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THE COST OF ALCOHOL ABUSE IN CALIFORNIA: HIGHLIGHTS

★The cost of alcohol abuse in California in 2001 totaled $17.8 billion for health service, substance abuse treatment/prevention, lost productivity from premature deaths, and justice system costs (See Appendix Table 11).

★Nearly 84,000 hospital discharges resulted from alcohol abuse, including 11,388 discharges with alcohol dependence syndrome, 9,314 with alcoholic psychoses, and 8,115 with cirrhosis of the liver. Almost 16,000 Californians were hospitalized for injuries that resulted from alcohol use (Table 3 and page 3).

★Hospitalization costs amounted to $1.3 billion (Table 6). The mean length of hospitalization in non-federal hospitals was 6.5 days and the mean cost per hospitalization was over $12,000 (Table 5 and page 3).

★Public programs paid for 64% of hospitalization costs, including 38% paid by Medicare, and 19% paid by MediCal (Table 5 and page 4).

★Costs of other medical services, including outpatient care, nursing homes, pharmaceuticals, and other health professionals, totaled $1.11 billion (Table 6 and page 4).

★Health insurance administration costs in California attributed to alcohol abuse amounted to $122 million for 2001 (Table 6 and page 5).

★More than 13,000 Californians died as a result of alcohol abuse, including 3,600 who died of primary alcohol-caused diagnoses, over 5,100 who died of an alcohol –related diagnosis, and 4,400 who died of an injury attributed to alcohol. These deaths represented lost productivity of nearly $8 billion and over 358,000 life years (Tables 7,8 and page 6).

★Criminal justice system costs attributed to alcohol were as high as $6.7 billion including $2.1 billion for police protection, $2.1 billion for judicial and legal services, and $2.4 billion for corrections (Table 9 and page 6).

★In California's justice system, 25% of total police arrests are for alcohol-specific offenses; approximately 43% of total arrests have been observed to be alcohol-involved (Table 10 and page 6). An estimated 36 percent of state prison and jail inmates were under the influence of alcohol at the time of their convicted offense (Table 9 and page 7).

★The alcoholic beverage industry paid excise taxes, license fees, and fines totaling $350 million in 2001. In addition to $41 million in license fees and fines, this included $130 million excise taxes on beer sales, $19 million on wine sales, and $138 million on the sale of spirits (Page 8).

★Seen as an additional cost for the price of a drink, health care and justice system costs add 18 cents not paid by the drinker. Offsetting beverage industry payments (through excise taxes, license fees, and fines) are less than one cent (Page 13).

INTRODUCTION

Alcohol abuse is known to cause illness, disability, and premature death. It is also a contributing factor in many instances to criminal activity, motor vehicle crashes, and other injuries. Substantial costs resulting from alcohol abuse are incurred in the United States and in California, including the cost of providing medical care for people with alcohol-related illness, treatment and prevention costs, costs to the law enforcement system, costs resulting from alcohol-related motor vehicle crashes and other injuries, and the indirect costs associated with disability, diminished capacity, and premature death from alcohol-related causes.

The purpose of this briefing paper is to review the research that has been done in this area, and to present preliminary estimates of the costs of alcohol abuse in California and its impact on the state. These estimates are based on research that has been conducted by experts at the national level over the years coupled with some specific analyses conducted for California. We also suggest how one could conduct a thorough study to develop more detailed and refined estimates for the state.

PREVIOUS STUDIES

A series of studies have been conducted at the national level over the past 35 years. The first comprehensive cost study of alcohol abuse in the U.S. was conducted by Berry and Boland (1973) and estimated costs for 1972. The Research Triangle Institute (RTI) estimated national alcohol-related costs for the U.S. for 1980 (Harwood et al., 1984), and this study was updated and refined by Rice with estimates for 1985 (Rice et al, 1990). Most recently, Harwood and colleagues (Harwood et al, 1998), now at the Lewin Group, developed the most current national estimates which are for 1992. These studies each built upon the previous methodologies and include refinements that were made possible by newer datasets and newer research on alcohol-related disease and health. We incorporate here only the most recent study, because it reflects the research that came before it and the many refinements that have been made to the methodology over the years.

The National Center on Addiction and Substance Abuse at Columbia University recently prepared a report on the impact of substance abuse on state budgets (2001). They estimate that in 1998, California spent 15.2 percent of the state budget or over $10.4 billion on substance abuse. The largest component of cost was for justice programs, but they do not provide separate estimates for alcohol, drug, and tobacco use.

WHAT ARE THE COMPONENTS OF ALCOHOL-RELATED COSTS?

Alcohol abuse impacts costs in a number of ways. By causing illness and disability, there are costs to the healthcare system. Alcohol is known to be involved in a large proportion of motor vehicle crashes, and the related injuries also result in health care costs.

★***Healthcare costs.*** People receive treatment for diseases caused by or closely related to alcohol use. The specific diagnoses and the percentages attributed to alcohol abuse we used are shown in Table 1 (see Appendix for tables). While many patients are hospitalized with a primary diagnosis that is alcohol-caused or alcohol-related, others with alcohol problems are hospitalized for different conditions but have a secondary condition that is alcohol-related. Studies have found that a patient with a secondary alcohol condition will be hospitalized longer and incur greater hospital expenses than a patient with no alcohol problems (Rice et al., 1990).

Costs to the healthcare system include dollars spent for the diagnosis and treatment of alcohol-related illness. These costs are incurred in a number of settings. People may be hospitalized in non-federal hospitals, federal hospitals (Veterans Administration, military, or Indian Health Affairs facilities), or specialty institutions which provide care for substance abusers. They may receive care on an outpatient basis, spend time in nursing homes, take prescribed medications, and receive other professional services related to the treatment of their alcohol-related conditions.

★***Mental health services costs.*** Alcohol abuse and mental illness often occur together. It is possible that the former causes the latter, but it is also possible that the latter causes the former. People suffering from mental illness receive care from mental health professionals in both psychiatric institutions and outpatient settings.

★***Alcohol dependency treatment costs.*** Treatment units provide specialty services to people with alcohol abuse problems. Services provided include rehabilitation, counseling, and case management.

★***Prevention program costs.*** Prevention services to reduce the incidence and prevalence of alcohol abuse are provided by federal and state agencies. Funding comes primarily through grants distributed by state agencies to county alcohol and drug programs and to local school districts.

★***Health insurance administration costs.*** Given the substantial health care costs that result from alcohol abuse, a proportion of the health insurance administration costs incurred as a result can be attributed to alcohol.

★***Value of lost and reduced productivity.*** People suffering from alcohol-related illnesses and injuries lose time from their regular activities. They may also be less effective at their jobs, have difficulty maintaining stable employment, and thus lose income over time.

★***Value of lives lost prematurely.*** A number of people will die prematurely from alcohol-related causes. In some cases, the primary cause of death will be clearly due to alcohol consumption. Examples are alcohol psychoses and alcoholic cirrhosis of the liver.

In other cases, alcohol will be a contributing factor to the death, and a proportion of deaths can be attributed to alcohol. For example, following Harwood we attribute 15% of liver cancer and 50% of chronic hepatitis to alcohol abuse. The diagnoses used to determine the number of deaths attributed to alcohol are shown in Table 2. Alcohol is often a contributing factor in injuries, and is reported to be involved in 42% of motor vehicle crashes and 46% of homicides. These attribution fractions are also shown in Table 2.

Each time a person dies prematurely, society loses the contributions they would have made. The human capital approach is one method for determining an economic value of life. This approach values people in terms of their production potential, and values life according to what a person would have earned in the labor market and uses an imputed value for unpaid household production. Each life is valued by considering how many years the person would have lived in the absence of illness. Using average labor market participation rates and household production rates for a person of a given age group and gender, the future lifetime earnings are added up over the expected remaining lifetime.

★***Criminal justice costs.*** Alcohol involvement is known to be a contributing factor in many criminal activities, including 22-30% of assaults, 3-4% of robberies and burglaries, and all driving under the influence and public drunkenness (Harwood, 1998, Table 6.8). This leads to considerable expenditures by police departments, the legal system, and the court systems. In addition, incarcerated criminals are not able to be contributing and productive members of society.

★***Other costs.*** Other costs resulting from alcohol abuse include costs to the social welfare system, property and roadway damage resulting from motor vehicle crashes, fire-related costs, and the lost productivity of victims of crime.

FINDINGS

★***Hospitalization costs.*** We analyzed the costs for non-federal short-stay hospitals in California using the California Patient Discharge Dataset for 2000, the most recent year for which data were available (Office of Statewide Health Planning and Development (OSHPD), 2000). Costs were then converted to 2001 dollars using the Consumer Price Index for inpatient hospital services (U.S. Department of Labor, 2004a). Following Harwood, we included diagnoses that were caused directly by alcohol use and those that were related or exacerbated by its use. For the latter group, a percentage of the costs were included here. For example, 50% of cases of chronic hepatitis were attributed to alcohol. Similarly, some but not all injuries were related to alcohol. For this study, we used Harwood's attribution of 10% of all nonfatal injuries that resulted in hospitalization or outpatient care to alcohol.

We also estimated the additional costs incurred by people hospitalized with a secondary condition related to alcohol abuse. This cost was characterized by Harwood as the "additional days from co-occurring alcohol disorders" (Harwood, 1998, Table 4.10). He and his colleagues, following Rice and her colleagues (Rice et al., 1990), estimated this cost by adding up the excess days of hospitalization and the associated cost. We estimated it here using the ratio of comorbidity costs to non-federal hospital costs as reported by Harwood.

In order to estimate the cost of alcohol abuse, one would ideally like to know the actual payments made for hospital services. However, the patient discharge data report "charges". Most payers negotiate a contract which includes payments that are less than, and in some cases substantially less than, reported charges. For our estimates, we converted charges to costs, using the mean cost-to-charge ratio of 42 percent reported by the OSHPD (2004). Costs represent the value of all the resources used to provide the service by the hospital. This number would be less than the payments made, but actual payment data were not easily available. Therefore, we used costs and the resulting estimates will underestimate the payments actually made for the services.

In 2000, patients were discharged from California hospitals 83,792 times due to alcohol abuse, as shown in Table 3. Nearly 35,000 of them had primary conditions that were caused by alcohol, including alcohol dependence syndrome with 11,388 discharges, alcoholic psychoses with 9314 discharges, and cirrhosis of the liver with 8115 discharges. Another 33,000 had conditions that were related to alcohol abuse (including only the proportion of cases that could be attributed to alcohol use). The most common related conditions were acute pancreatitis and cerebrovascular disease, accounting for 7296 and 6697 discharges respectively. Injuries that were attributed to alcohol accounted for almost 16,000 discharges. The mean length of stay for these hospitalizations was 6.5 days, but ranged from 2.1 days for those with toxic effects of ethyl alcohol to 16.9 days for those admitted with malignant neoplasms of the lip, oral cavity, and pharynx. The cost resulting from these hospitalizations was over one billion dollars. Alcohol-caused conditions cost $291 million (29% of the total), alcohol-related conditions cost $493 million (49%) and injuries cost $227 million (22%). Mean cost per discharge was $12,077, and ranged from $3458 for nondependent abuse of alcohol, to $35,247 for malignant neoplasm of the esophagus.

Males accounted for 59% of the discharges and 60% of the costs, as shown in Table 4. Costs were greatest for adults aged 35-64, who accounted for $544 million of costs. Mean costs generally increased with age and were slightly higher for males than for females — $12,308 compared to $11,743.

Hospitalization costs resulting from alcohol-related illness were largely paid by public programs, as shown in Table 5. These programs included Medicare, MediCal, county indigent programs, other government payers, and other indigent care and paid for 64% of the cost of hospitalizations for alcohol abuse — $654 million. Medicare alone accounted for 35% of discharges and 38% of costs. MediCal accounted for 14% of discharges and 19% of costs. MediCal recipients had the longest mean length of stay at 9.6 days and the highest mean cost - $16, 610 per discharge. Private coverage paid for 27% of costs.

★***Cost of other medical services.*** Estimates of other medical costs for alcohol-related diseases in California were developed by applying ratios from the Harwood study (1998) to the California-specific short-stay non-Federal hospitalization costs for 2001. The ratios employed are shown in Table 6. For example, Harwood found that for every dollar spent in a non-federal short-stay hospital, 10.1 cents was spent in federal hospitals, 39.3 cents was spent on outpatient care, 35.6 cents was spent on pharmaceuticals, and so forth. Thus, we estimated California costs for hospitalization in federal hospitals as $1,012 million x .101 = $103 million, costs for outpatient care as $1,012 million x .393 = $398 million, and costs for pharmaceuticals as $1,012 million x .356 = $360 million. For every dollar spent in a non-federal short-stay hospital, an additional $1.40 was spent on other types of healthcare.

Total medical costs amounted to $2.427 billion in California for 2001. More than half of this total, 54%, is for hospital care in non-federal and federal hospitals, including the additional cost resulting from people with alcohol-related diagnoses who are hospitalized for other reasons (comorbidity). The next largest components of medical costs are outpatient medical care and pharmaceuticals, accounting for $398 million (16%) and $360 million (15%) of the total, respectively.

★***Mental health services costs.*** Harwood and colleagues estimate that visits to mental health providers cost $1.9 billion in the U.S. in 1992 (Harwood et al., 1998, section 4.4.6.5). However, they also indicate that "because of the limited amount of study and evidence on the issue, we have elected to calculate, but not to total, these costs with other estimates of health care expenditures attributable to alcohol and drug abuse." No other estimates of this cost component are available, and it was not included in this paper.

★***Substance abuse treatment and prevention costs.*** California's public-funded treatment and prevention services for alcohol/drug dependency and alcohol/drug problems are primarily the responsibility of the California Department of Alcohol and Drug Programs (DADP). The DADP's 2003-2004 Governors' Budget for treatment, prevention, and perinatal services is $483,144,000. Treatment costs total $370,832,000. Prevention costs total $65,792,000. Perinatal costs related to substance abuse total $46,520,000. These costs are paid by $273,266,000 federal funds, $5,673,000 state general fund, and $204,205,000 other funds (four special funds and reimbursements). Financial information on use of these funds is not reported separately for alcohol-related service activity. This is because alcohol and drug treatment and prevention services are now so closely connected. Many people

now in the treatment/prevention system abuse both alcohol and illicit drugs, and funded modalities for alcohol/drug services often share staff, methods, facilities and other resources to the extent that it is unrealistic to separate them for fiscal accounting purposes.

Additional alcohol-related prevention services are provided by the California Department of Education through federal grant funds from the US Dept of Education in the amount of $60,756,063 for 2003 (Safe and Drug Free Schools and Communities State Grants, No Child Left Behind Act, 2003). These funds are administered through approximately 1,000 local school districts to cover programs for the prevention of problems related to alcohol, illicit drugs, and violence. As is the case for the DADP, financial information on use of these funds is not reported separately for alcohol-related activity.

★***Health insurance administration costs.*** Following Harwood (1988, Section 4.5), we estimated these costs as 5.04% of the total medical care costs. This amounted to $122 million for 2001.

★***Value of lost and reduced productivity.*** Several studies have developed sophisticated econometric models to compare employment and earnings trajectories over time for people with and without alcohol-related illness. Rice (1990, Table 35) reported morbidity costs of $23.2 billion for males and $4.2 billion for females in 1985. Harwood and colleagues (1998, Table 5.12) reported lower wages and productivity losses amounting to $67 billion for employed alcohol-dependent males. They found no statistically significant income impacts for females. In addition to lost income for employed persons, there are losses associated with days lost from productive activities for people who are not employed.

Unfortunately there were no published estimates of reduced productivity from alcohol abuse for California. We were unable to provide estimates here. However, we note that impaired productivity accounted for fully 46% of Harwood's total cost estimates and 39% of Rice's estimates.

★***Mortality costs.*** Deaths for which an alcohol-related disease was indicated as the primary cause were obtained from the 2001 California Death Statistical/Master file. The data file is a compilation of California death certificates and the underlying cause of death is coded using ICD-10 codes. The value of lost productivity resulting from premature death was estimated using a computer program maintained by researchers at the University of California, San Francisco (Max et al., 2001). The program computes the present value of lifetime earnings (PVLE), and was used to generate California-specific estimates for 2001. California specific estimates were generated using mean earnings and labor force participation rates for the state. This stream of income was converted to today's present value equivalent using a discount rate of 3%. The program produces values of the discounted PVLE per person by age (5-year age groups) and gender. The PVLE for California females in 2001 discounted at 3 percent reaches a maximum for both males and females age 20-24 at $1,797,017 and $1,355,304 respectively, and then declines to $3,152 and $1,944 for males and females over age 85.

The value of lives lost prematurely from alcohol abuse was then determined as the product of the number of deaths in each age and gender group times the mean PVLE for that group.

A total of 13,094 deaths in California in 2001 were attributed to alcohol-related causes, as shown in Table 7. This includes 3,554 for whom the cause of death was alcohol-caused and an additional 5,124 deaths for which an alcohol-related diagnoses was the cause of death. We counted only the proportion of related deaths that could be attributed to alcohol, as shown in table 2. Alcohol-related injuries were the attributable cause for 4,416 deaths. The most common diagnosis was alcoholic cirrhosis of the liver, which was alone responsible for 2,603 deaths. The portion of motor vehicle deaths attributable to alcohol was the second most prevalent cause, responsible for 1,680 deaths. The 13,094 alcohol-attributable deaths accounted for over 358,000 years of life lost, or 27 years per death. The value of productivity lost as a result was $8.0 billion, or $609,270 per death.

Table 8 shows the alcohol-related deaths by age and gender. Two-thirds of the deaths were to males, and they accounted for 82% of the value of lost productivity. For males, the most alcohol-related deaths occurred in the 50-54 year age group, while for females the most deaths were for those over age 85.

★***Criminal justice costs.*** Data on criminal justice costs for alcohol-related activity are not readily available for the state. However, we attempted to make a first approximation of what these costs are likely to be. Two methods were used to conclude that approximately 25 percent of arrests involve suspects under the influence of alcohol. National research extrapolated for the California population was used to estimate that approximately 36 percent of inmates in state prisons and local jails were under the influence during commission of their convicted crime.

(1) Calculations based on arrests. Harwood reported the percent of arrests that were alcohol-caused by type of offense. We computed a weighted average of these rates, weighting by the number of arrests of each type. Thus we found that 25.3% of all arrests were for offenses caused by alcohol. Table 9 shows state and local per capita expenditures for California for 1999, the most recent year for which data were available. Expenditures were reported for police protection, judicial and legal services, and corrections, and totaled $602.90 per capita (U.S. Census Bureau, 2003). We calculated total costs by multiplying per capita costs by the most recent census data on population for the state (U.S. Census Bureau, 2004), and then updated these estimates to 2001 dollars using the index of hourly compensation (U.S. Department of Labor, 2004b). The total cost calculated by this method was $21.3 billion, as shown in Table 9.

We have also obtained a figure for California criminal justice fiscal year expenditures totaling $19.9 billion for 1999/00 in state and local jurisdictions, the latest year for which these figures are available (California Department of Justice, 2002). Extending the average yearly expansion of this budget from 1992/93 to 1999/00 ($771,256 per year) for two years to 2001/02 provides an estimated budget of $21.47 billion, in agreement with the gross estimate described above. This includes estimates for law enforcement ($10.00 billion); legal/judicial services ($3.31 billion); and corrections ($8.16 billion).

Wittman and associates have developed a local police data retrieval system designed specifically to identify alcohol and drug involvement in police activity for all incidents (based on all calls-for-service reported to the police dispatcher) and all arrests (based on written reports) (CLEW Associates, 2003). Findings from nine California cities show on

average 25.9 percent of incidents are alcohol-specific (violations of alcohol laws such as DUI or drinking in public), and 43.0 percent of arrests were alcohol-involved (suspect or victim had been drinking or was under the influence of alcohol at the time of arrest), as shown in Table 10. These rates for alcohol-specific arrests agree with the analysis of Harwood's data above. We conclude that on average about 25 percent of California arrests by local police are alcohol-specific.

(2) Inmates in local jails and state prisons. US Department of Justice reports based on surveys of prisoners while in state prisons and local jails reported that 37 percent of state prisoners, and 40.5 percent of local jail inmates reported committing their current offense (for which they were currently incarcerated) while under the influence of alcohol (U.S. Department of Justice, 1999; U.S. Department of Justice, 1998a). A summary report on alcohol and crime for all convicted offenders currently under supervision (includes probation, jail, prison, parole), states that about 36 percent had been drinking alcohol when they committed their conviction offense (U.S. Department of Justice, 1998b).

★***Attribution of criminal activity to alcohol.*** A conservative estimate for the attribution of criminal activity to alcohol in California is $6.7 billion dollars for 2001. See Table 9. This assumes that the proportion of expenditures for police protection that can be attributed to alcohol is the same as the proportion of alcohol-specific arrests, 25.3 percent according to the analysis of Harwood's figures, or $2.15 billion. The comparable figure using California Department of Justice data projected to 2001/2002 is $2.5 billion. Actual police involvement with alcohol is considerably greater due to alcohol's contributions to other offenses in which alcohol is involved, as shown in Table 10, but we have too little data to describe the extent of those contributions in this report.

Attribution of criminal activity to alcohol further assumes the proportion of expenditures for judicial, legal and corrections services that can be attributed to alcohol is the same as the proportion of convicted offenders currently under supervision in the justice system who reported committing their offenses while under the influence of alcohol. Applying that proportion of 36 percent from national studies to California, the costs for 2001 would be $2.15 billion for judicial and legal services, and $2.4 billion for corrections according to Harwood's figures. The comparable figures using California Department of Justice projections are $1.19 billion for judicial and legal services, and $2.94 billion for corrections.

★***Other costs.*** There was no reasonable basis for making estimates for California for social welfare costs, property and roadway damage, costs of fires for which alcohol was a contributing factor, or costs to victims of crime. Quality-of-life costs are not provided in this report because methods for calculating such costs lack clarity or uniformity, and because the focus of this report is upon comparison of actual costs for the provision of health and safety services in the state with offsetting payments from the state's alcoholic beverage industry.

★***Total Costs.*** Total costs summing up the known costs discussed above are summarized in Table 11. We find that $11.07 billion in health care, substance abuse treatment/prevention costs, and lost productivity from death are attributable to problematic uses of alcoholic beverages in California. Additionally, $6.74 billion in justice systems costs are atttributable to police offenses specific to alcohol and to convicted offenders under justice system supervision.

WHAT DOES THE ALCOHOLIC BEVERAGE INDUSTRY PAY TO OFFSET HEALTH AND SAFETY COSTS?

A distinction needs to be made between alcohol use and alcohol abuse. The costs described above are all associated with Californians' problematic and abusive uses of alcohol, over and beyond the good the alcoholic beverage industry does for the state's economy and the pleasures of drinking that many Californians enjoy without trouble. In addition to their positive benefits, alcoholic beverages impose myriad negative effects that include the costs described above. What does the alcoholic beverage industry pay that could be considered helping to defray the service costs, over and above general contributions provided through jobs, physical plants, and stimulation of positive economic activity? What direct payments are made through fees, taxes, and special levies to offset the costs of care?

The alcoholic beverage industry pays a total of approximately $330 million per year in excise taxes, license fees, and fines in California. This figure includes $288 million in excises taxes (in 2001) and $42 million in Alcoholic Beverage Control Department license fees and fines in 2002-2003. Insufficient information was available regarding the amount paid in local sales taxes or local business permit fees, so no figures for these items are included in this report.

★***Excise taxes.*** Alcoholic beverages are subject to an excise tax of $0.20 per gallon on beer, $0.20 per gallon on wine, and $3.30 per gallon on spirits. These rates were last changed in 1991. The Center for Science in the Public Interest (2003) reports that excise taxes from alcoholic beverages in California totaled $288 million in 2001. This includes $130 million from beer sales, $19 million from wine sales, and $138 million from the sale of spirits. They also point out that the tax revenues in real terms have been eroding each year because they are based on a rate per volume of alcohol and are not indexed in any way for inflation. Had the 1991 increase in excise taxes been indexed to inflation, the Center argues, "the state would have collected as much as $380 million in 2001 revenue from alcoholic beverages."

★***License fees and fines paid to the California Alcoholic Beverage Control Department.*** A total of $40,735,135 in fees and fines was collected by the California Alcoholic Beverage Control Department (ABC) for 2002-2003. The ABC collects a variety of license fees that totalled $38,302,177 for the state fiscal year 2002-2003. Approximately $27 million of these fees were for license renewals for 74,004 permanent licenses in 2002-2003. This averages to a renewal fee of approximately $365.00 per establishment. The ABC also collected an additional $2,432,948 in fines ("offers in compromise"). These figures are provided in Alcoholic Beverage Control Department revenue reports for FY 2002-2003.

★***Sales tax paid to the State Board of Equalization and business permit fees paid to local governments.*** Regular reports regarding the amount of alcohol sold in retail outlets come from the State Board of Equalization (SBOE). In 2002, SBOE reported a total of $20.877 billion taxable sales at eating and drinking establishments that have licenses to sell alcoholic beverages. These sales would generate $1.670 billion in sales taxes assuming an 8 percent tax rate. The SBOE further reported $2.137 billion taxable sales at off-sales package stores. These sales would generate $171.0 million in sales taxes at an 8 percent tax rate.

These figures, taken from the SBOE Statewide Taxable Sales By Type of Business, have two problems that compromise their utility for purposes of this report. First, SBOE significantly under-reports the number of commercial alcohol outlets paying taxes. For 2002, SBOE reports on 34,870 commercial alcohol outlets selling retail alcoholic beverages (including 30,008 on-sales establishments – 19,349 beer and wine, 10,659 all types of liquor – and 4,862 packaged liquor stores). For the same year the state Alcoholic Beverage Control Department (ABC) reports licenses in operation at 73,264 retail and club / special outlets, almost twice the number reported by the SBOE. The additional ABC-licensed outlets, nearly all of them off-sales outlets, are hidden in other SBOE commercial reporting categories.

The second problem is that the SBOE reports total retail sales, but does not report the fraction of total sales for alcoholic beverages. Therefore it is not possible to identify the sales taxes attributable to alcohol sales. The combination of under-reporting the number of alcohol-selling establishments, and not reporting the fraction of total sales attributable to alcoholic beverage sales, make it impossible to use SBOE figures in this report to gauge actual retail sales taxes paid on the sale of alcoholic beverages.

Retail sales data on alcohol consumption by volume and by price would be especially valuable for linking public health and public safety research to the formation of state and local policy regarding the economic and physical availability of retail alcohol. Researchers studying a variety of alcohol problems are increasingly finding significant relationships between changes in alcohol prices (driven by changes in excise taxes), and changes in rates of alcohol-related public health and safety problems. These researchers conclude: "What is most striking about these studies is their convergence on a single theme: raising alcohol taxes will lead to a reduction in a host of undesirable outcomes related to alcohol use" (Babor et al., 2003, p. 112). Precise information at several scales (county, city, districts or areas) would be useful to researchers, developers and community planners working at local levels to determine safe levels and economically appropriate mixes of alcohol-related businesses and other businesses.

Businesses also pay business permit fees and zoning fees to local jurisdictions However, data on these fees were not available for this study.

DATASETS THAT COULD BE USED

It was beyond the scope of this briefing paper to conduct a full-scale economic study of the cost of alcohol abuse in California. We performed limited analyses of the California patient discharge data and the California mortality file because many of the estimates can be derived from these two datafiles. However, there are data available, particularly at the national level, which could be used to further refine our estimates. We describe these below and indicate how they could be used for this purpose.

★ ***California Behavioral Risk Factor Surveillance Survey (CA BRFSS).*** The CA BRFSS contains data on preventive health practices and risk behaviors that are linked to chronic diseases, injuries, and preventable infectious diseases. Included are data on alcohol consumption, drinking and driving, tobacco use, obesity, physical activity, and high-fat and low-fiber diet, among others. Data are collected through a telephone survey of a random sample of civilian, non-institutionalized adults aged 18 and older (one per household). The CA BRFSS contains 3907 records for 2000. It could be used to obtain estimates of drinking behavior in the state.

★ ***California Health Interview Survey (CHIS).*** The California Health Interview Survey (CHIS) is the largest state health survey ever conducted in the United States, collecting information from 55,000 households drawn from every county in the state. It was funded by the California Department of Health Services, the California Endowment, the National Cancer Institute, the California Children and Families Commission, the Centers for Disease Control and Prevention (CDC), and the Indian Health Service. Interviewing took place between November 2000 and summer 2001. This survey could be used to develop a model of lost productivity attributed to alcohol. The CHIS could be used to develop a model to predict work loss days for working people and bed disability days for those who keep house. Models could be developed that include alcohol use as a predictor and thus could be used to estimate lost productivity that can be attributed to alcohol.

★ ***California Mortality File.*** This data file is a compilation of all death certificates in the state. The underlying cause of death is coded using ICD-10 codes. The data were used here to determine the number of Californians who died from alcohol-caused and alcohol-related causes.

★ ***California Patient Discharge Data.*** This dataset is released by the California OSHPD. It contains discharge abstracts for all acute care hospitals licensed by the state. Each of the 432 hospitals in the state is required to submit semiannual data for every patient discharged from the facility, including demographic data, diagnostic information, procedure codes, and total charges with expected principal source of payments. The 2000 dataset was used here to obtain estimates of the cost of hospitalizations for alcohol-related illness.

★ ***Medical Expenditure Panel Survey (MEPS).*** The MEPS is a nationally representative survey of healthcare use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. The MEPS sample is derived from the National Health Interview Survey sample.

The MEPS survey is conducted annually. It can be used to estimate the ratios of expenditures for ambulatory care, medications, nursing home services, and home health care to hospitalizations to develop cost estimates for California. It can also be used to estimate sources of payment for all these services.

★***National Health Interview Survey (NHIS).*** The NHIS is a nationally representative cross-sectional household interview survey conducted annually by the National Center for Health Statistics. Data collected include sociodemographics information, employment status, limitation of activity including the number of days off from work and days spent in bed due to illness or injury, health status, use of health services, and acute and chronic conditions. It also contains questions about alcohol use. It could be used in a similar way to the CHIS, as described above. The advantage of the NHIS data is that they would be more current. However, if the CHIS data are available and the sample size is adequate for people with alcohol-related diagnoses, then it would be preferred to the NHIS.

DATASETS THAT SHOULD BE DEVELOPED

★***Retail sales data for alcoholic beverages by volume and by dollar amount.*** These data are needed to calculate the relationships between alcohol availability and alcohol-related public health, safety, and social problems. Prevention program development in this area is increasing in view of findings of stronger relationships than have previously been reported (Babor et al., 2003; U.S. Department of Health and Human Services, 1999). Since much of the state's prevention work occurs at the county and local community level, these data are needed at the local level, scaled to meet the needs of county alcohol and drug programs and municipalities. Exploration of data accessibility through current SBOE data sets and data policies is the place to start. Also included should be an estimate of local business permit fees and use permit fees. A means must be developed for linking actual sales taxes paid on alcoholic beverages to reported taxable sale totals. Epidemiologists, alcohol researchers, and alcohol prevention specialists can then use these data to identify the nexus between alcohol availability and alcohol-related health and safety problems. This information will be of great help to policy makers and service program providers seeking to link prevention and treatment initiatives to reduction of availability-related alcohol problems.

★***Costs of alcohol problems in the California justice system.*** California lacks systematic information about the extent of alcohol involvement in components of the state's justice system: Police services, court and legal services, corrections facilities, and parole/probation operations. Separate estimates are needed for costs of alcohol-related activity in each component. Two levels of estimate are important. At the aggregate level, it is important to identify alcohol involvement in the full range of offences to which police respond, in addition to alcohol-specific offenses. Police data can be reported and "mined" to capture alcohol/drug involvement along with skeletal information about the offense, the context (time, location, setting), and minimal demography (age, gender) (Wittman, Harding and Sparks, 1997). Similarly, brief interviews and standard notations can be used to identify alcohol involvement for those under justice supervision (including prisoners, jail inmates, people on probation and parole), upon entry into designated service settings. For example, offenders entering DUI classes are sometimes asked "last drink" information at the start of the class through place of last drink (POLD) studies. These data provide information about incidents and contexts in which alcohol use occurs in relation to the justice system, but do not include personal information.

At the individual level, it is important to identify needs for alcohol/drug treatment, recovery, and rehabilitation services among those in custody. These data provide a basis for developing in-house programs and collaboration with providers of health services, alcoholism treatment and recovery services, and other education and social services. These data also provide a basis for assessing alcohol-related costs of abuse, as well as treatment.

CONCLUSION

Alcohol abuse cost more $17.8 billion in California in 2001, including the cost of health care, alcohol abuse treatment and prevention, the value of lives lost prematurely, and justice system costs. Our cost estimates are very conservative. We were unable to estimate several cost components that are known to be impacted by alcohol use and abuse, including costs to the social welfare system, and the value of reduced productivity from those who live and work with alcohol-related problems. Nor have we included financial estimates for damage to quality-of-life. No deaths to people under age 15 were attributed to alcohol, though certainly there were motor vehicle deaths caused by alcohol in that age group. Our estimates included only 34% of the components of national estimates developed by Harwood and colleagues for 1992 (Harwood, 1998). Thus, following his model, one might argue that a more complete accounting of costs in California would total three times the estimate we presented here.

The alcoholic beverage industry pays approximately $330 million annually in special excise taxes, license fees, and fines. The industry pays an unknown additional amount in sales taxes and in local permit fees and business license fees; this appears to be well over $1 billion dollars. In terms of the figures we can state clearly, costs of measurable alcohol-related problems exceed offsetting payments from the industry by a factor of about 54 to one ($17.8 billion vs. $330 million).

How do these figures translate into costs in terms of California's alcoholic beverage consumption? We can say that costs we can measure amount to about 35.8 cents per ounce of pure alcohol (ethanol), or about 18 cents per drink (a standard drink contains about 0.5 – 0.6 ounces of ethanol; examples of standard drinks are a 12 ounce can of beer with about 5 percent alcohol; a 4 ounce glass of table wine about 12 percent alcohol; and a 1.5 ounce drink of 80 proof spirits). The industry's offset through excise taxes, license fees and fines paid per drink is about one half cent (0.54 cents). These figures are obtained by dividing $17.8 billion alcohol abuse costs, and $330 million excise taxes, fees, and fines, by total gallons of apparent alcohol consumption in California for the same year (2001), converted to ounces: 49.7 billion ounces [776 million gallons total including beer 636 million; wine 98 million; and spirits 42 million (State Board of Equalization, 2002)].

★***Issues in asking the alcoholic beverage industry to pay its way***. This briefing paper's purpose is to identify costs to Californians associated with alcohol dependency and problematic uses of alcoholic beverages. This purpose does not include selecting policy alternatives to eliminate imbalances between costs and offsetting payments by the alcoholic beverage industry. However, certain findings from alcohol policy prevention research are worth noting here for consideration by those concerned about policy.

There are three distinct points of entrée at which the imbalances might be addressed: Drinkers, retailers, and producer/distributors.

(**1) Drinkers.** Drinkers are sensitive to alcohol prices. It has been shown consistently that drinkers respond to prices, i.e. that when the price of alcohol is increased consumption of alcohol and alcohol-related problems both decrease (Cook and Moore, 2002). Increases in taxes and fees might occur in the form of increasing the price of the individual drink. so

that drinkers are doing more to pay directly for the costs associated with their drink. This approach has the virtue of distributing the extra burdens on those who drink the most, and who accordingly are the most likely to generate greater costs of care in health, justice, and other systems (Greenfield and Rogers, 1999).

(2) Retailers. Retail outlets pay relatively modest annual fees for renewal of their alcohol licenses, on average $365.00 per year as described above. This raises the question whether raising fees on alcohol retailers would serve useful purposes for generating income to offset costs, and whether other useful purposes might be served. Local governments might consider surcharging business permit fees and zoning review fees to recognize that alcohol outlets as a group generally require more public services, particularly public safety, than other types of commercial outlets (CLEW Associates, 2003). The state might consider raising fees in connection with programs specifically to improve sales, serving and promotion practices and other aspects of retail alcohol outlet operation to reduce high-risk operations and to develop preventive programs for safer, healthier environments. These programs have precedents in current community-oriented policing and prevention programs currently operated by the ABC, such as the LEAD training and Shoulder Tap and Decoy Buy operations. These are popular programs, but their funding is based on outside grant resources, and on minimal budget allocations within the current ABC budget. In this context, additional license fees might be seen as a mechanism for building on sound beginnings to institutionalize preventive and problem-solving relationships between local communities and alcohol retailers.

(**3) Producers and distributors.** The excise tax is an efficient method for increasing payments by the industry directly to the state to offset state costs. Excise taxes in California are in the middle range among other states for beer and spirits, and are among the lowest in the nation for wine. The following considerations are of interest in this regard.

Economists argue that taxes should cover "external" costs, defined as the costs of a behavior that are imposed by drinkers on others and not internalized by themselves. A well-known study by Manning and colleagues in the 1980's found the external cost of alcohol per ounce consumed to be 48 cents (Manning et al., 1989). A later study estimated the external cost of non-fatal motor vehicle crashes and found that the total estimate of external costs was 63 cents per ounce (Miller and Blincoe, 1993).

The publicly paid healthcare costs of alcohol abuse in California include Medicare, MediCal, County Indigent programs, other government, and other indigent programs. According to Table 5, this would amount to 64% of the hospitalization costs. Without further analyses, it is not possible to say with certainty what proportion of other medical costs would be paid for publicly. Nationally, 45% for all health expenditures are paid for with public dollars (Levit et al., 2004). Applying 64% to hospital costs and 45% to other costs, we estimate that the total publicly paid cost of healthcare related to alcohol abuse in California for 2000 would be approximately $1.3 billion for 2001.

Some may suggest the California alcohol industry should cover costs of alcohol abuse borne within the state. For healthcare, this would include half of the MediCal costs (which are shared with the federal government), and the costs to county indigent programs, other government (which is primarily county and local government), and other indigent

costs, which are typically picked up by county hospitals. This amounted to 26% of the hospitalization costs. Nationally, 14% of all healthcare costs are paid for with state and local dollars. Using the same approach described above, we estimated that the cost of alcohol abuse paid for by state and local dollars in California was approximately $498 million.

In addition to the public costs and the state portion described above, our estimates of criminal justice system costs are borne almost entirely by state and local governments. Thus, the public cost might include an additional $6.7 billion as identified in this report. Total public costs would be $8 billion and total state costs would be $7.2 billion.

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APPENDIX

Table 1. Diagnoses for Alcohol-Related Diseases

Diagnosis	ICD-9 Code	Percent Attributed to Alcohol	Age Range
Alcohol-Caused Conditions			
Alcoholic psychoses	291	100	all
Alcohol dependence syndrome	303	100	all
Nondependent abuse of alcohol	305.0	100	all
Alcoholic polyneuropathy	357.5	100	all
Alcoholic cardiomyopathy	425.5	100	all
Alcoholic gastritis	535.3	100	all
Alcoholic fatty liver	571	100	all
Acute alcoholic hepatitis	571.1	100	all
Alcoholic cirrhosis of liver	571.2	100	all
Alcoholic liver damage, unspecified	571.3	100	all
Fetal alcohol syndrome	760.71	100	all
Excessive blood level of alcohol	790.3	100	all
Toxic effects of ethyl alcohol	980.0	100	all
Accidental poisoning by alcohol	E860.0, E860.1	100	all
Respiratory tuberculosis	011-012	25	>=35
Malignant neoplasm of lip, oral cavity, and pharynx	140-149	50 (men) 40 (women)	>=35
Malignant neoplasm of esophagus	150	75	>=35
Malignant neoplasm of stomach	151	20	>=35
Diabetes mellitus	250	5	>=35
Essential hypertension	401	8	>=35
Cerebrovascular disease	430-438	7	>=35
Pneumonia and influenza	480-487	5	>=35
Diseases of esophagus, stomach, and duodenum	530-537 (excluding 535.3)	10	>=35
Chronic hepatitis	571.4	50	>=35
Cirrhosis of liver without mention of alcohol	571.5	50	>=35
Other chronic nonalcoholic liver damage	571.8	50	>=35
Unspecified chronic liver disease without mention of alcohol	571.9	50	>=35
Portal hypertension	572.3	50	>=35
Acute pancreatitis	577.0	42	>=35
Chronic pancreatitis	577.1	60	>=35
	800-986, 980-995 (excluding 965.0, 967, 968.0, 980.0)	10	>=15

Source: Harwood et al., 1998, Appendix A.

Table 2. Diagnoses for Alcohol-Related Deaths

Diagnosis	ICD-10 Code	% Attributed to Alcohol	Age Range
Alcohol-caused death			
Alcoholic psychoses	F10.5-F10.9	100	all
Alcohol dependence syndrome	F10.2-F10.4	100	all
Nondependent abuse of alcohol	F10.0-F10.1	100	all
Alcoholic polyneuropathy	G62.1	100	all
Alcoholic cardiomyopathy	I42.6	100	all
Alcoholic gastritis	K29.2	100	all
Alcoholic cirrhosis and other alcohol liver damage	K70.0-K70.9	100	all
Fetal alcohol syndrome	P04.3 , Q86.0	100	all
Excessive blood level of alcohol	R78.0	100	all
Accidental poisoning by alcohol	T51.0 , Y15	100	all
Alcohol-related death			
Respiratory tuberculosis	A15.0-A16.9	25	>=35
Malignant neoplasm of lip, oral cavity, and pharynx	C0.0-C14.9	50 (men) 40 (women)	>=35
Malignant neoplasm of esophagus	C15.0-C15.9	75	>=35
Malignant neoplasm of stomach	C16.0-C16.9	20	>=35
Malignant neoplasm of liver and interhepatic bile ducts	C22.0-C22.9	15	>=35
Malignant neoplasm of larynx	C32.0-C32.9	50 (men) 40 (women)	>=35
Diabetes mellitus	E10.0-E14.9	5	>=35
Essential hypertension	I10	8	>=35
Cerebrovascular disease	I60.0-I69.9 , G45.0-G45.9	7	>=35
Pneumonia and influenza	J10.0-J18.9	5	>=35
Diseases of esophagus, stomach, and duodenum	K20.0-K29.1 , K29.3-K31.9	10	>=35
Chronic hepatitis	K73.0-K73.9	50	>=35
Cirrhosis of liver without mention of alcohol	K74.3-K74.9	50	>=35
Other chronic nonalcoholic liver damage	K76.0 , K76.1 , K76.8	50	>=35
Unspecified chronic liver disease without mention of alcohol	K76.9	50	>=35
Portal hypertension	K76.6	50	>=35
Acute pancreatitis	K85	42	>=35
Chronic pancreatitis	K86.0 , K86.1	60	>=35

Table 2. Diagnoses for Alcohol-Related Deaths (continued)

Diagnosis	ICD-9 Code	% Attributed to Alcohol	Age Range
Injuries and Poisoning			
Motor vehicle accidents	V01.0-V09.9 , V20.0-V89.9	42	>=15
Pedal cycle, other road accidents	V10.0-V19.9 , V98.0-V99.9	20	>=15
Water transport accidents	V90.0-V94.9	20	>=15
Air and space transport accidents	V95.0-V97.9	16	>=15
Accidental falls	W00.0-W19.9	35	>=15
Accidents caused by fire/flames	X00.0-X09.9	45	>=15
Accidental drowning, submersion	W65.0-W74.9	38	>=15
Suicide and self-inflicted injury	X60.0-X84.9	28	>=15
Homicide and injury purposely inflicted by other persons	X85.0-Y09.9	46	>=15
Other injuries and adverse effects	T17, T36-T65.9, W20-W34, W49-W52, W79, X31	25	>=15

Source: Harwood et al., 1998, Table 5.3

Table 3. Hospitalization Costs Attributed to Alcohol Abuse by Diagnosis: CA, 2001*				
	# Discharges Attributed to Alcohol	Mean LOS	Mean Cost	Total Cost (Thousands)
Total	83,792	6.5	$12,077	$1,011,945
Alcohol-Caused Conditions	34,656		8,410	291,455
Alcoholic psychoses	9,314	5.7	5,880	54,769
Alcohol dependence syndrome	11,388	7.5	4,083	46,499
Nondependent abuse of alcohol	1,811	2.7	3,458	6,263
Alcoholic polyneuropathy	68	6.3	9,825	668
Alcoholic cardiomyopathy	166	5.4	15,164	2,517
Alcoholic gastritis	1,066	2.9	6,986	7,448
Alcoholic fatty liver	48	4.9	9,146	439
Acute alcoholic hepatitis	1,359	7.4	14,198	19,296
Alcoholic cirrhosis of liver	8,115	6.9	17,125	138,969
Alcoholic liver damage, unspecified	931	5.8	13,242	12,329
Fetal alcohol syndrome	1	5.0	10,737	11
Excessive blood level of alcohol	-	-	-	-
Toxic effects of ethyl alcohol	389	2.1	5,778	2,248
Alcohol-Related Conditions	33,167		14,870	493,191
Respiratory tuberculosis	290	16.9	25,279	7,331
Malignant neoplasm of lip, oral cavity, and pharynx	944	7.4	22,413	21,148
Malignant neoplasm of esophagus	827	11.4	35,247	29,158
Malignant neoplasm of stomach	611	10.1	24,270	14,834
Malignant neoplasm of liver and such	289	7.1	19,325	5,589
Malignant neoplasm of larynx	329	11.0	25,613	8,414
Diabetes mellitus	1,880	6.8	11,918	22,409
Essential hypertension	461	4.9	6,089	2,806
Cerebrovascular disease	6,697	8.8	13,215	88,502
Pneumonia and influenza	5,187	7.4	14,384	74,603
Diseases of esophagus, stomach, and duodenum	4,728	4.4	10,835	51,228
Chronic hepatitis	54	7.8	15,986	855
Cirrhosis of liver without mention of alcohol	1,993	7.2	21,264	42,368
Other chronic nonalcoholic liver damage	76	7.0	25,383	1,929
Unspecified chronic liver disease without mention of alcohol	33	5.7	12,448	405
Portal hypertension	222	4.9	13,113	2,905
Acute pancreatitis	7,296	6.1	14,292	104,278
Chronic pancreatitis	1,252	5.6	11,523	14,430
Injuries and poisoning	15,969	11.6	14,234	227,299

** Includes costs incurred in non-federal short stay hospitals only*

Table 4. Hospitalization Costs Attributed to Alcohol Abuse by Age and Gender: CA, 2001*

		# Discharges Attributed to Alcohol	Mean LOS	Mean Cost	Total Cost (Thousands)
Males and Females	Total	83,792	6.5	$12,077	$1,011,945
	0-17	1,024	6.8	9,420	9,648
	18-34	7,988	5.0	9,668	77,227
	35-64	46,508	6.2	11,703	544,297
	65+	28,272	7.5	13,468	380,773
Males	Total	49,522	6.2	12,308	609,498
	0-17	658	6.9	9,794	6,448
	18-34	5,846	4.9	10,135	59,248
	35-64	30,184	6.0	11,934	360,219
	65+	12,833	7.2	14,305	183,582
Females	Total	34,270	6.9	11,743	402,447
	0-17	366	6.6	8,748	3,200
	18-34	2,142	5.3	8,395	17,978
	35-64	16,324	6.4	11,276	184,078
	65+	15,439	7.7	12,772	197,191

**Includes costs incurred in non-federal short stay hospitals only.*

Table 5. Hospitalization Costs Attributed to Alcohol Abuse by Payer: CA, 2001*

	# Discharges Attributed to Alcohol*	Mean LOS	Mean Cost	Total Cost (thousands)
TOTAL	83,792	6.5	$12,077	$1,011,945
Medicare	29,644	6.4	13,101	388,363
MediCal	11,734	9.6	16,610	194,891
Private Coverage	25,715	5.4	10,804	277,823
Worker's Comp	839	5.3	14,267	11,974
County Indigent	4,507	6.1	11,149	50,252
Other Government	2,174	8.1	6,858	14,910
Other Indigent	730	4.3	7,421	5,415
Self Pay	7,780	5.9	7,968	61,990
Other Payer	668	5.4	9,466	6,327

Note: 301 cases did not have payer data

**Includes costs incurred in non-federal short stay hospitals only.*

Table 6. Health Care Costs of Alcohol and Alcohol Abuse: CA, 2001

		Our Estimate (millions)	Harwood 1992 Estimate (millions)*	Harwood Ratio to Hosp Cost	CA, 2001 Estimate (millions)
		(1)	(2)	(3)=(2)/4447	(4)=1012*(3)
TOTAL					3,093
Hospitalization Cost					
	Non-Federal	1,012	4,447	1.000	1,012
	Federal		451	0.101	103
	Comorbidity		881	0.198	200
Outpatient Medical			1,749	0.393	398
Nursing Homes			623	0.140	142
Pharmaceuticals			1,581	0.356	360
Other Health Professionals			935	0.210	213
Subtotal			10,667		2,427
Health Insurance Administration[1]			636		122
Treatment/ Prevention Costs[2]					
	Treatment / Perinatal costs (DADP)				417
	Preventon Costs (DADP)				66
	Prevention Costs (USDOE)				60
Subtotal					543

*Source: The Economic Costs of Alcohol and Drug Abuse in the United States - 1992, Harwood and colleagues at Lewin.

[1]Health Administration costs were calculated as 5.04% of total medical costs

[2]Treatment/Prevention costs are from the Department of Alcohol and Drug Programs (DADP) Governor's budget for 2003-04 and from the U.S. Department of Education (USDOE) 2003 budget

Note: Columns may not sum due to rounding

Table 7. Alcohol-Related Deaths by Cause of Death: CA, 2001

			PVLE		Life Years Lost	
	Diagnosis	Number of Alcohol-Caused Deaths	Total (thousands)	Per Death	Total	Per Death
TOTAL		13,094	$7,977,798	$609,270	358,071	27
Alcohol-Caused Deaths		3,554	2,342,140	659,015	102,449	29
	Alcoholic psychoses	65	37,206	572,406	1,709	26
	Alcohol dependence syndrome	531	380,724	716,995	15,763	30
	Nondependent abuse of alcohol	268	236,622	882,920	9,107	34
	Alcoholic polyneuropathy	0		.	0	.
	Alcoholic cardiomyopathy	85	53,777	632,676	2,322	27
	Alcoholic gastritis	1	529	528,966	26	26
	Alcoholic cirrhosis of liver	2,603	1,631,925	626,940	73,460	28
	Excessive blood level of alcohol	0		.	0	.
	Accidental poisoning by alcohol	1	1,355	1,355,304	62	62
Alcohol-Related Deaths		5,124	1,067,217	208,279	85,610	17
	Respiratory tuberculosis	26	6,318	247,747	457	18
	Malignant neoplasm of lip, oral cavity, and pharynx	391	117,676	300,655	7,757	20
	Malignant neoplasm of esophagus	891	203,575	228,479	15,716	18
	Malignant neoplasm of stomach	316	70,070	222,022	5,590	18
	Malignant neoplasm of liver and interhepatic bile ducts	264	73,806	279,409	5,064	19
	Malignant neoplasm of larynx	168	41,275	245,980	3,072	18
	Diabetes mellitus	322	59,911	186,001	5,409	17
	Essential hypertension	105	9,934	94,426	1,330	13
	Cerebrovascular disease	1,269	108,698	85,688	15,673	12
	Pneumonia and influenza	408	24,891	61,037	4,493	11
	Diseases of esophagus, stomach, and duodenum	99	13,290	133,976	1,376	14
	Chronic hepatitis	25	7,659	312,596	557	23
	Cirrhosis of liver without mention of alcohol	577	213,595	370,503	12,820	22
	Other chronic nonalcoholic liver damage	26	14,398	564,625	693	27
	Unspecified chronic liver disease without mention of alcohol	97	48,794	503,028	2,493	26

	Portal hypertension	6	1,414	257,102	106	19
	Acute pancreatitis	90	28,126	312,923	1,791	20
	Chronic pancreatitis	47	23,787	508,274	1,213	26
Injuries and Poisoning		4,416	4,568,442	1,034,509	170,013	38
	Motor vehicle accidents	1,680	1,814,348	1,079,699	68,468	41
	Pedal cycle, other road accidents	22	23,199	1,045,018	825	37
	Water transport accidents	9	9,898	1,124,805	356	40
	Air and space transport accidents	13	12,975	977,014	481	36
	Accidental falls	457	134,868	295,050	8,084	18
	Accidents caused by fire/flames	89	53,732	606,119	2,486	28
	Accidental drowning, submersion	126	127,045	1,007,018	4,665	37
	Suicide and self-inflicted injury	920	882,099	959,304	32,890	36
	Homicide and injury purposely inflicted by other persons	1,024	1,444,487	1,410,054	49,282	48
	Other injuries and adverse effects	76	65,790	871,387	2,475	33

Table 8. Alcohol-Related Deaths by Age and Gender: CA, 2001

		PVLE			Life Years Lost	
Diagnosis	Number of Alcohol-Caused Deaths	Total (thousands)	Per Death		Total	Per Death
Males and Females	13,094	$7,977,798	$609,270		358,071	27
15-19	414	11,546	27,895		26,228	63
20-24	565	673,714	1,193,450		32,976	58
25-29	442	999,417	2,258,926		23,787	54
30-34	419	794,601	1,896,920		20,534	49
35-39	623	903,743	1,450,212		27,822	45
40-44	1,097	1,248,081	1,137,463		43,827	40
45-49	919	1,187,242	1,291,533		32,403	35
50-54	1,196	907,162	758,313		36,937	31
55-59	1,005	615,033	611,955		26,630	26
60-64	928	328,647	354,333		20,848	22
65-69	928	160,208	172,725		17,336	19
70-74	1,040	88,675	85,278		15,772	15
75-79	1,095	38,587	35,243		13,205	12
80-84	1,001	15,422	15,408		9,366	9
85+	1,423	5,719	4,020		10,400	7
Males	8,734	$6,517,657	$746,229		252,039	29
15-19	324	10,227	31,581		20,197	62
20-24	464	550,685	1,186,744		26,742	58
25-29	358	856,993	2,390,563		18,989	53
30-34	341	686,821	2,015,733		16,447	48
35-39	448	739,771	1,652,271		19,499	44
40-44	788	1,003,532	1,273,469		30,639	39
45-49	682	954,835	1,399,108		23,422	34
50-54	863	729,490	845,050		25,837	30
55-59	752	502,930	669,031		19,319	26
60-64	665	261,114	392,464		14,411	22
65-69	629	120,746	192,017		11,225	18
70-74	678	59,588	87,938		9,730	14
75-79	638	26,633	41,726		7,168	11
80-84	528	10,876	20,615		4,548	9
85+	576	3,416	5,929		3,866	7

Table 8. Alcohol-Related Deaths by Age and Gender: CA, 2001 (continued)

Females	4,360	$1,460,141	$334,903		106,032	24
15-19	90	1,320	14,650		6,031	67
20-24	100	123,030	1,224,420		6,234	62
25-29	84	142,424	1,696,732		4,798	57
30-34	78	107,780	1,378,967		4,087	52
35-39	175	163,972	934,577		8,323	47
40-44	309	244,549	790,859		13,188	43
45-49	237	232,407	981,490		8,981	38
50-54	333	177,672	533,486		11,100	33
55-59	253	112,103	442,569		7,310	29
60-64	262	67,533	257,573		6,437	25
65-69	299	39,462	132,111		6,111	20
70-74	362	29,088	80,301		6,042	17
75-79	457	11,954	26,180		6,037	13
80-84	473	4,545	9,603		4,818	10
85+	846	2,302	2,720		6,534	8

Table 9. Criminal Justice Costs of Alcohol and Alcohol Abuse in California, 2001

		Per Capita Costs, 1999[1]	Total Costs, 2001 (millions)[2]	Costs Attributable to Alcohol Abuse, 2001 (millions)	Percent of Total Costs
Total		$602.90	$21,258	$6,744	31.7%
	Police Protection[3]	240.90	8,494	2,149	25.3%
	Judicial and Legal[4]	169.20	5,966	2,148	36.0%
	Corrections[4]	192.80	6,798	2,447	36.0%

[1]U.S. Census Bureau, 2003. Per Capita Justice Expenditures and Employment of State and Local Governments by State, 1999. Table 341, p. 215.

[2]Population for California for 2000 was 33,871,648 (U.S. Census Bureau, 2004). Costs were updated to 2001 dollars using the index of hourly compensation in the business sector (US Department of Labor, 2004b).

[3]Proportion of police protection attributable to alcohol abuse was calculated as the weighted proportion of arrests attributable to alcohol, using proportions attributable to alcohol for specific crimes as reported by Harwood (1998). The weighted proportion was equal to 25.3%.

[4]Proportion of judicial, legal, and correction services attributable to alcohol abuse was calculated as the using proportions of convicted offenders, currently under supervision in the justice system, who reported committing their offenses under the influence of alcohol. The proportion was 36% nationwide. This same proportion was used for California in this report. (U.S. Department of Justice, 1998b).

Table 10. Alcohol-Specific and Alcohol-Involved Arrests in Selected California Cities

City	Data (Year Collected)	Total Arrests (frequency)	Alcohol-Specific Arrests (frequency)	Alcohol-Specific Arrests (percent)	Alcohol-Involved Arrests (frequency)	Alcohol-Involved Arrests (percent)
City A	1996	770	116	15.1%	265	34.4%
City B	2003	1,421	256	18.0%	358	25.2%
City C	2000-01	4,445	2,349	52.8%	3,511	79.0%
City D	2002	4,682	1,850	39.5%	2,140	45.7%
City E	2000	938	358	38.2%	435	46.4%
City F	2003	354	43	12.1%	85	24.0%
City G	2000	6,769	1,213	17.9%	2,035	30.1%
City H	1997-99	7,528	1,034	13.7%	2,600	34.5%
City J	1998	2,009	272	13.5%	1,019	50.7%
TOTAL		28,916	7,491	25.9%	12,448	43.0%

Data are from ASIPS (Alcohol/drug Sensitive Information Planning System) Community Tour reports for studies conducted by CLEW Associates, Berkeley, CA, or by the Community Prevention Planning Program, Institute for the Study of Social Change, University of California, Berkeley.

Table 11. Total Alcohol-Related Costs: California, 2001

Cost Component			Annual Cost (thousands)
TOTAL			$17,816,457
Total Medical Costs			2,427,348
Hospitalization Cost			1,315,050
	Non-Federal	1,011,945	
	Federal	102,628	
	Comorbidity	200,477	
Outpatient Medical			397,997
Nursing Homes			141,768
Pharmaceuticals			359,767
Other Health Professionals			212,766
Health Insurance Administration			122,338
Substance Abuse Treatment/Prevention Costs			544,800
Lost Productivity from Deaths			7,977,798
Criminal Justice Costs			6,744,173
	Police Protection		2,149,039
	Judicial and Legal		2,147,781
	Corrections		2,447,353