

V. FURTHER COMPARISONS AND ANALYSES

Ultimately, the question arises as to the meaning of the estimates that have been developed and presented in this report. The meaning is both direct and limited at the same time. Economic cost analysis indicates that drug abuse is one of the major health problems in the United States. However, the results of this particular analysis do not provide guidance on how to address the drug problem. Furthermore, the estimates count both the costs of the efforts taken to reduce drug abuse (prevention, treatment and drug law enforcement) and the costs of the consequences (drug abuse-related death, illness and crime). Cost estimates can and should motivate the search to design effective and efficient strategies to address drug abuse. But cost benefit and cost effectiveness studies are needed to learn how we may more effectively and efficiently do this.

A. Drug Abuse versus Other Health Problems

Table V-1 compares the economic cost estimates for drug abuse with the estimates for other major health problems in the United States. These values have been assembled by the Office of Science Policy and Planning in the National Institute of Health, (published at the NIH website; <http://ospp.od.nih.gov/ecostudies/COIreportweb.htm>). Values are reported for the largest health disorders for which estimates have been developed using generally comparable methodologies. Costs are in dollars of the year for which the estimate was developed, thus there is some imprecision in comparisons due to the effects of inflation and population growth. However, even given these differences the primary point holds.

Table V-1
Comparison of Costs of Major Health Problems in US
(costs in billions of estimate year dollars)

Health Problem	Total	Direct	Indirect	Year of Estimate
Drug abuse	\$180	\$52	\$129	2002
Alcohol abuse	\$185	\$50	\$134	1998
Alzheimer's	\$100	\$15	\$85	1997
Arthritis	\$65	\$15	\$50	1992
Cancer	\$96	\$27	\$69	1990
Diabetes	\$98	\$44	\$54	1997
Eye diseases	\$38	\$22	\$16	1991
Heart disease	\$183	\$102	\$81	1999
HIV/AIDS	\$29	\$13	\$16	1999
Homicide	\$34	\$10	\$23	1989
Kidney	\$40	\$26	\$14	1985
Mental illness	\$161	\$67	\$94	1992
Obesity	\$99	\$52	\$46	1995
Pain, chronic	\$79	\$45	\$34	1986
Smoking	\$138	\$80	\$58	1995
Stroke	\$43	\$28	\$15	1998

Source: National Institute of Health, Office of Policy and Analysis website (<http://ospp.od.nih.gov/ecostudies/COIreportweb.htm>).

Comparison of cost of illness estimates indicate that drug abuse clearly ranks among the leading health problems in the nation in terms of annual economic impact. This holds whether the comparison is for total cost, direct costs (current health care and other expenditures) or indirect costs (loss of potential productivity from illness, disability and death).

This study and prior estimates indicate that drug abuse is one of the most costly health problems in the United States. The estimates have followed guidelines developed by the U.S. Public Health Service for cost of illness studies. These guidelines have been applied in earlier studies of drug abuse in the U.S. (e.g., for 1992, 1985, 1980, and 1977), and to cost of illness studies for virtually all of the major health problems. Accordingly, these estimates can be compared meaningfully to estimates for e.g., cancer, stroke, heart disease, diabetes, alcohol abuse and mental illness. The National Institute of Health collects and reports on cost estimates for the major health problems in the nation.

Based on estimates from the 1990s employing generally comparable methodologies, drug abuse (\$124.9 billion in 1995) is comparable to heart disease (\$183.1 billion in 1999; American Heart Association, 1998), cancer (\$96.1 billion in 1990; Brown and Fintor, 1995), diabetes (\$98.2 billion in 1997; American Diabetes Association, 1998), alzheimer's disease (\$100 billion in 1997; NIH extrapolation based on Huang et al., 1988), stroke (\$43.3 billion in 1998; NCHS and NHLBI), smoking (\$138 billion in 1995; Rice, 1999), obesity (\$99.2 billion in 1995; Wolf and Colditz, 1998), alcohol abuse (\$184.6 billion in 1998; Harwood, 2000) and mental illness (\$160.8 billion in 1992; Harwood et al., 2000). Even if we only compare the health-related costs of drug abuse--\$51 billion in 1995—it still must be considered one of the more costly health problems in the nation.

The data provide a basis to argue that drug abuse is among the top five health problems in terms of economic impacts—together with mental illness, heart disease, alcohol abuse and smoking. However, it is probably more realistic to consider these cost estimates to be general order of magnitude indicators. It is reasonable to argue that “drug abuse is among the most expensive health problems in the nation.” There differences across the estimates in the years they were estimated and other aspects argue against over-interpretation of the rank ordering of disorders or specific differences in amounts. While the estimates are probably in aggregate comparable, there are other factors to consider such as inclusion and omission of some smaller cost components, overlaps in some of the cost estimates (such as smoking with heart disease, cancer, lung disease and stroke), quality of life and other “intangible” impacts, and greater concern by the public about some disorders than others.

For example, out of the \$181 billion in costs of drug abuse about \$108 billion is related to impacts of drug-related crime. The involvement of crime in drug addiction is qualitatively different from the costs of most other health disorders, although there are also non-negligible crime-related components for alcohol abuse and mental illness as well. This distinction is pointed out because it might be argued that the crime costs are more serious -- or less serious -- than the components that are more like the costs of heart disease, cancer, diabetes and other disorders that are “mainstream” health problems. Even when the crime related costs are taken out of the comparison among “health impacts” the remaining costs of about \$53 billion place drug abuse roughly comparable in economic impact to stroke, eye disease, HIV/AIDS, and

homicide. It is also reasonable that many policy makers and citizens would weigh the crime-related impacts of drug abuse more heavily than the direct dollar calculation indicates.

B. Costs in Other Nations

Another issue that can be examined is the relative severity of drug abuse in the United States relative to other nations. This can be very difficult to examine using standard epidemiological data because respective nations have quite different patterns of drug problems, and there are different mixes of drug problems. Economic cost studies provide an approach that essentially “weights” the various types of impacts using economic measures, which can be summed in order to assess the total impact.

Unfortunately, there have been very few such studies across the world. The several that have been performed have been in higher income nations including the United States, Canada, Australia, the United Kingdom, and Germany. To date there have been no rigorous studies completed for lower income nations, although an initiative is currently underway to study the economic impact of drug abuse in Central and South America.

The United States has the most severe drug abuse problem among the several nations for which economic cost studies have been completed to date. The cost estimate of \$181 billion in 2002 (about \$650 per capita) is roughly equivalent to 1.7 percent of gross domestic product (GDP; the most widely used measure of a nation’s market-derived economic activity).

The next most severely affected nation is the United Kingdom (Godfrey et al., 2002), with estimated total costs of drug abuse at about 12 billion pounds, or 300 pounds per capita (about \$18 billion US, or \$450 per capita US). The loss was equivalent to about 1.8 percent of GDP, which is slightly more than the ratio in the US. In several other nations the estimated losses have been smaller proportions of GDP: Canada 0.2 percent (Single et al., 1998); Australia 1.0 percent (Collins and Lapsley, 2002); Germany 0.4 percent (Hartwig and Pies, 1996; as cited in United Nations on Drug Control report *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*).

In the near future there may be a larger research data base to draw upon in order to compare the impact of drug abuse across the nations of the world.

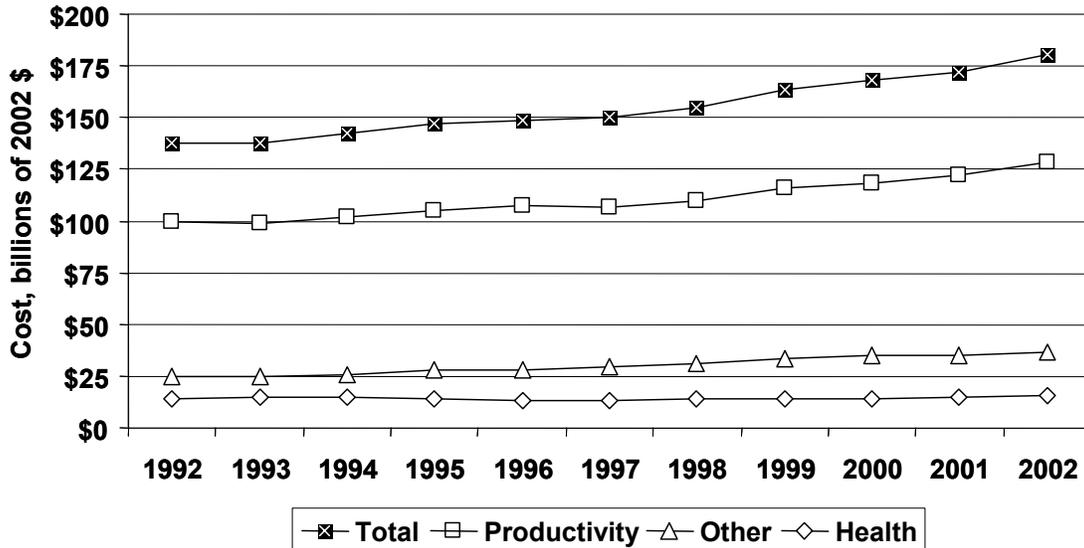
C. Real Costs 1992-2002

With the completion of this set of estimates and updates there now exists a complete series of values from 1992 through 2002. The base 1992 value is fundamentally as estimated in Harwood et al., (1998), with several minor adjustments for more current data. Trends in the current dollar estimates for the major components have been presented in previous sections of this report. The values of the detailed components are all presented in Appendix C. The current values shown in earlier figures have displayed a fairly consistent upward trend. Most financial time series have this pattern because of the impact of inflationary price increases over time.

In this section we net out the effect of inflation using the consumer price index for urban consumers in order to examine the “real” increase in the cost of drug abuse over the period 1992-

2002. Real trends for total costs and the main components are presented in Figure V-1. The values are presented in 2002 dollars.

Figure V-1
Trends in Real Economic Costs of Drug Abuse
Total and Major Components, 1992-2002
(costs in billions of 2002 dollars)



All adjustments have been made with the consumer price index for urban consumers for all items (the CPI-U). This measure increased by 2.5 percent annually between 1992 and 2002. The values in Figure V-1 have netted out the effect of this factor, thus rates of change greater than “0” represent real increases in the loss or burden associated with drug abuse.

In 2002 total costs of drug abuse were \$180.8 billion. This was an increase from \$137.9 billion in 1992 (again, in real or constant 2002 dollars). Thus, total costs increased 30.2 percent over the ten year period, for a 2.8 percent annual rate of change. This represents real growth in the cost of drug abuse over the time period. However, over one third of this 2.8 percent annual growth was probably due to annual population growth of 1 percent. Thus it appears that between 1992 and 2002 the cost of drug abuse was increasing somewhat more (about 1.8 percent annually) than would be expected based on general inflation and population growth.

There are differences between the major components that are worth noting. For example, although the CPI-U has been used to perform the adjustments, there have been somewhat different rates of price increases across the economy. For example, the CPI for medical services actually increased by about 4.2 percent annually between 1992 and 2002 (about 1.7 percent greater than the CPI-U), and employee compensation (wages and salaries plus benefits) increased by about 3.0 percent (0.5 percent annually greater than CPI-U). Thus, the finding that health-related costs increased by 1.5 percent annually after adjusting for CPI-U indicates that health-related costs actually had no real growth over this time period. Also, since population

grew by 1 percent annually, this indicates that *per capita* real health-related costs probably declined by about 1 percent annually over this time period.

CPI-adjusted productivity losses grew by 2.6 percent annually. Because employee compensation increased by about 0.5 percent annually more than CPI-U, this means that the growth in excess of compensation growth was about 2.1 percent, and of this about 1.0 percent was related to population growth. Thus there was an annual increase in “real” per capita productivity losses of about 1.1 percent.

The greatest growth was in “other” costs consisting primarily of criminal justice system services. These costs grew 3.9 percent annually after adjustment for CPI-U. Because the CPI-U is probably the best indicator of inflation for these services, it would appear that, after accounting for 1 percent population growth, about 2.9 percent annual growth represented real per capita increases in drug-related criminal justice system costs.

A final comparison can also be made to judge the growth of the economic costs of drug abuse: with gross domestic product. Costs of drug abuse grew by 2.8 percent after inflation adjustment, or 5.3 percent in nominal dollars. Over the 1992-2002 period GDP grew by 3.2 percent annually when adjusted for inflation, or 5.2 percent in nominal (unadjusted) dollars. These comparisons suggest that the cost of drug abuse was a fairly constant proportion of the national economy—that as the GDP grew, drug abuse costs were growing roughly in parallel. By this criterion the real burden of drug abuse was certainly growing, just as total and per capita GDP was growing.

D. Discussion

The estimates produced for this study have followed guidelines developed by the U.S. Public Health Service for cost of illness studies. These guidelines have been applied in earlier studies of drug abuse in the U.S. (e.g., for 1998, 1992, 1985, 1980, and 1977), and to cost of illness studies for virtually all of the major medical problems. Accordingly, these estimates can be compared meaningfully to estimates for e.g., cancer, stroke, heart disease, diabetes, alcohol abuse and mental illness. The National Institute of Health compiles and publishes these estimates.

Based on these guidelines we estimate that the societal cost of drug abuse in the United States was \$180.8 billion in 2002. The majority of these costs are productivity losses—losses of potential market and household production--related to incarceration, crime careers, drug abuse-related illness, and premature death. The share of the societal cost related to the three major components of costs and that related to crime remained relatively constant between 1992 and 2002.

The overall cost of drug abuse rose 5.3 percent annually between 1992 and 2002 increasing from \$107.5¹⁷ to \$180.8 billion. This increase is greater than the combined increase in the adult population and consumer prices of 3.5 percent annual growth during that period. The primary

¹⁷ This estimate is a revision of the original estimate of \$97.7 billion. Most (\$8 billion) of the increase comes from use of a lower discount rate for calculating mortality costs, in keeping with recent cost of illness studies and Office of Management and Budget guidance on health cost analyses, and the remainder is from more current data for 1992 exceeding values which had been projects from earlier years.

sources of this increase are increases in productivity losses related to incarceration and drug abuse-related illness.

The estimates presented in this report and prior related analyses do have recognized limitations (see Reuter, 1999; Kleiman, 1999; Kopp, 1999; and Cohen, 1999):

- The reliability of the underlying data and methods; and
- Limited scope of the study.

The calculations for this study yield apparently very precise values. However, they should be treated as approximations, just as should be done for virtually any quantitative analysis. This is particularly true for the component values that have been estimated by trending. This method is less reliable than re-estimation, because the estimates are based on data that are not as closely related to the actual component value.

Another consideration is that, all the estimates for this study are based on data from secondary sources. Generally, the data from secondary sources can have limitations because it was not designed with exactly the purposes of this study in mind.

Third, the estimates for many if not most component values rely on attribution fractions that are difficult to estimate with precision. It is very difficult to discern and measure the role of drugs in violent and acquisitive crime, just as it is very difficult to measure the nature and size of the illicit drug trade. The data used to develop attribution fractions was not revisited for this study, but were adopted from Harwood et al (1998). The scientific basis and ability to measure and understand such relationships is constantly improving. Future cost of illness studies will need to re-examine the scientific literature on crime and drugs as well as health and drugs.

Finally, for many components data were not available through 2002. In these cases, the values of the components from the last available published data were projected.

The scope of this study is limited. It has followed guidelines developed by the U.S. Public Health Service for cost of illness studies. There are other approaches that could have been used to develop estimates of the cost of drug abuse, such as “willingness to pay” (Miller et al., 1998) or the “demographic” approach (Collins and Lapsey, 2002). These methods examine different facets of the economic impacts of drug abuse. They are able to incorporate factors costs such as the costs of pain, suffering, anxiety, and impacts on families and children and other intangible impacts of drug abuse that are not included in this study. In applying the estimates from this or other cost of illness studies, analysts must consider which approach is most appropriate for the particular issue they are assessing.