

***The Economic Costs of
Alcohol Abuse in Alaska,
2016 Update***

Prepared for:
Alaska Mental Health Trust Authority

March 2017



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Prepared for:
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March 2017

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Executive Summary

The economic costs of alcohol abuse in Alaska total billions of dollars each year. Costs to society include increased health care costs, increased criminal justice system costs, lost or reduced workplace productivity, greater spending on public assistance and social services, and a range of other impacts. This study measures these and other tangible economic costs associated with alcohol abuse.

The misuse of alcohol also has a wide range of intangible costs, in terms of diminished quality of life, pain and suffering of crime victims and others, and a spectrum of additional qualitative costs. While several measures of these types of costs are described in this report, calculating the full extent of intangible human costs resulting from alcohol abuse (such as pain, suffering, and bereavement) is beyond the scope of this study.

The Alaska Mental Health Trust Authority contracted with McDowell Group to update its series of prior studies on the economic costs of alcohol abuse in Alaska. A variety of methodologies, data sources, and modeling assumptions were required for this analysis. While some trend analysis may be possible for specific measures of economic impact, the quality of data and modeling techniques have improved in recent years. As a result, caution is warranted in making detailed comparison of this study with previous efforts to quantify the economic costs of alcohol abuse in Alaska.

Alcohol Use

Alcohol Consumption

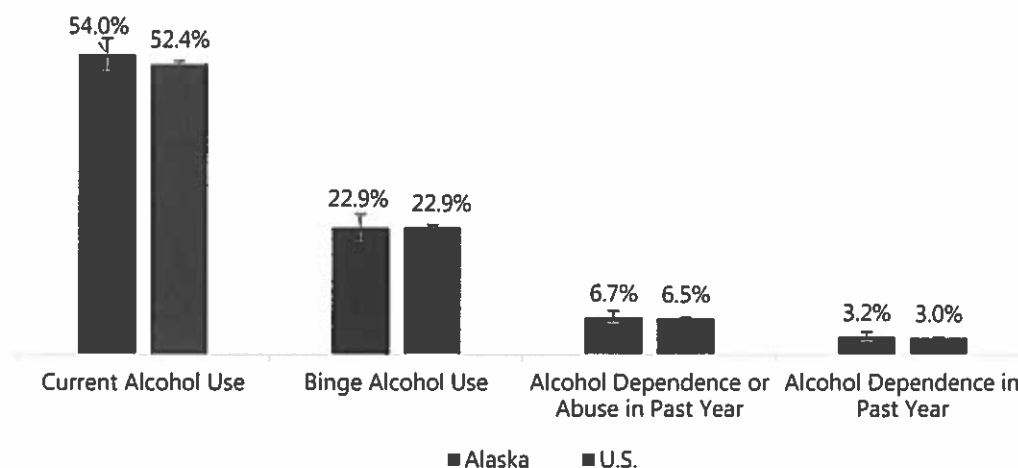
Based on research conducted during the period 2013-2014, an estimated 54 percent of Alaskans age 12 or older (313,000 individuals) drank alcohol within the past 30 days, while an estimated 23 percent (133,000 individuals) binge drank within the past 30 days. An estimated 7 percent (39,000 individuals) experienced alcohol dependence or abuse in the past year and an estimated 3 percent (19,000 individuals) experienced alcohol dependency in the past year.¹ Consumption patterns reported by Alaskans are similar to those in the U.S. overall.

Alaska and U.S. current alcohol use and binge alcohol use remained stable during the 2010-2011 to 2013-2014 period, and Alaska trends did not differ statistically from U.S. trends during this period.

In 2013-2014, Alaska ranked 26th nationally for current alcohol use, 31st for binge drinking, 20th for alcohol dependence or abuse, and 21st for alcohol dependence alone.

¹ Current Alcohol Use — Any alcohol use in the 30 days before the survey by people age 12 or older. Binge Alcohol Use — Five or more drinks (male consumers) or four or more drinks (female consumers) on the same occasion on at least one day in the past 30 days. Alcohol Dependence — Applies to respondents who reported "current alcohol use" during the previous 12 months and who meet at least three clinical criteria used to diagnose dependency (Diagnostic code 303.9) (such as tolerance, withdrawal, persistent desire, loss of social, occupational or recreational activity, and recurrent physical or psychological problems). Alcohol Abuse — Applies to respondents who reported "current alcohol use" during the previous 12 months and meet at least one clinical criteria used to diagnose abuse (Diagnostic code 305.0) (such as failure to fulfill major role obligations at work, school, or home, using alcohol in situations where they could cause harm [such as driving], recurrent alcohol-related legal problems, persistent social or interpersonal problems caused by alcohol use).

Figure 1. Alcohol Consumption Patterns and Prevalence Estimates (%), Alaska and U.S., Ages 12+, 2013-2014



Source: National Survey of Drug Use and Health, SAMHSA.

In 2013, 1.6 million gallons of ethanol were consumed in Alaska (including consumption by residents and non-resident visitors). Per capita (age 14+) consumption in 2013 was 1.06 gallons of ethanol contained in beer, 0.52 gallons contained in wine, and 1.16 gallons contained in liquor, for a total of 2.73 gallons. Average U.S. ethanol consumption was 2.34 gallons per person in 2013. Alaska consumption increased slightly in 2014, to 2.79 gallons per capita.

Economic Costs of Alcohol Abuse in Alaska

In 2015, the estimated cost of alcohol abuse to the Alaska economy was \$1.84 billion. These costs are borne by the state and local governments, employers, and residents of Alaska. A recent national study estimated that government (local, state, and federal) paid approximately 42.9 percent of the total costs of excessive alcohol consumption in Alaska (2006).² Of the cost categories in the table below, most costs associated with criminal justice and protective services, and public assistance and social services are borne by the public sector. A portion of the health care costs, largely due to associated costs of Medicaid and Medicare, is also a public expense.

Of the total annual costs, productivity losses are the largest component (42 percent or \$775 million).

Table 1. Estimated Annual Alcohol-related Economic Costs to Alaska, 2015

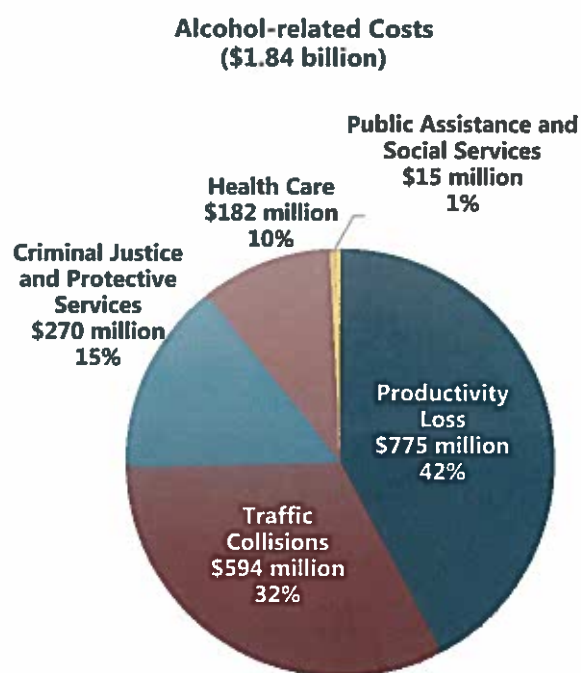
Cost Category	Alcohol-related Costs	% of Total
Productivity loss	\$775 million	42%
Traffic collisions	\$594 million	32
Criminal justice and protective services	\$270 million	15
Health care	\$182 million	10
Public assistance and social services	\$15 million	1
Total	\$1,836 million	100%

Note: Due to rounding, some columns may not sum to the total.

Source: McDowell Group calculations. Criminal justice and protective services estimate does not include intangible costs related to victimization, an estimated \$605 million in additional costs.

² Sacks, Jeffrey J., Jim Roeber, Ellen E. Bouchery, Katherine Gonzales, Frank Chaloupka, and Robert D. Brewer. "State Costs of Excessive Alcohol Consumption, 2006." *Am J Prev Med* 2013;45(4):474-485.

Figure 2. Estimated Economic Costs of Alcohol Abuse, by Category, 2015



Source: McDowell Group calculations. Criminal justice and protective services estimate does not include intangible costs related to victimization, an estimated \$605 million in additional costs.

Categories of Economic Costs

PRODUCTIVITY LOSSES

Alcohol abuse results in lost productivity when it prevents people from being employed or performing household services such as child care. Lost productivity occurs as a result of premature death, reduced efficiency through physical and/or mental impairment, employee absenteeism, incarceration for criminal offenses, and medical treatment or hospitalization.

In 2015, alcohol abuse resulted in \$775.1 million in lost productivity in Alaska.

Table 2. Estimated Annual Alcohol-related Productivity Losses, Alaska, 2015

Productivity Category	Alcohol-related Costs	% of Total
Premature death (primary diagnosis)	\$581.5 million	75%
Incarceration	\$ 41.5 million	5
Diminished productivity	\$145.6 million	19
Substance abuse treatment	\$1.5 million	0.2
Medical conditions	\$5.0 million	1
Total	\$775.1 million	100%

Due to rounding, some columns may not sum to total.

TRAFFIC COLLISIONS

Substance abuse plays a major role in vehicle traffic collisions in Alaska, approximately 5.6 percent of all traffic collisions in the state in 2011. As such, in 2011, it is estimated that 1,680 occupants were involved in 704 impairment-related collisions. Of the 1,680 occupants involved in impaired collisions, 32 people died, 299 had major injuries, and 64 had minor injuries. Of the 704 impairment-related collisions, 54 percent had property damage only. Direct costs of impairment-related traffic collisions were \$172.5 million. However, there was another \$818.0 million in costs for lost life and reduced quality of life, resulting in total traffic crash costs related to substance abuse of approximately \$990.5 million. Based on a conservative estimate, approximately 60 percent (or \$594.3 million) of all substance impairment-caused traffic collision costs is related to alcohol abuse.

Table 3. Estimated Annual Impairment-caused Traffic Collision Costs, Alaska, 2011

Cost Category	Impairment-Caused Traffic Collision Costs	% of Total, Excluding Quality-Adjusted Life Years	% of Total, Including Quality-Adjusted Life Years
Medical	\$38.5 million	22.3%	3.9%
Emergency services	\$0.02 million	0.1	0.02
Market productivity	\$81.4 million	47.2	8.2
Household productivity	\$22.6 million	13.1	2.3
Insurance administration	\$9.3 million	5.4	0.9
Workplace costs	\$1.6 million	1.0	0.2
Legal costs	\$12.8 million	7.4	1.3
Congestion costs	\$1.3 million	0.8	0.1
Property damage	\$4.9 million	2.8	0.5
Direct Costs	\$172.5 million	100.0%	-
Quality-adjusted life years	\$818.0 million	-	82.6
Total, including quality-adjusted life years	\$990.5 million		100.0%
Estimated portion attributed to alcohol (60 percent of total)	\$594.3 million		

Note: Due to rounding, some columns may not sum to total.

Source: McDowell Group calculations.

CRIMINAL JUSTICE AND PROTECTIVE SERVICES

A significant number of crimes can be directly attributed to alcohol abuse, for example driving under the influence, sale of illegal substances, and many cases of assault, theft, and other violent and nonviolent crimes. The cost of these crimes includes criminal justice system costs (police protection and law enforcement, legal and adjudication, and incarceration) and the costs to crime victims (both tangible and intangible). Additionally, a portion of child protective services are associated with substance abuse.

In 2014, there were 9,438 arrests/offenses and 7,313 crime victims attributed to alcohol abuse in Alaska. These arrests/offenses represented 25 percent of all offenses in Alaska and affected 17 percent of all crime victims. The estimated cost of alcohol abuse to the criminal justice system, including tangible costs (such as medical care costs, lost earnings, and property loss/damage to victims and Child Protective Services in Alaska), is \$194.4 million. Victim intangible costs (such as pain and suffering, decreased quality of life, and psychological distress) adds another \$604.9 million for a total of just under \$874.7 million.

Table 4. Summary of Estimated Annual Alcohol-related Criminal Justice and Protective Services Costs, Alaska, 2015

Cost Category	Alcohol-related Costs	% of Total
Criminal justice system	\$136.2 million	50%
Crime victim tangible costs	\$58.2 million	22
Child protective services	\$75.4 million	28
Total	\$269.8 million	100%
Crime victim intangible costs	\$604.9 million	
Total, incl. intangible costs	\$874.7 million	

Source: McDowell Group calculations.

HEALTH CARE

A wide variety of health care costs are associated with alcohol abuse, including hospitalization from injuries and illness, residential and outpatient treatments costs, pharmaceutical costs, nursing home and long-term-care-facility costs, and the costs of treating fetal alcohol spectrum disorders (FASD). Annual alcohol-abuse-related health care costs totaled \$181.8 million in 2015.

Table 5. Summary of Estimated Annual Alcohol-related Health Care Costs, Alaska, 2015

Cost Category	Alcohol Related Costs	% of Total
Medical inpatient	\$85.4 million	48%
Medical ED	\$32.7 million	18
Medical outpatient	\$22.6 million	12
Alcohol/Drug treatment	\$25.9 million	14
Prescription drug	\$10.7 million	6
Nursing Home/LTC	\$1.5 million	1
FASD	\$3.0 million	2
Total	\$181.8 million	100.0%

Note: Due to rounding, some columns may not total.
Source: McDowell Group calculations.

PUBLIC ASSISTANCE AND SOCIAL SERVICES

Alcohol abuse can result in greater demand for public and social services. For example, problems with alcohol can reduce personal income due to mental and physical impairment or inability to hold a job. Alcohol abuse may also lead to disability. Some or all these conditions may qualify individuals for publicly funded social programs like food stamps, public assistance, and vocational rehabilitation. Based on prevalence rates, federal and state social welfare costs paid to support people impacted by alcohol abuse totaled \$14.5 million annually.

Table 6. Estimated Annual Alcohol-related Social Welfare Costs, Alaska, 2015

Cost Category	Alcohol-related Costs	% of Total
Federal social welfare	\$9.4 million	65%
State social welfare	\$5.1 million	35
Total	\$14.5 million	100.0%

Source: McDowell Group calculations.

Cost of Underage Drinking in Alaska

Underage drinking imposes costs in the form of health, social, and economic problems and is a causal factor in many serious problems, including homicide, suicide, traumatic injury, drowning, burns, violent and property crime, high risk sex, fetal alcohol syndrome, alcohol poisoning, and the need for treatment for alcohol abuse and dependence. In 2013-2014,

- 9 percent of Alaskan youths age 12-17 and 22 percent of Alaskan youths age 12-20 were underage drinkers.
- 5 percent of Alaskans age 12-17 and 13 percent of Alaskans age 12-20 were binge drinkers.³

In 2010, Pacific Institute for Research and Evaluation estimated the costs of mental distress associated with physical or emotional injury as a result of Alaskan youth alcohol consumption at approximately \$350 million (expressed in 2016 dollars). Costs associated with youth violence represent 48 percent of underage drinking costs in Alaska, followed by youth traffic accidents (28 percent).

Impacts of Alcohol Sales

The primary focus of this study is the cost of substance abuse in Alaska. However, it should be noted that alcohol sales contribute to the economy through jobs, earnings, and tax revenues.

In 2014, there were 2,887 private sector jobs in Alaska's beverage manufacturing, wholesale and retail sale of alcohol products, and at alcoholic drinking places. Workers in these jobs earned \$66.4 million in wages (2014). There are other jobs in Alaska related to alcohol sales, but published data are not available.

In State Fiscal Year (SFY) 2015, \$38 million, or \$24.80 per Alaskan, in Alcoholic Beverages Tax was paid to the Alaska Department of Revenue; \$20 million was deposited in the Alcohol (and Other Drug) Abuse Treatment and Prevention Fund, and \$18 million was General Fund receipts.

³ Binge Alcohol Use — Five or more drinks on the same occasion (by males) or four+ drinks (by females) on at least one day in the past 30 days.

Introduction and Methodology

Introduction

The Alaska Mental Health Trust Authority contracted with McDowell Group to update prior studies on the economic costs of alcohol abuse in Alaska. Alcohol abuse impacts Alaska's economy in a variety of ways. It can lead to greater health risks and death, impaired physical and mental abilities, crime and incarceration, greater reliance on public assistance, and several other adverse effects. This study addresses tangible economic costs of alcohol abuse, such as lost earnings among the affected population and costs of government programs. Quality of life and other qualitative impacts of alcohol abuse, while substantial, are not included in this report.

Report Organization

This report contains:

- *Chapter 1: Alcohol Consumption in Alaska*, including state comparisons and co-occurrence of substance abuse disorders and mental illness.
- *Chapter 2: Productivity Losses*, including productivity losses due to death, diminished productivity, incarcerations, and inpatient treatment or hospitalization because of alcohol abuse.
- *Chapter 3: Traffic Collisions*, including number of, and estimated costs due to, substance abuse-related traffic collisions.
- *Chapter 4: Criminal Justice and Protective Services*, including law enforcement, legal and adjudication, incarceration, and victimization costs.
- *Chapter 5: Health Care*, including hospital, residential and outpatient alcohol treatment, medical outpatient, prescription drugs, nursing home/long-term care, and fetal alcohol spectrum disorders costs.
- *Chapter 6: Public Assistance and Social Services*, including public assistance in the form of cash, food stamps, child care assistance, or other social services provided by the state and federal government.
- *Chapter 7: Underage Drinking Costs*, including a summary of 2010 research conducted on underage drinking in Alaska.
- *Chapter 8: Employment and Income from Alcoholic Beverage Manufacturing and Sales in Alaska*, including data on employment in Alaska's alcohol-related businesses in beverage manufacturing, alcohol wholesale and retail distribution, and alcoholic drinking places.
- *Chapter 9: Taxes Generated from Alcohol Use*, including Alaska's Alcoholic Beverages Tax.
- *Chapter 10: Implications for Alcohol Abuse Impacts on the State General Fund Budget*, including health-care, criminal justice, corrections, and other related costs.
- *References*

Methodology, Definitions, and Data Sources

A variety of methodologies, data sources, and modeling techniques were required for this analysis. Methods and sources relevant to each chapter of the study are described below.

Chapter 1: Alcohol Consumption in Alaska

Data were analyzed from two primary sources:

1. **National Survey of Drug Use and Health (NSDUH):** This data set includes national and state-level data on substance use and mental health within the U.S., including prevalence estimates, trends in alcohol consumption, levels of consumption, demographic characteristics of alcohol consumers, and national and state consumption comparisons. For an adequate sample, Alaska results were pooled from surveys conducted in 2013 and 2014. Some definitions used in NSDUH analysis include:
 - a. **Current Alcohol Use** — Any alcohol use in the 30 days before the survey by people age 12 or older.
 - b. **Binge Alcohol Use** — Five or more drinks (by males) or 4 or more drinks (by females) on the same occasion on at least one day in the past 30 days.
 - c. **Alcohol Dependence** — Applies to respondents who reported “current alcohol use” during the previous 12 months and who meet at least three clinical criteria used to diagnose dependency (Diagnostic code 303.9) (such as tolerance, withdrawal, persistent desire, loss of social, occupational or recreational activity, and recurrent physical or psychological problems).
 - d. **Alcohol Abuse** — Applies to respondents who reported “current alcohol use” during the previous 12 months and meet at least one clinical criteria used to diagnose abuse (Diagnostic code 305.0) (such as failure to fulfill major role obligations at work, school, or home, using alcohol in situations where they could cause harm [such as driving], recurrent alcohol-related legal problems, persistent social or interpersonal problems caused by alcohol use).
2. **National Institute on Alcohol Abuse and Alcoholism (NIAAA):** This organization conducts research on the impact of alcohol use on human health and well-being, including longer-term consumption trends, types of alcohol consumed, and national and state comparisons. Data from NIAAA included per capita alcohol consumption in Alaska and comparative data for other states and the U.S.

To obtain data on co-occurring disorders, McDowell Group compiled data from the U.S. Department of Health and Human Services’ Substance Abuse and Mental Health Services Administration’s (SAMHSA) annual National Survey on Drug Use and Health (NSDUH). This report includes national data on substance abuse and mental illness in the U.S. as well as estimates of the rate of co-occurrence of mental health issues [any mental health illness (AMI), serious mental health illness (SMI), and major depressive episodes (MDE)] and substance use disorders among adults age 18+ in the United States. A special request was made to SAMHSA for Alaska’s NSDUH data from April 2014, which provided some Alaska-specific counts on co-occurrence.

Additionally, in 2016, a report titled “*Alaska Behavioral Health Systems Assessment Final Report*” was prepared for the Alaska Mental Health Trust Authority. The report analyzed the “behavioral health system in Alaska and the barriers and opportunities to meeting the behavioral health needs of Alaskans” to “describe the system,

assess the need for services and capacity to meet the need, develop a framework for regular monitoring of the system, and identify barriers, opportunities, and recommendations for system improvement.”

Chapter 2: Productivity Losses

Several methods were used to estimate the economic impact of different causes of productivity loss.

MORTALITY CAUSES

A special data request for death counts was made to the DHSS, Division of Public Health, Health Analytics & Vital Records (formerly the Bureau of Vital Statistics (BVS)). Due to small numbers for some causes, a multi-year time period (2010-2014) was used to estimate the number of deaths statewide. BVS provided two datasets: 1) counts where alcohol-related causes of death were the underlying (primary) cause of death; and 2) counts where a 100 percent attributable alcohol-related cause of death was listed as any reason other than the primary cause for the death in the record. These two different death counts demonstrate the various degrees of alcohol abuse impacts.

Deaths attributable to alcohol were estimated using methods from the Centers for Disease Control and Prevention (CDC) Alcohol-Related Disease Impact (ARDI) online application. ARDI provides a list of alcohol-attributable causes and the fractions of those causes applicable to specific age groups. In this report, the alcohol-attributable fractions (AAF) (the percent of cases attributable to alcohol abuse) for Alaska from 2006-2010 were used. Where ARDI's methods listed a low, medium and high attributable fraction, the medium was used. A list of the specific ICD-10 codes used to count the number of alcohol-related deaths by cause in this report are in the appendix, along with the AAFs and age groups for each.

Potential Years of Life Lost Due to Death from Alcohol

BVS provided the potential years of life lost (PYLL) for each death using the ICD-10 codes by age and gender. These calculations assume a 75-year lifespan. Using the appropriate AAFs for each cause of death, an estimate of the number of PYLL attributable to alcohol was calculated. No economic costs were applied to these calculations because the complex modeling required was outside the scope of this analysis.

INCARCERATION CAUSES

The primary method for estimating lost productivity due to incarceration involved applying potential earnings to the number of inmates absent from the workforce due to alcohol-related incarcerations. Statewide incarceration counts by gender and offense were gathered from the Alaska Department of Corrections (DOC)'s *Alaska Offender Profile, 2014* — an annual report that examines the total inmate population by offense category and calendar year.

Alcohol attributable rates were obtained from The Lewin Group's 2010 report, *Economic Cost of Excessive Alcohol Consumption in the United States, 2006*. These attribution rates estimate the number of inmates incarcerated due to alcohol abuse. Alcohol-related crimes, including driving under the influence of alcohol and liquor law violations, were fully attributed to alcohol. For other offenses, the alcohol attributable rate is defined as the percentage of offenders intoxicated at the time of their offense, a methodology consistent with other literature.

DIMINISHED PRODUCTIVITY CAUSES

Alcohol Consumption

This report calculates the economic impact of impaired work productivity from alcohol consumption in two ways: traditional earnings and absenteeism. The former identifies losses among individuals who have a history of alcohol dependence or alcohol dependence or abuse, while the latter identifies losses associated with individuals who binge drink but have no history of alcohol dependence and/or abuse. Definitions of alcohol abuse or alcohol dependence or abuse are taken from *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (<http://www.alcoholcostcalculator.org/business/about/dsm.html>).

Both economic measures were modeled from The Lewin Group's 2010 report, "*Economic Cost of Excessive Alcohol Consumption in the United States, 2006*," and adjusted for Alaska's demographics. Population estimates are from the Alaska Department of Labor and Workforce Development (DOLWD) for 2014. Alaska's median individual annual average earnings by gender were gathered from the American Community Survey's (ACS) 2010-2014 Five-Year Data. SAMHSA 2013-2014 NSDUH data were used for Alaska's incidence estimates for past-year alcohol dependence and dependence or abuse.

To estimate productivity loss from traditional earnings due to alcohol, an estimate of the number of Alaska's population age 18 or older who are alcohol dependent or dependent/abusing from SAMHSA's incidence rates of past year abuse and dependence, or abuse was cross referenced with the Lewin Group's estimates of loss in productivity. The Lewin report's economic model estimated the difference in earnings of people with or without a history of alcohol dependence by gender: a 12 percent decrease in productivity for men and a 5.6 percent decrease for women. The estimated loss in traditional earnings productivity was calculated by multiplying the median annual average individual earnings by gender by the estimated number of Alaskans dependent or dependent/abusing and the percentage in decrease productivity.

The Lewin Group also estimated losses related to absenteeism. The traditional-earnings model does not consider increased absenteeism among individuals who binge drink but have no lifetime history of dependence. Since the report assumes these work absences are by individuals who work full-time, year-round, the estimated number of Alaskans who have increased absenteeism was calculated by multiplying the 2014 Alaska population in specified age groups (DOLWD) by the gender-specific percentage of full-time, year-round civilian employed population 16 or older in Alaska (ACS) and the percentage of Alaskans in the past month who reported binge drinking (calculated by excluding those who reported a history alcohol dependence) (SAMHSA). The Lewin Group calculated the mean excess days lost per year by age group from the findings of the *National Epidemiologic Survey on Alcohol and Related Conditions*, a nationally-represented survey of the non-institutionalized population conducted from 2001-2002 by National Institute of Health (NIH)/NIDA.

HOSPITALIZATION AND TREATMENT CAUSES

To estimate lost earnings due to hospitalization and medical treatment, the total length of stay for all alcohol-attributable inpatient hospital and emergency department (ED) visits was multiplied by the statewide average daily work-place earnings.

A study commissioned in 1998 by the National Institute of Drug Abuse, *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992*, compiled the diagnoses and conditions attributable to alcohol abuse.

For each diagnosis and condition, the study reported the percent of cases attributable to alcohol abuse. The percentages are called alcohol-attributable fractions. This report draws from that compilation.

The total length of stay for all alcohol-attributable inpatient and ED visits was obtained through the Alaska Hospital Facilities Data Reporting Program (HFRP), which collects discharge data from inpatient, ED, and other outpatient facilities throughout the state. The most recent data available was from 2012. Without more recent data, this 2012 data serves as a proxy for 2015 hospital information. Additionally, Department of Health and Social Services (DHSS) estimates that approximately 70 percent of the state's hospital facilities reported to HFRP in 2012. Admissions and length of stay were adjusted by this factor to arrive at an estimate for the entire state.

Alcohol-attributable fractions from the 1998 study were applied to Alaska HFRP totals to determine the length of stay attributable to alcohol abuse. Length of stay was measured in days for both inpatient admissions and ED visits. To estimate days of lost work, it was assumed that a visit to the ED consumed an entire day. If an ED visit occurred over the course of multiple days – a patient was admitted to the ED on one day and discharged on a different day – all days are considered lost-work days.

The Alaska Department of Labor and Workforce Development (DOLWD) publishes annual average wage data for Alaska workers. The 2015 annual average wage of \$50,150 was converted to average earnings per work day of \$192 (based on 261 work days per year).

Income-related data, including employment status and annual household income ranges, was provided by DBH for clients in 24-hour detoxification and residential treatment services. DBH also provided the total number of bed days at 24-hour detoxification and at residential services in 2015.

The number of bed days were separated alcohol only and combined alcohol and drugs treatment.

It was assumed that patients under age 18 were in school rather than in the labor force and, therefore, did not forfeit direct earnings while admitted. Annual incomes were converted to earnings per day (based on 261 work days per year) using the midpoint of each income range provided in the data. Total incomes were reduced by a factor of .746, the average proportion of total personal income attributable to personal earnings (wages and salaries) for Alaskans in 2015 according to the Bureau of Economic Analysis.

The total number of bed days was distributed according to the proportions of clients in each income range. Then, the number of bed days associated with each income range was multiplied by earnings per day of that range to arrive at an estimate for lost earnings.

Chapter 3: Vehicle Traffic Collisions

This chapter examines nine categories of costs incurred from vehicle traffic accidents, plus a quality-adjusted life-years (QALY) cost. The National Highway Traffic Safety Administration (NHTSA), which estimates the costs, provides the following definitions for the nine categories:

1. **Medical:** The cost of all medical treatment associated with motor vehicle injuries, including treatment given during ambulance transport. Medical costs include ED and inpatient hospitalization costs, follow-up visits, physical therapy, rehabilitation, prescriptions, prosthetic devices, and home modifications.
2. **Emergency services:** Police and fire department response costs.

3. **Market productivity:** The net present value of the lost wages and benefits over the victim's remaining life span.
4. **Household productivity:** The net present value of lost productive household activity, valued at the market price for hiring a person to accomplish the same tasks.
5. **Insurance administration:** The administrative costs associated with processing insurance claims resulting from motor vehicle collisions and defense attorney costs.
6. **Workplace costs:** The costs of workplace disruption due to the loss or absence of an employee. This includes the cost of retraining new employees, overtime required to accomplish work of the injured employee, and the administrative costs of processing personnel changes.
7. **Legal costs:** The legal fees and court costs associated with civil litigation resulting from traffic collisions.
8. **Congestion costs:** The value of travel delay, added fuel usage, greenhouse gas and criteria pollutants that result from congestion that results from motor vehicle collisions.
9. **Property damage:** The value of vehicles, cargo, roadways, and other items damaged in traffic collisions.

In May 2015, NHSTA published updates to its 2010 estimates of the costs per alcohol-related traffic accident. The figures in NHSTA's report were grouped by injury severity, including fatal, property damage only (no physical injury), and the five levels of injury severity in the Maximum Abbreviated Injury Scale (MAIS). These costs were adjusted for inflation and for Alaska's cost-of-living differential.

The number of vehicle traffic collisions in Alaska was obtained from DOTPF's most recent report available, *2011 Crash Data*. In addition to reporting all traffic collisions, the report gives the number of impaired (alcohol and/or drug) collisions. Due to differences in reporting injury levels between NHSTA and DOTPF, NHSTA's MAIS Level 1 was matched to DOTPF's "minor injury" category, and MAIS Level 5 was matched to DOTPF's "major injury" category. Both sources report "fatal" and "property damage only" incidences.

No data are available to separate costs related to alcohol abuse from those related to drug abuse. In the absence of data, the study team assumed the split of drug- and alcohol-related collisions would be similar to all other components of costs measured in this study, which is approximately 60 percent alcohol-related and 40 drug-related.

Chapter 4: Criminal Justice and Protective Services

OFFENSES AND ARRESTS

Costs related to the criminal justice system were estimated based on arrest and offense data from the Alaska Department of Public Safety (DPS) Uniform Crime Reporting document, *Crime in Alaska, 2014*, and the FBI's annual *Uniform Crimes Report* (UCR). As part of the nationwide Unified Crime Reporting system, DPS reports known offenses annually. In 2014, law enforcement agencies reporting to DPS had jurisdiction over 99.4 percent of Alaska's population. The data shows all known offenses regardless of whether an arrest was made. They include the categories of criminal homicide (murder and manslaughter), rape (rape and attempts to commit rape), aggravated assault, other assault, robbery, burglary, larceny/theft, and auto theft. Data for the remaining categories of driving while intoxicated, other sex offenses (including prostitution and commercialized vice), and liquor laws are from the FBI's UCR alone.

Alcohol attributable rates from The Lewin Group's 2010 report, *Economic Cost of Excessive Alcohol Consumption in the United States 2006*, were used to determine the number of offenses/arrests attributable to alcohol abuse. Alcohol-related crimes, including driving under the influence of alcohol and liquor-law offenses, were attributed in full to alcohol. For other offenses, the alcohol attributable rate was the percentage of offenders intoxicated at the time of their offense.

CRIMINAL JUSTICE SYSTEM

Two sources were used to estimate criminal justice system costs for specified crimes. The first is the 2010 NIH report, *The Cost of Crime to Society: New Crime-Specific Estimates for Policy and Program Evaluation*. The second is the Lewin Group's 2010 report, "*Economic Cost of Excessive Alcohol Consumption in the United States, 2006.*"

Costs for the criminal justice system addressed in the NIH report include "local, state, and federal government funds spent on police protection; legal and adjudication services; and correction programs, including incarceration." This study was used to estimate the cost for criminal homicide, rape and other sexual offenses, assaults, robbery, burglary, larceny-theft, and motor vehicle theft.

The 2010 Lewin Group study addresses the costs of driving under the influence and liquor law violations. The study's criminal justice cost definition includes costs related to police protection, legal and adjudication, corrections, and private legal defense. For both studies, costs were adjusted for inflation and Alaska's cost-of-living differential.

CRIME VICTIMIZATION

Bureau of Justice Statistics (BJS) publishes national data on victimization rates per 1,000 people age 12+ or per 1,000 households. These rates are published in the annual *National Criminal Victimization Survey* (NCVS) report. The NCVS collects information on nonfatal crimes reported and not reported to police from a nationally representative sample of U.S. households. The 2014 victimization rates were applied to Alaska's 2014 population age 12 and older (published by DOLWD) or to ACS 2010-2014 Five-Year Data count of Alaska households to find the number of victims for specified crimes for the state. The Lewin Group's alcohol attribution rates were then applied to estimate the number of crime victimizations attributed to alcohol in Alaska.

The 2010 NIH report was also used to estimate tangible costs for crime victims, defined as the cost of "direct economic losses suffered by crime victims, including medical care costs, lost earnings, and property loss/damage." Tangible victim costs were estimated for homicide, assaults, rape/sexual assault, robbery, burglary, theft, and motor vehicle theft. These were adjusted for inflation and Alaska's cost-of-living differential.

Data from the 2010 NIH report were also used to estimate intangible costs, which include "indirect losses suffered by crime victims, including pain and suffering, decreased quality of life, and psychological distress." These intangible costs include pain and suffering, and the probability of being killed while a crime is occurring (corrected risk-of-homicide costs). Intangible victim costs were estimated for homicide, assaults, rape/sexual assault, robbery, burglary, theft, and motor vehicle theft. The costs were adjusted for inflation and Alaska's cost-of-living differential.

To find the number of Alaska crime victims, the BJS's annual national data on victimization rates was used. The 2014 victimization rates were applied to Alaska's 2014 population (DOWLD) or to ACS's 2010-2014 Five-Year Data of Alaska households count to find the number of victims for specified crimes.

PROTECTIVE SYSTEMS

The National Survey of Children and Adolescent Well-Being estimates that 61 percent of infants and 41 percent of older children in out-of-home care are from families with active alcohol or drug abuse (Wulczyn, Ernst, & Fisher, 2011). For almost 31 percent of all children placed in foster care in 2012, parental alcohol or drug abuse was the documented reason for removal and in several states that percentage surpassed 60 percent (National Data Archive on Child Abuse and Neglect, 2012)

While there is no accurate data available, according to the Alaska Office of Children's Services (OCS), approximately 75 percent of its cases may result from or involve alcohol or drug abuse. To estimate the total costs of child abuse and neglect attributable to alcohol or drug abuse, this percentage was applied to OCS actual expenditures for State Fiscal Year (SFY) 2015. This estimate assumes the workload for all OCS functions, not just case work but administrative and support services as well, is proportional to the number of cases involving alcohol and drug abuse. To separate costs attributable to alcohol from costs attributable to drugs, it was estimated that alcohol accounts for two-thirds of the total and drugs one-third. This estimate is drawn from the 1998 National Institute on Drug Abuse (NIDA) study, *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992*.

An estimate of the percent of cases related to alcohol abuse was not available from the Division of Disability and Senior Services. Therefore, costs for adult protective services are not estimated in this report.

Chapter 5: Health Care

Tables 7 below lists the alcohol-related diagnoses used to estimate inpatient, ED, and outpatient costs. More detailed tables of ICD-10 codes and attributable fractions used in this health care chapter can found in Tables 62 (inpatient) and 64 (ED).

INPATIENT COSTS

Alaska Hospital Facilities Data Reporting Program (HFDR) collects discharge data for inpatient, ED, and other outpatient settings from health care facilities in Alaska. At the time of this report, the HFDR 2012 dataset was the most recent year of data available.

NIDA's *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992* compiled the diagnoses and conditions attributable to alcohol abuse. For each diagnosis and condition, the study reported the percent of cases attributable to alcohol abuse (referred to as AAFs).

The Alaska HFDR 2012 dataset provided the number of admissions, length of stay, and hospital charges for each alcohol-attributable diagnosis or condition. Alcohol-attributable fractions were applied to those totals to determine the amounts attributable to alcohol abuse. Charges presented by HFDR represent the amount charged by a facility for services, not the final amount paid.

In 2012, not all hospital facilities in Alaska reported to the HFDR. DHSS estimates that the HFDR 2012 dataset represents 70 percent of the state's total inpatient, ED, and other outpatient hospital visits or admissions. For inpatient data, the total number of admissions, length of stay, and hospital charges attributable to alcohol abuse were divided by 0.7 to estimate statewide totals.

EMERGENCY DEPARTMENT COSTS

The methodology for ED data mirrors that for inpatient data. ED visits for the same diagnoses and conditions used for hospital admissions were pulled from the HFDR 2012 dataset. Totals were adjusted by the 70 percent to estimate statewide totals.

OUTPATIENT COSTS

Estimates of outpatient costs attributable to alcohol abuse rely on a 2006 report by The Lewin Group prepared for the Centers for Disease Control and Prevention titled, *Economic Costs of Excessive Alcohol Consumption in the United States, 2006*. For expenditures attributable to alcohol abuse at the national level, The Lewin Group's study found \$0.69 in outpatient expenditures for every dollar in ED expenditures. This proportion, applied to ED charges as reported by the Alaska HFDR 2012 dataset, yields an estimate for outpatient charges attributable to alcohol abuse.

Table 7. Alcohol-related Diagnosis and Corresponding ICD-9 Code

Diagnosis	ICD-9 Code
Alcoholic mental disorders & psychoses	291.xx
Alcohol dependence syndrome	303.xx
Non-dependent abuse of alcohol	305.0x
Alcoholic polyneuropathy	357.5
Alcoholic gastritis	535.3x
Alcoholic fatty liver	571
Acute Alcoholic hepatitis	571.1
Alcoholic cirrhosis of the liver	571.2
Alcoholic liver damage, unspecified	571.3
Chronic hepatitis	571.4
Fetal Alcohol Syndrome	760.71
Toxic effect of alcohol	980
Cancer of the lip, tongue, oral cavity, pharynx	140.xx, 141.xx, 142.xx, 143.xx, 144.xx, 145.xx, 146.xx, 147.xx, 148.xx, 149.xx
Cancer of the esophagus	150.xx
Cancer of the stomach	151.xx
Cancer of the liver and intrahepatic bile ducts	155.0, 155.1, 155.2
Cancer of the larynx	161.xx
Essential hypertension	401.xx
Cerebrovascular disease	430.xx, 431.xx, 432.xx, 433.xx, 434.xx, 435.xx, 436.xx, 437.xx, 438.xx
Respiratory tuberculosis	011.xx-012.xx
Diabetes Mellitus	250.xx
Pneumonia and influenza	480.xx, 481.xx, 482.xx, 483.xx, 484.xx, 485.xx, 486.xx, 487.xx
Diseases of the esophagus, stomach, duodenum	530.xx, 531.xx, 532.xx, 533.xx, 534.xx, 535.xx (except for 535.5x), 536.xx, 537.xx
Cirrhosis without mention of alcohol	571.5
Other chronic nonalcoholic liver damage/disease	571.8
Portal hypertension	572.3
Acute pancreatitis	577
Chronic pancreatitis	577.1
Injuries and poisoning	800.xx-968.xx, 980.xx-995.xx (excluding 965.0x, 967.xx, 968.0, 980.0)
Accidental poisoning by alcohol	E860.0, E860.1
Motor Vehicle traffic/Non-traffic accidents	E810.xx-E825.xx
Pedal cycle and other road vehicle accidents	E826.xx-E829.xx
Water transport accidents	E830.xx-E838.xx
Air and space transport accidents	E840.xx-E845.xx
Accidental falls	E880.xx-E888.xx
Accidents caused by fires and flames	E890.xx-E899.xx
Accidental drowning and submersion	E910.xx
Suicide and self-inflicted injury	E950.xx-E959.xx
Homicide and injury purposely inflicted by other persons	E960.xx-E969.xx
Other injuries and adverse effects	E901.xx, E911.xx, E917.xx, E918.xx, E919.xx, E920.xx, E922.xx, E980.xx

TREATMENT FOR ALCOHOL ABUSE

Data are compiled for costs incurred and number of admissions for four alcohol abuse disorder services: 24-hour detoxification, residential, and outpatient. The analysis includes funding from two sources: Behavioral Health Treatment and Recovery grants awarded to agencies by the Alaska Division of Behavioral Health (DBH) and Medicaid payments for services provided by those agencies to Medicaid beneficiaries. The analysis does

not include payments from other sources such as Medicare, Indian/Native Health Services, other public funding sources, or private insurance. Additionally, the number of bed days are presented for two service types: 24-hour detoxification and residential treatment.

For agencies receiving treatment and recovery grants, DBH provided SFY 2015 data on the number of statewide admissions by service type (24-hour detoxification, residential, outpatient) and by abuse of alcohol only, or alcohol and drugs. DBH also provided the treatment and recovery grant award amounts and Medicaid payments to grantee agencies by service type. The grant and Medicaid payment totals did not distinguish the amount for treating alcohol dependence/abuse from the amount for treating drug dependence/abuse. This allocation was estimated by applying to the grant and Medicaid payment totals the proportions of enrollment associated with admissions for each substance of abuse (alcohol only, drugs only, or alcohol and drugs). Enrollments and admissions differ in that a single admission could be associated with enrollment into multiple service types. For enrollments treating both alcohol and drug dependence/abuse, it was estimated that half were for alcohol dependence/abuse and half for drug dependence/abuse. These amounts were added to totals for alcohol only and drug only, respectively.

DBH also provided the SFY 2015 number of bed days for 24-hour detoxification and residential treatment. The number of bed days was not initially separated by substance of abuse (alcohol only, drugs only, or alcohol and drugs). This separation was estimated with the same methodology used for grant totals and Medicaid payments described above.

SKILLED NURSING FACILITY AND LONG TERM CARE COSTS

The NIDA report, *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992*, estimates that abuse of alcohol accounts for 1 percent of total nursing home costs.

The Alaska Division of Senior and Disability Services (DSDS) provided the number of skilled nursing and long term care bed days at facilities statewide and the Medicaid payment rates for each facility. Medicaid served as the payer for 78 percent of the bed days. Lacking rates from other payers, the Medicaid payment rates served as a proxy for the cost of the other bed days.

The Alaska DSDS receives information from facilities on a fiscal year basis, and facilities use different fiscal years. As a result, data from all facilities do not fit evenly into a single fiscal year. This report uses the most recent single year of data from each facility, all of which occurred in the 2014 - 2015 period.

FETAL ALCOHOL SYNDROME AND FETAL ALCOHOL SPECTRUM DISORDER COSTS

McDowell Group's previous reports addressed only the costs of Fetal Alcohol Syndrome (FAS). This report includes the costs of Fetal Alcohol Spectrum Disorder (FASD), covering a broader range of the impacts of maternal drinking during pregnancy.

The 2012 *Alaska Maternal and Child Health Data Book, Birth Defects Edition*, reports the most recent prevalence estimates of FAS and FASD in Alaska. The data book estimates FAS and FASD prevalence rates as 15.1 and 112.9 per 10,000 live births, respectively. BVS reports 11,398 births to Alaska residents in 2014. Based on these figures, in 2014, approximately 129 babies were born with FASD, and approximately 17 of those babies had FAS.

This methodology only takes into account babies diagnosed at birth, and does not include the additional cases of FAS/FASD that are determined once a child enters school. Special education data from Alaska Department of Education and Early Development for students with FAS/FASD was requested but not provided.

A 2009 Canadian study, *The Burden of Prenatal Exposure to Alcohol: Revised Measurement of Costs*, Stade et al, estimated annual costs associated with these FASD cases. The study calculated annual costs for individuals with FASD at an average of \$21,642 (in Canadian dollars) in 2007. These costs include medical care, education, social services, transportation, and parent productivity losses. The costs do not include future lost productivity and earnings for the individual affected by FASD. Converted to U.S. dollars and adjusted for inflation, this average comes to \$23,115 in 2014 dollars. This average cost per individual with FASD was then multiplied by the estimated number of 2014 Alaska FASD births.

PREVENTION SERVICES

DBH prevention grants target mental health and substance abuse (including alcohol and drug abuse). Some target only mental health or only substance abuse, while others target both. This study separates out the grants for mental health and reports only the grants directed towards substance abuse. For grants that target both substance abuse and mental health, DBH assisted in estimating what proportion went towards substance abuse prevention. The total amount directed towards substance abuse prevention was then further separated to identify totals for alcohol abuse prevention and drug abuse prevention. If grant recipient programs used funds to prevent both alcohol and drug abuse, it is estimated that half went to the prevention of alcohol abuse and half to the prevention of drug abuse, unless otherwise informed by DBH.

It is important to note that only grants with funding for substance abuse prevention are reported. There are prevention grants directed solely towards mental health prevention that are not included.

Chapter 6: Public Assistance and Social Services

FEDERAL GOVERNMENT COSTS

This report captures federal funding from federal FY 2014, the most recent available published data, for the following programs: Old Age, Survivors, and Disabilities Insurance (OASDI); Supplemental Security Income (SSI); Temporary Assistance for Needy Families (TANF); and Supplemental Nutrition Assistance Program (SNAP).

The NIDA study, *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992*, compiled the national prevalence of alcohol and drug abuse among beneficiaries of different social welfare programs. This study applied those prevalence rates to the federal funding allocated to Alaska through the programs listed above. The NIDA study estimated that two-thirds of total funding attributable to alcohol and drug abuse is associated with alcohol and one-third from drugs. This report adopts that estimate.

STATE GOVERNMENT COSTS

The State of Alaska Office of Management and Budget published actual expenditures for SFY 2015 for individual programs operated by the Division of Public Assistance (DPA). Prevalence rates for alcohol abuse among social welfare beneficiaries – taken from the 1998 NIDA study – were applied to state funding for welfare programs to determine the portion attributable to alcohol abuse.

Chapter 7: Underage Drinking

In the 2012 Update report of *The Economic Costs of Alcohol and Other Drug Abuse in Alaska*, 2010, data on underage drinking costs developed by the Pacific Institute for Research and Evaluation were presented. No new data has been developed since that work by PIRE. For purposes of this report, 2010 economic impacts were restated and adjusted for inflation (2016 dollars).

Chapter 8: Employment and Income from Alcoholic Beverage Manufacturing and Sales in Alaska

Employment and wage data from DOLWD were used to highlight the economic impacts of the private sector involved with manufacturing and selling alcohol in Alaska.

Chapter 9: Taxes Generated from Alcohol Use

Data on the revenues generated from the Alaska Alcoholic Beverages Tax were provided by Alaska Department of Revenue. Historical revenue was adjusted to 2016 dollars.

Chapter 10: Implications for Alcohol Abuse Impacts on the State General Fund Budget

General Fund (GF) spending is based on the SFY 2015 actual budget.

PREVENTION GRANTS

DBH provided SFY 2015 data on prevention grants, also used under the health care costs section. This report separated from the total grant values the amounts directed towards substance abuse. For grant recipient programs that prevent both substance abuse and other mental health issues, DBH assisted in estimating what proportion went towards substance abuse prevention. The grant value allocated to substance abuse prevention was then further separated to identify totals for alcohol abuse prevention and drug abuse prevention. If grant recipient programs used funds to prevent both alcohol and drug abuse, this report estimated that half went to the prevention of alcohol abuse.

JUSTICE SYSTEM

Justice system governmental finances and employment data were compiled from U.S. Census Bureau information. The justice data include the expenditures and employment of the federal government, state governments, and a sample of county, municipal, and township governments. Unless otherwise noted, data for total governmental expenditures, including justice and non-justice governmental functions, also include the expenditures of special districts and school districts, which generally do not have justice functions. The 2012 survey sample was selected from the *2007 Census of Local Governments* and consists of large units of government (including all 50 state governments) sampled with certainty and smaller units selected with a probability proportional to the unit's expenditure. It was designed to produce data by type of government estimate with a relative standard error of 3 percent or less for total expenditure and state estimates with a relative standard error of 5 percent or less on total expenditure, criminal justice, and other government functions. All other government units were selected into the sample with a probability proportional to their size.

Abbreviations

AAF	Alcohol-attributable Fractions
ACS	American Community Survey
AMI	Any Mental Health Illness
ARBD	Alcohol-related Birth Defects
ARDI	Alcohol-related Disease Impact
ARND	Alcohol-related Neurodevelopmental Disorder
ART	Antiretroviral Treatment
BJS	Bureau of Justice Statistics
BVS	Bureau of Vital Statistics
CDC	Centers for Disease Control and Prevention
DBH	Division of Behavioral Health
DHSS	Alaska Department of Health and Social Services
DOC	Alaska Department of Corrections
DOLWD	Alaska Department of Labor and Workforce Development
DOTPF	Alaska Department of Transportation and Public Facilities
DPA	Division of Public Assistance
DPS	Alaska Department of Public Safety
DSDA	Alaska Division of Senior and Disability Services
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
ED	Emergency Department
ESRI	Environmental Systems Research Institute
FAE	Fetal Alcohol Effects
FAS	Fetal Alcohol Syndrome
FASD	Fetal Alcohol Spectrum Disorders
GF	General Fund
HFRP	Alaska Hospital Facilities Data Reporting Program
LTC	Long Term Care
MDE	Major Depressive Episodes
NAMI	National Alliance on Mental Illness
NCVS	National Criminal Victimization Survey

NHSTA	National Highway Traffic Safety Administration
NIAAA	National Institute on Alcohol Abuse and Alcoholism
NIH	National Institute of Health
OASDI	Old Age, Survivors, and Disabilities Insurance
OSC	Office of Children Services
PFAS	Partial FAS
PYLL	Potential Years of Life Lost
QALY	Quality-adjusted Life Years
QCEW	Quarterly Census of Employment and Wages
SAMHSA	Substance Abuse and Mental Health Services Administration
SFY	State Fiscal Year
SMI	Serious Mental Health Illness
SNAP	Supplemental Nutrition Assistance Program
SNF	Skilled Nursing Facility
SSI	Supplemental Security Income
SUD	Substance Use Disorder
TANF	Temporary Assistance for Needy Families
UCR	Uniform Crime Report

Chapter 1: Alcohol Consumption and Prevalence in Alaska

Summary

Alcohol Abuse

- Based on research conducted during 2013-2014, an estimated 54 percent of Alaskans age 12 or older (313,000 individuals) drank alcohol within the past 30 days, while an estimated 23 percent (133,000 individuals) binge drank within the past 30 days. An estimated 7 percent (39,000 individuals) experienced alcohol dependence or abuse in the past year, and an estimated 3 percent (19,000 individuals) experienced alcohol dependency in the past year.
- In 2013-2014, underage drinkers included 9 percent of Alaskan youths age 12-17 and 22 percent of Alaskan youth age 12-20. Binge drinkers included 5 percent of Alaskans age 12-17 and 13 percent of Alaskans age 12-20.
- Average annual alcohol consumption in Alaska (age 14+) was 1.1 gallons of ethanol contained in beer, 0.5 gallons contained in wine, and 1.2 gallons contained in liquor.
- Alcohol consumption has trended down in Alaska from its peak in 1981. Between 2010-2011 and 2013-2014), alcohol use and binge alcohol use remained stable.
- In 2013, 1.6 million gallons of ethanol was consumed in Alaska (including consumption by residents and non-resident visitors), placing Alaska within the top 30 percent of U.S. states' consumption rates. Consumption patterns reported by Alaskans are similar to those in the U.S. overall.
- Alaskans spend approximately \$182 million annually on alcoholic beverages, \$319 for each Alaskan age 14 or older and \$670 per Alaskan household.
- In 2013-2014, Alaska ranked 26th nationally for current alcohol use, 31st for binge drinking, 20th for alcohol dependence or abuse, and 21st for alcohol dependence alone.

Co-Occurrence of Mental Health and Substance Abuse

- In 2013, there were approximately 62,815 adults in Alaska who needed treatment for a substance use disorder (SUD), including both alcohol and drug abuse.
- Of those who needed treatment, approximately 37 percent (22,990 people or 3 percent of Alaska's population) also have a mental illness.

Alcohol Consumption in Alaska

Current Consumption Rates and Binge Alcohol Use (2013-2014)

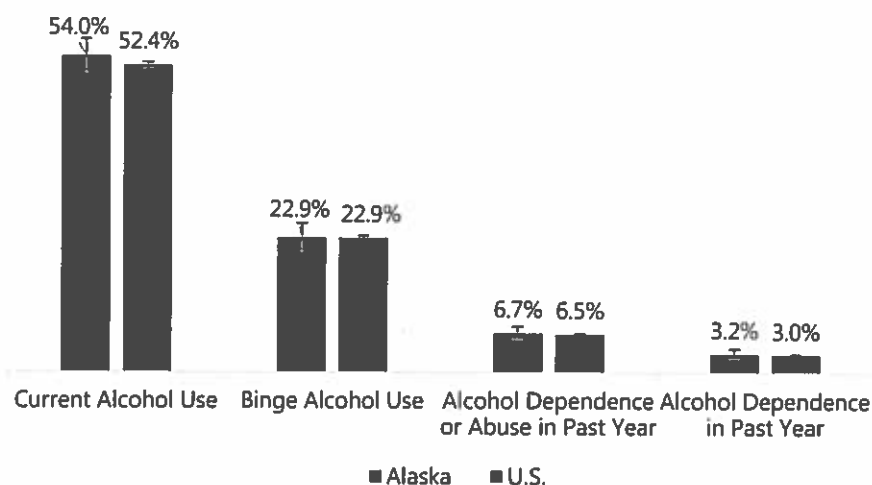
Based on research conducted during the period 2013-2014, it is estimated that just over half (54.0 percent) of Alaskans age 12 or older were alcohol drinkers. More than one in five (22.9 percent) Alaskans were binge drinkers. Binge drinking is defined as a female consuming four or more drinks or a male consuming 5 or more drinks on a single occasion on at least one day in the past 30 days. A total of 6.7 percent of Alaskans reported alcohol dependence or abuse, and 3.2 percent reported alcohol dependence. Alaskans reported consumption patterns similar to those of the nation.

Table 8. Alcohol Consumption Patterns Prevalence Estimates, Alaska and U.S., Ages 12+, 2013-2014

Alcohol Indicator, Ages 12+	Alaska		United States	
	Percent	95% Confidence Interval	Percent	95% Confidence Interval
Current Alcohol Use	54.0%	51.1 - 56.9%	52.4%	51.9 - 52.9%
Binge Alcohol Use	22.9%	20.6 - 25.4%	22.9%	22.5 - 23.3%
Alcohol Dependence or Abuse in Past Year	6.7%	5.7 - 7.9%	6.5%	6.3 - 6.7%
Alcohol Dependence in Past Year	3.2%	2.5 - 4.1%	3.0%	2.9 - 3.2%

Source: National Survey of Drug Use and Health, SAMHSA and Alaska Department of Labor and Workforce Development July 2014 Population Estimates.

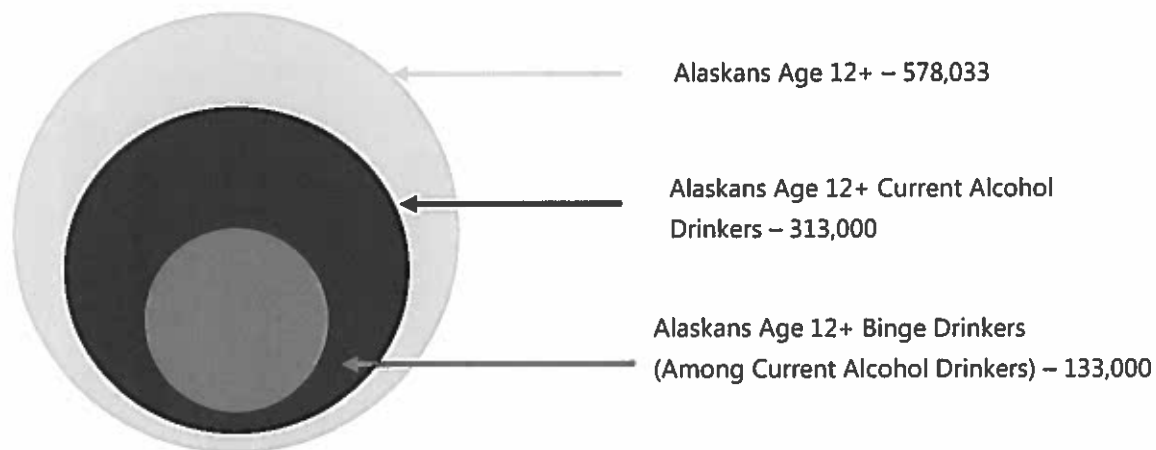
Figure 3. Alcohol Consumption Patterns Prevalence Estimates (%), Alaska and U.S., Ages 12+, 2013-2014



Source: National Survey of Drug Use and Health, SAMHSA.

- In 2013-2014, 313,000 Alaskans (ages 12 or older) were "current" alcohol drinkers. Among current alcohol drinkers, 133,000 binge drank. An estimated 39,000 Alaskans were alcohol dependent or had abused alcohol in the past year. Of that total, 19,000 were alcohol dependent.

Figure 4. Current and Binge Alcohol Use, Prevalence Estimates, Alaska and U.S., Ages 12+, 2013-2014



Source: National Survey of Drug Use and Health, SAMHSA.

Table 9. Alcohol Consumption Prevalence Estimates with Alaska Model-Based Population Estimates, Ages 12+, 2013-2014

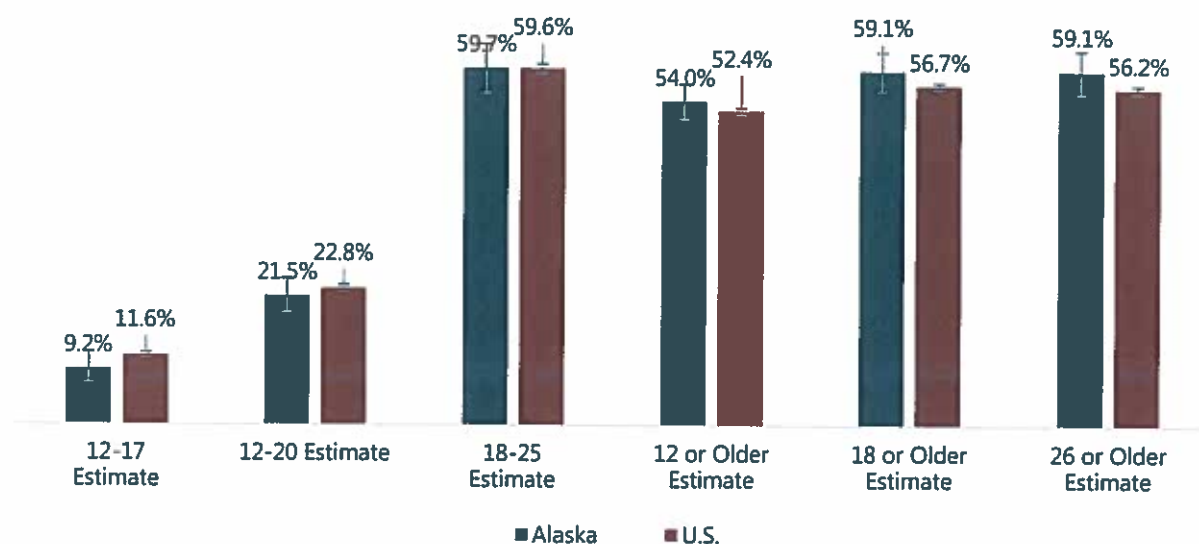
Alcohol Indicator, Ages 12+	% of Alaskans	95% Confidence Interval	# of Alaskans	95% Confidence Intervals
Current Alcohol Use	54.0%	51.1 - 56.9%	313,000	296,000 – 329,000
Binge Alcohol Use	22.9%	20.6 - 25.4%	133,000	120,000 – 147,000
Alcohol Dependence or Abuse in Past Year	6.7%	5.7 - 7.9%	39,000	33,000 – 46,000
Alcohol Dependence in Past Year	3.2%	2.5 - 4.1%	19,000	15,000 – 23,000

Source: National Survey of Drug Use and Health, SAMHSA.

Current and Binge Alcohol Use by Age Group

Nearly one in ten (9.2 percent) Alaskan youth age 12-17 reported current alcohol use. Expanding the age group to 12-20 more than doubles the percentage of Alaska youth consuming alcohol (21.5 percent). Among those ages 18-25, six out of ten (59.7 percent) reported current alcohol use, similar to the percentage of all Alaskans age 18 or older (59.1 percent). Alaskan current alcohol use rates were similar to national rates.

Figure 5. Prevalence of Current Alcohol Use, by Age Group, Alaska and U.S. Comparisons, 2013-2014



Source: National Survey of Drug Use and Health, SAMHSA.

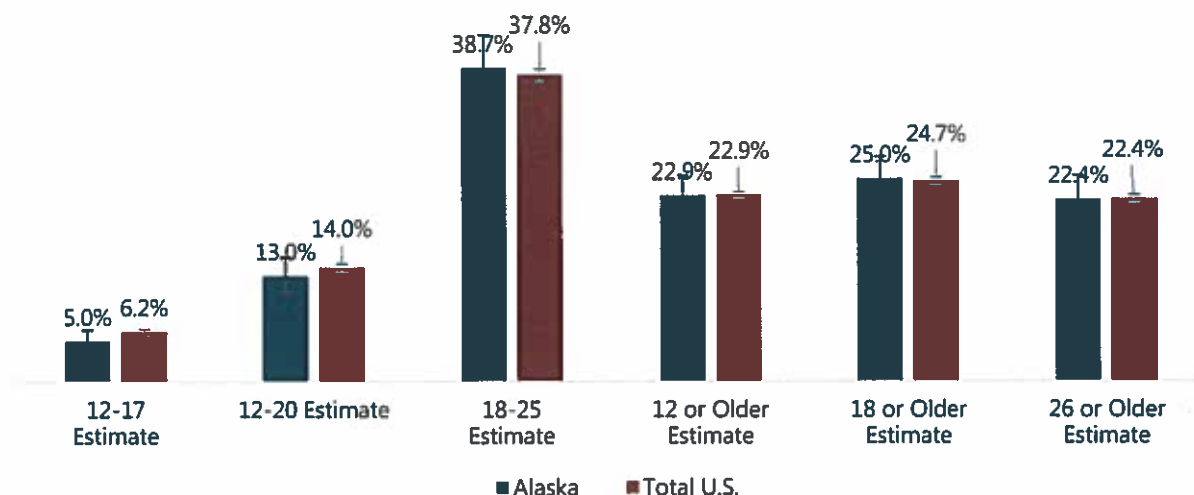
Table 10. Current Alcohol Use Prevalence Estimates, by Age Group, Alaska and U.S. Comparisons, 2013-2014

Age Group	Alaska		United States	
	Percent	95% Confidence Interval	Percent	95% Confidence Interval
12-17 years	9.2%	7.0 – 12.1%	11.6%	11.1 – 12.0%
12-20 years	21.5%	18.8 – 24.5%	22.8%	22.2 – 23.4%
18-25 years	59.7%	55.5 – 63.7%	59.6%	58.8 – 60.4%
12+ years	54.0%	51.1 – 56.9%	52.4%	51.9 – 52.9%
18+ years	59.1%	55.9 – 62.3%	56.7%	56.1 – 57.2%
26+ years	59.1%	55.3 – 62.7%	56.2%	55.6 – 56.8%

Source: National Survey of Drug Use and Health, SAMHSA.

In 2013-2014, 5 percent of Alaskans age 12-17 reported binge drinking. Among those ages 12-20 the percentage rises to 13 percent, and 38.7 percent in the age group 18-25. Binge drinking was reported by 22.9 percent of all Alaskans 12 or older, 25.0 percent of those 18 or older, and 22.4 percent of those 26 or older. Alaska's binge drinking percentages were similar to national rates.

Figure 6. Prevalence of Binge Alcohol Drinking in the Past Month, by Age Group, Alaska and U.S. Comparisons, 2013-2014



Source: National Survey of Drug Use and Health, SAMHSA.

Table 11. Prevalence of Binge Alcohol Drinking in the Past Month, by Age Group, Alaska and U.S., 2013-2014

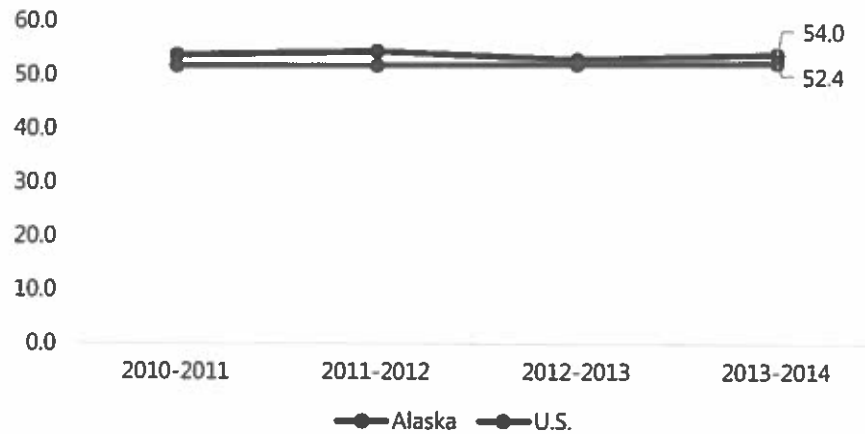
Age Group	Alaska		United States	
	Percent	95% Confidence Interval	Percent	95% Confidence Interval
Underage				
12-17 years	5.0%	3.9 – 6.4%	6.2%	5.9 – 6.5%
12-20 years	13.0%	11.0 – 15.4%	14.0%	13.5 – 14.5%
18-25 years	38.7%	34.8 – 42.7%	37.8%	37.1 – 38.6%
12+ years	22.9%	20.6 – 25.4%	22.9%	22.5 – 23.3%
18+ years	25.0%	22.5 – 27.7%	24.7%	24.3 – 25.1%
26+ years	22.4%	19.7 – 25.4%	22.4%	22.0 – 22.9%

Source: National Survey of Drug Use and Health, SAMHSA.

Alaska and National Prevalence Trends in Current and Binge Alcohol Use

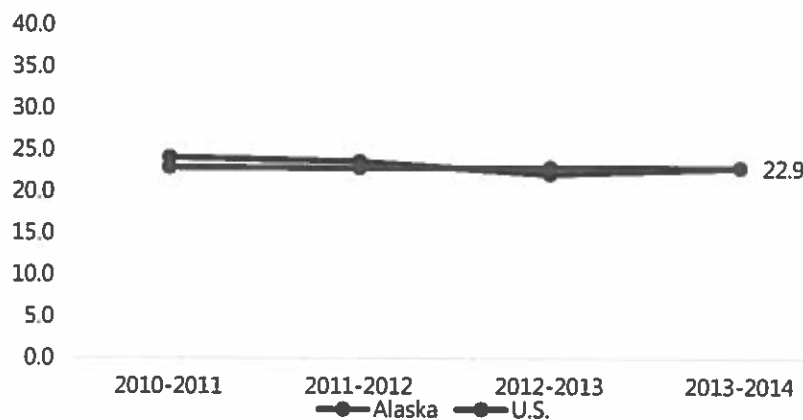
Alaska and U.S. current alcohol use and binge alcohol use remained stable during the 2010-2011 to 2013-2014 period, and Alaska trends did not differ statistically from U.S. trends during this period.

**Figure 7. Current Alcohol Use Prevalence Trend, Alaska and U.S., Ages 12+.
2010-2011 to 2013-2014**



Source: National Survey of Drug Use and Health, SAMHSA.

**Figure 8. Binge Alcohol Use Prevalence Trend, Alaska and U.S., Ages 12+
2010-2011 to 2013-2014**



Source: National Survey of Drug Use and Health, SAMHSA.

**Table 12. Current and Binge Alcohol Prevalence Trends, Alaska and U.S.,
Ages 12+, 2010-2011 to 2013-2014**

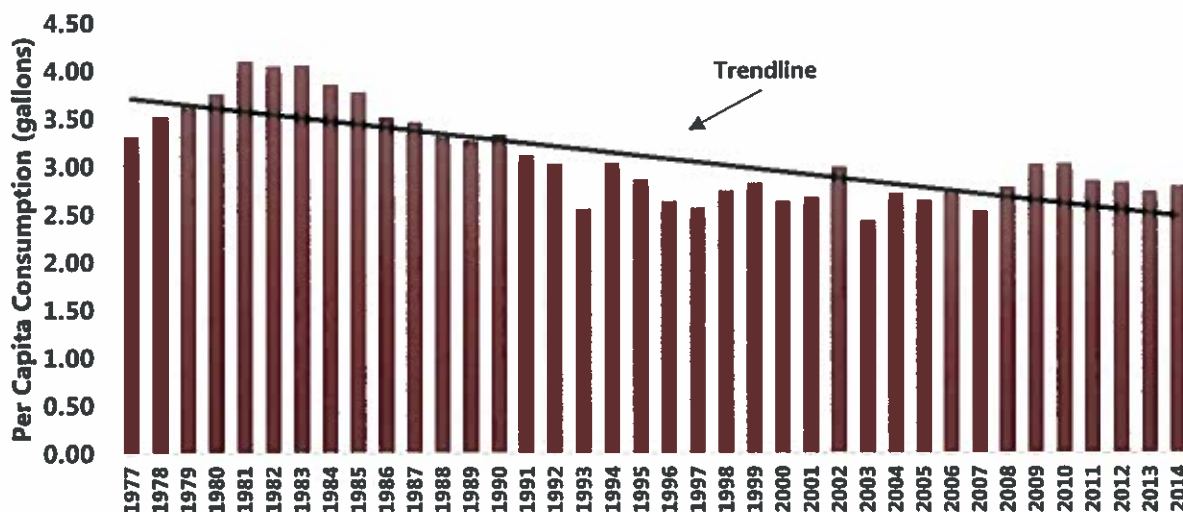
		Alaska		United States	
Alcohol Indicator	Percent	95% Confidence Interval	Percent	95% Confidence Interval	
Current Alcohol Use					
2010-2011	53.8%	50.3 – 57.2%	51.8%	51.2 – 52.3%	
2011-2012	54.5%	51.2 – 57.6%	51.9%	51.4 – 52.5%	
2012-2013	53.0%	49.8 – 56.2%	52.1%	51.6 – 52.7%	
2013-2014	54.0%	51.1 - 56.9%	52.4%	51.9 – 52.9%	
Binge Alcohol Use					
2010-2011	24.1%	21.6 – 26.7%	22.9%	22.5 – 23.3%	
2011-2012	23.6%	21.3 – 26.1%	22.8%	22.4 – 23.2%	
2012-2013	22.1%	19.7 – 24.7%	22.9%	22.5 – 23.4%	
2013-2014	22.9%	20.6 - 25.4%	22.9%	22.5 – 23.3%	

Source: National Survey of Drug Use and Health, SAMHSA and Alaska Department of Labor and Workforce Development July 2014 Population Estimates.

Alcohol Consumption Trends

Long term alcohol consumption is trending down in Alaska from its peak in 1981. Between 2001 and 2002, there was a notable spike in alcohol consumption in Alaska, followed by a sharp drop between 2002 and 2003. This spike and the sudden drop may have been in response to the Alcoholic Beverages Tax increase in October 2002 on liquor from \$5.60 per gallon to \$12.80 per gallon; liquor may have been hoarded in anticipation of the 2002 tax change followed by a short-term drop in alcohol purchases post-tax change. By 2009, liquor consumption resumed to pre-2003 levels.

Figure 9. All Beverages Per Capita Alcohol Consumption, Gallons, Alaska, 1977-2014



Source: National Institute on Alcohol Abuse and Alcoholism.

Types of Alcohol Consumed

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) reported that in 2014 consumption of alcohol in Alaska totaled 14.6 million gallons of beer, 2.4 million gallons of wine, and 1.7 million gallons of spirits (these data are derived from Alaska Department of Revenue Alcoholic Beverage tax data). NIAAA calculates and publishes per capita consumption, in terms of gallons of ethanol (pure alcohol) consumed.

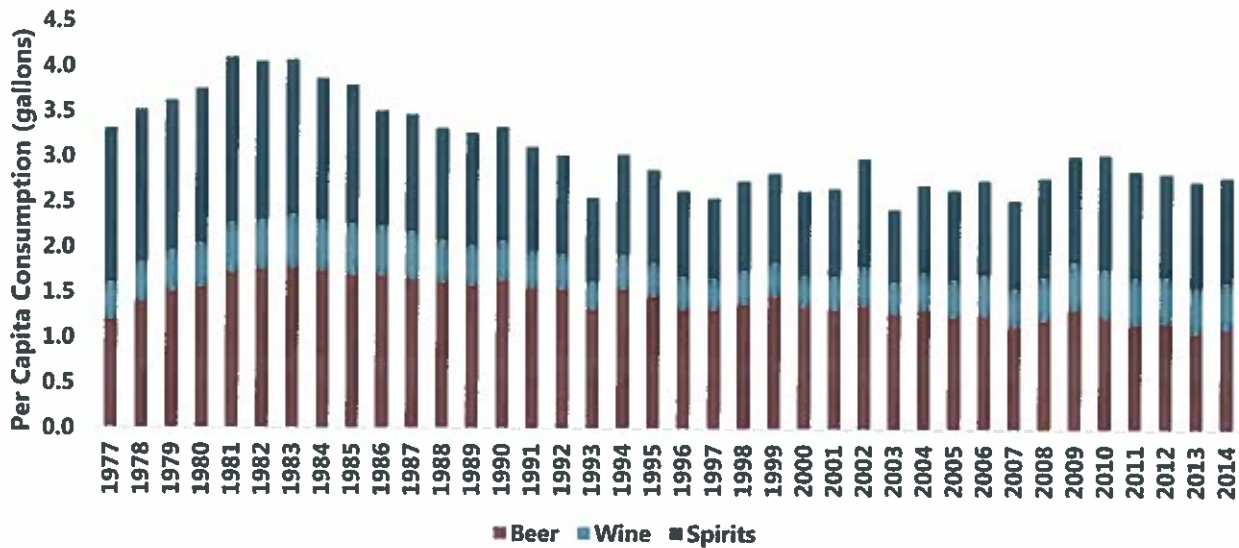
Based on Alaska's population age 14 and over, per capita consumption totaled 2.8 gallons of ethanol contained in beer, wine, and spirits. That ethanol was contained in:

- 24.8 gallons of beer (containing 1.1 gallons of ethanol)
- 4.0 gallons of wine (containing 0.5 gallons of ethanol)
- 2.8 gallons of spirits (containing 1.2 gallons of ethanol)⁴

In per capita terms, alcohol consumption has been trending down in Alaska over the long term, but is variable year-to-year. Over the past 20 years, consumption has essentially been flat.

⁴ Averages include non-drinkers.

Figure 10. Per Capita Equivalent Alcohol Consumption in Alaska, Gallons of Ethanol, 1977-2014



Source: National Institute on Alcohol Abuse and Alcoholism.

The overall U.S. average was 2.34 gallons for a total of 1.6 million gallons consumed in Alaska (by both residents and non-resident visitors) in 2013. Alaska's consumption was in the top 30 percent of U.S. states' consumption rates.

Consumer Spending

Though no definitive data is available, an estimated \$450 million to \$500 million is spent annually in Alaska on alcoholic beverages. This estimate includes spending on alcoholic beverages at liquor stores, bars, and restaurants, and includes resident and non-resident spending.

Alcohol Consumption Comparisons with Other States

CURRENT AND BINGE ALCOHOL USE

In 2013-2014, Alaska ranked 26th in the country for the number of people reporting current alcohol use and 31st for binge drinking. In terms of alcohol dependence or abuse, Alaska's ranking for alcohol dependence or abuse was 20th and for dependence alone 21st.

(See figure next page.)

Table 13. Alcohol Consumption Patterns, National and State Model-Based Prevalence Estimates sorted by Alcohol Use in the Past Month, Age 12+, Percent, 2013-2014

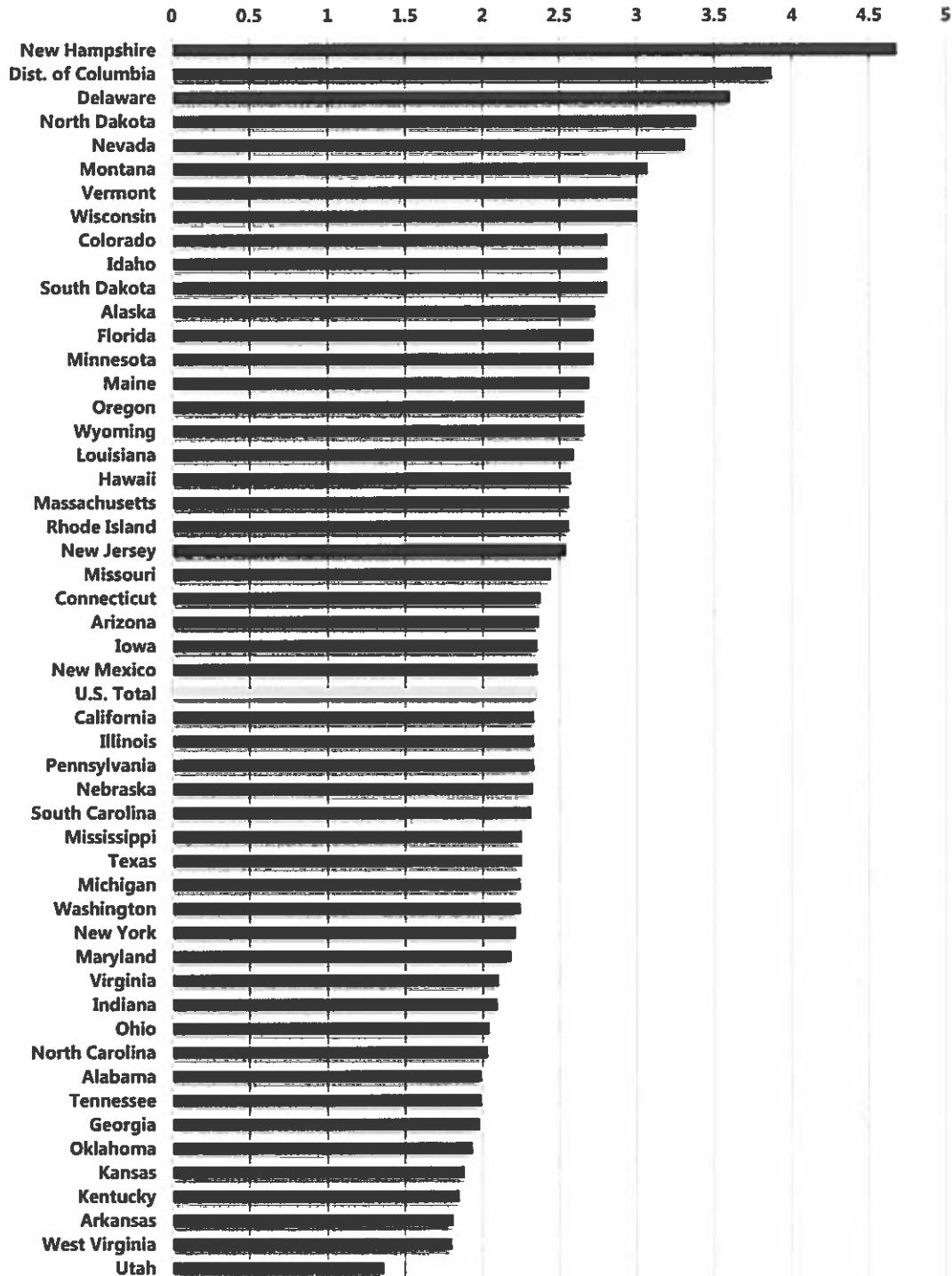
State	Current Alcohol Use		Binge Alcohol Use		Alcohol Dependence or Abuse in Past Year		Alcohol Dependence in Past Year	
Order of Rank	Mid-Point %	95% Conf. Interval	Mid-Point %	95% Conf. Interval	Mid-Point %	95% Conf. Interval	Mid-Point %	95% Conf. Interval
D.C.	68.0	65.2-70.7	34.0	31.3-36.7	9.8	8.4-11.4	4.3	3.4-5.5
New Hampshire	64.4	61.4-67.2	24.7	22.4-27.1	7.6	6.5-8.9	3.5	2.8-4.4
Wisconsin	62.6	59.7-65.4	29.9	27.1-32.8	7.8	6.6-9.1	3.4	2.7-4.2
Massachusetts	62.1	59.2-64.9	24.2	21.9-26.6	6.7	5.7-7.8	2.8	2.2-3.6
Colorado	61.6	58.7-64.3	25.6	23.2-28.1	7.5	6.4-8.8	3.2	2.6-4.0
Vermont	61.2	58.1-64.2	23.4	21.0-25.8	7.2	6.1-8.4	3.4	2.7-4.3
Connecticut	59.9	56.9-62.9	23.5	21.3-26.0	6.8	5.7-7.9	2.9	2.3-3.7
Maine	59.1	56.0-62.1	22.7	20.5-25.2	5.7	4.7-6.8	2.7	2.1-3.4
North Dakota	58.8	56.0-61.5	28.1	25.8-30.4	7.8	6.7-9.0	3.6	2.9-4.4
Minnesota	58.8	55.7-61.7	24.1	21.8-26.5	6.3	5.3-7.5	2.7	2.1-3.4
Montana	58.4	55.2-61.5	24.3	22.0-26.7	7.6	6.5-8.9	3.5	2.8-4.4
Maryland	58.0	55.0-61.0	22.6	20.3-25.1	6.7	5.6-7.9	3.0	2.4-3.9
Rhode Island	57.8	54.7-60.8	25.1	22.7-27.7	7.7	6.5-9.1	3.6	2.9-4.6
Nebraska	57.2	54.3-60.1	24.1	21.8-26.5	7.5	6.4-8.8	3.4	2.8-4.3
Oregon	57.2	54.0-60.2	22.1	19.9-24.5	7.0	5.9-8.2	3.2	2.5-4.0
Pennsylvania	57.1	55.4-58.8	24.4	23.0-25.9	6.6	5.9-7.4	2.8	2.4-3.3
New Jersey	57.0	54.1-59.8	22.6	20.3-24.9	6.5	5.5-7.6	2.8	2.2-3.6
Delaware	56.6	53.5-59.6	23.0	20.7-25.5	6.2	5.2-7.3	2.8	2.2-3.5
Iowa	56.1	53.2-59.1	25.4	23.1-27.8	6.2	5.3-7.4	2.9	2.3-3.6
New York	56.1	54.5-57.7	23.8	22.5-25.2	6.6	5.9-7.4	3.3	2.8-3.8
Illinois	55.6	53.9-57.2	26.4	24.9-27.9	6.2	5.5-6.9	3.0	2.5-3.5
Wyoming	55.4	52.3-58.5	25.1	22.8-27.5	7.5	6.4-8.9	3.6	2.9-4.5
South Dakota	55.2	52.3-58.1	25.6	23.3-28.0	7.6	6.5-8.9	3.4	2.7-4.3
Nevada	54.6	51.5-57.7	24.4	21.9-27.1	6.8	5.7-8.0	3.3	2.6-4.1
Michigan	54.5	52.9-56.2	24.6	23.2-26.0	6.1	5.5-6.8	3.0	2.6-3.5
Alaska	54.0	51.1-56.9	22.9	20.6-25.4	6.7	5.7-7.9	3.2	2.5-4.1
Ohio	53.8	52.1-55.5	25.2	23.8-26.7	6.7	5.9-7.5	3.1	2.7-3.6
Kansas	53.8	50.8-56.7	23.8	21.5-26.3	7.4	6.3-8.7	3.3	2.7-4.2
Washington	53.7	50.8-56.6	20.3	18.3-22.5	6.6	5.5-7.8	2.8	2.3-3.6
Florida	53.2	51.5-54.9	20.9	19.6-22.3	6.0	5.4-6.7	2.8	2.3-3.3
Virginia	52.8	49.9-55.6	23.1	21.0-25.3	7.1	6.1-8.2	3.3	2.7-4.0
Arizona	51.8	48.7-54.9	23.3	21.0-25.9	7.6	6.4-9.0	3.4	2.7-4.4
Indiana	51.1	48.0-54.2	21.7	19.6-24.0	6.7	5.7-7.8	3.3	2.6-4.1
Missouri	50.8	47.8-53.9	25.1	22.8-27.5	6.4	5.4-7.5	2.8	2.2-3.6
California	50.7	49.3-52.1	22.4	21.3-23.7	6.7	6.0-7.3	3.3	2.9-3.8
Hawaii	49.6	46.5-52.7	24.4	22.0-27.0	6.8	5.6-8.2	3.5	2.7-4.4
Louisiana	49.1	46.2-52.1	23.8	21.5-26.4	6.0	5.1-7.2	3.2	2.5-4.0
Oklahoma	48.9	45.8-52.0	23.9	21.5-26.5	6.4	5.3-7.7	2.9	2.2-3.7
Georgia	48.6	45.7-51.6	20.9	18.7-23.2	6.2	5.2-7.3	3.1	2.5-3.8
New Mexico	48.5	45.3-51.8	24.4	22.0-26.9	6.9	5.8-8.2	3.4	2.7-4.4
S. Carolina	48.0	45.2-50.9	21.9	19.8-24.2	5.9	5.0-7.0	2.9	2.3-3.7
Texas	47.3	45.7-48.8	22.3	21.0-23.6	6.5	5.9-7.2	2.9	2.5-3.4
Idaho	47.1	44.2-50.5	20.0	18.0-22.2	6.7	5.7-7.8	3.2	2.5-3.9
N. Carolina	47.0	44.1-49.9	20.3	18.2-22.6	6.1	5.2-7.3	2.9	2.3-3.7
Alabama	44.7	41.6-47.9	21.6	19.3-24.1	5.8	4.8-6.8	3.0	2.4-3.8
Tennessee	43.0	39.9-46.1	17.9	15.9-20.2	5.4	4.5-6.4	2.5	1.9-3.2
Kentucky	42.5	39.5-45.5	19.6	17.5-22.0	5.5	4.6-6.7	2.6	2.0-3.3
Arkansas	42.4	39.6-45.4	20.8	18.7-23.0	5.2	4.4-6.3	2.7	2.1-3.5
Mississippi	42.1	39.1-45.1	19.8	17.6-22.2	5.8	4.8-6.9	3.1	2.4-3.8
West Virginia	38.6	35.7-41.5	19.5	17.5-21.7	6.3	5.3-7.5	3.1	2.4-3.9
Utah	31.9	29.1-34.8	15.9	14.0-18.0	5.4	4.5-6.5	2.7	2.1-3.5
U.S.	52.4	51.9-52.9	22.9	22.6-23.3	6.5	6.3-6.7	3.0	2.9-3.2

Source: National Survey of Drug Use and Health, SAMHSA.

The following diagram shows Alaska ranking 12th in terms of per capita consumption. Caution is urged in interpreting this data, as the estimates include non-resident purchases that occur within each state. As a result, New Hampshire is the top ranked state likely because residents of neighboring states travel there to purchase tax-free alcohol. Similarly, Alaska's large number of visitors each year (approximately 2 million), inflates statewide consumption.

(See figure on next page.)

**Figure 11. Apparent Alcohol Consumption (All beverages combined),
Alaska, All Other States, and U.S., Gallons of Ethanol, 2013**



Source: National Institute on Alcohol Abuse and Alcoholism.

Table 14. Apparent Alcohol Consumption, Alaska, All Other States, and U.S., Gallons of Ethanol, 2013

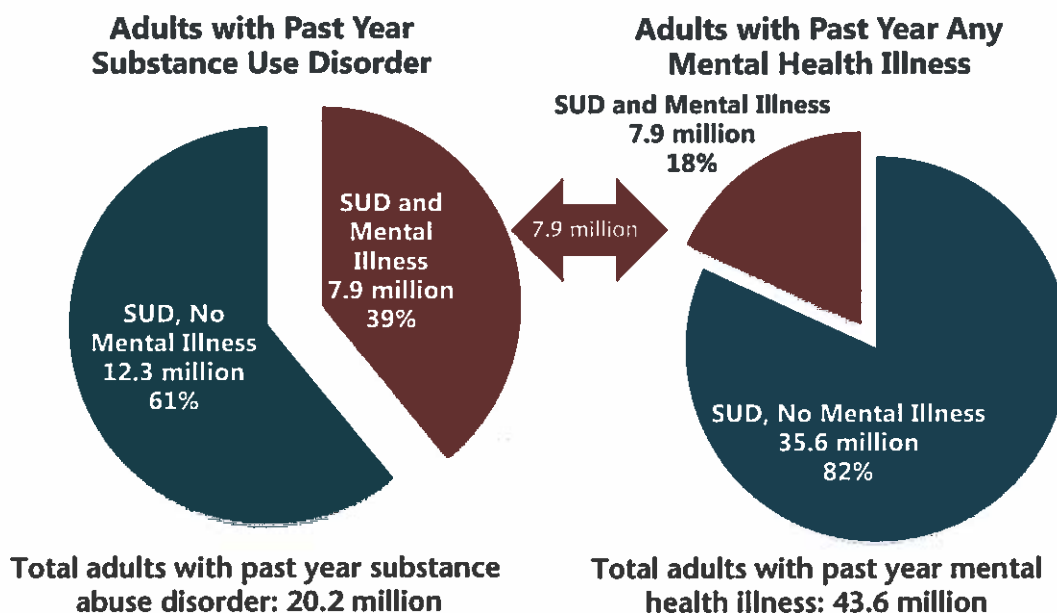
State	Beer Per Capita (gallons)	Wine Per Capita (gallons)	Spirits Per Capita (gallons)	All Beverages Per Capita (gallons)	U.S. Decile
New Hampshire	1.86	0.89	1.93	4.68	1
Dist. of Columbia	1.17	1.02	1.68	3.87	1
Delaware	1.25	0.72	1.63	3.60	1
North Dakota	1.68	0.32	1.37	3.38	1
Nevada	1.40	0.63	1.28	3.31	1
Montana	1.63	0.49	0.95	3.07	2
Vermont	1.54	0.74	0.72	3.00	2
Wisconsin	1.45	0.38	1.18	3.00	2
Colorado	1.20	0.50	1.11	2.81	3
Idaho	0.96	1.08	0.77	2.81	2
South Dakota	1.52	0.28	1.01	2.81	2
Alaska	1.06	0.52	1.16	2.73	3
Florida	1.28	0.49	0.96	2.72	3
Minnesota	1.13	0.43	1.16	2.72	3
Maine	1.36	0.42	0.91	2.69	3
Oregon	1.20	0.57	0.89	2.66	4
Wyoming	1.24	0.29	1.13	2.66	4
Louisiana	1.34	0.32	0.93	2.59	4
Hawaii	1.26	0.54	0.78	2.57	4
Massachusetts	1.01	0.66	0.90	2.56	5
Rhode Island	1.00	0.58	0.98	2.56	4
New Jersey	0.90	0.62	1.03	2.54	5
Missouri	1.19	0.36	0.89	2.44	5
Connecticut	0.85	0.61	0.91	2.37	5
Arizona	1.13	0.42	0.81	2.36	5
Iowa	1.33	0.22	0.80	2.35	6
New Mexico	1.17	0.34	0.85	2.35	6
California	0.98	0.60	0.75	2.33	6
Illinois	1.13	0.42	0.78	2.33	6
Pennsylvania	1.34	0.31	0.68	2.33	6
Nebraska	1.39	0.21	0.72	2.32	6
South Carolina	1.25	0.25	0.81	2.31	7
Mississippi	1.35	0.16	0.73	2.25	7
Texas	1.30	0.32	0.63	2.25	7
Michigan	1.02	0.37	0.85	2.24	7
Washington	0.95	0.53	0.76	2.24	7
New York	0.93	0.51	0.77	2.21	8
Maryland	0.89	0.39	0.90	2.18	8
Virginia	1.02	0.46	0.62	2.10	8
Indiana	1.00	0.28	0.81	2.09	8
Ohio	1.22	0.30	0.53	2.04	8
North Carolina	1.04	0.39	0.60	2.03	9
Alabama	1.14	0.25	0.60	1.99	9
Tennessee	1.05	0.25	0.69	1.99	9
Georgia	1.03	0.25	0.69	1.98	9
Oklahoma	1.11	0.19	0.63	1.93	9
Kansas	0.99	0.14	0.76	1.88	10
Kentucky	0.95	0.20	0.70	1.85	10
Arkansas	1.00	0.20	0.60	1.81	10
West Virginia	1.24	0.10	0.46	1.80	10
Utah	0.67	0.19	0.51	1.36	10
U.S. Total	1.12	0.42	0.80	2.34	

Source: National Institute on Alcohol Abuse and Alcoholism.

Co-Occurring Disorders in the U.S.

According to NSDUH data from *"Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health,"* in 2014, there were 20.2 million adults (age 18 or older) with a past year SUD, and an additional 43.6 million adults who had any mental illness (AMI). Among these two groups, there were 7.9 million adults who had both an SUD and AMI (39 percent of the 20.2 million who have an SUD plus 18 percent of the 43.6 million who have AMI). The 7.9 million adults with co-occurring disorders represent 3.3 percent of the total U.S. population, with 2.3 million experiencing the co-occurrence of an SUD and a serious mental health illness (SMI) (1.0 percent of the total U.S. population).

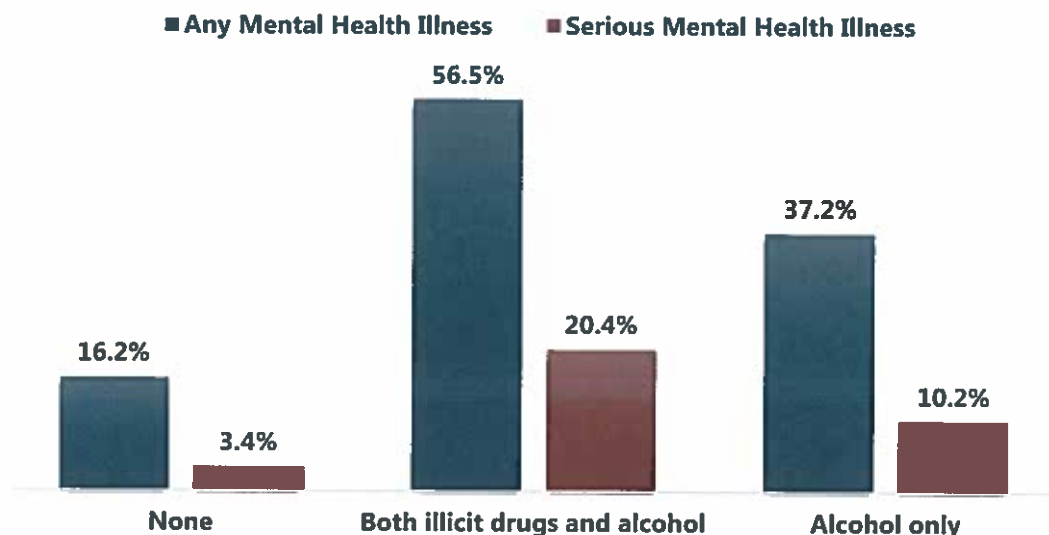
Figure 12. Past Year Co-Occurring Mental Health and Substance Use Disorders, Adults Age 18+, 2014



Source: U.S. Department of Health and Human Services, SAMHSA NSDUH, *"Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health"* (2015).

In 2014, among adults with AMI, only 16 percent had no substance dependence or abuse. However, 57 percent were dependent on or abusing both illicit drugs and alcohol, and 37 percent were dependent on or abusing alcohol only. Among adults with serious mental illness, only 3 percent had no substance dependence or abuse. However, 20 percent were dependent on or abusing both illicit drugs and alcohol, and 10 percent were dependent or abusing alcohol only.

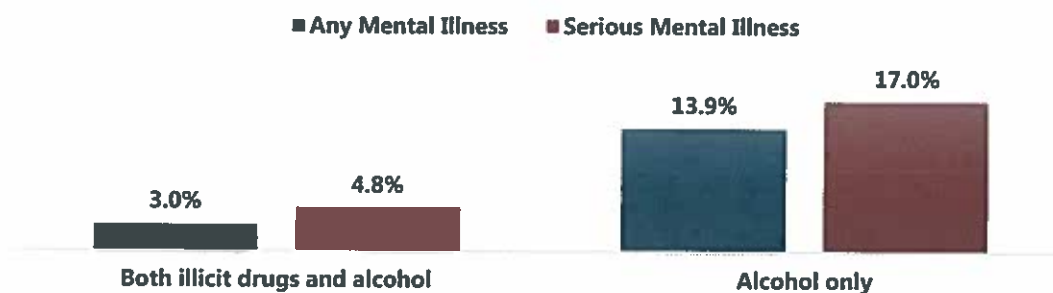
Figure 13. Percentage of Adults (18+ Years) with Mental Illness in the Past Year, by Past Year Alcohol Only or Both Alcohol and Drug Dependence or Abuse, 2014



Source: SAMHSA's NSDUH, "Results from the 2014 National Survey on Drug Use and Health: Mental Health Detailed Tables" (2015).

In 2014, among adults with SUDs, 3 percent of those with AMI were dependent on or abusing both illicit drugs and alcohol and 14 percent were dependent on or abusing alcohol only. For those with past year SMI, 5 percent were dependent on or abusing both illicit drugs and alcohol, and 17 percent were dependent on or abusing alcohol only.

Figure 14. Percentage of Adults (18+ Years) with Alcohol Only or Both Alcohol and Drug Dependence or Abuse in the Past Year, by Past Year Mental Illness, 2014



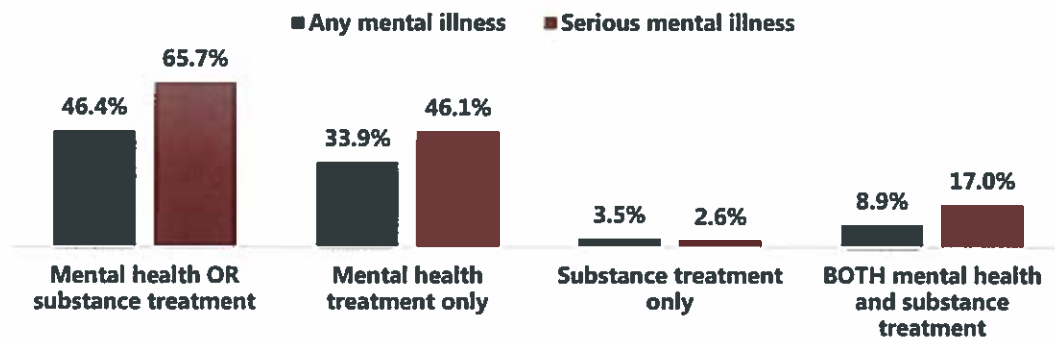
Source: SAMHSA's NSDUH, "Results from the 2014 National Survey on Drug Use and Health: Mental Health Detailed Tables" (2015).

Mental health and substance use co-occurring disorders are not limited to adults. While NSDUH does not estimate overall mental health among adolescents age 12-17, it does provide estimates of adolescents having a past year major depressive episode (MDE). MDE is defined as a period of two or more weeks in the past year when an individual experiences a depressed mood or loss of interest or pleasure in daily activities, with at least four out of seven qualifying symptoms (i.e. problems with sleep, eating, energy, concentration, and self-worth). In 2014, there were an estimated 271,000 adolescents in the U.S. who had an SUD and an MDE, approximately 1.1 percent of all U.S. adolescents.

TREATMENT

In 2014, among adults who had substance abuse or dependence in the past year and received some form of treatment, 46 percent with AMI received mental health or substance treatment, 34 percent with AMI received mental health treatment only, 4 percent with AMI received substance treatment only, and 9 percent with AMI received both mental health and substance treatment. Of adults who had a past year substance abuse or dependence and received some form of treatment, 66 percent of those with SMI received mental health or substance treatment, 46 percent of those with SMI received mental health treatment only, 3 percent of those with SMI received substance treatment only, and 17 percent of those with SMI received both mental health and substance treatment.

Figure 15. Percentage of Substance Abuse or Dependence in the Past Year Who Received Mental Health Treatment/Counseling and/or Illicit Drug or Alcohol Treatment in the Past Year, Adults Age 18+, 2014

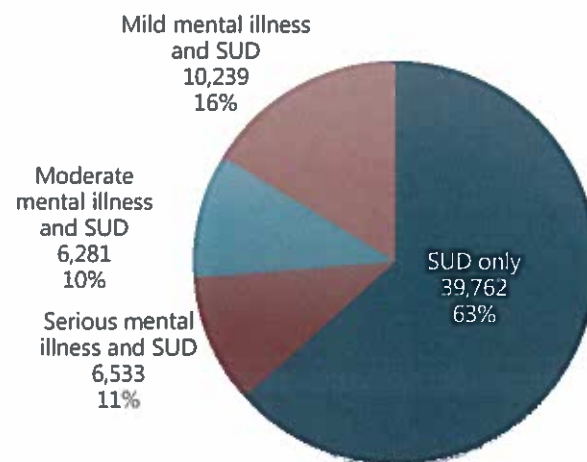


Source: SAMHSA's NSDUH, "Results from the 2014 National Survey on Drug Use and Health: Mental Health Detailed Tables" (2015).

Co-Occurring Disorders in Alaska

According to the report "*Alaska Behavioral Health Systems Assessment Final Report*," in 2013, there were approximately 62,815 adults in Alaska who needed treatment for an SUD. Of those who needed treatment, 22,990 were estimated to have AMI (37 percent of those needing SUD treatment), approximately 3.1 percent of the total Alaska population. Of those with AMI and an SUD, 16 percent had SUD and mild mental illness, 10 percent had moderate mental illness and SUD, and 11 percent had an SMI and SUD.

Figure 16. Alaska Adult Past Year Mental Health Prevalence Among Persons Needing Treatment for Illicit Drug or Alcohol Use, 2013



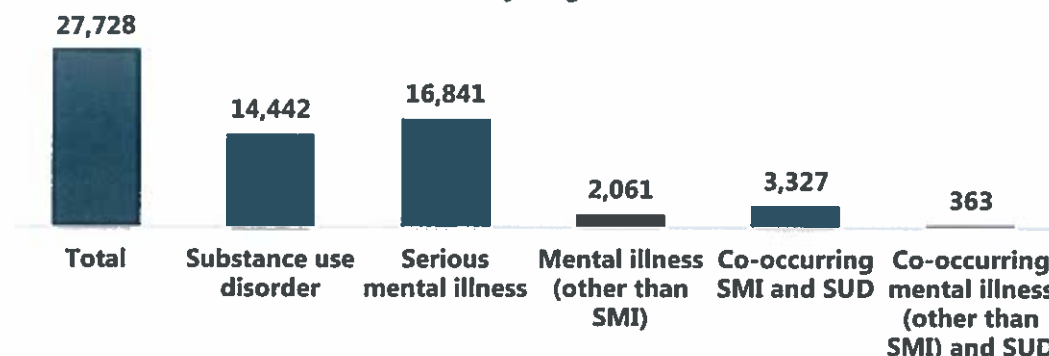
Source: Alaska Mental Health Trust Authority, "Alaska Behavioral Health Systems Assessment Final Report" (2016).

TREATMENT

According to SAMHSA's National Survey of Substance Abuse Treatment Services (N-SSATS), in 2013, Alaska had 91 treatment facilities, of which 83 offered treatment services for co-occurring disorders.⁵

Per a report produced for the Alaska Mental Health Trust Authority, in SFY 2013, Alaska behavioral health services served 27,728 unique adult clients with support from State Medicaid and/or behavioral health funds. There were 14,442 individuals with SUD, 16,641 with SMI, 2,061 with mental illness other than SMI, 3,327 with co-occurring SMI and SUD, and 363 with co-occurring SUD and mental illness other than SMI. Adults with SUD or SMI make up 61 percent of the total, and co-occurring disorders comprise 13 percent of the 27,728 Alaska adults.

Figure 17. Total Number of Alaska Adults Served with Support from State Medicaid and Behavioral Health Funds by Diagnosis, FY2013



Notes: Alcohol and/or Related Deaths, as defined, with 100 percent alcohol or drug-attributable ICD-10 codes listed in at least one contributing cause of death, as coded in the International Classification of Diseases, 10th Revision.
Source: Alaska Mental Health Trust Authority, "Alaska Behavioral Health Systems Assessment Final Report" (2016).

⁵http://www.samhsa.gov/data/sites/default/files/2013_N-SSATS/2013_NSSATS_National_Survey_of_Substance_Abuse_Treatment_Services.pdf

Chapter 2: Productivity Losses

Summary

- From 2010 to 2014, there were 7,120 deaths in Alaska that had an ICD-10 code potentially linked to alcohol. By applying the attributable fractions, 1,426 of the deaths were attributable to alcohol. Between 2010 and 2014, there was an annual average of 285 alcohol-related deaths.
- There are two ways to measure productivity loss due to alcohol-related deaths: 1) deaths where the primary (or underlying) causes of death are linked to alcohol or 2) deaths where alcohol were not linked to the primary cause but were a subsequent cause with an attributable fraction assigned to that cause of 100 percent due to alcohol (see Tables 62-64 in the appendix for details on which causes are 100 percent attributable). These two measures cannot be combined because there will be overlap between deaths where both primary and subsequent causes were attributable to alcohol abuse. However, both measures are useful as indicators of the productivity loss associated with alcohol abuse.
- Productivity loss due to deaths where alcohol is the primary cause of death totaled approximately \$582 million in Alaska in 2014.
 - An average of 94 women and 191 men died per year from alcohol abuse.
 - Female deaths attributed to alcohol caused a productivity loss of \$138.3 million (23 percent of total), while male deaths caused the remaining \$443.2 million productivity loss.
 - The age group with the highest productivity loss was ages 45-54, followed by ages 55-64 and ages 35-44.
- Productivity loss due to deaths where alcohol was listed in a subsequent cause of death and the attribution fraction was 100 percent for that cause totaled \$709 million.
 - An average of 152 women and 242 men died per year.
 - Productivity loss for female deaths was \$211 million (30 percent of the total), and the remaining \$497 million for men.
 - The age group with the highest productivity loss was ages 45-54, followed by ages 55-64, and 35-44.
- The estimated cost of lost productivity due to alcohol abuse-related incarceration in Alaska in 2014 was about \$41.5 million, including \$3.2 million for women (8 percent) and \$38.3 million for men (92 percent).
- In 2014, productivity losses due to alcohol dependence were an estimated \$73.4 million.
 - Individuals who were assessed as alcohol dependent in Alaska lost an estimated \$67 million in traditional (workplace) earnings. Men represented \$51 million (77 percent of the total) while women had a productivity loss of \$16 million.

- Individuals who were assessed as alcohol dependent or abusive, there was an estimated loss of \$139.1 million in traditional earnings in 2014. The total for men was \$106.4 million (77 percent) while the balance of the loss, \$32.6 million, was incurred by women.
- The productivity loss due to absenteeism from alcohol dependence or abuse was estimated to be \$6 million in 2014. Men were estimated to have a loss of \$4.5 million (72 percent) while women incurred a loss of \$1.7 million (28 percent).
- In SFY 2015, admission to 24-hour alcohol detoxification and residential treatment services resulted in an estimated loss of \$1.5 million in potential earnings. These lost earnings were associated with approximately 46,661 bed days for alcohol treatment.
- In SFY 2015, 26,289 lost days of work for medical treatment of diseases and conditions attributable to alcohol abuse resulted in an estimated \$5.0 million in lost earnings.
- In 2015, in total, alcohol abuse resulted in \$775 million in lost productivity in Alaska.

Lost Productivity Due to Mortality

One of the largest economic costs to Alaska due to alcohol abuse results from premature death. Various causes of death can be attributed to alcohol abuse either directly or indirectly, such as alcohol poisoning, cirrhosis of the liver, motor vehicle collisions, diabetes, or homicide. In all such cases, premature death results in the loss of the person's potential productivity. Total lost productivity because of death makes up the largest alcohol-attributable cost to the Alaska economy.

Since each individual has the potential to join the workforce and contribute to the economy, premature death costs the economy in the form of lost production of goods and services as well as the circulation of earned wages back into the local economy. While some individuals may not join the workforce, they nevertheless have the potential to create societal value by performing household services, such as raising children and maintaining the household.

According to DHSS' BVS, 7,120 deaths occurred in Alaska from 2010 to 2014 that included an ICD-10 code that could be linked to alcohol. By applying the attributable fractions, it was estimated 1,426 of these deaths (20 percent) were attributable to alcohol. There was an annual average of 285 alcohol-related deaths between 2010 and 2014.

Table 15. Alaska Alcohol-Related Deaths, 2010-2014

	Deaths Caused by Selected ICD-10 Diagnoses 2010-2014	Estimated Alcohol Attributable Deaths 2010-2014	Annual Average Alcohol Attributable Deaths Per Year
Directly attributable (100 percent)	620	620	124
Partially attributable <100 percent	6,501	807	161
Total	7,120	1,426	285

Notes: Due to rounding columns may not add to totals. See the Appendix for ICD-10 codes used and specific alcohol attribution rates by gender and age groups, along with estimations by cause of death.

Source: Death counts provided by DHSS' Division of Public Health Bureau of Vital Statistics' (BVS) unpublished data and McDowell Group calculations. Alcohol attribution rates from CDC, Alcohol and Public Health, Alcohol-Related Disease Impacts (ARDI).

Estimated Productivity Losses for Primary (Underlying) Cause of Death

The table below shows the annual average number of alcohol-attributable deaths by age and gender from 2010 to 2014 where alcohol was the primary cause of death. The table includes estimates of the inflation-adjusted future earnings for each age group and gender and the estimated economic loss by age group and gender.⁶ The primary (underlying) causes of alcohol-related death with the highest annual costs were alcoholic liver disease (56 deaths per year), suicide (37 deaths per year), poisoning by substances other than alcohol (29 deaths per year), and alcohol poisoning (28 deaths per year). Total productivity loss due to alcohol-attributable deaths is estimated at \$581.5 million. Almost one quarter of the productivity loss attributed to alcohol (\$138.3 million) is associated with female deaths. The remaining \$443.2 million is associated with male deaths.

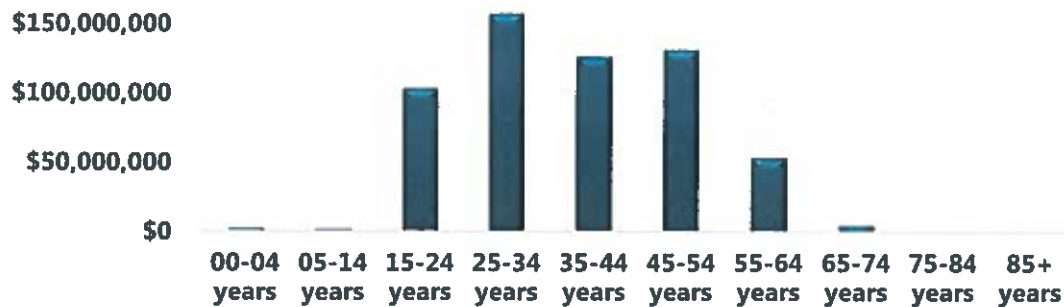
Table 16. Estimated Productivity Loss in Alaska, Primary Cause Alcohol-Attributable Mortality, by Age and Gender, Annual Average Deaths 2010-2014, \$2014

	Annual Ave. Alcohol Attributable Deaths	Net Present Value of Future Earnings (3% Discount Rate)	Estimated Loss Due to Alcohol (\$)
Females			
0-4 years	0.4	\$2,240,253	\$931,945
5-14 years	0.3	\$2,641,089	\$697,247
15-24 years	7.3	\$3,056,355	\$22,183,025
25-34 years	12.6	\$2,847,565	\$35,850,843
35-44 years	14.6	\$2,185,690	\$32,015,987
45-54 years	25.8	\$1,343,687	\$34,626,814
55-64 years	21.0	\$532,092	\$11,190,959
65-74 years	5.6	\$122,750	\$689,364
75-84 years	3.5	\$22,338	\$78,183
85+ years	2.8	\$1,113	\$3,087
Females Total	94	-	\$138,267,455
Males			
0-4 years	0.5	\$3,028,719	\$1,641,566
5-14 years	0.4	\$3,572,336	\$1,350,343
15-24 years	19.2	\$4,225,625	\$80,988,329
25-34 years	29.0	\$4,185,264	\$121,565,178
35-44 years	27.8	\$3,390,101	\$94,122,764
45-54 years	43.6	\$2,214,940	\$96,584,674
55-64 years	43.9	\$960,192	\$42,196,598
65-74 years	17.6	\$250,985	\$4,416,332
75-84 years	6.5	\$48,252	\$313,831
85+ years	2.8	\$4,054	\$11,189
Males Total	191	-	\$443,190,803
Overall Total	285	-	\$581,458,258

Note: Due to rounding columns may not add to totals. The term, "primary" is substituted for the official term, "underlying."
Source: Death counts provided by DHSS' BVS' unpublished data, and McDowell Group calculations. Alcohol attribution rates from CDC's ARDI. Net present value of future earnings from Wendy Max, Dorothy Rice, Hai-Yen Sung, Martha Michel, "Valuing Human Life: Estimating the Present Value of Lifetime Earnings, 2000" (2004). Values have been adjusted for inflation from ADOLWD Research and Analysis, <http://laborstats.alaska.gov/cpi/cpi.htm>.

⁶ The totals in this section may differ slightly from totals in other sections in this chapter due to the removal of deaths where the age of the person is unknown.

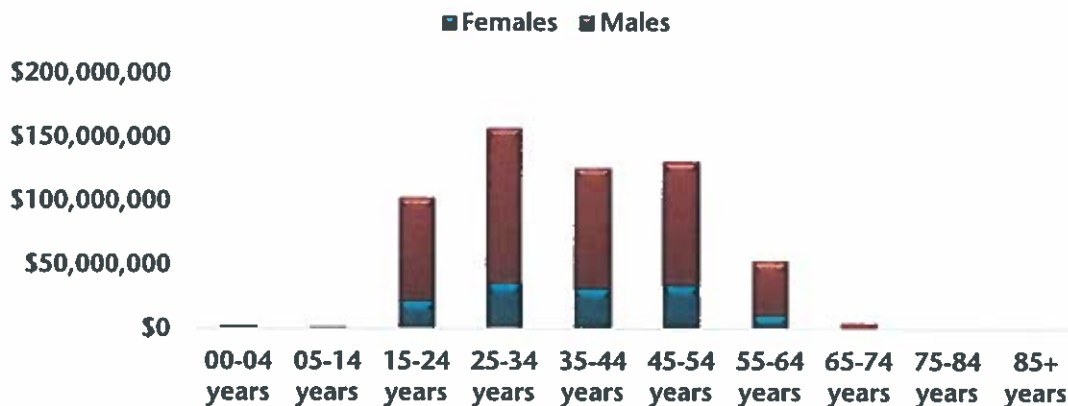
Figure 18. Estimated Productivity Loss in Alaska, Primary Cause Alcohol-Attributable Mortality, by Age Group and Gender, Annual Average Deaths 2010-2014, \$2014



Note: The term, "primary" is substituted for the official term, "underlying" because it is more commonly understood. Source: DHSS' BVS' unpublished data, McDowell Group calculations, CDC's ARDI, CDC's Vital Statistics, Patra et al., Rogers et al., Max et al., and ADOLWD.

In 2014 dollars, the largest losses of deaths attributable to alcohol were in age 25-34 group, followed by ages 45-54 and 35-44.

Figure 19. Estimated Productivity Loss in Alaska, Primary Cause Alcohol-Attributable Mortality, by Age Group and Gender, Annual Average Deaths 2010-2014, \$2014



Note: The term, "primary" is substituted for the official term, "underlying" because it is more commonly understood. Source: DHSS' BVS' unpublished data, McDowell Group calculations, CDC's ARDI, Max et al. and ADOLWD.

Estimated Productivity Losses for Contributing (Not Primary) Cause of Death

Another way to estimate productivity loss is to consider alcohol-related deaths when the primary cause of death was not alcohol-attributable, but rather a contributing cause and the attributable fraction assigned to that cause is 100 percent (see Tables 62-64 in the appendix for details on which causes of death are 100 percent attributable).

Based on this methodology, the number of alcohol-attributable deaths between 2010 and 2014 is 1,970, for an annual average of 394 alcohol-related deaths per year from 2010-2014.

For all deaths where alcohol was a contributing cause and where the attribution rate assigned to the cause was 100 percent due to alcohol, there was an estimated productivity loss of \$708.9 million. Females had an annual average of 152 deaths per year for a productivity loss of \$211.5 million (30 percent of total), while males averaged 242 deaths per year for a productivity loss of \$497.4 million (70 percent of total). The age group with the highest productivity loss was ages 45-54, followed by ages 25-34, and 35-44.

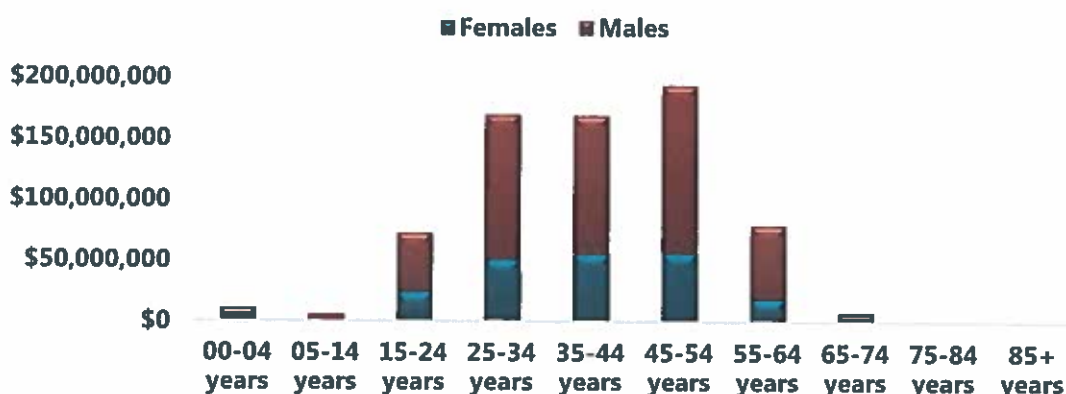
Table 17. Estimated Productivity Loss in Alaska, Contributing Cause Alcohol-Attributable Mortality Deaths, by Age and Gender, Annual Average Deaths 2010-2014, \$2014

	Annual Average Deaths Per Year 2010-2014	Net Present Value of Future Earnings	Estimated Loss (\$)
Females			
0-04	1.2	\$2,240,253	\$2,688,304
5-14	0.6	\$2,641,089	\$1,584,653
15-24	8.0	\$3,056,355	\$24,450,841
25-34	17.8	\$2,847,565	\$50,686,654
35-44	25.4	\$2,185,690	\$55,516,524
45-54	41.8	\$1,343,687	\$56,166,124
55-64	35.4	\$532,092	\$18,836,043
65-74	11.0	\$122,750	\$1,350,250
75-84	7.8	\$22,338	\$174,240
85+	3.0	\$1,113	\$3,338
Females Total	152	-	\$211,456,971
Males			
0-04	2.8	\$3,028,719	\$8,480,415
5-14	1.0	\$3,572,336	\$3,572,336
15-24	11.4	\$4,225,625	\$48,172,124
25-34	28.4	\$4,185,264	\$118,861,501
35-44	33.4	\$3,390,101	\$113,229,361
45-54	62.2	\$2,214,940	\$137,769,277
55-64	63.0	\$960,192	\$60,492,102
65-74	25.4	\$250,985	\$6,375,006
75-84	9.8	\$48,252	\$472,872
85+	4.2	\$4,054	\$17,028
Males Total	242	-	\$497,442,023
Overall Total	394	-	\$708,898,993

Notes: Alcohol Related Deaths, as defined, with 100 percent alcohol-attributable ICD-10 codes listed in at least one contributing cause of death, as coded in the International Classification of Diseases, 10th Revision. Due to rounding, some columns may not sum to total.

Source: Death counts provided by DHSS' BVS' unpublished data and McDowell Group calculations. Net present value of future earnings from Wendy et al., "Valuing Human Life: Estimating the Present Value of Lifetime Earnings, 2000" (2004). Values have been adjusted for inflation from ADOLWD Research and Analysis, <http://laborstats.alaska.gov/cpi/cpi.htm>.

Figure 20. Estimated Productivity Loss in Alaska, Contributing Cause Alcohol-Attributable Mortality Deaths, by Age and Gender, Annual Average Deaths 2010-2014, \$2014



Notes: Alcohol Related Deaths, as defined, with 100 percent alcohol-attributable ICD-10 codes listed in at least one contributing cause of death, as coded in the International Classification of Diseases, 10th Revision.
Source: DHSS' BVS' unpublished data, McDowell Group calculations, CDC's ARDI, CDC's Vital Statistics, Patra et al., Rogers et al., Max et al., and ADOLWD.

Estimated Value of Potential Years of Life Lost (PYLL)

Yet another way to see the impact of mortality due to alcohol is by calculating the potential years of life lost (PYLL). These estimates are based on an average 75-year lifespan for both males and females, a person's age at the time of their death, and how many years they would have been expected to live if alcohol had not been a factor in their deaths.

Using the PYLL method, between 2010 and 2014, there were 1,349 deaths attributable to alcohol for a total of 38,429 PYLL, and an annual average of 7,684 PYLL per year. No attempt was made to calculate a monetary value for PYLL.

Table 18. Estimated PYLL (Potential Years of Life Lost) Due to Alcohol-attributable Causes in Alaska, 2010-2014

Cause	Total Number of Alcohol-attributable Deaths	PYLL Attributable to Alcohol	Average PYLL Per Year
Directly attributable (100 percent)	620	14,927	2,985
Partially attributable <100 percent	729	23,502	4,699
Total	1,349	38,429	7,684

Note: Due to rounding columns may not add to totals.

Source: Death counts provided by DHSS' BVS' unpublished data, and McDowell Group calculations. Alcohol attribution rates from CDC's ARDI.

Lost Productivity Due to Incarceration

Alaska also experiences lost productivity from people incarcerated because of alcohol. Incarcerated individuals may commit a crime directly related to alcohol use, such as driving while intoxicated. They may also commit crimes when they are under the influence of alcohol or to obtain more alcohol. It is assumed incarcerated adults could otherwise be productive members of the workforce or in households. Therefore, their absence from society due to incarceration is an economic loss for Alaska.

The table below shows the number of inmates in Alaska by offense category, the percentages of crimes attributable to alcohol and the estimated numbers of inmates attributed to alcohol. In 2014, there were 3,302 inmates incarcerated in Alaska for the specified offenses. Of those inmates incarcerated due to substance abuse, 998 were attributed to alcohol (30 percent of all inmates).

Table 19. Incarcerations Attributed to Alcohol Abuse by Offense in Alaska, 2014

Type of Offense	2014 Alaska Inmates by offense category ¹	Percent Attributed to Alcohol ²	Estimated Number Attributed to Alcohol
Alcohol offenses	340	100%	340
Assault	749	23%	225
Burglary	108	22%	4
Drug offenses	433	0%	0
Homicide/murder/manslaughter	429	47%	202
Larceny-theft	286	16%	46
Motor vehicle theft	49	23%	11
Prostitution	2	1%	0
Robbery	130	27%	24
Sexual offenses	776	22%	146
Total	3,302		998

¹ Alaska Department of Corrections (DOC), "Alaska Offender Profile, 2014" (2015). http://www.correct.state.ak.us/admin/docs/Final_2014_Profile.pdf

² The Lewin Group, "Economic Cost of Excessive Alcohol Consumption in the United States, 2006" (2010).

To estimate the cost of lost productivity, the study team obtained median individual annual average earnings for Alaska's population 16 or older by gender from the ACS 2010-2014 Five-Year Data. These earnings (adjusted for inflation to 2014 dollars) were \$42,923 (+/- \$800) for males and \$30,441 (+/- \$400) for females. The estimated cost of lost productivity due to incarceration in Alaska in 2014 was \$51.5 million; \$3.2 million from women (8 percent) and \$38.3 million from men (92 percent).⁷

Table 20. Cost of Lost Productivity Attributed to Alcohol in Alaska, by Gender, 2014

Estimated Number	Attributed to Alcohol ¹	Total ¹	Median Earnings ²	Earnings Lost Due to Incarceration Due to Alcohol
Females incarcerated	106	249	\$30,441	\$3,226,746
Males incarcerated	892	1,483	\$42,923	\$38,287,316
Total	998	1,732		\$41,514,062

Source: ¹ McDowell Group calculations based on DOC, and the Lewin Group alcohol attribution rates. ² American Community Survey (ACS) 2010-2014 Five-Year Data.

Losses Due to Diminished Productivity

Alcohol abuse can impair an individual's productivity in employment (physical and/or mental impairment, ability, willingness, or motivation to work or find a job, etc.) and non-employment activities (household chores, parenting, etc.).

⁷ The large differential between men and women is partly because of men's higher earnings but mainly because men are a much larger proportion of the prison population than women.

Overall, in 2014, economic productivity losses due to alcohol dependence were estimated to be \$73.4 million, while losses due to alcohol dependence or abuse were estimated at \$145.6 million. These estimates address only workplace earnings. While non-employment impacts are important, there is no generally accepted method to compute monetary values for household activities.

**Table 21. Alaska Diminished Productivity Losses
Due to Alcohol Dependence or Abuse, 2014**

	Dependent	Dependent or Abusing
Traditional earnings	\$66,978,525	\$139,138,770
Absenteeism	\$6,468,016	\$6,468,016
Total	\$73,446,541	\$145,606,786

Source: McDowell Group calculations.

Alcohol Dependence and Abuse

LOSSES RELATED TO TRADITIONAL EARNINGS

Two estimates of impaired productivity losses in traditional earnings are shown below. The first is for individuals who reported alcohol dependence in the past year, while the second is for individuals who reported alcohol dependence or abuse in the past year. The estimates cannot be added together as there is overlap.

In 2014, there was an estimated loss of \$67.0 million in traditional earnings by individuals who reported past year alcohol dependence in Alaska. Males lost approximately \$51.2 million (77 percent), while females lost 15.7 million (24 percent).

**Table 22. Alaska Labor Force Earnings Losses, Workers with a History of Alcohol Dependence,
by Gender, 2014**

	Male	Female	Total
2014 Alaska population 18+ years ¹	284,570	263,915	548,485
2013-2014 Annual average percentage of population 18+ years reporting past year alcohol dependence ³	3.5%	3.5%	--
Estimated number of Alaskans 18+ years alcohol dependent	9,931	9,211	19,142
2010-2014 Median Alaska individual annual average earnings ⁴	\$42,923	\$30,441	-
Loss in productivity from alcohol dependence ²	12.0%	5.6%	-
Estimated productivity loss due to alcohol dependence	\$51,243,257	\$15,735,268	\$66,978,525

Columns may not add due to rounding.

¹ Alaska Department of Labor and Workforce Development's 2014 population estimates.

² The Lewin Group, "Economic Cost of Excessive Alcohol Consumption in the United States, 2006" (2010).

³ SAMHSA's "National Survey on Drug Use and Health, 2013 and 2014 - Alaska" (2014).

⁴ American Community Survey (ACS) 2010-2014 Five-Year Data.

Individuals who reported past year alcohol dependence or abuse experienced an estimated loss of \$139.1 million in traditional earnings in 2014. Males were estimated to have lost \$106.5 million (77 percent) and females \$32.7 million (24 percent) in earnings.

Table 23. Alaska Labor Force Earnings Losses, Workers with a History of Alcohol Dependence or Abuse, by Gender, 2014

	Male	Female	Total
2014 Alaska population 18+ years ¹	284,570	263,915	548,485
2013-2014 Annual average percentage of population 18+ years reporting past year alcohol dependence or abuse ³	7.3%	7.3%	-
Estimated number of Alaskans 18+ years alcohol dependent or abusing	9,931	9,211	39,765
2010-2014 Median Alaska individual annual average earnings ⁴	\$42,923	\$30,441	-
Loss in productivity from alcohol dependence ²	12.0%	5.6%	-
Estimated productivity loss due to alcohol dependence or abuse	\$106,450,893	\$32,687,877	\$139,138,770

Columns may not add due to rounding.

¹ Alaska Department of Labor and Workforce Development's 2014 population estimates.

² The Lewin Group, "Economic Cost of Excessive Alcohol Consumption in the United States, 2006" (2010).

³ SAMHSA's "National Survey on Drug Use and Health, 2013 and 2014 – Alaska" (2014).

⁴ American Community Survey (ACS) 2010-2014 Five-Year Data.

LOSSES RELATED TO ABSENTEEISM

The productivity loss due to absenteeism was estimated to be \$6.3 million in 2014; males were estimated to have lost \$4.5 million (72 percent) and females \$1.7 million (28 percent).

Table 24. Alaska Productivity Losses Due to Alcohol-related Absenteeism, by Gender and Age Groups, 2014

	2014 Alaska Population 18+ Years ¹	% Alaska Civilian Population Employed Full-Time, Year-Round (16+ years) ²	% Alaska Nondependent Binge Alcohol Use ³	Mean Excess Days Lost Per Year ⁴	Median Daily Earnings for Full-Time, Year-Round Civilian Employees ²	Estimated Productivity Loss (\$)
Females	263,915	43%	-	-	\$121.97	\$1,740,880
18-25 years	39,129	43%	33%	0.778	\$121.97	\$522,516
26+ years	224,786	43%	19%	0.529	\$121.97	\$1,218,363
Males	284,570	57%	-	-	\$160.45	\$4,549,660
18-25 years	45,556	57%	33%	1.114	\$160.45	\$1,500,772
26+ years	239,014	57%	19%	0.723	\$160.45	\$3,048,888
Total	548,485	-	-	-	-	\$6,290,540

Note: Percentage of nondependent binge drinking was calculated by excluding individuals who have been alcohol dependent within the last 12 months. Columns may not add due to rounding. Columns may not add due to rounding.

¹ Alaska Department of Labor and Workforce Development's 2014 population estimates.

² U.S. Census Bureau's American Community Survey (ACS) 2010-2014 Five-Year Estimates.

³ SAMHSA's "National Survey on Drug Use and Health, 2013 and 2014 – Alaska" (2014).

⁴ The Lewin Group, "Economic Cost of Excessive Alcohol Consumption in the United States, 2006" (2010).

Lost Productivity Due to Alcohol Treatments

When individuals are admitted to a medical facility for treatment of alcohol dependence or abuse, they may lose time that would otherwise be spent in the workforce. This results in economic loss due to reduced employment, production, and services. To estimate that loss, this report quantifies potential earnings forfeited by clients admitted to DBH Treatment and Recovery grantee agencies for 24-hour detoxification or residential services.

In SFY 2015, admission to 24-hour detoxification and residential treatment services resulted in an estimated loss of potential earnings of \$1.5 million associated with alcohol abuse/dependence. These lost earnings were associated with 46,661 bed days for alcohol treatment.

Table 25. Number of 24-Hour Detoxification and Residential Bed Days and Estimated Lost Earnings from Alcohol-related Admissions, SFY 2015

	Number/\$ Amount
Number of Bed Days	46,661
Estimated Lost Earning	\$1,494,051

Source: Total number of bed days estimates calculated from data provided by the State of Alaska Division of Behavioral Health.

Incomes varied widely for clients receiving services at residential treatment and detoxification facilities. More than half (56 percent) reported annual incomes of \$0 or less than \$5,000. Estimates of lost earnings per day ranged from \$0 to \$143.

Table 26. Number of Clients Who Received 24-Hour Detoxification or Residential Treatment Services, Number of Bed Days for Those Clients, and Estimated Lost Earnings, Attributable to Alcohol, by Client Income Range, SFY 2015

Income Range	# of Clients	% of Clients	Estimated # of Alcohol Bed Days	Estimated Earnings per Day	Estimated Lost Earnings due to Alcohol Abuse
<18 years	110	5.20%	2,440	\$0	\$0
\$0-4,999	1,176	55.9	26,080	7	186,857
\$5,000-9,999	147	7.0	3,260	21	70,071
\$10,000-\$19,999	257	12.2	5,700	43	245,034
\$20,000-29,999	151	7.2	3,349	72	239,948
\$30,000-39,999	70	3.3	1,552	100	155,676
\$40,000-49,000	53	2.5	1,175	129	151,534
\$50,000+	140	6.7	3,105	143	444,931
Total	2,104	100%	46,661		\$1,494,051

Source: Estimates calculated from data provided by the State of Alaska Division of Behavioral Health.

Lost Productivity Due to Alcohol-Related Medical Conditions

In SFY 2015, 26,289 lost days of work for medical treatment of diseases and conditions attributable to alcohol abuse resulted in an estimated \$5.0 million in lost earnings.

Table 27. Total Length of Stay for Inpatient and ED Treatment of Diseases and Conditions Attributable to Alcohol Abuse, and Subsequent Lost Potential Earnings, SFY 2015

Total Inpatient Length of Stay (days)*	Total ED Length of Stay (days)*	Total Length of Stay (days)	Average Earnings per Day**	Estimated Lost Potential Earnings
10,294	15,995	26,289	\$192	\$5,047,488

Source: *Alaska Hospital Facilities Data Reporting Program (HRFP); **Based on DOLWD wage data.

Chapter 3: Vehicle Traffic Collisions

Summary

- In 2011, 704 vehicle traffic collisions in Alaska were attributed to impaired (alcohol and/or drug) drivers, costing approximately \$991 million.
- Impaired traffic collisions represented about 6 percent of all traffic collisions (a total of 12,576 collisions) in Alaska.
- Of the impaired collisions, 54 percent involved property damage only, 33 percent resulted in minor injuries, 9 percent resulted in major injuries, and 4 percent caused a fatality.
- 1,680 persons were involved in the 704 impaired-related collisions; 229 people had minor injuries, 64 had major injuries, and there were 32 fatalities.
- Nationally, over the past twenty years, approximately 40 percent of all motor vehicle fatalities occurred in collisions in which a driver or non-occupant consumed a measurable level of alcohol prior to the collision.
- Of the \$990.5 million in estimated costs due to substance abuse-related traffic collisions, approximately 60 percent (or \$594.3 million) are related to alcohol abuse.

Impaired Traffic Collisions

The Alaska Department of Transportation and Public Facilities (DOTPF) determines a crash is due to alcohol impairment if one or more of the following criteria are present: 1) the blood alcohol test given to the driver, pedestrian, pedal cyclists, or recreational vehicle operator was positive; 2) a police investigation indicated alcohol consumption was a contributing factor; 3) a citation was issued for driving while under the influence of alcohol, driving with an open container of alcohol, or public drunkenness. While DOTPF maintains records of off-road vehicle collisions such as ATVs and snowmachines that occur on roadways, no record is kept of those incidences that occur off-road.

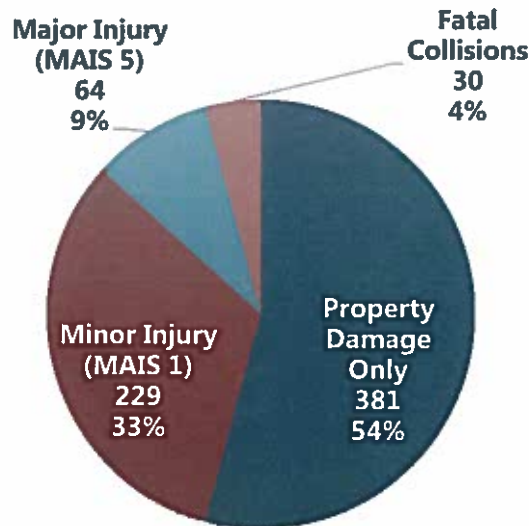
DOTPF maintains records of all traffic collisions in Alaska by injury severity, including impaired (alcohol and/or drug) collisions. DOTPF data does not distinguish between alcohol and drug-related collisions. National Highway Traffic Safety Administration (NHTSA) estimates of the average costs per crash were used to develop the following table of unit costs of impaired traffic collisions in Alaska for 2011.

Table 28. Unit Costs of Impaired (Alcohol and/or Drugs) Traffic Collisions in Alaska, 2011

	Property Damage Only	Minor Injury	Major Injury	Fatal
Type of Cost				
Medical	\$0	\$4,425	\$578,183	\$16,704
Emergency services	\$40	\$126	\$1,209	\$1,275
Market productivity	\$0	\$4,158	\$489,605	\$1,635,627
Household productivity	\$85	\$1,330	\$138,874	\$445,824
Insurance administration	\$270	\$5,436	\$104,769	\$40,043
Workplace costs	\$88	\$482	\$15,681	\$16,659
Legal costs	\$0	\$1,996	\$121,803	\$150,558
Congestion costs	\$1,523	\$1,568	\$2,162	\$8,087
Property damage	\$3,455	\$7,640	\$21,338	\$15,852
Quality-adjusted life years (QALYs)	\$0	\$34,473	\$7,028,039	\$12,010,805
Total	\$5,460	\$61,635	\$8,501,664	\$14,341,436

Source: U.S. Department of Transportation National Highway Traffic Safety Administration (NHTSA) "The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised)" (2015). <http://www-nrd.nhtsa.dot.gov/pubs/812013.pdf>.

In 2011, there were 704 impairment-caused traffic collisions reported in Alaska, 6 percent of the 12,576 total traffic collisions in the state. Of the impaired collisions, those with property damage only totaled 381 (54 percent of impaired collisions), 229 collisions (33 percent) resulted in minor injuries, 64 (9 percent) resulted in major injuries, and 30 collisions (4 percent) had a fatality. The figure below shows impaired-related traffic collisions by injury severity.

Figure 21. Impairment-caused (Alcohol and/or Drug) Traffic Collisions, by Type, in Alaska, 2011

Source: Alaska Department of Transportation and Public Facilities (DOTPF), "2011 Alaska Traffic Crashes" (2015). http://www.dot.alaska.gov/stwdplng/transdata/pub/accidents/2011_AK_CrashData.pdf.

The table below shows the 704 Alaska impairment-caused collisions by type and by injury, including property damage only, minor and major injuries, fatalities, and the total cost. Total cost of the impairment-caused collisions in Alaska in 2011 was \$990.5 million. The highest costs resulted from fatal collisions which totaled \$430.2 million. In all, it is estimated that approximately 60 percent (or \$594.3 million) of the impairment-related collisions in Alaska are related to alcohol abuse.

Table 29. Number of Impairment-caused Traffic Collisions and Cost of Collisions in Alaska, 2011

	Property Damage Only	Minor Injury	Major Injury	Fatal	Total
Number of Alaska Impaired Collisions¹	381	229	64	30	704
Type of Costs²					
Medical	\$0	\$1,013,364	\$37,003,719	\$501,131	\$38,518,214
Emergency services	\$15,082	\$28,816	\$77,366	\$38,259	\$159,523
Market productivity	\$0	\$952,213	\$31,334,749	\$49,068,804	\$81,355,767
Household productivity	\$32,321	\$304,669	\$8,887,945	\$13,374,724	\$22,599,660
Insurance administration	\$102,887	\$1,244,903	\$6,705,230	\$1,201,293	\$9,254,314
Workplace costs	\$33,398	\$110,406	\$1,003,586	\$499,782	\$1,647,172
Legal costs	\$0	\$457,166	\$7,795,412	\$4,516,746	\$12,769,324
Congestion costs	\$580,156	\$359,063	\$138,354	\$242,617	\$1,320,189
Property damage	\$1,316,528	\$1,749,664	\$1,365,622	\$475,563	\$4,907,377
Quality-adjusted life years (QALYs)	\$0	\$7,894,209	\$449,794,521	\$360,324,164	\$818,012,894
Total	\$2.1 million	\$14.1 million	\$544.1 million	\$430.2 million	\$990.5 million
Estimated portion attributed to alcohol abuse (60 percent)					\$594.3 million

Note: Due to rounding, some columns may not sum to total.

¹ DOTPF, "2011 Alaska Traffic Crashes" (2015). http://www.dot.alaska.gov/stwdp/ing/transdata/pub/accidents/2011_AK_CrashData.pdf.

² NHSTA, "The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised)" (2015). <http://www-nrd.nhtsa.dot.gov/pubs/812013.pdf>.

Lastly, while there are no cost estimates available, DOTPF also reports the number of persons who were involved in impaired (alcohol and/or drug-related) collisions. People involved include occupants of the impaired driver's car, occupants of other cars, or pedestrians. In 2011, there were 1,680 persons involved in impairment-caused collisions; 229 had minor injuries, 64 had major injuries, and 32 were fatalities.

In the U.S., alcohol consumption is a major cause of motor vehicle fatalities. Over the past two decades, about 40 percent of all motor vehicle fatalities occur in collisions in which a driver or nonoccupant consumed a measurable level of alcohol prior to the collision. Additionally, an estimated 7.5 percent of drivers in nonfatal collisions and 12.9 percent of all nonfatal collision incidences were alcohol-involved. These figures should not be directly compared to Alaska percentages, as the report estimated the percentages based on reported and unreported crashes from multiple data sources.⁸ Alaska estimates do not consider unreported collisions.

⁸ Blincoe, Lawrence J., Ted R. Miller, Eduard Zaloshnja, Bruce A. Lawrence. Prepared for U.S. Department of Transportation National Highway Traffic Safety Administration. "The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised)." May 2015. <http://www-nrd.nhtsa.dot.gov/pubs/812013.pdf>. Accessed March 2016.

Chapter 4: Criminal Justice and Protective Services

Summary

- In 2014, there were 9,438 alcohol-related offenses and arrests, representing 25 percent of all offenses. These offenses affected 7,313 victims and resulted in \$799 million in criminal justice system and crime victim costs.

Table 30. Summary of Criminal Justice Costs Attributable to Alcohol Abuse in Alaska, 2014

	Alcohol-Related
Counts	
Offenses and arrests	9,438
Percentage offenses-arrests	25%
Crime victims	7,313
Percentage crime victims	17%
Costs	
Criminal justice system	\$136.2 million
Crime victim – tangible costs	\$58.2 million
Crime victim – intangible costs	\$604.9 million
Alcohol Abuse Criminal Justice Costs	\$799.4 million

Note: Due to rounding, some columns may not sum to total.
Source: McDowell Group calculations.

- In SFY 2015, Office of Children Services (OCS) expenditures for child abuse and neglect attributable to alcohol abuse totaled an estimated \$73 million.

Criminal Justice

Alaskans dependent on or abusing alcohol play a role in crimes. Alcohol abuse can be directly attributed to crimes such as driving under the influence and other violent and nonviolent crimes. Many costs accompany these crimes including the costs of the criminal justice system (police protection and law enforcement, legal and adjudication, and incarceration) and costs to crime victims (both tangible and intangible). Productivity loss due to incarceration is covered in Chapter 2.

Offenses and Arrests

In 2014, there were an estimated 37,470 known offenses or arrests in various categories of crimes. Of these, 9,438 were attributable to alcohol abuse. The offenses with the highest counts attributable to alcohol were larceny-theft (2,471), driving while intoxicated (2,336), and other assaults – simple (1,214).

Table 31. Offenses and/or Arrests Attributable to Alcohol in Alaska, 2014

Type of Offense	2014 Alaska Number of Known Offenses or Arrests	Percent Attributable to Alcohol Abuse ³	Estimated Offenses/Arrests Attributable to Alcohol Abuse
Criminal homicide ¹	47	47%	22
Rape (rape and attempted) ¹	764	31%	238
Other sex offenses (includes prostitution/commercialized vice) ²	286	19%	54
Aggravated assault ¹	3,224	23%	729
Other assaults – simple ¹	8,799	14%	1,214
Robbery ¹	627	19%	117
Burglary ¹	3,136	22%	687
Larceny-theft ¹	15,350	16%	2,471
Motor vehicle theft ¹	1,730	23%	400
Driving under the influence ²	2,336	100%	2,336
Liquor laws ²	1,171	100%	1,171
Total	37,470		9,438

¹ Alaska Department of Public Safety, *Crime in Alaska, 2014* (2015). http://www.dps.alaska.gov/statewide/docs/UCR/UCR_2014.pdf.

² FBI Uniform Crime Report (2015). <https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2014/crime-in-the-u.s.-2014/tables/table-69>.

³ The Lewin Group, *Economic Cost of Excessive Alcohol Consumption in the United States, 2006* (2010).

Criminal Justice System Costs

Criminal justice system costs for Alaska in 2014 are estimated at \$136.2 million. Driving under the influence offense incurred the largest costs at \$42.6 million, followed by liquor laws (\$21.4 million), and other assaults-simple (\$16.4 million).

(See table next page.)

Table 32. Criminal Justice System Costs Attributable to Alcohol Abuse by Offense in Alaska, 2014

Type of Offense	Estimated Alaska Offenses/Arrests Attributable to Alcohol Abuse	Criminal Justice System Cost per Arrest/Offense	Estimated Alaska Alcohol-Related Costs
Criminal homicide ¹	22	\$612,035	\$13,519,856
Rape (rape and attempted) ¹	238	\$41,305	\$9,814,220
Other sex offenses (includes prostitution/commercialized vice) ²	54	\$41,305	\$2,220,884
Aggravated assault ¹	729	\$13,479	\$9,821,277
Other assaults – simple ¹	1,214	\$13,479	\$16,367,294
Robbery ¹	117	\$21,569	\$2,528,935
Burglary ¹	687	\$6,438	\$4,421,352
Larceny-theft ¹	2,471	\$4,491	\$11,098,809
Motor vehicle theft ¹	400	\$6,032	\$2,410,642
Driving under the influence ²	2,336	\$18,237	\$42,601,897
Liquor laws ²	1,171	\$18,237	\$21,355,660
Total	9,438		\$136.2 million

¹ NIH. *The Cost of Crime to Society: New Crime-Specific Estimates for Policy and Program Evaluation* (2010). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2835847/pdf/nihms170575.pdf>

² The Lewin Group, *Economic Cost of Excessive Alcohol Consumption in the United States, 2006* (2010).

Crime Victimization

There were approximately 41,992 victims of specified offenses in Alaska in 2014; 7,313 victims were attributable to alcohol abuse, or approximately 17 percent of victims.

Table 33. Victimization Attributable to Alcohol Abuse in Alaska, 2014

Type of Crime	2014 U.S. Victimization Rate per 1,000 persons 12 years or older or per 1,000 households ¹	Estimated Number of Alaska Victims ^{4, 5}	Percent Alcohol Related ⁵	Estimated Number of Victims Attributable to Alcohol Abuse
Homicide	-	47 ²	47%	22
Rape/sexual assault	1.1	670	31%	208
Robbery	2.5	1,523	19%	285
Aggravated assault	4.1	2,498	23%	565
Other assault	12.4	7,555	14%	1,043
Theft	90.8	22,852	16%	3,679
Burglary	23.1	5,814	22%	1,273
Motor vehicle theft	4.1	1,032	23%	238
Total		41,992		7,313

¹ Bureau of Justice Statistics, *Criminal Victimization, 2014* (2015). <http://www.bjs.gov/content/pub/pdf/cv14.pdf>.

² DPS, *Crime in Alaska, 2014* (2015). http://www.dps.alaska.gov/statewide/docs/UCR/UCR_2014.pdf.

³ 2014 population data from DOLWD.

⁴ 2014 household data from ACS 2010-2014 Five-Year Data.

⁵ The Lewin Group, *Economic Cost of Excessive Alcohol Consumption in the United States, 2006* (2010).

CRIME VICTIM TANGIBLE COSTS

Tangible crime victim costs are defined as the “direct economic losses suffered by crime victims, including medical care costs, lost earnings, and property loss/damage.” The estimated crime victim tangible cost attributable to alcohol abuse for Alaska in 2014 was \$58.2 million. Homicide was the costliest (\$25.4 million), followed by other assaults (\$14.1 million), and aggravated assaults (\$7.7 million).

Table 34. Crime Victim Tangible Costs Attributable to Alcohol Abuse in Alaska, 2014

Type of Offense	Estimated Number of Victims Attributed to Alcohol Abuse	Crime Victim Tangible Cost Per Offense ¹	Estimated Alaska Alcohol-Related Tangible Costs
Homicide	22	\$1,150,463 ²	\$25,413,719
Rape/sexual assault	208	\$8,667	\$1,806,537
Robbery	285	\$5,146	\$1,465,870
Aggravated assault	565	\$13,571	\$7,662,019
Other assault	1,043	\$13,571	\$14,149,845
Theft	3,679	\$749	\$2,754,855
Burglary	1,273	\$2,125	\$2,705,073
Motor vehicle theft	238	\$9,537	\$2,273,354
Total	7,313		\$58.2 million

¹ NIH, *The Cost of Crime to Society: New Crime-Specific Estimates for Policy and Program Evaluation* (2010).

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2835847/pdf/nihms170575.pdf>

² Crime victim cost for murder was calculated as the mean present value of lifetime earnings for a homicide victim.

CRIME VICTIM INTANGIBLE COSTS

Intangible costs include “indirect losses suffered by crime victims, including pain and suffering, decreased quality of life, and psychological distress.” The estimated crime victim intangible cost attributable to alcohol abuse for Alaska in 2014 was \$604.9 million. Again, homicide was the costliest (\$290.1 million), followed by other assaults (\$154.5 million), and aggravated assaults (\$83.7 million).

Table 35. Crime Victim Intangible Costs Attributable to Alcohol Abuse in Alaska, 2014

Type of Offense	Estimated Number of Victims Attributable to Alcohol Abuse	Crime Victim Intangible Cost Per Offense ¹	Estimated Alaska Alcohol-Related Intangible Costs
Homicide	22	\$13,168,788 ²	\$290,898,537
Rape/sexual assault	208	\$311,424	\$64,913,741
Robbery	285	\$35,215	\$10,030,926
Aggravated assault	565	\$148,228	\$83,685,976
Other assault	1,043	\$148,228	\$154,547,207
Theft	3,679	\$16	\$57,393
Burglary	1,273	\$501	\$637,539
Motor vehicle theft	238	\$409	\$97,419
Total	7,313		\$604.9 million

¹ NIH, *The Cost of Crime to Society: New Crime-Specific Estimates for Policy and Program Evaluation* (2010).

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2835847/pdf/nihms170575.pdf>

² Intangible cost for murder was calculated as the mean value of a statistical life.

Underage Drinking Costs

Underage drinking imposes costs in the form of health, social, and economic problems. It is a causal factor for homicide, suicide, traumatic injury, drowning, burns, violent and property crime, high risk sex, fetal alcohol syndrome, and alcohol poisoning. It also contributes to the need for alcohol abuse and dependency treatment programs. In 2010, the total cost of underage drinking in Alaska was estimated to be \$321.4 million, including mental distress associated with physical or emotional injury as a result of youth alcohol consumption (equivalent to approximately \$350 million in 2016 dollars). Nearly half (48 percent) of costs associated with underage drinking in Alaska are attributable to youth violence, followed by youth traffic accidents (28 percent).

Table 36. Costs of Underage Drinking in Alaska, by Problem, 2010, Adjusted for Inflation (\$2016)

Category	Total Alaska Alcohol-Related Costs	Percentage of Alaska Alcohol-Related Costs
Youth violence	168.2 million	48%
Youth traffic collisions	99.0 million	28
Youth alcohol treatment	27.4 million	8
Youth injury	23.4 million	7
Youth property crime	12.4 million	4
Fetal Alcohol Syndrome among mothers (ages 15-20)	5.3 million	2
High-risk sex (ages 14-20)	12.0 million	3
Poisonings and psychoses	1.9 million	1
Total Underage Drinking Costs	\$349.6 million	100%

Source: Pacific Institute for Research and Evaluation. Underage Drinking Enforcement Training Center, *Underage Drinking in Alaska: The Facts*. (2010). Inflation-adjustments to 2016\$ calculated by McDowell Group.

Protective Services

Substance abuse is a risk factor for abuse and neglect of children and adults. A 1999 study by the National Center on Addiction and Substance Abuse at Columbia University found that substance-abusing parents were three times more likely to abuse and four times more likely to neglect their children. Likewise, an adult caregiver who struggles with substance use is more likely to abuse his or her charge. As a result of alcohol and drug abuse, agencies that assist victims of abuse and neglect see more cases and incur greater costs.

The National Survey of Children and Adolescent Well-Being estimates that 61 percent of infants and 41 percent of older children in out-of-home care are from families with active alcohol or drug abuse (Wulczyn, Ernst, & Fisher, 2011). For almost 31 percent of all children placed in foster care in 2012, parental alcohol or drug abuse was the documented reason for removal and in several states that percentage surpassed 60 percent (National Data Archive on Child Abuse and Neglect, 2012)

Child Protective Services

Office of Children Services (OCS) expenditures for child abuse and neglect attributable to alcohol abuse are estimated at \$73 million in SFY2014.

Table 37. Summary of OCS Expenditures Attributable to Alcohol, SFY 2015

State Spending	Federal Spending	Total
\$50,278,250	\$22,987,700	\$73,265,950

Source: State of Alaska 2014 Actual Expenditures.

Title 47 Protective Custody

The Title 47 Protective Custody Statute allows the State of Alaska to take people who are incapacitated by alcohol or otherwise at-risk to a hospital for treatment, place them in the custody of a family member, or commit them to a detention center for up to 12 hours. In 2010, DOC personnel estimated that up to 99 percent of protective holds were alcohol-related. However, it is not possible to estimate a cost per hold due to the number of variables involved in each case. In SFY2013, there were a total of 3,726 protective holds.

Chapter 5: Health Care

Summary

- Hospital-related medical costs to treat conditions and diseases attributable to alcohol abuse totaled \$140.8 million in 2012, including \$85.4 million in inpatient charges, \$32.7 million in ED charges, and \$22.6 million in outpatient (delivered in a hospital setting) charges. Adjusted for inflation, in 2015, these costs would be \$90.0 million in inpatient charges, \$34.4 million in ED charges, and \$23.8 million in outpatient charges, for a combined total of \$148.3 million.

Table 38. Summary of Alaska Medical Charges Attributable to Alcohol Abuse, 2012 and Adjusted 2015\$

	Inpatient Charges	Emergency Department Charges	Outpatient Charges	Total Medical Charges
Total (2012)	\$85,449,565	\$32,703,355	\$22,627,516	\$140,780,437
Total (2015\$)	\$90,014,622	\$34,450,499	\$23,836,368	\$148,301,490

- In SFY 2015, Division of Behavior Health funding for alcohol dependence/abuse to treatment and recovery grantee agencies accounted for an estimated \$25.9 million.
- The cost of legal prescription drugs to treat alcohol abuse is estimated to represent 2.2 percent of Alaska's total prescription drug sales, or \$11 million.
- Of the total estimated costs for skilled nursing facilities and long term care, alcohol abuse accounted for an estimated 1 percent or \$1.5 million.
- In 2014, medical costs associated with 129 babies born with FASD were an estimated \$3 million.
- In total, annual alcohol-abuse-related health care costs totaled \$189.7 million in 2015.

Medical Costs

Alcohol abuse leads to medical conditions and diseases that require treatment in medical settings. This section covers the costs to treat diseases and conditions that arise from the abuse of alcohol. Medical costs are presented for three hospital setting types: inpatient, ED, and outpatient. Costs for treating addiction may be found in the *Costs of Treating Alcohol Dependence* section below.

Inpatient

Some of the health problems caused by alcohol abuse require admission to a hospital. In 2012, inpatient charges in Alaska attributable to alcohol abuse totaled \$85.4 million. Adjusted to 2015 dollars, the total inpatient charges for substance abuse would be \$90.0 million. The number of admissions attributable to alcohol abuse totaled 2,222. The total length of hospital stays resulting from those admissions was 10,294 days.

Table 39. Summary of Alaska Inpatient Hospital Admissions, Length of Stay, and Total Charges Attributable to Alcohol Abuse, 2012 and Adjusted 2015\$

	Number of Admissions	Length of Stay (days)	Total Charges
Total (2012)	2,222	10,294	\$85,449,565
Total (2015\$)			\$90,014,622

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Emergency Department (ED) Costs

Some patients with health problems caused by alcohol abuse receive treatment in the ED. In 2012, statewide ED charges attributable to alcohol abuse totaled \$32.7 million. Adjusted to 2015 dollars, the total attributable to alcohol abuse would be \$34.4 million. The number of ED visits attributable to alcohol abuse totaled 15,841 visits. The number of days patients spent in the ED as a result of those visits totaled 15,995 days.

Table 40. Summary of Alaska ED Visits, Length of Stay, and Total Charges Attributable to Alcohol Abuse, Alaska, 2012 and Adjusted 2015\$

	Number of Visits	Length of Stay (days)	Total Charges (\$)
Total (2012)	15,841	15,995	\$32,703,355
Total (2015\$)			\$34,450,499

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Outpatient In-Hospital Costs (Excluding ED Costs)

Outpatient refers to visits to a physician office, outpatient surgery, and other outpatient settings in the hospital (excluding the ED). In 2012, estimates for outpatient costs attributable to alcohol abuse totaled \$22.6 million. Adjusted to 2015 dollars, the total attributable to alcohol abuse would be \$23.8 million.

Table 41. Summary of Alaska Outpatient Charges Attributable to Alcohol Abuse, Alaska, 2012 and Adjusted 2015\$

	Estimated Total Charges
Total (2012)	\$22,627,516
Total (2015\$)	\$23,836,368

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Diagnosis or Condition	Total Inpatient Stays				Attributable to Alcohol or Drugs		
	Age	# of Discharges	Length of Stay (days)	Charges	Attributable Fraction (%)	# of Discharges	Length of Stay (days)
Other chronic nonalcoholic liver damage/disease	35+	3	6	43,518	50	2	3
Portal hypertension	35+	9	38	604,815	50	5	19
Acute pancreatitis	35+	293	1,329	9,381,406	42	123	558
Chronic pancreatitis	35+	15	88	575,744	60	9	53
Injuries and poisoning	15+	1,125	6,933	71,904,690	10	113	693
Accidental poisoning by alcohol	All	6	9	181,310	100	6	9
Motor Vehicle traffic/nontraffic accidents	15+	369	1,559	20,649,773	23	85	359
Pedal cycle and other road vehicle accidents	15+	47	182	2,003,248	20	9	36
Water transport accidents	15+	15	56	451,393	20	3	11
Air and space transport accidents	15+	7	43	512,936	16	1	7
Accidental falls	15+	745	3,367	35,560,783	35	261	1,178
Accidents caused by fires and flames	15+	14	88	721,142	45	6	40
Accidental drowning and submersion	15+	-	-	-	38	-	-
Suicide and self-inflicted injury	15+	408	1,653	11,124,620	28	114	463
Homicide and injury purposely inflicted by other persons	15+	-	-	-	46	-	-
Other injuries and adverse effects	15+	-	-	-	25	-	-
Alcohol Abuse Total		6,464	31,826	\$288,502,341		1,555	7,206

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Table 43. Inpatient Hospital Admissions, Length of Stay, and Charges, Total and Attributable to Alcohol Abuse, Alaska, 2012

HFDR Attributable to Alcohol Total			Statewide Estimate	
# of Admissions	Length of Stay (days)	Charges	Estimation Factor	Length of Stay (days)
1,555	7,206	\$59,814,696	÷ 0.7	10,294
				Charges
				\$85,449,565

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Table 44. Emergency Department Visits, Length of Stay, and Charges, Total and Attributable to Alcohol Abuse, Alaska, 2012

Diagnosis or Condition	Age	Total Inpatient Stays				Attributable to Alcohol			
		# of Discharges	Length of Stay (days)	Charges	Attributable Fraction (%)	# of Discharges	Length of Stay (days)	Charges	
Alcoholic mental disorders & psychoses	All	1,413	1,413	3,782,869	100%	1,413	1,413	3,782,869	
Alcohol dependence syndrome	All	1,893	1,893	3,294,338	100	1,893	1,893	3,294,338	
Non-dependent abuse of alcohol	All	2,946	2,947	3,659,124	100	2,946	2,947	3,659,124	
Alcoholic polyneuropathy	All	-	-	-	100	-	-	-	
Alcoholic gastritis	All	122	122	383,513	100	122	122	383,513	
Alcoholic fatty liver	All	-	-	-	100	-	-	-	
Acute Alcoholic hepatitis	All	25	25	72,671	100	25	25	72,671	
Alcoholic cirrhosis of the liver	All	17	17	78,032	100	17	17	78,032	
Alcoholic liver damage, unspecified	All	13	13	40,606	100	13	13	40,606	
Chronic hepatitis	All	-	-	-	50	-	-	-	
Fetal Alcohol Syndrome	All	2	2	5,957	0	-	-	-	
Toxic effect of alcohol	All	24	24	110,825	100	24	24	110,825	
Cancer of the lip, tongue, oral cavity, pharynx	35+	1	1	1,521	50	1	1	760	
Cancer of the esophagus	35+	2	2	9,318	75	2	2	6,989	
Cancer of the stomach	35+	6	6	31,064	20	1	1	6,213	
Cancer of the liver and intrahepatic bile ducts	35+	3	29	13,127	15	0	4	1,969	
Cancer of the larynx	35+	-	-	-	49	-	-	-	
Essential hypertension	35+	804	893	1,763,439	8	64	71	141,075	
Cerebrovascular disease	35+	296	326	2,021,578	7	21	23	141,510	
Respiratory tuberculosis	35+	1	1	1,294	25	0	0	324	
Diabetes Mellitus	35+	588	1,922	1,645,096	5	29	96	82,255	
Pneumonia and influenza	35+	1,309	1,390	4,194,458	5	65	70	209,723	
Diseases of the esophagus, stomach, duodenum	35+	559	559	1,841,835	10	56	56	184,184	
Cirrhosis without mention of alcohol	35+	17	17	68,867	50	9	9	34,434	

Diagnosis or Condition	Age	Total Inpatient Stays			Attributable Fraction (%)	Attributable to Alcohol		
		# of Discharges	Length of Stay (days)	Charges		# of Discharges	Length of Stay (days)	Charges
Other chronic nonalcoholic liver damage/disease	35+	3	3	17,740	50	2	2	8,870
Portal hypertension	35+	-	-	-	50	-	-	-
Acute pancreatitis	35+	211	211	907,509	42	89	89	381,154
Chronic pancreatitis	35+	24	53	108,725	60	14	32	65,235
Injuries and poisoning	15+	7,239	7,237	14,214,249	10	724	724	1,421,425
Accidental poisoning by alcohol	All	13	13	53,820	100	13	13	53,820
Motor Vehicle traffic/nontraffic accidents	15+	4,028	4,034	11,021,416	23	926	928	2,534,926
Pedal cycle and other road vehicle accidents	15+	524	524	1,232,800	20	105	105	246,560
Water transport accidents	15+	38	38	116,252	20	8	8	23,250
Air and space transport accidents	15+	33	33	110,688	16	5	5	17,710
Accidental falls	15+	6,623	6,635	15,400,083	35	2,318	2,322	5,390,029
Accidents caused by fires and flames	15+	131	131	254,067	45	59	59	114,330
Accidental drowning and submersion	15+	-	-	-	38	-	-	-
Suicide and self-inflicted injury	15+	446	446	1,441,523	28	125	125	403,626
Homicide and injury purposely inflicted by other persons	15+	-	-	-	46	-	-	-
Other injuries and adverse effects	15+	-	-	-	25	-	-	-
Alcohol Abuse Total		29,354	30,960	67,898,404		11,089	11,196	\$22,892,348

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Table 45. ED Visits, Length of Stay, and Charges, Total and Attributable to Alcohol Abuse, Alaska, 2012

HFDR Attributable to Alcohol Total			Statewide Estimate		
# of Visits	Length of Stay (days)	Charges	Estimation Factor	# of Visits	Length of Stay (days)
11,089	11,196	\$22,892,348	÷ 0.7	15,841	15,995
				15,841	\$32,703,355

Source: Alaska Hospital Facilities Data Reporting Program (HFDR). McDowell Group estimates.

Costs of Treating Alcohol and/or Drug Dependence or Addiction

Some individuals who are alcohol and/or drug dependent need detoxification, treatment, and/or support services. In SFY 2015, agencies receiving DBH treatment and recovery grants logged 5,004 admissions for alcohol only or both alcohol and drug abuse disorders, including 40 percent for alcohol only and 60 percent for both alcohol and drug abuse.

Table 46. Number and Percent of Admissions for Alcohol Only and Both Alcohol and Drug Treatment, by Treatment Type, SFY 2015

Substance of Abuse	# of Admissions	% of Total
Alcohol Only	2,027	40%
Alcohol and Drug	2,977	60%
Total	5,004	100%

Source: State of Alaska Division of Behavioral Health.

Each admission could include enrollment in more than one service type. Of the 5,004 admissions, 574 admissions included enrollment into multiple service types, for an annual total of 5,578 enrollments. Approximately 41 percent of enrollments were associated with alcohol only and 59 percent were associated with alcohol and drugs.

Table 47. Number of Enrollments for Alcohol Only and Both Alcohol and Drug Treatment, by Service Type, SFY 2015

Service Type	# of Enrollments for Alcohol Only	% of Total	# of Enrollments for Alcohol and Drug Abuse	% of Total	Total Enrollments
24-Hr Detoxification	897	61%	576	39%	1,473
Residential	363	33	728*	67	1,091
Outpatient	1,007	33	2,002*	67	3,009
Outpatient-Opioid	0	0	5	100	5
Total	2,267	41%	3,311	59%	5,578

Note: Residential and outpatient treatment settings included 2 and 20 admissions, respectively, without information on the substance of abuse. These admissions have been added to the "Alcohol and Drug Abuse" category.

Source: State of Alaska Division of Behavioral Health.

In SFY 2015, admissions to 24-hour detoxification and residential services resulted in 46,661 bed days, of which 89 percent of these bed days were through residential services.

Table 48. Bed Days for Alcohol Abuse Treatment, by Treatment Setting, SFY 2015

Service Type	Estimated # Bed Days for Alcohol Abuse
24-Hr Detoxification	5,139
Residential	41,522
Total	46,661

*Note: As described in methodology, percentages are from admissions data.

Source: Estimates calculated from data provided by the State of Alaska Division of Behavioral Health.

In SFY 2015, DBH funding for alcohol dependence/abuse to treatment and recovery grantee agencies (including grant awards and Medicaid payments for services received in state FY2015) totaled \$25.9 million, with \$13.3 million from DBH grants and \$12.6 million from Medicaid.

Table 49. DBH Grants and Medicaid Funding for Alcohol Abuse Treatment, by Service Type, SFY 2015

Treatment Setting	Treatment Costs for Alcohol Abuse
DBH Grants	
24-Hr Detoxification	\$2,514,933
Residential	5,673,003
Outpatient	5,120,424
Outpatient-Opioid	34,006
DBH Grants Total	\$13,342,367
Medicaid	
24-Hr Detoxification	\$105,485
Residential	3,926,374
Outpatient	8,529,039
Outpatient-Opioid	8,536
Medicaid Total	\$12,569,435
DBH Grant and Medicaid Total	\$25,911,802

*Note: As described in methodology, percentages are from admissions data.
Source: State of Alaska Division of Behavioral Health.

Nursing Home/Long-Term Care Costs

Alcohol abuse among residents of skilled nursing facilities (SNF) and long term care (LTC) facilities increases the cost of care and may even cause declines in function that result in a move to these types of facilities.

Between 2014 and 2015, the annual number of SNF and LTC bed days totaled 227,008, with 177,258 paid for by Medicaid. Of the total estimated costs for SNF and LTC bed days of \$151 million, alcohol abuse is estimated to account for 1 percent or \$1.5 million.

Table 50. Summary of Annual SNF/LTC Bed Days and Estimated Alcohol-attributable Costs, 2014-2015

	Total
Medicaid SNF/LTC bed days	177,258
Total # SNF/LTC bed days	227,008
Medicaid SNF/LTC costs	\$118,657,744
Estimated total SNF/LTC costs	\$151,149,142
Estimated Total SNF/LTC costs attributable to alcohol abuse	\$1,511,491

Source: Alaska Division of Senior and Disability Services. Estimates by McDowell Group.

Fetal Alcohol Spectrum Disorders (FASD)

Exposure to alcohol during pregnancy can cause a variety of birth defects, known as fetal alcohol spectrum disorders (FASD). Although most are familiar with Fetal Alcohol Syndrome (FAS), less commonly known are the multiplicity of other disorders that can stem from prenatal alcohol exposure, which include:

- Partial FAS (PFAS)
- Fetal alcohol effects (FAE)
- Alcohol-related neurodevelopmental disorder (ARND)
- Other alcohol-related birth defects (ARBD)

Often, children with fetal alcohol disorders are not identified until they reach school age or later, as symptoms do not become apparent until later childhood developmental stages. As a result, prevalence rates of FASD are often underreported. FASD symptoms can include difficulties with attention, memory, and problem solving. Heart, liver, and kidney disease, as well as vision and hearing problems are also common among children with FASD.⁹

People affected by FASD experience lifetime effects, and the costs of caring for these individuals can be significant. Needs can range from neonatal care for low birth weight to special speech therapy, behavioral management, or residential care for adults with FASD. Costs addressed in this report include those for medical treatment, education, social services, transportation, and parent-productivity losses.

In 2014, 129 babies born with FASD were associated with an estimated cost of almost \$3 million. No data was available for additional children diagnosed with FASD after birth. As such, the annual costs found in the table below are likely underestimated for all children with FASD.

Table 51. FASD Incidence and Estimated Annual Costs in 2014

Alaska births in 2014	11,398
FASD prevalence per 1,000 live births	11.3
FASD births	129
Cost per person with FASD	\$23,115
Estimated Annual FAS cost	\$2,974,548

Source: Birth data from the Alaska Bureau of Vital Statistics. FASD prevalence from Alaska Maternal and Child Health Data Book 2012, Birth Defects Edition. Cost per patient from *The burden of prenatal exposure to alcohol: revised measurement of costs*, Stade et al (2009).

⁹ National Organization on Fetal Alcohol Syndrome, *What is FAS/FASD?*, www.nofas.org/faqs.aspx?id=9

Chapter 6: Public Assistance and Social Services

Summary

- In federal fiscal year 2014, the federal government provided \$9 million in social welfare support for people who were alcohol abusers.
- The State of Alaska also contributes funding to social welfare programs, such as SNAP, Adult Public Assistance, Alaska Temporary Assistance, Tribal Assistance Services, and Child Care Benefits. In SFY 2015, alcohol abuse accounted for \$5 million of State funded social welfare.

Social Welfare Funding

Alcohol abuse can result in greater demand for social welfare services. For example, problems with alcohol can reduce personal income or lead to disability, qualifying individuals for publicly funded social programs like food stamps, public assistance, and vocational rehabilitation. The following section addresses the portion of social welfare funding from federal and state sources that is attributable to alcohol abuse.

Social welfare spending includes two broad categories: administrative expenses and benefits paid to beneficiaries. This distinction is noted because benefit payments are transfer payments, representing a redistribution of money rather than an actual cost and net loss. This report presents aggregate totals including both administrative costs and benefit payments.

Federal

The federal government funds numerous social welfare benefits in Alaska. Federal programs transfer money to the State of Alaska, which then allocates funding to an array of state-run programs. *(For sources of attribution rates, please refer to the Methodology section.)* In federal fiscal year (FFY) 2014, \$9.4 million (or 2.8 percent of all federal funds) were designated for alcohol abuse-related social welfare in Alaska.

Table 52. Federal Social Welfare Spending in Alaska Attributable to Alcohol Abuse, FFY 2014

Social Welfare Program	Federal Funding Total	% Attributable to Alcohol Abuse ⁴	Alcohol Abuse ⁴
OASDI	\$103,133,000 ¹	1.1%	\$1,174,685
SSI	6,366,000 ¹	2.0	127,957
TANF	49,361,402 ²	3.5	1,719,751
SNAP	184,438,186 ³	3.4	6,425,826
Total	\$343,298,588	2.8%	\$9,448,219

Source: ¹Social Security Administration; ²USDHHS Office of Family Assistance; ³Supplemental Nutrition Assistance Program State Activity Report Fiscal Year 2014; ⁴1998 NIDA study, *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992*.

State

The State of Alaska also contributes funding to social welfare programs. In SFY 2015, \$5.1 million (or 2.9 percent of all State funds) were designated for alcohol abuse-related social welfare.

Table 53. State Social Welfare Program Spending Attributable to Alcohol Abuse, Alaska, SFY 2015

Social Welfare Program	State Funding Total ¹	% Attributable to Alcohol Abuse ³	Alcohol Abuse ³
SNAP Administrative Costs	\$10,674,523 ²	3.5%	\$370,050
Adult Public Assistance	59,419,200	2.9	1,624,125
Public Assistance Field Services	14,799,800	3.5	513,060
Public Assistance Admin	1,256,200	3.5	43,548
Alaska Temporary Assistance Program	15,164,300	3.5	525,696
Work Services	3,750,000	2.7	102,500
Tribal Assistance Services	10,084,200	2.7	275,635
Women, Infants, and Children	10,574,400	2.2	232,637
Energy Assistance	23,729,400	2.7	648,604
Child Care Benefits	2,728,200	2.7	74,571
General Relief Assistance	3,135,200	2.7	85,695
Senior Benefits Payment Program	22,665,400	2.7	619,521
Total	\$177,980,823	2.9%	\$5,115,641

Source: ¹Division of Public Assistance Actual Expenditures, SFY 2015, State of Alaska Office of Management and Budget; ²Supplemental Nutrition Assistance Program State Activity Report Fiscal Year 2014; ³1998 NIDA study, *The Economic Costs of Alcohol and Drug Abuse in the United States – 1992*.

Chapter 7: Underage Drinking

Underage drinking imposes costs in the form of health, social, and economic problems and is a causal factor serious problems such as homicide, suicide, traumatic injury, drowning, burns, violent and property crime, high risk sex, fetal alcohol syndrome, alcohol poisoning, and the need for treatment for alcohol abuse and dependence.

In 2013-2014, 9 percent of Alaskan youths age 12-17 and 22 percent of Alaskan youth age 12-20 were underage drinkers. Five percent of Alaskans age 12-17 and 13 percent of Alaskans age 12-20 were binge drinkers. Binge drinking is defined as a female consuming four or more drinks or a male consuming 5 or more drinks on a single occasion on at least one day in the past 30 days.

In 2010, it was estimated that the total costs of underage drinking in Alaska were \$321.4 million (approximately \$350 million in 2016 dollars). These costs considered mental distress associated with physical or emotional injury as a result of youth alcohol consumption. Costs associated with youth violence represent almost half (48 percent) of underage drinking costs in Alaska, followed by youth traffic accidents (28 percent).

Table 54. Costs of Underage Drinking in Alaska, by Problem, 2010, Adjusted for Inflation (\$2016)

Category	Total Alaska Alcohol-Related Costs	Percentage of Alaska Alcohol-Related Costs
Youth violence	168.2 million	48%
Youth traffic collisions	99.0 million	28
Youth alcohol treatment	27.4 million	8
Youth injury	23.4 million	7
Youth property crime	12.4 million	4
Fetal Alcohol Syndrome among mothers (ages 15-20)	5.3 million	2
High-risk sex (ages 14-20)	12.0 million	3
Poisonings and psychoses	1.9 million	1
Total Underage Drinking Costs	\$349.6 million	100%

Source: Pacific Institute for Research and Evaluation. Underage Drinking Enforcement Training Center, *Underage Drinking in Alaska: The Facts*. (2010). Inflation-adjustments to 2016\$ calculated by McDowell Group.

Chapter 8: Employment and Income from Alcoholic Beverage Manufacturing and Sales in Alaska

Summary

- In 2014, there were 2,887 private sector jobs in Alaska's beverage manufacturing, wholesale and retail sale of alcohol products, and at alcoholic drinking places. Workers in these jobs earned \$66.4 million in wages (2014). There are other jobs in Alaska related to alcohol sales, but published data are not available.
- Employment in most alcohol-related categories has been trending down over the past decade. However, beverage manufacturing employment has tripled.

Employment in Alaska's Alcoholic Beverage Industry

In 2014, there were 2,887 jobs in alcohol-related businesses in beverage manufacturing, alcohol wholesale and retail distribution, and alcoholic drinking places (representing 0.9 percent of all jobs in Alaska). These workers earned \$66.4 million in wages (representing 0.4 percent of all wages in Alaska).

Alcohol drinking establishments account for 55 percent of alcohol-related employment, alcohol wholesale and retail trade 33 percent, and beverage manufacturing 12 percent of total.

Figure 22. Alcohol-related Jobs in Alaska, By Sector, 2014

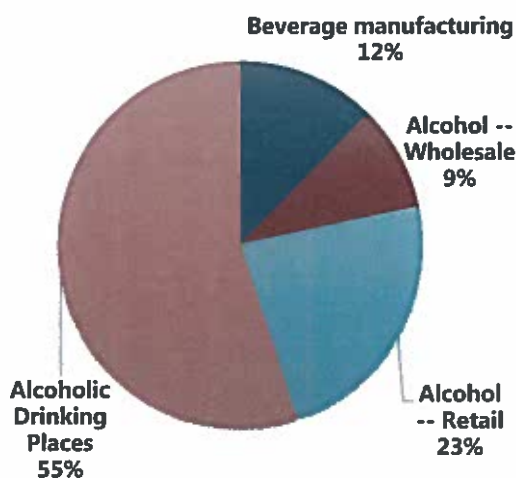
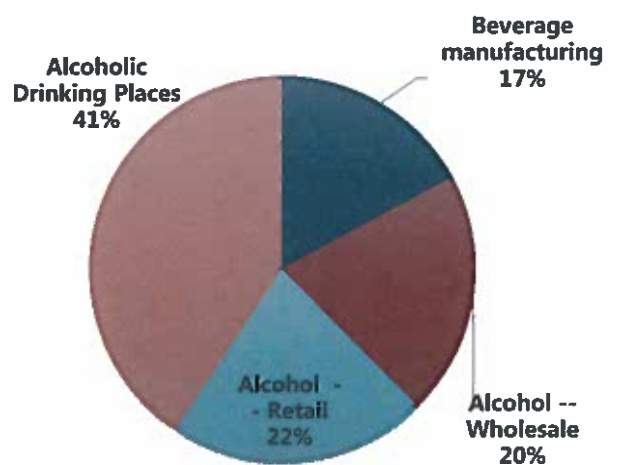


Figure 23. Alcohol-related Wages in Alaska, By Sector, 2014



Source: Alaska Department of Labor and Workforce Development.

Employment in three of the four categories (wholesale, retail, and alcoholic drinking places) has gradually declined since 2002. Only the manufacturing sector (which includes breweries, distilleries, wineries, and non-alcoholic beverages) has increased – from 86 employees (2002) to 356 employees (2014).

A decline of about 200 alcohol-related jobs (mainly in drinking places) in Alaska in 2003 may be related to the State alcoholic beverage tax increase in October 2002. Further analysis is required to identify other potential contributing factors.

Table 55. Annual Average Jobs, by Alcohol-Related Private Sector Categories, Alaska, 1997-2014

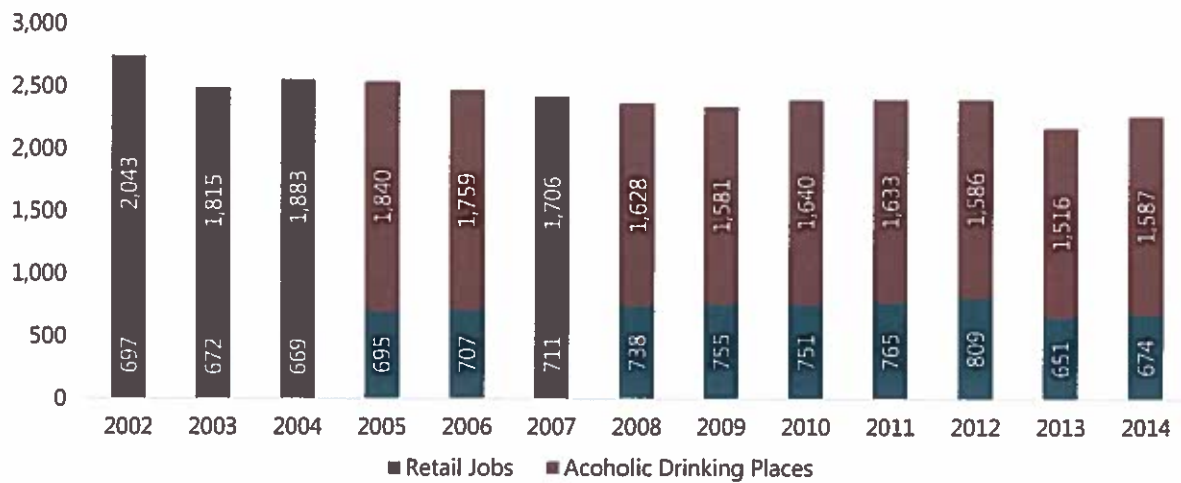
Year	Beverage manufacturing	Beer, wine, distilled beverage Wholesale	Beer, wine, liquor stores – Retail	Alcoholic Drinking places	Total Alcohol-related Jobs	Total Alaska Jobs	Alcohol-related Jobs as a % of Total Alaska Jobs
1997	56	278	595	*	*	266,112	
1998	61	273	621	*	*	271,907	
1999	88	300	586	*	*	274,570	
2000	99	546	519	*	*	280,664	
2001	96	541	528	*	*	287,941	
2002	86	398	697	2,043	3,224	292,286	1.1%
2003	99	413	672	1,815	2,999	296,876	1.0%
2004	119	423	669	1,883	3,094	301,385	1.0%
2005	123	428	695	1,840	3,086	307,757	1.0%
2006	108	447	707	1,759	3,021	314,139	1.0%
2007	156	435	711	1,706	3,008	317,188	0.9%
2008	186	438	738	1,628	2,990	321,724	0.9%
2009	182	**	755	1,581	**	320,265	**
2010	219	**	751	1,640	**	323,410	**
2011	236	**	765	1,633	**	328,566	**
2012	275	**	809	1,586	**	333,952	**
2013	343	269	651	1,516	2,779	335,366	0.8%
2014	356	270	674	1,587	2,887	336,764	0.9%

Notes: *Drinking Places and Alcoholic – Leisure and Hospitality is a sub-category of Food Services and Drinking Places. The category was first reported in the QCEW data in 2002.

**Jobs cannot be totaled for all alcohol-related categories as wholesale employment data (2009-2012) is confidential.

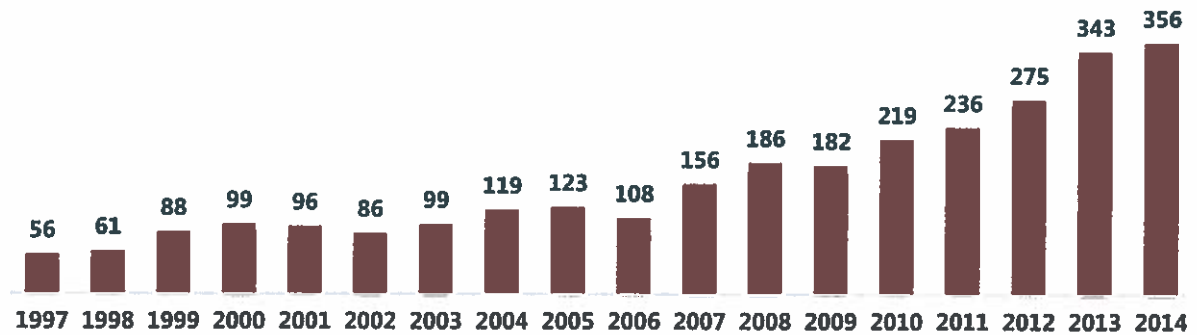
Source: ADOLWD, QCEW data.

Figure 24. Annual Average Employment in Alcohol Retail and Drinking Places in Alaska, 2002-2014



Note: Does not include wholesale job data (not available for 2009-2012) or manufacturing-related jobs.
Source: DOLWD QCEW.

Figure 25. Beverage Manufacturing Annual Average Employment, 1997-2014



Source: DOLWD QCEW.

Chapter 9: Taxes Generated from Alcohol Use

Summary

- Currently, a gallon of alcoholic beverage is taxed as follows: \$12.80 for liquor, \$2.50 for wine, \$1.07 for beer (malt beverages), and \$0.35 for beer (small breweries).
- In SFY 2015, \$38 million, or \$24.80 per capita, in Alcoholic Beverages Tax was paid to the Alaska Department of Revenue, of which \$20 million was deposited in the Alcohol and Other Drug Abuse Treatment and Prevention Fund, and \$18 million was General Fund receipts.

History of Alaska State Taxes on Alcoholic Beverages

Alaska's first tax on alcoholic beverages was enacted in 1933, when beer and wine were taxed at a rate of five cents a gallon.¹⁰ Alaska's current alcoholic beverage tax rates have been in place since 2002. At that time, the liquor tax increased from \$5.60 per gallon to \$12.80 per gallon, wine from \$0.85 to \$2.50 per gallon, beer (malt beverages) from \$0.35 to \$1.07, and a tax on small breweries was initiated at \$0.35 per gallon.

Table 56. History of Alaska Alcoholic Beverages Tax Rates
(nominal unadjusted dollars per gallon)

Fiscal Year	Liquor	Wine	Beer (Malt Beverages)	Beer (Small Breweries)
1933	-	\$0.05	\$0.05	-
1937	\$0.50	\$0.15	-	-
1941	\$1.00	-	-	-
1945	\$1.60	-	-	-
1946	\$2.00	-	-	-
1947	\$3.00	\$0.25	\$0.10	-
1957	\$3.50	\$0.50	\$0.25	-
1961	\$4.00	\$0.60	-	-
1983	\$5.60	\$0.85	\$0.35	-
2002	\$12.80	\$2.50	\$1.07	\$0.35

Source: Alaska Department of Revenue.

Alaska's Current Alcoholic Beverage Tax

The State of Alaska levies an excise tax on all alcoholic beverages sold in Alaska. The tax is collected primarily from wholesalers and distributors.¹¹ Alaska alcoholic beverage tax is described in AS 43.60.010, as follows:¹²

(a) Except as provided in (c) of this section, every brewer, distiller, bottler, jobber, retailer, wholesaler, or manufacturer who sells alcoholic beverages in the state or who consigns shipments of alcoholic

¹⁰ <http://www.tax.alaska.gov/programs/programs/reports/AnnualReport.aspx?Year=2015#program60165>

¹¹ <http://www.tax.alaska.gov/programs/programs/reports/AnnualReport.aspx?Year=2015#program60165>

¹² Current tax rates are the equivalent of 10 cents per drink.

beverages into the state, whether or not the alcoholic beverages are brewed, distilled, bottled, or manufactured in the state, shall pay on all malt beverages (alcoholic content of one percent or more by volume), wines, and hard or distilled alcoholic beverages, the following taxes:

(1) malt beverages at the rate of \$1.07 a gallon or fraction of a gallon;

(2) cider with at least 0.5 percent alcohol by volume but not more than seven percent alcohol by volume, at the rate of \$1.07 a gallon or fraction of a gallon;

(3) wine or other beverages, other than beverages described in (1) or (2) of this subsection, of 21 percent alcohol by volume or less, at the rate of \$2.50 a gallon or fraction of a gallon; and

(4) other beverages having a content of more than 21 percent alcohol by volume at the rate of \$12.80 a gallon.

(b) [Repealed, Sec. 3 ch. 235 SLA 1976].

(c) A brewer shall pay a tax at the rate of 35 cents a gallon on sales of the first 60,000 barrels of beer sold in the state each fiscal year beginning July 1, 2001, for beer produced in the United States if the producing brewery meets the qualifications of 26 U.S.C. 5051(a)(2). To qualify for the tax rate under this subsection, the brewer must file with the department a copy of a Bureau of Alcohol, Tobacco and Firearms acknowledged copy of the brewer's notice of intent to pay reduced rate of tax required under 27 C.F.R. 25.167 for the calendar year in which the fiscal year begins for which the partial exemption is sought. If proof of eligibility is not received by the department before June 1, the tax rate under this subsection does not apply until the first day of the second month after the month the notice is received by the department. For purposes of applying this subsection, a barrel of beer may contain no more than 31 gallons.

Tax revenue deposits are split evenly between the State's General Fund and the Alcohol and Other Drug Abuse Treatment and Prevention Fund.

Alaska Alcoholic Beverage Tax Revenue

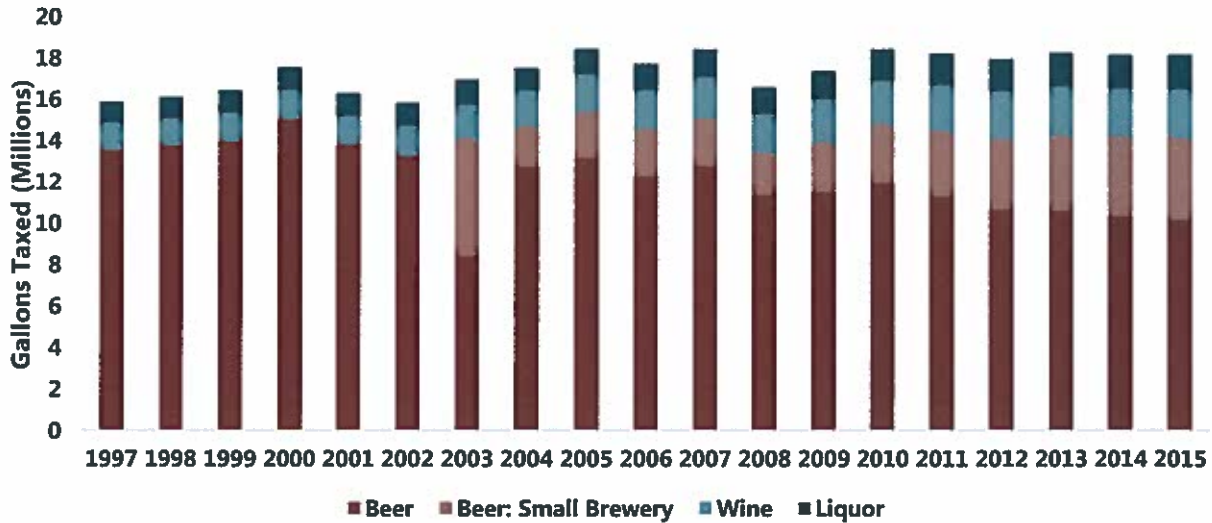
In 2015, 18.2 million gallons of beer, wine, and spirits (liquor) were consumed in Alaska, based on total volume taxed under Alaska's Alcoholic Beverage Tax (AS 43.60.010). This included 14.1 million gallons of beer, 2.4 million gallons of wine, and 1.7 million gallons of spirits.

The total volume of alcohol taxed in Alaska has changed very little over the past decade, at around 18 million gallons annually. However, this includes a slight decline in the volume of beer sold and increases in wine and liquor sales. Beer typically accounts for about 80 percent of alcoholic beverage sales in Alaska, in terms of volume of product.

As noted in AS 43.60.010 (c), the first 60,000 gallons of domestically-produced beer is taxed at a different rate than other beer in general. The amount of beer taxed in the domestically-produced category has steadily increased, and in FY2015 totaled approximately 4 million gallons. Total beer consumption has been reasonably

steady over the past five years at around 14 million gallons. Over the same period, liquor and wine sales have trended up.

Figure 26. Total Volume of Alcoholic Beverages Taxed in Alaska by Type, Millions of Gallons, FY1997-FY2015



Note: The *Beer: Small Brewery* category was added in 2003.
Source: Alaska Department of Revenue.

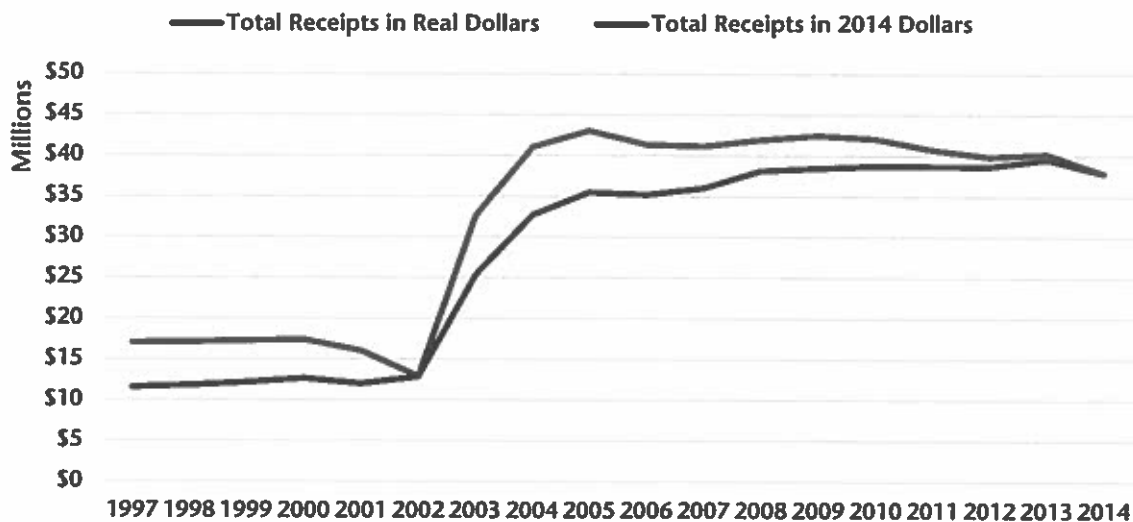
Table 57. Gallons of Alcoholic Beverages Taxed Annually in Alaska, FY1997-FY2015

Fiscal Year	Liquor	Beer, Malt Beverage & Cider	Wine	Beer: Small Brewery	Total
1997	1,011,890	13,547,146	1,345,494	-	15,904,530
1998	1,036,869	13,770,475	1,321,855	-	16,129,199
1999	1,087,720	13,979,490	1,380,535	-	16,447,745
2000	1,103,291	15,052,093	1,425,875	-	17,581,259
2001	1,109,366	13,806,196	1,408,500	-	16,324,062
2002	1,119,095	13,245,648	1,484,995	-	15,849,738
2003	1,240,655	8,429,532	1,596,571	5,722,807	16,989,565
2004	1,104,542	12,760,851	1,703,182	1,974,809	17,543,384
2005	1,252,685	13,192,217	1,837,946	2,202,163	18,485,011
2006	1,300,178	12,294,881	1,846,617	2,314,514	17,756,190
2007	1,354,265	12,776,638	1,998,980	2,317,485	18,447,368
2008	1,291,438	11,379,512	1,877,200	2,047,460	16,595,610
2009	1,369,196	11,528,129	2,067,291	2,424,106	17,388,722
2010	1,526,682	11,963,326	2,122,254	2,840,476	18,452,738
2011	1,558,166	11,308,097	2,225,911	3,165,185	18,257,359
2012	1,572,282	10,687,432	2,314,903	3,405,102	17,979,719
2013	1,640,194	10,632,745	2,382,470	3,615,276	18,270,685
2014	1,640,739	10,364,001	2,310,985	3,856,606	18,172,331
2015	1,676,579	10,184,405	2,376,214	3,947,554	18,184,752

Note: The *Beer: Small Brewery* category was added in 2003.
Source: Alaska Department of Revenue.

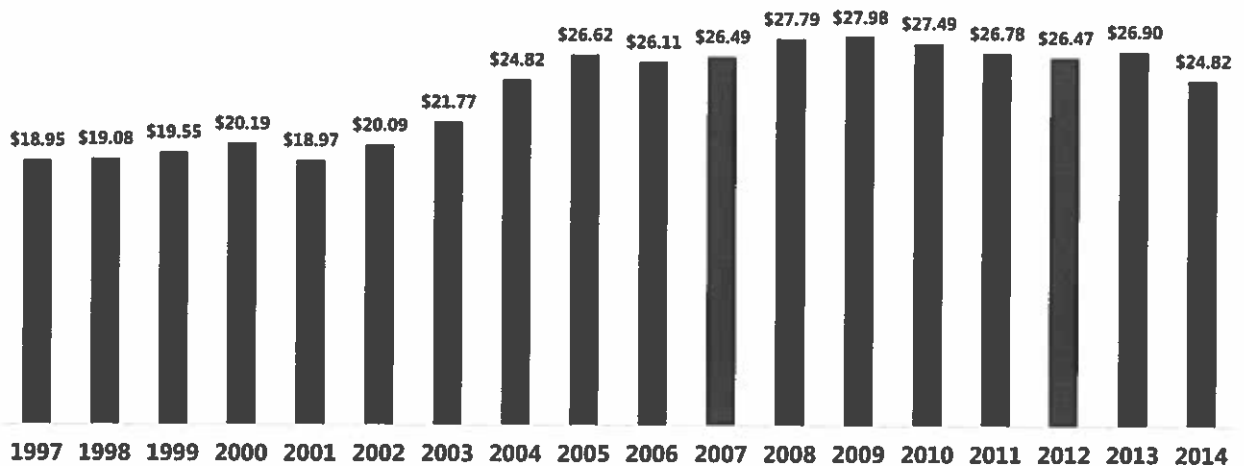
With taxes based on volume of sales rather than value of sales, trends in alcoholic beverage tax revenue match volume trends. In FY2015, the State of Alaska took in \$37.6 million in Alcoholic Beverage Tax revenue. During the period examined in this study, total annual Alcoholic Beverage Tax revenues peaked at \$39.6 million in FY2013. When Alaska's Alcoholic Beverage Tax increased in October 2002, there was a substantial increase in tax revenue between 2002 and 2003.

Figure 27. Total Alcoholic Beverages Tax Receipts, Alaska, \$Millions (Real and 2014 Dollars) 1997-2014



Source: Alaska Department of Revenue, inflation-adjusted calculations by McDowell Group.

Figure 28. Alcoholic Beverage Taxes Retained in General Funds, \$ Per Capita, Alaska, 1997-2014



Source: Alaska Department of Revenue.

Federal Government Alcoholic Beverage Taxes

Alcoholic beverages sold in Alaska are also subject to federal taxes. The tax structure includes:

- Distilled Spirits: \$13.50/proof gallon (\$2.14 on a 750 ml bottle (80 proof))
- Wines not more than 14 percent alcohol: \$1.07/wine gallon (\$0.21/750 ml)
 - 14 to 21 percent alcohol: \$1.57/wine gallon (\$0.31/750 ml)
 - 21 to 24 percent alcohol: \$3.15/ wine gallon (\$0.62/750 ml)
 - Over 24 percent alcohol: taxed as distilled spirits
 - Champagne (sparkling wines): \$3.40/wine gallon (\$0.67/750 ml)
 - Artificially carbonated: \$3.30/wine gallon (\$0.65/750 ml)
- Hard cider 0.5 to 7 percent alcohol: \$0.226/wine gallon (\$0.04/750 ml)
- Beer: \$18/31-gallon barrel (\$0.05/12 oz.) (\$7 for certain small brewers on the first 60,000 barrels.)¹³

Data on total federal alcohol taxes paid in Alaska are not readily available. However, based on federal tax rates, an estimated \$25 million is paid each year.

Local Government Alcohol Sales Taxes

Some local governments in Alaska collect taxes specifically on alcoholic beverage sales. In 2015, 14 local jurisdictions reported collection of taxes on alcohol sales, totaling approximately \$4.9 million.

Table 58. Local Alcoholic Beverage Tax Rates and Revenues, 2015

Alaska Communities	Sales Tax Rate (%)	Total Revenue
City of Fairbanks	5	\$2,239,679
Fairbanks North Star Borough	5	\$998,195
City and Borough of Juneau	3	\$760,910
Dillingham	10	\$297,325
North Pole	5	\$211,997
Kotzebue	6	\$183,967
Craig	6	\$121,554
Galena	3	\$46,629
Barrow	3	\$31,013
Whittier	3	\$6,450
Unalakleet	5	\$4,291
St. Mary's	3	\$2,059
Total		\$4,904,069

Source: Alaska Taxable 2015.

¹³ https://ttb.gov/tax_audit/atftaxes.shtml

Chapter 10: Alcohol Abuse Impacts on the State General Fund Budget

A recent national study estimated that government (local, state, and federal) paid approximately 42.9 percent of the total costs of excessive alcohol consumption in Alaska (2006).¹⁴ The purpose of this chapter is to highlight the impacts of alcohol abuse on the State of Alaska's General Fund budget.

Summary

- In SFY 2015, the Division of Behavioral Health funded approximately \$5.6 million in alcohol abuse prevention.
- Of the \$5.6 million allocated toward the prevention of alcohol abuse, \$3.8 million (or 68 percent) was funded through Undesignated General Funds (UDF).
- In SFY 2015, \$178 million supported 12 different social welfare programs administered by DHSS. Of these programs, approximately 2.9 percent (or approximately \$5.1 million) funded social welfare for alcohol abusers, of which \$3.4 million was supported with UGF.
- Using national proportions, the State of Alaska Justice System's total spending in SFY 2015 of \$655.1 million would represent approximately 33 percent of the total justice systems budgets in Alaska (including federal and local government systems) totaling about \$1.99 billion. If an estimated \$136.2 million is attributed to alcohol abuse arrests and offenses in Alaska, then this would represent about 7 percent of total justice systems costs in Alaska. The portion of those costs impacting the state budget is approximately \$44.9 million (33 percent of \$136.2 million). The estimated UGF portion of the state budget would be \$39.9 million (using the proportion of 89 percent of the total budget). Therefore, of the total UGF funding of \$580.9 million in the state's justice system, approximately 7 percent is directly attributed to alcohol abuse-related costs.

Healthcare Related Costs

Prevention Grants

The State of Alaska Division of Behavioral Health (DBH) allocates grant funding to programs that prevent mental health problems and alcohol abuse. Some of these programs operate at the systems level, guiding governments and communities to implement and organize services. Other programs work directly with individuals suffering from poor mental health or addiction and their families. This section of the report presents the total amount of DBH grants directed towards alcohol abuse.

In SFY 2015, DBH allocated an estimated total of \$5.6 million towards the prevention of alcohol abuse.

¹⁴ Sacks, Jeffrey J., Jim Roeber, Ellen E. Bouchery, Katherine Gonzales, Frank Chaloupka, and Robert D. Brewer. "State Costs of Excessive Alcohol Consumption, 2006." *Am J Prev Med* 2013;45(4):474-485.

Table 59. Summary of State of Alaska DBH Prevention Grant Funding for the Prevention of Alcohol Abuse, SFY 2015

Grant Recipient	Total Grant Value	% for Alcohol Abuse	Grant Total for Alcohol Abuse
Alcohol Safety Action Program	\$1,281,500	100%	\$1,281,500
Fetal Alcohol Diagnostic Services	264,458	100	264,458
Reentry Program	600,000	25	150,000
Rural Human Services System	1,991,565	25	497,891
Strategic Prevention Framework	1,941,716	100	1,941,716
Therapeutic Court	265,000	50	132,500
Comprehensive Prevention	3,814,074	35	1,334,926
Total	\$10,158,313	55%	\$5,602,991

Source: DHSS, Division of Behavioral Health.

Of the \$5.6 million allocated toward the prevention of alcohol abuse, \$3.8 million was funded through Undesignated General Funds (UDF).

Table 60. Undesignated General Fund Portion of DBH Prevention Grant Funding, ('000\$) FY 2015

Grant Recipient	Total State Budget	UGF Portion	% UGF of Total	Grant Total for Alcohol Abuse	UGF Portion of Alcohol Abuse Grants
Alcohol Safety Action Program	\$4,574.7	\$2,061.5	45%	\$1,281.5	\$576.7
Fetal Alcohol Diagnostic Services	\$1,473.1	\$1,473.1	100%	\$264.5	\$264.5
Reentry Program	\$600.0	\$600.0	100%	\$150.0	\$150.0
Rural Human Services System	\$3,468.3	\$869.4	25%	\$497.9	\$124.5
Strategic Prevention Framework	\$1,941.7	\$1,941.7	100%	\$1,941.7	\$1,941.7
Therapeutic Court	\$5,565.2	4,565.9	82%	\$132.5	\$108.7
Comprehensive Prevention	\$3,814.1	\$2874.2	49%	\$1,334.9	\$654.1
Total	\$21,437.4	\$14,385.8	67%	\$5,603.0	3,820.2

Source: DHSS, Division of Behavioral Health.

Social Welfare Related Costs

There are 12 different social welfare programs administered by DHSS. Funding for these programs in SFY 2015 was \$178.0 million. Among the programs are Adult Public Assistance, Energy Assistance, Senior Benefits Payment Programs, and Alaska Temporary Assistance Program. Approximately \$5.1 million funded social welfare for alcohol abusers, of which \$3.4 million was supported with UGF.

Table 61. Undesignated General Fund Portion of State of Alaska Social Welfare Program Spending Attributable to Alcohol Abuse, SFY 2015

Social Welfare Program	State Funding Total ¹	% UGF Funding	Alcohol Abuse Spending	Portion UGF Funding
SNAP Administrative Costs	\$10,674,523 ²	43.9	\$370,050	\$162,452
Adult Public Assistance	\$59,419,200	90.2	\$1,624,125	\$1,464,961
Public Assistance Field Services	\$14,799,800	45.7	\$513,060	\$234,468
Public Assistance Admin	\$1,256,200	32.0	\$43,548	\$13,935
Alaska Temporary Assistance Program	\$15,164,300	43.9	\$525,696	\$230,781
Work Services	\$3,750,000	17.5	\$102,500	\$17,938
Tribal Assistance Services	\$10,084,200	93.7	\$275,635	\$258,270
Women, Infants, and Children	\$10,574,400	1.5	\$232,637	\$3,490
Energy Assistance	\$23,729,400	47.2	\$648,604	\$306,141
Child Care Benefits	\$2,728,200	19.5	\$74,571	\$14,541
General Relief Assistance	\$3,135,200	100	\$85,695	\$85,695
Senior Benefits Payment Program	\$22,665,400	100	\$619,521	\$619,521
Total	\$177,980,823	67%	\$5,115,641	\$3,412,193

Source: ¹Division of Public Assistance Actual Expenditures, SFY 2015, State of Alaska Office of Management and Budget; ²Supplemental Nutrition Assistance Program State Activity Report Fiscal Year 2014.

Criminal Justice/Corrections Related Costs

Based on analysis of Criminal Justice impacts presented in Chapter 4, there were 9,438 offenses/arrests related to alcohol abuse in 2014, representing about 25 percent of total offenses/arrests. The total criminal justice systems costs associated with these offenses and arrests is estimated at \$136.2 million. These costs include local, state, and federal government funds spent on police protection, legal and adjudication services, and corrections programs occurring in Alaska.

Table 62. Summary of Criminal Justice Costs Attributed to Alcohol Abuse in Alaska, 2014

	Alcohol-Related
Substance-Related Counts	
Offenses and arrests	9,438
Percentage offenses-arrests	25%
Costs	
Criminal justice system	\$136.2 million

Note: Columns may not add due to rounding.
Source: McDowell Group calculations.

Based on a 2012 Survey, the Bureau of Justice Statistics provides a national breakout of federal, state, and local government expenditures on justice systems for police protection, judicial and legal services, and corrections. When combined, on a national basis, state government expenditures for justice systems are about 33 percent of total expenditures (\$86 billion out of total national justice system spending of \$265 billion).

Table 63. National Justice System Expenditures by Type of Government, Percent and in \$Thousands, Federal FY2012

Category	Percent	\$Thousands
Police Protection		
Federal	25%	\$31,395,000
State	12%	\$14,815,502
Local	66%	\$84,053,185
Total		\$126,434,125
Judicial and Legal Services		
Federal	27%	\$15,894,000
State	39%	\$22,770,081
Local	38%	\$22,049,483
Total		\$57,935,169
Corrections		
Federal	11%	\$8,978,000
State	60%	\$48,680,649
Local	33%	\$26,397,777
Total		\$80,791,046
Total Justice System		
Federal	21%	\$56,267,000
State	33%	\$86,266,232
Local	50%	\$132,500,445
Total		\$265,160,340

Note: Totals will not sum due to the removal of any fund duplications.
Source: Bureau of Justice Statistics (BJS) Justice Expenditure and Employment Extracts Program (JEE).

In SFY 2015, \$111.9 million out of \$115.7 million (or 97 percent) of the Alaska Court System was funded with Undesignated General Funds (UGF). A total of 83 percent (or \$171.3 million) of the Alaska Department of Public Safety's budget was from UGF. The Department of Corrections' budget was 89 percent funded with UGF (or \$297.7 million). Combined, \$580.9 million in UGF supported 89 percent of the combined budgets for the Alaska Court System, Department of Public Safety, and Department of Corrections.

Table 64. State of Alaska Justice System Budgets, SFY 2015

	Undesignated General Funds	Total State Budget	% UGF of Total Budget
Alaska Court System	\$111.9 million	\$115.7 million	96.7%
Dept. of Public Safety	\$171.3 million	\$206.3 million	83.0%
Dept. of Corrections	\$297.7 million	\$333.0 million	89.4%
Total	\$580.9 million	\$655.1 million	88.7%

Note: Columns may not add due to rounding.
Source: State of Alaska, Office of Management and Budget, McDowell Group calculations.

Using national proportions, the State of Alaska Justice System's total spending in SFY 2015 of \$655.1 million would represent approximately 33 percent of the total justice system's budgets in Alaska (including federal and local government systems) totaling about \$1.99 billion.

If an estimated \$136.2 million is attributed to alcohol abuse arrests and offenses in Alaska, then this would represent about 7 percent of total justice systems costs in Alaska. The portion of those costs impacting the state budget is approximately \$44.9 million (33 percent of \$136.2 million). The estimated UGF portion of the state budget would be \$39.9 million (using the proportion of 89 percent of the total budget). Therefore, of the total UGF funding of \$580.9 million in the state's justice system, approximately 7 percent is directly attributed to alcohol abuse-related costs. This is likely a conservative estimate. State of Alaska spending on criminal justice probably accounts for a higher percentage (than the national average) of total criminal justice spending in Alaska. For example, in Alaska there are no federal penitentiaries or correctional institutions.

Summary of General Fund Impacts

There is a nexus between alcohol abuse and the State's General Fund. Many public costs specifically attributable to alcohol abuse are borne by the General Fund. For example, law enforcement, incarceration, and other criminal justice system costs account for half (\$136 million) of the \$270 million in criminal justice and protective services costs noted above. It is reasonable to assume that if alcohol abuse could be reduced, through prevention or treatment programs, demands on Alaska's correctional centers could be reduced, as would the \$174 million in State General Funds (in FY2015) required to support those institutions. Similarly, the \$104 million in FY2015 General Funds used to support Alaska State Trooper Detachments, the Village Public Safety Offices Program, the Council on Domestic Violence and Sexual Assault, and the Statewide Drug and Alcohol Enforcement Unit could be reduced with progress in treatment and prevention programs.

Other substantial alcohol abuse related costs have a nexus with the Alaska Department of Health and Social Services, including \$148 million in in-patient, out-patient, and emergency department hospital costs related to alcohol abuse. Many of these costs are tied to the \$338 million in FY2015 General Funds budgeted for Medicaid Services.

In summary, while difficult to measure costs and benefits with certainty, investment in alcohol treatment and prevention programs can reduce demands placed on the State General Fund to address the wide range of adverse impacts of alcohol abuse in Alaska.

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Appendix: Mortality

Table 65. ICD-10 Codes and Alcohol Attributable Fractions by Cause of Death, Gender, and Age Group

Cause	ICD-10	Sex	Age Group	AAF
Alcoholic psychosis	F10.3-F10.9	Both	20-85+	100%
Alcohol abuse	F10.0, F10.1	Both	20-85+	100%
Alcohol dependence syndrome	F10.2	Both	20-85+	100%
Alcohol polyneuropathy	G62.1	Both	20-85+	100%
Degeneration of nervous system due to alcohol	G31.2	Both	20-85+	100%
Alcoholic myopathy	G72.1	Both	20-85+	100%
Alcohol cardiomyopathy	I42.6	Both	20-85+	100%
Alcoholic gastritis	K29.2	Both	20-85+	100%
Alcoholic liver disease	K70-K70.4, K70.9	Both	20-85+	100%
Fetal alcohol syndrome	Q86.0	Both	0-85+	100%
Fetus and newborn affected by maternal use of alcohol	P04.3, O35.4	Both	0-85+	100%
Alcohol-induced chronic pancreatitis	K86.0	Both	20-85+	100%
Acute pancreatitis	K85	Both	20-85+	24%
Chronic pancreatitis	K86.1	Both	20-85+	84%
Epilepsy	G40, G41	Both	20-85+	15%
Esophageal varices	I85, I98.2	Both	20-85+	40%
Gastroesophageal hemorrhage	K22.6	Both	20-85+	47%
Liver cirrhosis, unspecified	K74.3-K74.6, K76.0, K76.9	Both	20-85+	40%
Portal hypertension	K76.6	Both	20-85+	40%
Spontaneous abortion	O03	F	20-85+	4%
Spontaneous abortion	O03	M	20-85+	0%
Breast cancer, females	C50	F	20-85+	1%
Breast cancer, females	C50	M	20-85+	0%
Cholelithiasis	K80	Both	20-85+	-1%
Chronic hepatitis	K73	Both	20-85+	1%
Esophageal cancer	C15	Both	20-85+	1%
Hypertension	I10-I15	Both	20-85+	2%
Ischemic heart disease	I20-I25	Both	20-85+	0%
Laryngeal cancer	C32	Both	20-85+	4%
Liver cancer	C22	Both	20-85+	4%
Low birth weight, prematurity, intrauterine growth retardation or death	O36.5, O36.4, P05, P07	Both	0-85+	3%
Oropharyngeal cancer	C01-C06, C09-C10, C12-C14	Both	20-85+	1%
Psoriasis	L40.0-L40.4, L40.8, L40.9	Both	20-85+	0%
Supraventricular cardiac dysrhythmia	I47.1, I47.9, I48	Both	20-85+	2%
Stroke, ischemic	G45, I63, I65-I67, I69.3	F	20-85+	1%
Stroke, ischemic	G45, I63, I65-I67, I69.3	M	20-85+	4%
Stroke, hemorrhagic	I60-I62, I69.0-I69.2	F	20-85+	1%
Stroke, hemorrhagic	I60-I62, I69.0-I69.2	M	20-85+	3%
Prostate cancer	C61	Both	20-85+	0%
Alcohol poisoning	X45, Y15, T51.0, T51.1, T51.9	Both	15-85+	100%
Suicide by and exposure to alcohol	X65	Both	20-85+	100%

Cause	ICD-10	Sex	Age Group	AAF
Excessive blood level of alcohol	R78.0	Both	15-85+	100%
Air-space transport	V95-V97	Both	15-85+	18%
Aspiration	W78-W79	Both	15-85+	18%
Homicide	X85-Y09, Y87.1	Both	15-85+	47%
Child Maltreatment	X85-Y09, Y87.1	Both	0-15	16%
Drowning injuries	W65-W74	Both	15-85+	34%
Fall injuries	W00-W19	Both	15-85+	32%
Fire injuries	X00-X09	Both	15-85+	42%
Firearms	W32-W34	Both	15-85+	18%
Hypothermia	X31	Both	15-85+	42%
Motor-vehicle nontraffic collisions	V02.0, V03.0, V04.0, V09.0, V12-V14(0-.2), V19.0-V19.3, V20-V28(0-.2), V29.0-V29.3, V30-V39(0-.3), V40-V49(0-.3), V50-V59(0-.3), V60-V69(0-.3), V70-V79(0-.3), V81.0, V82.0, V83-V86(4-.9), V88.0-V88.8, V89.0	Both	15-85+	18%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	0-14	15%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	15-19	20%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	20-24	36%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	25-34	37%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	35-44	34%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	45-54	28%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	55-64	16%
Motor-vehicle traffic collisions	V02(1, .9), V03(1, .9), V04(1, .9), V09.2, V12-V14(3-.9), V19.4-V19.6, V20-V28(3-.9), V29.4-V29.9, V30-V39(4-.9), V40-V49(4-.9), V50-V59(4-.9), V60-V69(4-.9), V70-V79(4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(0-.3), V87.0-V87.8, V89.2	F	65+	8%

Cause	ICD-10	Sex	Age Group	AAF
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	0-14	15%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	15-19	26%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	20-24	46%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	25-34	49%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	35-44	47%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	45-54	41%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	55-64	28%
Motor-vehicle traffic collisions	V02(.1-.9), V03(.1-.9), V04(.1-.9), V09.2, V12-V14(.3-.9), V19.4-V19.6, V20-V28(.3-.9), V29.4-V29.9, V30-V39(.4-.9), V40-V49(.4-.9), V50-V59(.4-.9), V60-V69(.4-.9), V70-V79(.4-.9), V80.3-V80.5, V81.1, V82.1, V83-V86(.0-.3), V87.0-V87.8, V89.2	M	65+	12%
Occupational and machine injuries	W24-W31, W45	Both	15-85+	18%
Other road vehicle collisions	V01, V05-V06, V09.1, V09.3, V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9	Both	15-85+	18%
Poisoning (not alcohol)	X40-X49 (except X45)	Both	15-85+	29%
Suicide	X60-X84, (except X65) Y87.0	Both	15-85+	23%
Water Transport	V90-V94	Both	15-85+	18%

Notes: The ARDI Tool provides low, medium, and high estimates. For purposes of this report, the medium attributable estimate was used.
Source: Centers for Disease Control and Prevention (CDC), Alcohol and Public Health, Alcohol-Related Disease Impacts (ARDI).

Table 66. Alaska Alcohol-Related Deaths, by Cause, 2010-2014

	Total Deaths 2010-2014	Alcohol Attributable Deaths 2010-2014	Annual Average Alcohol Attributable Deaths Per Year
Causes of Death 100 Percent Attributable to Alcohol	620	620	124
Alcohol abuse	43	43	8.6
Alcohol cardiomyopathy	34	34	6.8
Alcohol dependence syndrome	99	99	19.7
Alcohol poisoning	142	142	28.4
Alcohol polyneuropathy	0	0	0.0
Alcoholic gastritis	1	1	0.2
Alcoholic liver disease	282	282	56.4
Alcoholic myopathy	0	0	0.0
Alcoholic psychosis	18	18	3.6
Alcohol-induced chronic pancreatitis	0	0	0.0
Degeneration of nervous system due to alcohol	0	0	0.0
Excessive blood level of alcohol	0	0	0.1
Fetal alcohol syndrome	1	1	0.2
Fetus and newborn affected by maternal use of alcohol	0	0	0.0
Suicide by and exposure to alcohol	0	0	0.0
Causes of Death Partially Attributable to Alcohol	6,501	807	161
Acute pancreatitis	20	5	1.0
Air-space transport	74	13	2.7
Aspiration	10	2	0.4
Breast cancer, females	313	3	0.6
Child Maltreatment	21	3	0.7
Cholelithiasis	6	0	0.0
Chronic hepatitis	0	0	0.0
Chronic pancreatitis	0	0	0.0
Drowning injuries	114	39	7.8
Epilepsy	24	4	0.7
Esophageal cancer	138	1	0.3
Esophageal varices	2	1	0.2
Fall injuries	150	48	9.6
Fire injuries	50	21	4.2
Firearms	8	1	0.3
Gastroesophageal hemorrhage	2	1	0.2
Homicide	177	83	16.6
Hypertension	348	7	1.4
Hypothermia	57	24	4.8
Ischemic heart disease	2062	0	0.0
Laryngeal cancer	23	1	0.2
Liver cancer	215	9	1.7
Liver cirrhosis, unspecified	192	77	15.4
Low birth weight, prematurity, intrauterine growth retardation or death	9	0	0.1
Motor-vehicle nontraffic collisions	71	13	2.6
Motor-vehicle traffic collisions	293	95	19.0
Occupational and machine injuries	19	3	0.7

	Total Deaths 2010-2014	Alcohol Attributable Deaths 2010-2014	Annual Average Alcohol Attributable Deaths Per Year
Causes of Death Partially Attributable to Alcohol (cont'd)			
Oropharyngeal cancer	54	0	0.0
Other road vehicle collisions	7	1	0.3
Poisoning (not alcohol)	505	146	29.3
Portal hypertension	4	2	0.3
Prostate cancer	210	0	0.0
Psoriasis	0	0	0.0
Spontaneous abortion	0	0	0.0
Stroke, hemorrhagic	251	5	1.0
Stroke, ischemic	79	2	0.4
Suicide	806	185	37.1
Supraventricular cardiac dysrhythmia	142	3	0.6
Water Transport	46	8	1.7
Total	7,120	1,426	285

Notes: Due to rounding columns may not add to totals. See Appendix for ICD-10 codes used and specific alcohol attribution rates by gender and age groups.

Source: Death counts from DHSS' Bureau of Vital Statistics' (BVS) unpublished data, and McDowell Group calculations. Attribution rates from Centers for Disease Control and Prevention (CDC), Alcohol and Public Health, Alcohol-Related Disease Impacts (ARDI).

Table 67. Estimated Potential Years of Life Lost (PYLL) Due to Causes of Death Attributable to Alcohol in Alaska, 2010-2014

	Total Number of Alcohol Attributable Deaths	PYLL Attributable to Alcohol	Estimated Average PYLL Per Year
Causes of Death 100 Percent Attributable to Alcohol	620	14,927	2,985
Alcoholic psychosis	18	306	61
Alcohol abuse	43	849	170
Alcohol dependence syndrome	99	2,192	438
Alcohol polyneuropathy	0	0	0
Degeneration of nervous system due to alcohol	0	0	0
Alcoholic myopathy	0	0	0
Alcohol cardiomyopathy	34	730	146
Alcoholic gastritis	1	12	2
Alcoholic liver disease	282	6,083	1,217
Fetal alcohol syndrome	1	75	15
Fetus and newborn affected by maternal use of alcohol	0	0	0
Alcohol-induced chronic pancreatitis	0	0	0
Alcohol poisoning	142	4,680	936
Suicide by and exposure to alcohol	0	0	0
Causes of Death Partially Attributable to Alcohol	729	23,502	4,699
Acute pancreatitis	4.1	87	17
Chronic pancreatitis	0.0	0	0
Epilepsy	3.0	65	13
Esophageal varices	0.8	18	4
Gastroesophageal hemorrhage	0.9	31	6
Liver cirrhosis, unspecified	66.4	1,212	242
Portal hypertension	1.6	24	5
Spontaneous abortion	0.0	0	0

	Total Number of Alcohol Attributable Deaths	PYLL Attributable to Alcohol	Estimated Average PYLL Per Year
Causes of Death Partially Attributable to Alcohol (cont'd)			
Breast cancer, females	2.3	36	7
Cholelithiasis	0.0	0	0
Chronic hepatitis	0.0	0	0
Esophageal cancer	1.0	12	2
Hypertension	4.4	86	17
Ischemic heart disease	0.0	0	0
Laryngeal cancer	0.6	11	2
Liver cancer	7.2	100	20
Low birth weight, prematurity, intrauterine growth retardation or death	0.3	20	4
Oropharyngeal cancer	0.5	6	1
Psoriasis	0.0	0	0
Supraventricular cardiac dysrhythmia	0.7	7	1
Stroke, ischemic	0.9	13	3
Stroke, hemorrhagic	3.1	53	11
Prostate cancer	0.0	0	0
Air-space transport	12.6	366	73
Aspiration	1.1	35	7
Homicide	82.3	2,941	588
Child Maltreatment	0.0	0	0
Drowning injuries	38.1	1,195	239
Fall injuries	28.8	714	143
Fire injuries	16.4	396	79
Firearms	1.4	52	10
Hypothermia	22.7	613	123
Motor-vehicle nontraffic collisions	11.7	470	94
Motor-vehicle traffic collisions	79.6	2,860	572
Occupational and machine injuries	3.2	100	20
Other road vehicle collisions	1.3	39	8
Poisoning (not alcohol)	145.3	4,922	984
Suicide	178.7	6,700	1,340
Water Transport	8.3	318	64
Total	1,349	38,429	7,684

Note: Due to rounding columns may not add to totals.

Source: DHSS' BVS' unpublished data, and McDowell Group calculations. Attribution rates from CDC's ARDL