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ALCOHOL ALERT

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Economic Perspectives in Alcoholism Research

Economic analysis is used to estimate the costs of alcohol-related problems and to assist in the study of alcoholism prevention and treatment methods. The costs of alcohol abuse and alcoholism are of continuing concern to policymakers and the general public. Changes in alcoholic beverage prices and taxes are of interest, because they can affect alcohol consumption and related problems. Finally, understanding the costs and cost-effectiveness of alcoholism treatment can lead to more efficient use of health care resources. This *Alcohol Alert* reviews examples of recent research in these areas.

The Economic Costs of Alcohol Abuse

During the past two decades, five major studies have estimated the economic costs of alcohol abuse¹ in the United States using the "cost of illness" approach (1-5), which expresses the multidimensional impact of a health problem in dollars. The most recent estimate of the overall economic cost of alcohol abuse was \$185 billion for 1998 (6), which is a projection based on the comprehensive cost estimate of \$148 billion for 1992 (4).

More than 70 percent of the estimated costs of alcohol abuse for 1998 were attributed to lost productivity (\$134.2 billion), including losses from alcohol-related illness (\$87.6 billion), premature death (\$36.5 billion), and crime (\$10.1 billion). The remaining estimated costs included health care expenditures (\$26.3 billion, or 14.3 percent of the total), such as the costs of treating alcohol abuse and dependence (\$7.5 billion) and the costs of treating the adverse medical consequences of alcohol consumption (\$18.9 billion); as well as property and administrative costs of alcohol-related motor vehicle crashes (\$15.7 billion, or 8.5 percent); and criminal justice system costs of alcohol-related crime (\$6.3 billion, or 3.4 percent).²

The precision of some estimates is limited significantly by the quality of available data. For example, some cost components must be estimated by indirect means. An important example is the value of goods and services that were not produced because of alcohol problems (i.e., productivity losses). In addition, significant aspects of alcohol-related problems, such as human suffering, are not easily quantified in terms of dollars and are therefore omitted from the analyses. Nevertheless, the range of estimates provides a conservative overview of the costs to society of alcohol-related problems.

Burden of Costs Distribution

Based on 1992 data, researchers estimated that 45 percent of the total cost of alcohol abuse was borne by alcohol abusers and their families, mostly as the result of lost or reduced earnings (4). About 20 percent of

the total was borne by the Federal Government, mainly in the form of reduced tax revenues resulting from diminished productivity. Eighteen percent was borne by State and local governments in the form of reduced tax revenue and the costs resulting from alcohol-related crime and motor vehicle crashes. Private insurance accounted for 10 percent of the total cost, primarily in the areas of health care expenditures and motor vehicle crashes. Victims of alcohol-related crimes (excluding homicide) and alcohol-related motor vehicle crashes bore 6 percent of the total cost.

Effects of Changes in Alcohol Prices and Taxes

Research shows that as with other consumer goods, purchases of alcoholic beverages decline when their prices rise. In theory, at least, taxation and other public policies that affect beverage prices can influence total alcohol consumption. However, there is considerable variation among estimates of how much consumption may change in response to a given change in price (7,8). Clarifying the effects of beverage price changes on different aspects of consumption—such as frequency and quantity of drinking and quantity consumed per occasion—and on health-related outcomes remain critical tasks for further research.

Alcohol Prices, Taxes, and Consumption

In 1993 Leung and Phelps performed a literature review of 15 studies that analyzed either statewide or nationwide data on alcohol consumption but used differing methods and criteria for subject selection and data analysis. Summarizing the broad range of reported results, the reviewers estimated that a 1-percent increase in price led to a 0.3-percent decrease in demand for beer, a 1-percent decrease in demand for wine, and a 1.5-percent decrease in demand for spirits (8).

More recent research has continued to study the effects of price changes on alcohol consumption. In one study, based on a random nationwide survey of 18,000 adults, Manning and colleagues (9) found that higher beverage prices were significantly related to lower alcohol consumption rates among the overall population. However, no significant responsiveness to price was found among the heaviest drinkers, specifically the 5 percent of the population responsible for 36 percent of the Nation's total alcohol consumption (9). Another recent study explored the effects of beverage prices on "binge drinking," which was defined as the consumption of five or more drinks on at least one occasion during the past month (10). Based on a nationwide household survey of 49,000 people, the researchers estimated that a 10-percent increase in price could decrease the number of binge-drinking episodes per month by approximately 8 percent (10).

Several recent studies have examined alcohol demand among young people. Grossman and colleagues (11) analyzed a subset of data from 10 consecutive Monitoring the Future (MTF) studies, annual nationwide surveys of between 15,000 and 19,000 high school seniors. Results suggested that raising alcohol prices would be an effective policy to reduce alcohol consumption among youth (11). However, another study, using a different subpopulation of MTF respondents and different experimental methods, indicated that the price of beer did not affect drinking by young males but did affect underage drinking and binge drinking by females (12).

Alcohol Taxes and Traffic Fatalities

Several studies have found that higher alcohol taxes are linked to lower traffic fatality rates (13-15). Based on nationwide traffic fatality data from 1982 to 1988, Ruhm (13) reported that the rates for nighttime fatalities and for fatalities involving young people were especially responsive to increased beer prices. In contrast, a study based on MTF surveys from 1977 to 1992 found that beer taxes had a small and statistically insignificant effect on teen drinking (16).

Alcoholism Treatment Cost Analysis

A better understanding of treatment costs and cost-effectiveness can support informed decisionmaking about the allocation of health care resources. In a review of 141 previously published studies comparing a combined total of 36 treatment types, Finney and Monahan (17) found no significant relationship between cost and treatment effectiveness. Results of a randomized, nationwide clinical trial of three treatment types (18) found that each produced comparable treatment outcomes (18), but at different costs. The lowest costs were associated with motivational enhancement therapy (MET), a strategy designed to mobilize the patient's own motivation and resources for change (19). Cost data were obtained for three of the nine treatment sites in the study. Estimated average costs for patient care were \$359 for MET; \$407 for 12-step facilitation (TSF), an approach designed to facilitate participation in 12-step programs, such as Alcoholics Anonymous;

and \$433 for cognitive-behavioral therapy (CBT). However, MET was a less intensive therapy, requiring 4 treatment sessions compared with 12 sessions for either TSF or CBT. Therefore, the least expensive therapy to deliver per patient was not the least expensive per session (20).

Health benefits associated with alcoholism treatment programs have also been measured in terms of cost offsets, which are net reductions in health care costs among persons who have been treated for alcoholism. A recent survey of 15,000 alcoholics found modest decreases in health care costs among patients receiving treatment, mostly within the first 6 months of initiating therapy (21). Cost offsets were greater for persons who initially received residential (i.e., inpatient) rather than outpatient treatment.

The Future of Cost Measurement

Cost-effectiveness studies will benefit from the increased use of standardized, validated cost-measurement techniques (22). Recently published standardized guidelines for measuring costs (22,23) and conducting cost-effectiveness research (24) will facilitate comparison among future studies. For additional information about this topic, see the *10th Special Report to the U.S. Congress on Alcohol and Health*, available on NIAAA's Web site (<http://www.niaaa.nih.gov>).

Economic Analysis of Alcohol's Impact-A Commentary by NIAAA Director Enoch Gordis, M.D.

Analyses of the economic impact of alcohol use, abuse, and dependence can provide important information to policymakers and program planners charged with making decisions about resource allocation. Such studies can be a useful indicator of the magnitude of a health care problem and how that problem compares with others. Unfortunately, research on the economic burden of alcohol-related problems is only one of many factors that influence policy and program decisions. For example, cost-of-illness studies continue to find that the economic burden of alcohol abuse and alcoholism exceeds that of illicit drugs of abuse. However, resource allocations do not reflect this fact. Other factors, such as stigma and public fear of the illicit drug trade, continue to influence the decisionmaking process to a greater extent than does evidence of alcohol's more significant effects.

¹In this context, the term "alcohol abuse" refers to any cost-generating aspect of alcohol consumption, rather than to any particular clinical diagnosis.

²Due to rounding, the figures in this and other studies cited here do not add up to 100 percent.

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