorders and tuberculosis (TB): a systematic review. *BMC Public Health*. 2009;9:450.

29. Baliunas D, Rehm J, Irving H, Shuper P. Alcohol consumption and risk of incident human immunodeficiency virus infection: a meta-analysis. *Int J Public Health*. 2010;55(3):159-166.

30. Taylor B, Irving HM, Kanteres F, et al. The more you drink, the harder you fall: a systematic review and meta-analysis of how acute alcohol consumption and injury or collision risk increase together. *Drug Alcohol Depend*. 2010;110(1-2):108-116.

31. Dawson DA, Li TK, Chou SP, Grant BF. Transitions in and out of alcohol use disorders: their associations with conditional changes in quality of life over a 3-year follow-up interval. *Alcohol Alcohol*. 2009;44(1):84-92.

32. Hasin DS, Stinson FS, Ogburn E, Grant BF. Prevalence, correlates, disability, and comorbidity of *DSM-IV* alcohol abuse and dependence in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry*. 2007;64(7):830-842.

33. Grant BF, Stinson FS, Dawson DA, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry*. 2004;61(8):807-816.

34. Kessler RC, Chiu WT, Demler O, Merikangas KR, Walters EE. Prevalence, severity, and comorbidity of 12-month *DSM-IV* disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62(6):617-627.

35. Dawson DA, Li TK, Grant BF. A prospective study of risk drinking: at risk for what? *Drug Alcohol Depend*. 2008;95(1-2):62-72.

36. Greenfield TK, Karriker-Jaffe KJ, Kaplan LM, Kerr WC, Wilsnack SC. Trends in alcohol's harms to others (AHTO) and co-occurrence of family-related AHTO: the four US National Alcohol Surveys, 2000-2015. *Subst Abuse*. 2015;9(suppl 2):23-31.

37. Lewis-Laietmark C, Wettlaufer A, Shield KD, et al. The effects of alcohol-related harms to others on self-perceived mental well-being in a Canadian sample. *Int J Public Health*. 2017;62(6):669-678.

38. Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J. Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet*. 2009;373(9682):2223-2233.

39. World Health Organization. *Global Status Report on Alcohol and Health*. Geneva, Switzerland: World Health Organization; 2011.

40. O'Malley PM. A review of studies of drinking patterns in the United States since 1940. *J Stud Alcohol Drugs Suppl*. 2014;75(suppl 17):18-25.

41. Greenfield TK, Midanik LT, Rogers JD. A 10-year national trend study of alcohol consumption, 1984-1995: is the period of declining drinking over? *Am J Public Health*. 2000;90(1):47-52.

42. Hilton ME, Clark WB. Changes in American drinking patterns and problems, 1967-1984. *J Stud Alcohol*. 1987;48(6):515-522.

43. Midanik LT, Clark WB. The demographic distribution of US drinking patterns in 1990: description and trends from 1984. *Am J Public Health*. 1994;84(8):1218-1222.

44. Williams GD, Debakey SF. Changes in levels of alcohol consumption: United States, 1983-1988. *Br J Addict*. 1992;87(4):643-648.

45. Grant BF. Prevalence and correlates of alcohol use and *DSM-IV* alcohol dependence in the United States: results of the National Longitudinal Alcohol Epidemiologic Survey. *J Stud Alcohol*. 1997;58(5):464-473.

46. Dawson DA, Goldstein RB, Saha TD, Grant BF. Changes in alcohol consumption: United States, 2001-2002 to 2012-2013. *Drug Alcohol Depend*. 2015;148(1):56-61.

47. Chou SP, Grant BF, Dawson DA. Medical consequences of alcohol consumption: United States, 1992. *Alcohol Clin Exp Res*. 1996;20(8):1423-1429.

48. Dawson DA, Grant BF, Chou SP, Pickering RP. Subgroup variation in U.S. drinking patterns: results of the 1992 National Longitudinal Alcohol Epidemiologic Study. *J Subst Abuse*. 1995;7(3):331-344.

49. National Institute on Alcohol Abuse and Alcoholism. *Unpublished Data on Excessive Drinking From the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism; 2014.

50. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Washington, DC: American Psychiatric Association; 1994.

51. Grant BF, Moore TC, Shepard J, Kaplan K. *Source and Accuracy Statement: Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; 2003.

52. Grant BF, Amsbary M, Chu A, et al. *Source and Accuracy Statement: National Epidemiologic Survey on Alcohol and Related Conditions (NESARC-III)*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism; 2014.

53. Adams PF, Kirzinger WK, Martinez M. Summary health statistics for the U.S. population: National Health Interview Survey, 2012. *Vital Health Stat 10*. 2013;(259):1-95.

54. Substance Abuse and Mental Health Services Administration. *Results From the 2012 National Survey on Drug Use and Health: Summary of National Findings, Appendix B: Statistical Methods and Measurement*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2012.

55. US Census Bureau. *American Community Survey, 2012*. Suitland, MD: US Census Bureau; 2013.

56. US Census Bureau. *Decennial Census, 2000*. Suitland, MD: US Census Bureau; 2000.

57. Grant BF, Dawson DA, Hasin DS. *The Alcohol Use Disorder and Associated Disabilities Interview Schedule–DSM-IV Version*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; 2001.

58. Grant BF, Goldstein RB, Chou SP, et al. *The Alcohol Use Disorder and Associated Disabilities Interview Schedule–Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Version (AUDADIS-5)*. Rockville, MD; National Institute on Alcohol Abuse and Alcoholism; 2011.

59. United States Department of Agriculture. *Dietary Guidelines–Alcohol*. Washington, DC: US Dept of Agriculture; 2014.

60. United States Department of Health and Human Services. *2015-2020 Dietary Guidelines*. Washington, DC: US Dept of Health and Human Services; 2014.

61. Canino G, Bravo M, Ramírez R, et al. The Spanish Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS): reliability and concordance with clinical diagnoses in a Hispanic population. *J Stud Alcohol*. 1999;60(6):790-799.

62. Chatterji S, Saunders JB, Vrasti R, Grant BF, Hasin D, Mager D. Reliability of the alcohol and drug modules of the Alcohol Use Disorder and Associated Disabilities Interview Schedule–Alcohol/Drug-Revised (AUDADIS-ADR): an international comparison. *Drug Alcohol Depend*. 1997;47(3):171-185.

63. Cottler LB, Grant BF, Blaine J, et al. Concordance of *DSM-IV* alcohol and drug use disorder criteria and diagnoses as measured by AUDADIS-ADR, CIDI and SCAN. *Drug Alcohol Depend*. 1997;47(3):195-205.

64. Grant BF, Harford TC, Dawson DA, Chou PS, Pickering RP. The Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS): reliability of alcohol and drug modules in a general population sample. *Drug Alcohol Depend*. 1995;39(1):37-44.

65. Grant BF, Dawson DA, Stinson FS, Chou PS, Kay W, Pickering R. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV): reliability of alcohol consumption, tobacco use, family history of depression and psychiatric diagnostic modules in a general population sample. *Drug Alcohol Depend*. 2003;71(1):7-16.

66. Grant BF, Goldstein RB, Smith SM, et al. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-5 (AUDADIS-5): reliability of substance use and psychiatric disorder modules in a general population sample. *Drug Alcohol Depend*. 2015;148:27-33.

67. Hasin D, Carpenter KM, McCloud S, Smith M, Grant BF. The Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS): reliability of alcohol and drug modules in a clinical sample. *Drug Alcohol Depend*. 1997;44(2-3):133-141.

68. Hasin DS, Greenstein E, Aivadyan C, et al. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-5 (AUDADIS-5): procedural validity of substance use disorders modules through clinical re-appraisal in a general population sample. *Drug Alcohol Depend*. 2015;148:40-46.

69. Nelson CB, Rehm J, Ustün TB, Grant B, Chatterji S. Factor structures for *DSM-IV* substance disorder criteria endorsed by alcohol, cannabis, cocaine and opiate users: results from the WHO reliability and validity study. *Addiction*. 1999;94(6):843-855.

70. Pull CB, Saunders JB, Mavreas V, et al. Concordance between *ICD-10* alcohol and drug use disorder criteria and diagnoses as measured by AUDADIS-ADR, CIDI and SCAN: results of a cross-national study. *Drug Alcohol Depend*. 1997;47(3):207-216.

71. Vrasti R, Grant BF, Chatterji S, et al. Reliability of the Romanian version of the alcohol module of the WHO Alcohol Use Disorder and Associated Disabilities: Interview Schedule–Alcohol/Drug-Revised. *Eur Addict Res*. 1998;4(4):144-149.

72. *SUDAAN* [computer program]. Version 11. Research Triangle Park, NC: Research Triangle Institute; 2012.

73. Grant BF, Dawson DA, Stinson FS, Chou SP, Dufour MC, Pickering RP. The 12-month prevalence and trends in *DSM-IV* alcohol abuse and dependence: United States, 1991-1992 and 2001-2002. *Drug Alcohol Depend*. 2004;74(3):223-234.

74. Centers for Disease Control and Prevention. *Health Behaviors of Adults, 1999-2001*. Hyattsville, MD: Centers for Disease Control and Prevention; 2004.

75. Centers for Disease Control and Prevention. *Health Behaviors of Adults, 2011-2014*. Hyattsville, MD: Centers for Disease Control and Prevention; 2016.

76. Substance Abuse and Mental Health Services Administration. *National Survey on Drug Use and Health, Detailed Data Tables, 2000-2002*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2005.

77. Esser MB, Hedden SL, Kanny D, Brewer RD, Gfroerer JC, Naimi TS. Prevalence of alcohol dependence among US adult drinkers, 2009-2011. *Prev Chronic Dis*. 2014;11(140329):E206.

78. Centers for Disease Control and Prevention. *Percentage of Adults Aged 18 and Over Who Had Five or More Drinks in 1 Day at Least Once in the Past Year: United States; 1997-June 2013*. Hyattsville, MD: Centers for Disease Control and Prevention; 2013.

79. Haughwout SP. *Apparent Per Capita Alcohol Consumption: National, State and Regional Trends, 1977-2014*. Bethesda, MD: National Institutes of Health; 2016.

80. Ma J, Ward EM, Siegel RL, Jemal A. Temporal trends in mortality in the United States, 1969-2013. *JAMA*. 2015;314(16):1731-1739.

81. Sidney S, Quesenberry CP Jr, Jaffe MG, et al. Recent trends in cardiovascular mortality in the United States and public health goals. *JAMA Cardiol*. 2016;1(5):594-599.

82. George MG, Schieb LJ, Ayala C, Talwalkar A, Levant S. Pulmonary hypertension surveillance: United States, 2001 to 2010. *Chest*. 2014;146(2):476-495.

83. Mehari A, Valle O, Gillum RF. Trends in pulmonary hypertension mortality and morbidity. *Pulm Med*. 2014;2014:105864.

84. Janke AT, McNaughton CD, Brody AM, Welch RD, Levy PD. Trends in the incidence of hypertensive emergencies in US emergency departments from 2006 to 2013. *J Am Heart Assoc*. 2016;5(12):1-8.

85. Yoon YH, Chen CM. *Liver Cirrhosis Mortality in the United States: National, State, and Regional Trends, 2000-2013*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism; 2016.

86. Centers for Disease Control and Prevention. *Diabetes Surveillance System*. Atlanta, GA: Centers for Disease Control and Prevention; 2016.

87. Menke A, Casagrande S, Geiss L, Cowie CC. Prevalence of and trends in diabetes among adults in the United States, 1988-2012. *JAMA*. 2015;314(10):1021-1029.

88. Flegal KM, Kruszon-Moran D, Carroll MD, Fryar CD, Ogden CL. Trends in obesity among adults in the United States, 2005-2014. *JAMA*. 2016;315(21):2284-2291.

89. Gaziano JM. Fifth phase of the epidemiologic transition: the age of obesity and inactivity. *JAMA*. 2010;303(3):275-276.

90. Mullins PM, Mazer-Amirshahi M, Pines JM. Alcohol-related visits to US emergency departments, 2001-2011. *Alcohol Alcohol*. 2017;52 (1):119-125.

91. Wilson FA, Stimpson JP, Tibbits MK. Accident analysis and prevention. *Accid Anal Prev*. 2013;60: 189-192.

92. Keyes KM, Grant BF, Hasin DS. Evidence for a closing gender gap in alcohol use, abuse, and dependence in the United States population. *Drug Alcohol Depend*. 2008;93(1-2):21-29.

93. Keyes KM, Li G, Hasin DS. Birth cohort effects and gender differences in alcohol epidemiology: a review and synthesis. *Alcohol Clin Exp Res*. 2011; 35(12):2101-2112.

94. Keyes KM, Martins SS, Blanco C, Hasin DS. Telescoping and gender differences in alcohol dependence: new evidence from two national surveys. *Am J Psychiatry*. 2010;167(8):969-976.

95. White A, Castle IJ, Chen CM, Shirley M, Roach D, Hingson R. Converging patterns of alcohol use and related outcomes among females and males in the United States, 2002 to 2012. *Alcohol Clin Exp Res*. 2015;39(9):1712-1726.

96. Grucza RA, Bucholz KK, Rice JP, Bierut LJ. Secular trends in the lifetime prevalence of alcohol dependence in the United States: a re-evaluation. *Alcohol Clin Exp Res*. 2008;32(5):763-770.

97. Agabio R, Campesi I, Pisanu C, Gessa GL, Franconi F. Sex differences in substance use disorders: focus on side effects. *Addict Biol*. 2016;21 (5):1030-1042.

98. Han BH, Moore AA, Sherman S, Keys KM, Palamar JJ. Demographic trends of binge alcohol use and alcohol use disorders among older adults in the United States, 2005-2014. *Drug Alcohol Depend*. 2017;170:198-207.

99. Nolen-Hoeksema S, Hilt L. Possible contributors to the gender differences in alcohol use and problems. *J Gen Psychol*. 2006;133(4):357-374.

100. Inglehardt R. *Cultural Shift in Advanced Industrial Society*. Princeton, NJ: Princeton University Press; 1990.

101. Ingelhardt R, Baker WE. Modernization, cultural change, and the persistence of traditional values. *Am Sociol Rev*. 2000;65(1):19-51.

102. Bureau of Labor Statistics. *Women in the Labor Force: A Databook*. Washington, DC: Bureau of Labor Statistics; 2015.

103. Bond JC, Roberts SC, Greenfield TK, Korcha R, Ye Y, Nayak MB. Gender differences in public and private drinking contexts: a multi-level GENACIS analysis. *Int J Environ Res Public Health*. 2010;7(5): 2136-2160.

104. Seedat S, Scott KM, Angermeyer MC, et al. Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health surveys. *Arch Gen Psychiatry*. 2009;66(7):785-795.

105. Hamajima N, Hirose K, Tajima K, et al; Collaborative Group on Hormonal Factors in Breast Cancer. Alcohol, tobacco and breast cancer: collaborative reanalysis of individual data from 53 epidemiological studies, including 58,515 women with breast cancer and 95,067 women without the disease. *Br J Cancer*. 2002;87(11):1234-1245.

106. Zhang SM, Lee IM, Manson JE, Cook NR, Willett WC, Buring JE. Alcohol consumption and breast cancer risk in the Women's Health Study. *Am J Epidemiol*. 2007;165(6):667-676.

107. Eagon PK. Alcoholic liver injury: influence of gender and hormones. *World J Gastroenterol*. 2010; 16(11):1377-1384.

108. Wilsnack SC, Wilsnack RW, Kantor LW. Focus on: women and the costs of alcohol use. *Alcohol Res*. 2013;35(2):219-228.

109. National Institute on Alcohol Abuse and Alcoholism. *Alcohol: A Women's Health Issue*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; 2015.

110. King M, Lipsky MS. Clinical implications of aging. *Dis Mon*. 2015;61(11):467-474.

111. Ryan M, Merrick EL, Hodgkin D, et al. Drinking patterns of older adults with chronic medical conditions. *J Gen Intern Med*. 2013;28(10):1326-1332.

112. Alamgir H, Muazzam S, Nasrullah M. Unintentional falls mortality among elderly in the United States: time for action. *Injury*. 2012;43(12): 2065-2071.

113. Kramarow E, Chen LH, Hedegaard H, Warner M. *Deaths From Unintentional Injury Among Adults Aged 65 and Over: United States, 2000-2013*. NCHS Data Brief 199. Hyattsville, MD: National Center for Health Statistics, 2015.

114. DeGrauw X, Annest JL, Stevens JA, Xu L, Coronado V. Unintentional injuries treated in hospital emergency departments among persons aged 65 years and older, United States, 2006-2011. *J Safety Res*. 2016;56:105-109.

115. Stevens JA, Rudd RA. Circumstances and contributing causes of fall deaths among persons aged 65 and older: United States, 2010. *J Am Geriatr Soc*. 2014;62(3):470-475.

116. Sung KC, Liang FW, Cheng TJ, Lu TH, Kawachi I. Trends in unintentional fall-related traumatic brain injury death rates in older adults in the United States, 1980-2010: a joinpoint analysis. *J Neurotrauma*. 2015;32(14):1078-1082.

117. Qato DM, Manzoor BS, Lee TA. Drug-alcohol interactions in older US adults. *J Am Geriatr Soc*. 2015;63(11):2324-2331.

118. Moore AA, Whiteman EJ, Ward KT. Risks of combined alcohol/medication use in older adults. *Am J Geriatr Pharmacother*. 2007;5(1):64-74.

119. Breslow RA, Dong C, White A. Prevalence of alcohol-interactive prescription medication use among current drinkers: United States, 1999 to 2010. *Alcohol Clin Exp Res*. 2015;39(2):371-379.

120. Castle IJP, Dong C, Haughwout SP, White AM. Emergency department visits for adverse drug reactions involving alcohol: United States, 2005 to 2011. *Alcohol Clin Exp Res*. 2016;40(9):1913-1925.

121. Ortman JM, Velkoff VA, Hogan H. *An Aging Nation: The Older Population in the United States*. Hyattsville, MD: US Census Bureau; 2014.

122. Ferreira MP, Weems MK. Alcohol consumption by aging adults in the United States: health benefits and detriments. *J Am Diet Assoc*. 2008;108(10): 1668-1676.

123. Kochhar R, Fry R, Taylor P. *Wealth Gaps Rise to Record Highs Between Whites, Blacks, Hispanics: Twenty-to-One*. Washington, DC: Pew Research Center; 2017.

124. Kochhar R, Fry R. *Wealth Inequality Has Widened Along Racial, Ethnic Lines Since End of Great Recession*. Washington, DC: Pew Research Center; 2017.

125. Caetano R, Vaeth PAC, Chartier KG, Mills BA. Epidemiology of drinking, alcohol use disorders, and related problems in US ethnic minority groups. *Handb Clin Neurol*. 2014;125:629-648.

126. Chartier K, Caetano R. Ethnicity and health disparities in alcohol research. *Alcohol Res Health*. 2010;33(1-2):152-160.

127. Cook WK, Caetano R. Ethnic drinking cultures, gender, and socioeconomic status in Asian American and Latino drinking. *Alcohol Clin Exp Res*. 2014;38(12):3043-3051.

128. Iwamoto DK, Kaya A, Grivel M, Clinton L. Under-researched demographics: heavy episodic drinking and alcohol-related problems among Asian Americans. *Alcohol Res*. 2016;38(1):17-25.

129. Mulia N, Ye Y, Greenfield TK, Zemore SE. Disparities in alcohol-related problems among white, black, and Hispanic Americans. *Alcohol Clin Exp Res*. 2009;33(4):654-662.

130. Sahker E, Yeung CW, Garrison YL, Park S, Arndt S. Asian American and Pacific Islander substance use treatment admission trends. *Drug Alcohol Depend*. 2017;171:1-8.

131. Vaeth PA, Wang-Schweig M, Caetano R. Drinking, alcohol use disorder, and treatment access and utilization among US racial/ethnic groups. *Alcohol Clin Exp Res*. 2017;41(1):6-19.

132. Zapolski TC, Pedersen SL, McCarthy DM, Smith GT. Less drinking, yet more problems: understanding African American drinking and related problems. *Psychol Bull*. 2014;140(1):188-223.

133. Collins SE. Associations between socioeconomic factors and alcohol outcomes. *Alcohol Res*. 2016;38(1):83-94.

134. Mulia N, Karriker-Jaffe KJ. Interactive influences of neighborhood and individual socioeconomic status on alcohol consumption and problems. *Alcohol Alcohol*. 2012;47(2):178-186.

135. Mulia N, Ye Y, Zemore SE, Greenfield TK. Social disadvantage, stress, and alcohol use among black, Hispanic, and white Americans: findings from the 2005 U.S. National Alcohol Survey. *J Stud Alcohol Drugs*. 2008;69(6):824-833.

136. Sudhinaraset M, Wigglesworth C, Takeuchi DT. Social and cultural contexts of alcohol use: influences in a social-ecological framework. *Alcohol Res*. 2016;38(1):35-45.

137. Jones-Webb R, Karriker-Jaffe KJ. Neighborhood disadvantage, high alcohol content beverage consumption, drinking norms, and drinking consequences: a mediation analysis. *J Urban Health*. 2013;90(4):667-684.

138. Hasin DS, Saha TD, Kerridge BT, et al. Prevalence of marijuana use disorders in the United States between 2001-2002 and 2012-2013. *JAMA Psychiatry*. 2015;72(12):1235-1242.

139. Martins SS, Sarvet A, Santaella-Tenorio J, Saha T, Grant BF, Hasin DS. Changes in US lifetime heroin use and heroin use disorder: prevalence from the 2001-2002 to 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions. *JAMA Psychiatry*. 2017;74(5):445-455.

140. Saha TD, Kerridge BT, Goldstein RB, et al. Nonmedical prescription opioid use and *DSM-5*

nonmedical prescription opioid use disorder in the United States. *J Clin Psychiatry*. 2016;77(6):772-780.

141. Grant BF, Goldstein RB, Saha TD, et al. Epidemiology of *DSM-5* alcohol use disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions III. *JAMA Psychiatry*. 2015; 72(8):757-766.

142. Apodaca TR, Longabaugh R. Mechanisms of change in motivational interviewing: a review and preliminary evaluation of the evidence. *Addiction*. 2009;104(5):705-715.

143. Irvin JE, Bowers CA, Dunn ME, Wang MC. Efficacy of relapse prevention: a meta-analytic review. *J Consult Clin Psychol*. 1999;67(4):563-570.

144. Jørgensen CH, Pedersen B, Tønnesen H. The efficacy of disulfiram for the treatment of alcohol use disorder. *Alcohol Clin Exp Res*. 2011;35(10):1749-1758.

145. Lee JD, Grossman E, DiRocco D, et al. Extended-release naltrexone for treatment of alcohol dependence in primary care. *J Subst Abuse Treat*. 2010;39(1):14-21.

146. Litten RZ, Egli M, Heilig M, et al. Medications development to treat alcohol dependence: a vision for the next decade. *Addict Biol*. 2012;17(3):513-527.

147. Magill M, Ray LA. Cognitive-behavioral treatment with adult alcohol and illicit drug users: a meta-analysis of randomized controlled trials. *J Stud Alcohol Drugs*. 2009;70(4):516-527.

148. Maisel NC, Blodgett JC, Wilbourne PL, Humphreys K, Finney JW. Meta-analysis of naltrexone and acamprosate for treating alcohol use disorders: when are these medications most helpful? *Addiction*. 2013;108(2):275-293.

149. Martin GW, Rehm J. The effectiveness of psychosocial modalities in the treatment of alcohol problems in adults: a review of the evidence. *Can J Psychiatry*. 2012;57(6):350-358.

150. Saitz R. Alcohol screening and brief intervention in primary care: absence of evidence for efficacy in people with dependence or very heavy drinking. *Drug Alcohol Rev*. 2010;29(6):631-640.

151. Vasilaki EI, Hosier SG, Cox WM. The efficacy of motivational interviewing as a brief intervention for excessive drinking: a meta-analytic review. *Alcohol Alcohol*. 2006;41(3):328-335.

152. Zindel LR, Kranzler HR. Pharmacotherapy of alcohol use disorders: seventy-five years of progress. *J Stud Alcohol Drugs Suppl*. 2014;75(suppl 17):79-88.

153. Sacks JJ, Gonzales KR, Bouchery EE, Tomedi LE, Brewer RD. 2010 National and state costs on excessive alcohol consumption. *Am J Prev Med*. 2015;49(5):e73-e79.

154. Blow FC. Treatment of older women with alcohol problems: meeting the challenge for a special population. *Alcohol Clin Exp Res*. 2000;24 (8):1257-1266.

155. Ettner SL, Xu H, Duru OK, et al. The effect of an educational intervention on alcohol consumption, at-risk drinking, and health care utilization in older adults: the Project SHARE study. *J Stud Alcohol Drugs*. 2014;75(3):447-457.

156. Gomberg ES. Treatment for alcohol-related problems: special populations: research opportunities. *Recent Dev Alcohol*. 2003;16(2):313-333.

157. Greenfield SF, Grella CE. What is "women-focused" treatment for substance use disorders? *Psychiatr Serv*. 2009;60(7):880-882.

158. Greenfield SF, Sugarman DE, Freid CM, et al. Group therapy for women with substance use disorders: results from the Women's Recovery Group Study. *Drug Alcohol Depend*. 2014;142:245-253.

159. Greenfield SF, Cummings AM, Kuper LE, Wigderson SB, Koro-Ljungberg M. A qualitative analysis of women's experiences in single-gender versus mixed-gender substance abuse group therapy. *Subst Use Misuse*. 2013;48(9):750-760.

160. Substance Abuse and Mental Health Services Administration; Office of the Surgeon General. *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*. Washington, DC: US Dept of Health and Human Services; 2016. Reports of the Surgeon General.