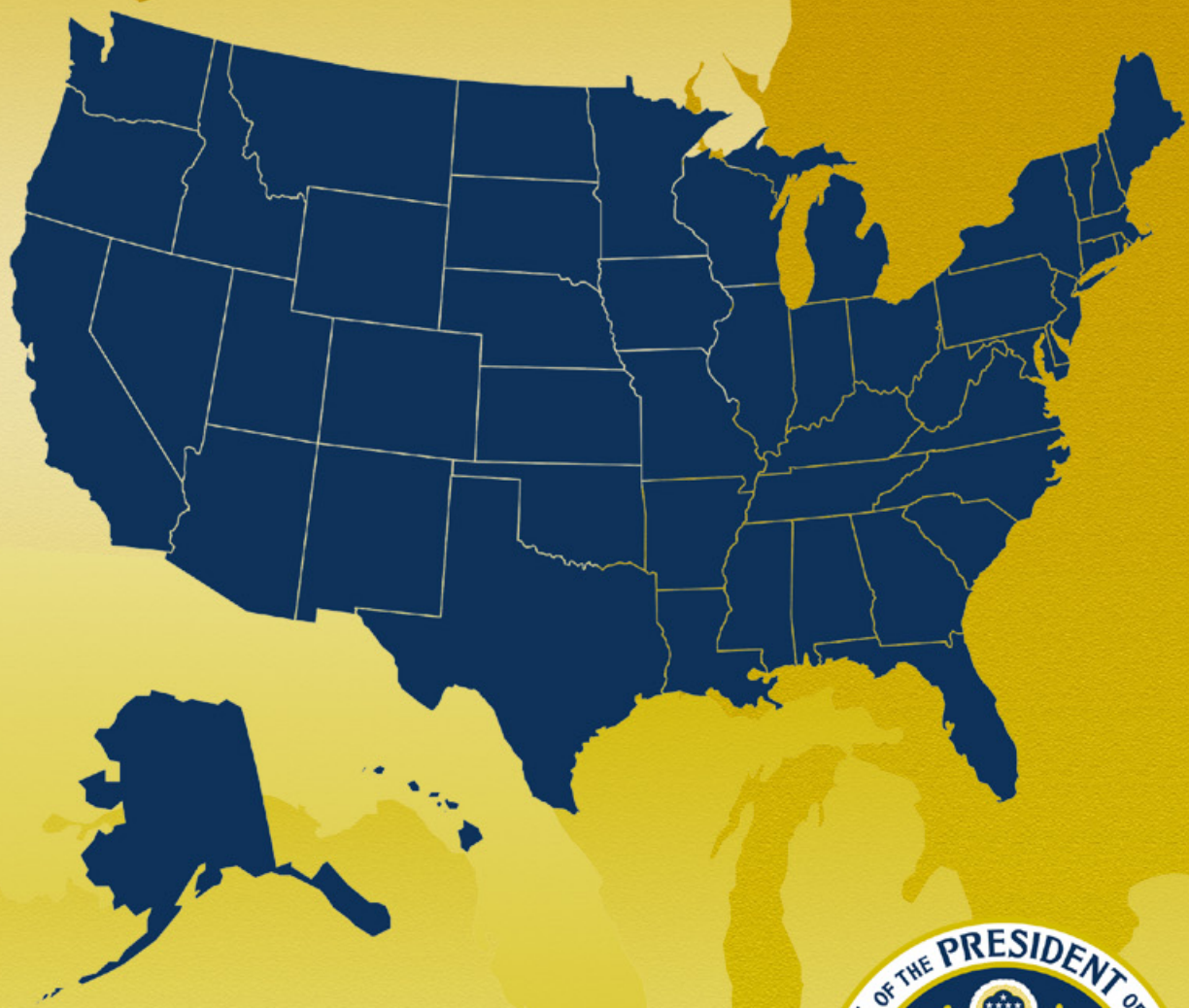
The Economic Costs of Drug Abuse in the United States

1992-1998



Executive Office of the President
Office of National Drug Control Policy

THE ECONOMIC COSTS OF DRUG ABUSE IN THE UNITED STATES

1992-1998

Executive Office of the President
Office of National Drug Control Policy
Washington, D.C. 20503

September 2001

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I. EXECUTIVE SUMMARY

A. Overview

This report was developed for The Office of National Drug Control Policy (ONDCP) which asked The Lewin Group to calculate more current estimates of the societal cost of drug abuse. In the context of this report, the phrase "drug abuse" is used to refer to consequences of using illicit drugs, as well as societal costs pertaining to the enforcement of drug laws. This study does not address costs related to abuse of or dependence on legal substances that may be termed drugs such as alcohol, tobacco, or prescription medications.

The most recent previous estimates of drug abuse related costs are for 1995 as developed by Harwood et al. (1998). In addition to providing new estimates of the societal cost of drug abuse, this report provides annual estimates for 1992 through 1998 and projections for 1999 and 2000 that are consistently developed, so that trends in the overall societal cost and in component costs of drug abuse can be evaluated. Projections are only provided for 1999 and 2000, because there is a significant lag in the availability of the base data for estimating the component values. For the majority of components, the most recent data available is from 1998.

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 medical problems. Accordingly, these estimates can be compared meaningfully to estimates for diseases, such as cancer, stroke, heart disease, diabetes, alcohol abuse and mental illness.

The limitations of this study should be recognized when applying its findings. This study is limited in terms of both the reliability of the estimates presented and the scope of the estimates. First, the methods used in this study yield seemingly very precise values, however they should be treated as approximations, because many of the values were derived by trending estimates from previous years or rely on assumptions from previous analyses that have not been revisited using recent data. A substantial period of time has passed since the calculation of these components was fully revisited and primary data was gathered to re-estimate these costs. The most recent fully re-estimated value for each of the component costs presented here is for 1992.

A second limitation of this study is the scope. As noted, this study follows 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. These methods examine different facets of the economic impacts of drug abuse including intangible impacts of drug abuse 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. Similarly, the results of this study were not designed to address specific policies to control drug abuse or the alternatives of drug prohibition versus legalization. The purpose of this study has been to identify and quantify particular negative consequences from the abuse of illicit drugs. These data are likely to inform the evaluation of particular policies. However, this study has not undertaken specific policy evaluations.

The results of this study are summarized in the next five sections. The first section presents the overall estimates of the cost of drug abuse for 1992 through 1998 and projections for 1999 and 2000. Then, sections two through four demonstrate how the costs in each of the three major cost categories changed between 1992 and 2000. All of the three major cost categories contain costs related to crime. The fifth section below extracts the crime-related costs from each of the other major cost categories and summarizes them. Finally, the sixth section below provides a brief discussion of the study's results.

B. Overall Costs

Figure I-1 displays the estimates for 1992 through 1998 overall and for the three major categories into which the report divides the costs. These three categories are health care costs, productivity losses, and other costs.

Between 1992 and 1998 the overall cost of drug abuse to society increased at a rate of 5.9 percent annually. By 1998 the societal cost of drug abuse was $143.4 billion.[1] The rate of increase in costs was in excess of the combined increase of 3.5 percent for the adult population and consumer price index for all services for this period.

Figure I-1
Overall Cost of Drug Abuse, 1992-1998
(in billions of dollars)

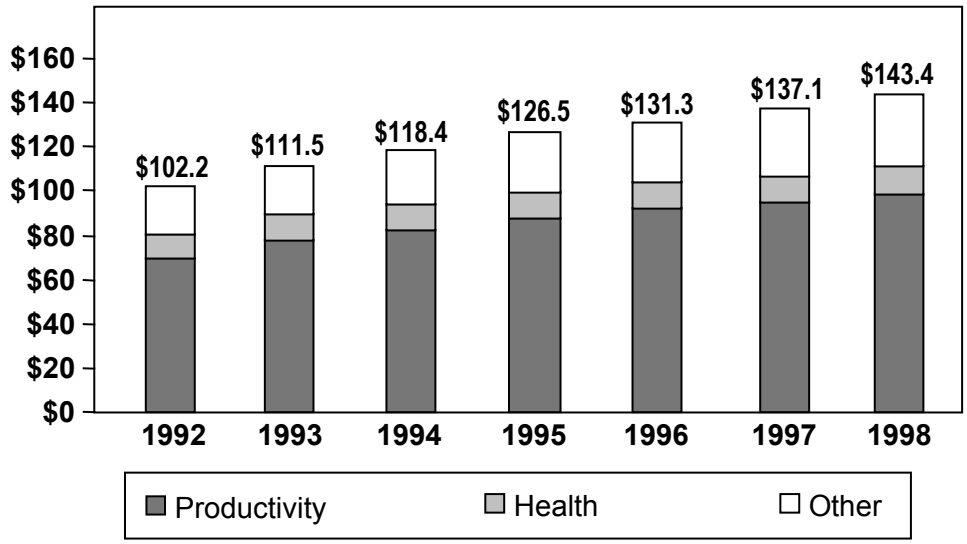


Figure I-2 displays the proportion of the societal costs that were represented by each of the three major categories in 1998. The share of the costs represented by each of these categories remained fairly constant between 1992 and 1998. The share of costs represented by health care declined

[1] The 1992 cost of drug abuse originally developed by Harwood et al (1998) was re-estimated based on more recent data. The revised estimate is $102.2 billion. This estimate is 4.6 percent higher than the previous Harwood et al. (1998) estimate of $97.7 billion.

slightly from 10.6 to 9.0 percent. Meanwhile, the share represented by productivity losses and other effects increased from 68.0 to 68.7 and from 21.5 to 22.4, respectively.

Figure I-2
Overall Cost of Drug Abuse, 1998
By Cost Category

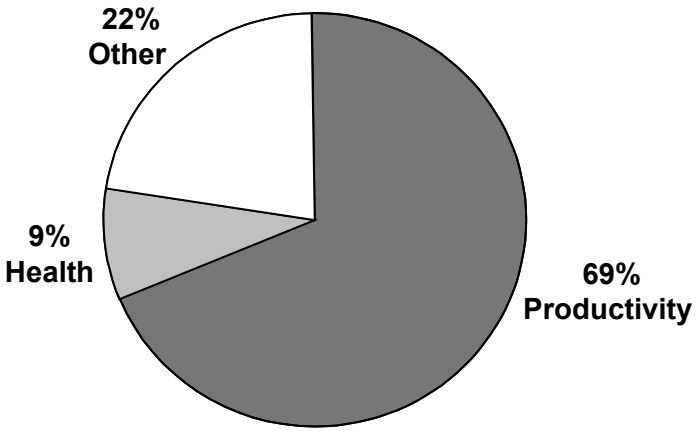
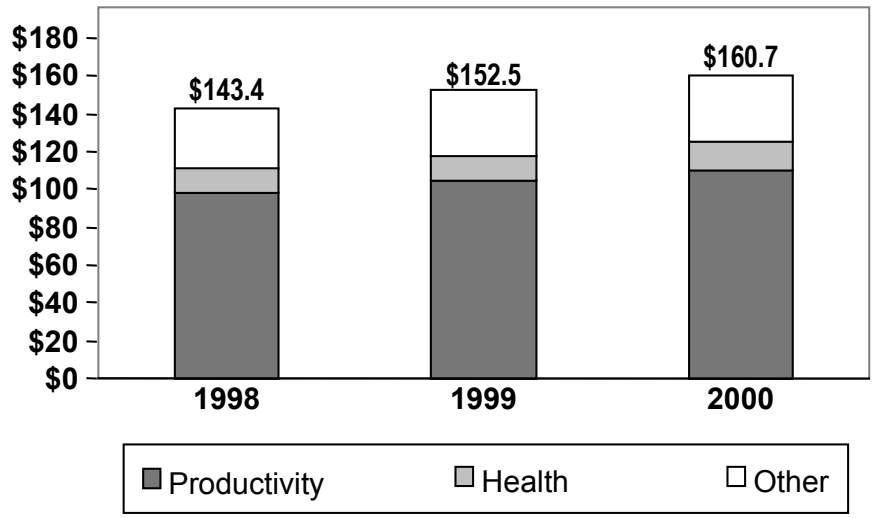


Figure I-3 displays the projected cost of drug abuse for 1998 through 2000. The estimates for 1992 through 1998 were generally developed based on detailed observed data on the component costs. This was not possible for the 1999 and 2000 projections, since observed data are generally not yet available upon which to base the estimates for these years. Therefore, these estimates should be used with caution until they can be re-estimated more accurately based on observed data.

Figure I-3
Projected Overall Cost of Drug Abuse, 1998-2000
(in billions of dollars)

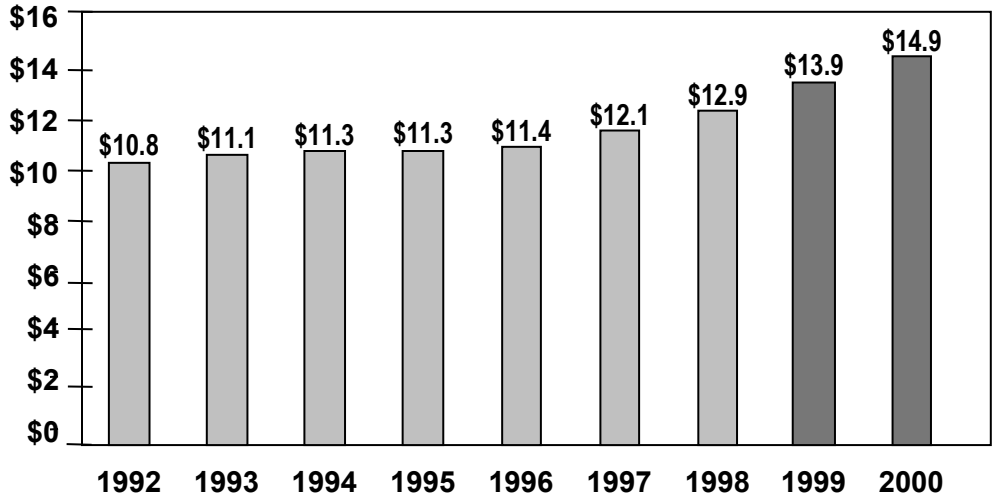


Between 1998 and 2000, the economic cost of drug abuse is projected to continue to increase at a rate of 5.8 percent annually. By 2000, the economic cost of drug abuse is projected to be $160.7 billion.

C. Health Care Costs

Figure I-4 displays the health care related cost of drug abuse for each year between 1992 and 2000.[2] As noted above the estimates for 1999 and 2000 are projections. Overall health care costs rose 2.9 percent annually between 1992 and 1998. This rate of increase is less than the combined rate of increase of population growth and medical inflation as measured by the consumer price index for medical services (CPI-M). During this period the population grew at one percent annually and the CPI-M grew at 4.1 percent annually for a combined annual increase of 5.1 percent.

Figure I-4
Health Care Costs, 1992-2000[3]
(in billions of dollars)



The rate of growth in this category was moderated by declines in spending for HIV/AIDS care. In 1992 the largest component of the health care costs related to drug abuse was spending to care for HIV/AIDS patients. Because of new treatments, the cost of caring for HIV/AIDS patients is estimated to have declined from $3.7 to $3.4 billion between 1992 and 1998. ***Table I-1*** lists the

[2] The 1992 cost of drug abuse originally estimated in Harwood et al. (1998) was re-estimated based on more recent data. The revised estimate for health care related costs is $10.8 billion. The 1992 estimate is 9.0 percent higher than the previous Harwood et al. (1998) estimate. The largest source of this increase is a revised estimate of spending on drug abuse by the Department of Veterans Affairs (VA). The revised estimate is $671 million relative to the original estimate of $235 million. The second component of health care costs that was revised substantially is spending for community-based specialty treatment. The original estimate for this component was $2.8 billion. The revised estimate is $3.2 billion. The revised estimate is based on a study by Mark et al. (1999) that was more comprehensive than the original study.

[3] 1999 and 2000 values are projections.

components of the health care related cost of drug abuse. Meanwhile, spending for community-based specialty treatment is estimated to have risen from $3.4 to $4.9 billion between 1992 and 1998, a 6.3 percent annual growth rate which exceeds the combined increase in population growth and medical inflation. Thus, by 1998 community-base specialty treatment replaced HIV/AIDS treatment as the largest component of the health care cost for drug abuse.

Table I-1
Health Care Costs, 1992 and 1998
(in millions of dollars)

Cost Categories	1992	1998	Annualized Percentage Change
Community-Based Specialty Treatment	$3,415	$4,933	6.3%
Federally-Provided Specialty Treatment			
Department of Defense	$14	$5	-15.9%
Indian Health Services	$26	$32	3.4%
Bureau of Prisons	$17	$21	3.4%
Department of Veterans Affairs	$468	$416	-2.0%
Support			
Federal Prevention	$616	$725	2.8%
State and Local Prevention	$89	$85	-0.8%
Training	$49	$60	3.5%
Prevention Research	$158	$250	8.0%
Treatment Research	$195	$328	9.1%
Insurance Administration	$223	$286	4.2%
Medical Consequences			
Hospital and Ambulatory Care Costs	$562	$969	9.5%
Special Disease Costs			
Drug-Exposed Infants	$407	$503	3.6%
Tuberculosis	$30	$24	-3.5%
HIV/AIDS	$3,700	$3,377	-1.5%
Hepatitis B and C	$462	$434	-1.0%
Crime Victim Health Care Costs	$92	$127	5.4%
Health Insurance Administration	$298	$287	-0.6%
Total	**$10,820**	**$12,862**	**2.9%**

Source: Analysis by The Lewin Group, 2001.

D. Productivity Losses

Figure I-5 displays the productivity related cost of drug abuse for each year between 1992 and 2000.[4] As noted above the estimates for 1999 and 2000 are projections. The estimated productivity loss in 1992 was $69.4 billion. By 1998, this cost is estimated to have risen to $98.5 billion, a 6.0 percent annual increase. This rate of increase is somewhat higher than the combined

[4] The 1992 estimate of productivity losses is identical to the Harwood et al. (1998) estimate.

increase in the population (about one percent annually) and in wage rates (about 3.1 percent annually) of 4.1 percent during this period.

Figure I-5
Productivity Losses, 1992-2000[3]
(in billions of dollars)

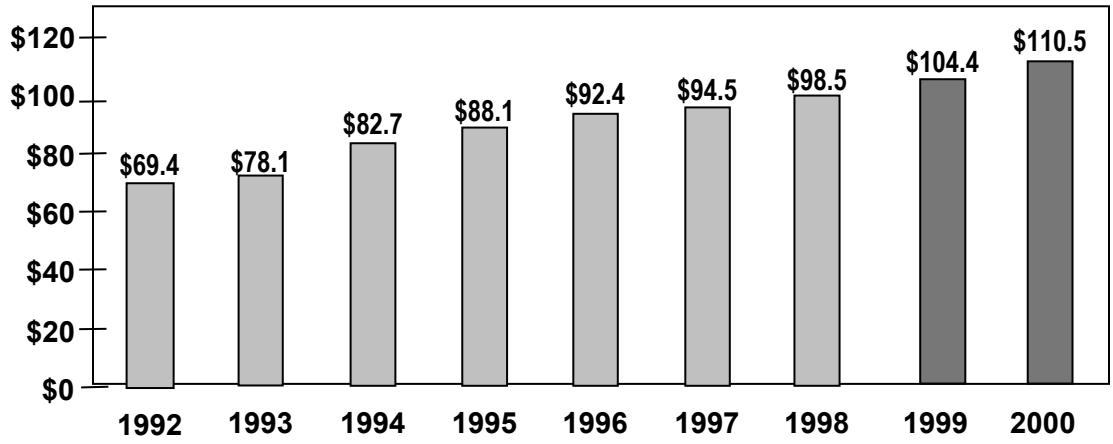


Table I-2 shows the components of the estimated cost of lost productivity related to drug abuse. The cost for all of the components of the productivity loss estimate increased in this period. The fastest increases were for productivity losses related to drug abuse related illness and to incarceration. The losses attributed to these components, respectively, increased 8.5 and 9.1 percent annually.

Table I-2
Productivity Losses, 1992 and 1998
(in millions of dollars)

Cost Categories	1992	1998	Annualized Percentage Change
Premature Death	$14,575	$16,611	2.2%
Drug Abuse Related Illness	$14,205	$23,143	8.5%
Institutionalization/Hospitalization	$1,477	$1,786	3.2%
Productivity Loss of Victims of Crime	$2,059	$2,165	0.8%
Incarceration	$17,907	$30,133	9.1%
Crime Careers	$19,198	$24,627	4.2%
Total	**$69,421**	**$98,467**	**6.0%**

Source: Analysis by The Lewin Group, 2001.

The productivity loss for drug abuse related illness was updated based on two factors. The real change was measured based on the change in the number of persons reporting more than 100 days of marijuana or cocaine use in their lifetime. This measure increased at a 5.2 percent annual rate between 1992 and 1998. The price change in this component was based on the Bureau of

Labor Statistics' (BLS) Hourly Compensation Index (HCI). This measure increased at 3.2 percent annually for combined increase of 8.5 percent annually.

The productivity loss related to incarcerations was updated based on the change in the number of incarcerations attributable to drug abuse and the BLS HCI. The number of persons under incarceration in local jails and federal and state prisons increased 6.1 percent annually in this period. The estimated number attributable to drug abuse increased at 5.8 percent annually.

E. Cost of Other Effects

In addition to the health care costs and the costs of lost productivity, there are other costs of drug abuse including costs of the criminal justice system, costs related to reducing the supply of drugs, and social welfare costs. ***Figure I-6*** displays the cost of other effects of drug abuse for each year between 1992 and 2000.[5] As noted above the estimates for 1999 and 2000 are projections. Between 1992 and 1998, the costs for the other effects of drug abuse rose at a 6.6 percent annual rate. This rate is somewhat higher than the combined 3.5 percent annual increase in the adult population (one percent annually) and general inflation (2.5 percent annually).

Figure I-6
Cost of Other Effects, 1992-2000[3]
(in billions of dollars)

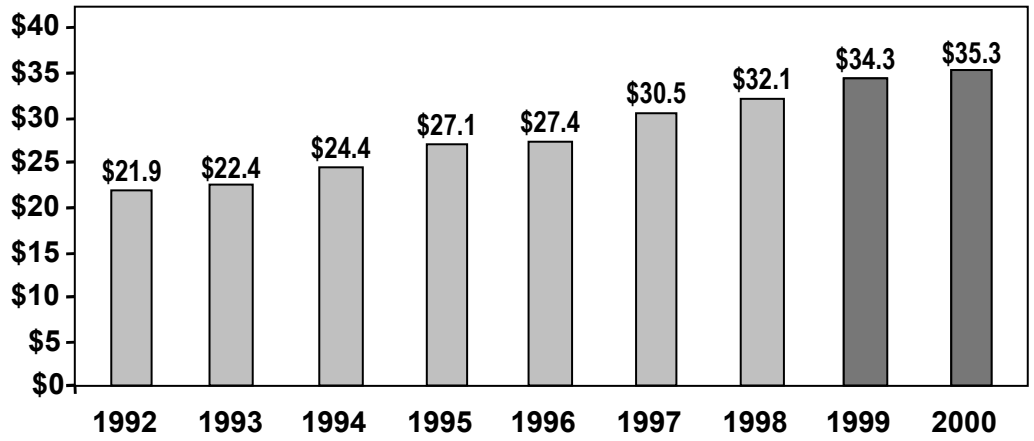


Table I-3 shows the components of the cost of other effects of drug abuse. The largest rates of increases among the components of this category were for police protection and legal adjudication costs. These costs increased, respectively, at 9.3 and 8.7 percent annually during this period. These increases are due to growth in overall police protection and legal adjudication

[5] The 1992 cost of drug abuse originally estimated in Harwood et al. (1998) was re-estimated based on more recent data. The revised estimate for the cost of other effects is $21.9 billion. This estimate is 19.7 percent higher than the previous Harwood et al. (1998) estimate. Estimates of the costs of police protection, legal adjudication, corrections, federal spending to reduce the supply of drugs, and the cost of private legal defense were all revised upward. The revisions were based on the availability of more current data. The methodology for calculating the components was not changed.

spending as well as growth in the proportion of that spending that is attributed to drug abuse. Total police protection and legal adjudication costs increased at 6.4 and 5.7 percent annually, respectively, during this period. Police protection and legal adjudication costs are attributed to drug abuse based on the percentage of arrests that are attributed to drug abuse. The percentage of arrests attributable to drug abuse increased from 12.9 percent in 1992 to 15.3 percent in 1998.

Costs for two of the components of the cost of other effects declined between 1992 and 1998. These two components were the cost of property damage for victims of crime and social welfare costs. These two components represented only 2.4 percent of the cost of other effects in 1992, however.

Table I-3
Cost of Other Effects, 1992 and 1998
(in millions of dollars)

Cost Categories	1992	1998	Annualized Percentage Change
Cost of Goods and Services Lost to Crime			
Criminal Justice System and Other Public Costs			
Police Protection	$5,348	$9,096	9.3%
Legal Adjudication	$2,716	$4,489	8.7%
State and Federal Corrections	$7,495	$11,027	6.6%
Local Corrections	$1,333	$1,660	3.7%
Federal Spending to Reduce Supply	$4,126	$4,827	2.6%
Private Costs			
Private Legal Defense	$365	$548	7.0%
Property Damage for Victims of Crime	$193	$186	-0.5%
Social Welfare	$337	$249	-4.9%
Total	**$21,912**	**$32,083**	**6.6%**

Source: Analysis by The Lewin Group, 2001.

F. Crime Related Costs

Many of the components of health care, productivity loss, and other costs are crime-related costs. This section aggregates these costs to display the total cost of crime related to drug abuse. ***Figure I-7*** displays the crime costs related to drug abuse.[6] Overall crime related costs rose 6.5 percent annually between 1992 and 1998. This rate of increase is greater than the combined rate of increase of population growth and general inflation. During this period the population grew at one percent annually and general price inflation was 2.5 percent annually for a combined increase of 3.5 percent.

[6] The estimate of $60.8 billion is 6.3 percent higher than the Harwood et al. (1998) 1992 crime cost estimate. The main source of this revision is increases in estimated criminal justice system and other public costs of crime based on more updated information.

Figure I-7
Crime Related Costs, 1992-2000[3]
(in billions of dollars)

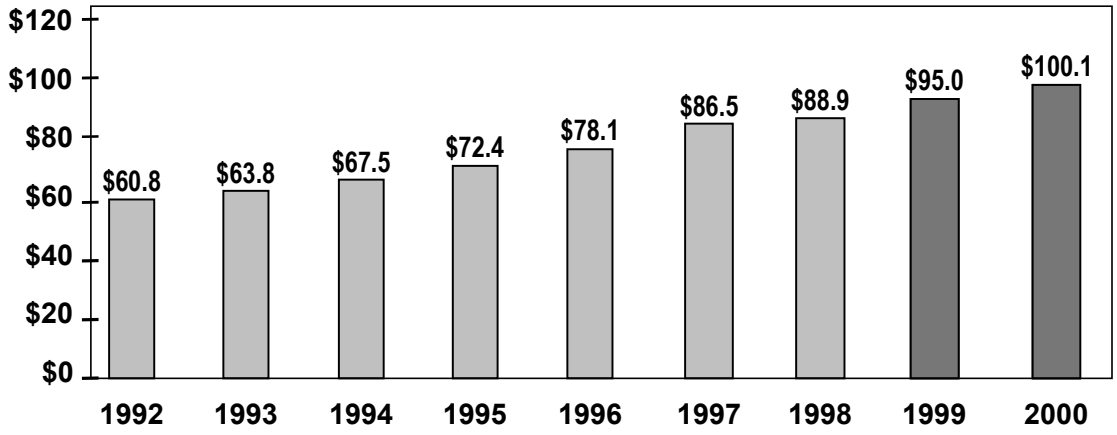


Table I-4 displays the components of the crime-related cost of drug abuse. The components with the fastest increase were police protection and productivity losses related to incarceration, which increased at 9.3 and 9.1 percent annually respectively.

Table I-4
Crime Related Costs, 1992 and 1998
(in millions of dollars)

Cost Categories	1992	1998	Annualized Percentage Change
Health Care Costs			
Crime Victim Health Care Costs	$92	$127	5.4%
Productivity Losses			
Productivity Loss of Victims of Crime	$2,059	$2,165	0.8%
Incarceration	$17,907	$30,133	9.1%
Crime Careers	$19,198	$24,627	4.2%
Cost of Other Effects			
Criminal Justice System and Other Public Costs			
Police Protection	$5,348	$9,096	9.3%
Legal Adjudication	$2,716	$4,489	8.7%
State and Federal Corrections	$7,495	$11,027	6.6%
Local Corrections	$1,333	$1,660	3.7%
Federal Spending to Reduce Supply	$4,126	$4,827	2.6%
Private Costs			
Private Legal Defense	$365	$548	7.0%
Property Damage for Victims of Crime	$193	$186	-0.5%
Total	**$60,832**	**$88,887**	**6.5%**

Source: Analysis by The Lewin Group, 2001.

G. Discussion

The societal cost of drug abuse in the United States was $143.4 billion in 1998. The majority of these costs are productivity losses, particularly those related to incarceration, crime careers, drug abuse related illness, and premature death. The share of the societal cost related to the three major categories of costs and that related to crime remained relatively constant between 1992 and 1998.

The overall cost of drug abuse rose 5.9 percent annually between 1992 and 1998 increasing from $102.2 to $143.4 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 sources of this increase are increases in productivity losses related to incarceration and drug abuse related illness. Between 1998 and 2000, the societal cost of drug abuse is expected to continuing rising at a 5.9 percent annual rate, continuing to outpace the combined increase in the adult population and consumer prices which are expected to have an annual combined increase of about 3.4 percent in this period.

II. INTRODUCTION

A. Purpose of This Report

This report was developed for The Office of National Drug Control Policy (ONDCP) which asked The Lewin Group to develop more current estimates of the cost of drug abuse. The most recent previous estimates are for 1995 as developed by Harwood et al. (1998). In addition to providing the most recent estimate of the societal cost of drug abuse available, this report provides a series of estimates for 1992 through 1998 and projections for 1999 and 2000 that are consistently developed, so that trends in the overall societal cost and component costs of drug abuse can be evaluated. Projections are only provided for 1999 and 2000, because there is a significant lag in the availability of the base data for estimating the component values. For the majority of components, the most recent data available is from 1998.

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 medical problems. Accordingly, these estimates can be compared meaningfully to estimates for diseases such as cancer, stroke, heart disease, diabetes, alcohol abuse and mental illness. The National Institute of Health compiles and publishes these estimates.

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., 1991) or the "demographic" approach (Collins and Lapsey, 1996). These methods examine different facets of the economic impacts of drug abuse. Analysts must consider which approach is most appropriate for the particular issue they are assessing. For example, the costs of pain, suffering, anxiety, and other intangible impacts of drug abuse are not included in this study. Similarly, this study does not attempt to tabulate the total amount spent by drug users on illegal drugs and this amount is not directly incorporated in other components although a portion of what users spend is indirectly included in the estimated cost of crime careers.[7]

Finally, this report provides a detailed description of the data sources and methods used to calculate the estimates and projections of the societal costs of drug abuse in the United States for 1992 through 2000. The present estimates have either been developed based on current data (as recent as 1998) or have used data up to 1998 to adjust for changes in incidence/prevalence, population, and price. These estimates are believed to be indicative of the direction and magnitude of changes in drug abuse costs between 1992 and 1998, but it should be kept in mind that some of the component values were not completely re-estimated for this study. As a result, in the near future it will be necessary to carefully re-examine the scientific literature on several issues that were beyond the scope of this study including the relationship between drug abuse and health, morbidity, mortality, and crime.

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[7] For information on what drug users spend on illegal drugs, consult the ONDCP report:

Rhodes, William, Mary Layne, Patrick Johnston, and Lynne Hozik. (2000) What American Users Spend on Illegal Drugs 1998-1998. Office of National Drug Control Policy, Washington, D.C., December.

B. Scope of This Report

This study estimates the economic value of many consequences associated with drug abuse. Types of consequences include health problems and health care utilization, effects on productivity, and other costs including crime and social welfare. In this report, the phrase "drug abuse" is used to refer to consequences of using illicit drugs, as well as societal costs pertaining to the enforcement of drug laws. Illicit drugs include marijuana, cocaine or heroin. This study does not address costs related to abuse of or dependence on legal substances that may be termed drugs such as alcohol, tobacco, or prescription medications. While the abuse of these substances also has significant societal costs these costs are not addressed in this study.

This study did not collect primary data, but rather conducted analyses of secondary data sources. Furthermore, this study did not fully re-estimate the value of each cost component. When a cost component could be fully re-estimated based on simple tabulations of data from a published source, the value of the component was re-estimated. However, when the information necessary to fully re-estimate a component value was not readily available from a published source, trend factors based on published statistics whose values are expected to parallel changes in the value of the components were developed and these trend factors were applied to the original estimates.

The basic approach taken to calculate the updates presented in this report was to divide the original estimates developed by Harwood et al. (1998) into 32 components. Then, whether the value of each component could be re-estimated through straightforward tabulation of published data was assessed. When this was the case, the necessary data was gathered and the component was re-estimated. Values for 22 of the 32 components were re-estimated. For the remaining 10 components, more intensive effort would be necessary to re-estimate the component. Therefore, trend factors based on published statistics whose values are expected to parallel changes in the value of the components were estimated and applied to the original estimates to calculate the updated estimates.

This study subdivides the estimates of drug abuse costs into health care, productivity losses, other effects, and crime costs. There are other ways of disaggregating the cost estimates that may be of interest to policy makers that were not attempted in this study. These include the following:

- The societal cost of particular illegal drugs (e.g., heroin, cocaine, or marijuana);
- The effect of different modes of drug consumption (e.g., injection, smoking or oral); and
- The implications of different potencies or levels of use of the drugs under consideration.

Similarly, the results of this study were not designed to address specific policies to control drug abuse or the alternatives of drug prohibition versus legalization. The purpose of this study has been to identify and quantify particular negative consequences from the abuse of illicit drugs. These data are likely to inform the evaluation of particular policies. However, this study has not undertaken specific policy evaluations.

C. Overview of This Report

Following the guidance for cost-of-illness studies adopted by the Public Health Service (Hodgson and Meiners 1979, 1982), this report is organized to differentiate health costs from non-health costs and the value of goods and services from the value of lost productive potential. The remaining chapters are organized as follows:

- Chapter 3 reviews the previous literature and provides an overview of the analytic methods that are used in this study.

- Chapter 4 describes in detail the data and estimation methods used to derive each cost-of-illness component estimate. This chapter is divided into three major sections, one for each major cost category. The major cost categories are: health care costs, productivity losses, and the cost of other effects.

- Chapter 5 presents the final estimates for 1992 through 1998 overall, for each of the major cost categories, and for crime related costs. The crime related costs are a subset of the costs included in the each of the three major cost categories.

- Chapter 6 presents projected costs for 1999 and 2000. Observed data were generally not available upon which to base the 1999 and 2000 projections. Therefore, these estimates must be used with greater caution than the 1992 through 1998 estimates. Again, these costs are presented overall, for each of the major cost categories, and for crime related costs.

- Finally, Chapter 7 provides a discussion of the estimates.

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III. METHODOLOGY

A. Prior Literature

The updated cost estimates developed for this study are based on the estimates included in "The Economic Costs of Alcohol and Drug Abuse in the United States 1992" (Harwood et al., 1998). The estimates employ the same general "cost-of-illness" methodology that has been employed in studies of drug abuse over the past 20 years. The general framework of this approach was presented in the U.S. Public Health Service guidelines developed under Dorothy Rice (Hodgson and Meiners, 1982). The guidelines differentiate between health system expenditures, the costs of morbidity and premature mortality (these are losses of potential productivity), and other costs (e.g., criminal justice system costs and losses from accidents or fires). For most illnesses (for example cancer, stroke, heart disease, and diabetes) costs are concentrated in the health system (e.g., hospitals, doctors' offices, public health clinics) or result from lost work due to morbidity or premature mortality (which is the loss of the remainder of life expectancy based on actuarial analysis). The economic principle of "opportunity cost" is used to attach values to measurements of hospital days, visits to doctors and clinics, and lost days of work (or household productivity).

The cost-of-illness methodology applies directly to drug abuse, although with several important extensions that are generally not relevant for other health problems and diseases. Drug abuse (like smoking and alcohol abuse) causes further health problems, and the costs of these illnesses need to be estimated and attributed to drug abuse. Some of these include HIV, hepatitis, tuberculosis, and injury/trauma. Another major characteristic of drug abuse with important economic implications is crime. This has impacts including health costs and lost work/mortality of crime victims, costs for the criminal justice system, and costs from drug abusers dropping out of the legal labor market/economy (working in the "drug economy" or living off of income generating/predatory crime) and often being incarcerated (again, they are out of the legal economy). The major previous cost-of-illness studies for drug abuse have included all of these costs.

This study does not completely re-estimate the costs associated with each component included in the previous studies, but rather develops updated estimates for some components by applying trend factors based on published data series that are expected to be correlated with the actual change in the component. Three previous studies of the societal cost of substance abuse have developed similar updated estimates of the cost of drug abuse without completely re-estimating the component costs. The first of these three studies is Rice et al. (1991) which updated the 1985 baseline estimate of the cost of alcohol, drug, and mental disorders to 1988. The second study is Harwood et al. (1998) which developed updated estimates of 1995 costs for alcohol and drug abuse based on 1992 baseline estimates. Finally, the third study is Harwood (2000) which calculated updated estimates of the cost of alcohol abuse in 1998 using 1992 baseline data. All three of these studies used the same basic approach. That approach entails dividing the estimates into component costs that are likely to have been affected similarly by both real and price changes. Then, measures of the real and price changes that are specific to each cost component are identified. Finally, trend factors based on these measures are applied to the relevant component.

As discussed in more detail in the next section, this study takes the same basic approach as these previous authors to update the value of some components. For other components, this study takes a more involved approach, essentially re-estimating the value of the component.

B. Methods

As noted above, the original 1992 estimate was initially divided into 32 components. Health care costs are divided into eighteen components. These components are listed in ***Figure III-1***.

Figure III-1
Components of the Health Care Cost Estimate

Cost Categories
Community-Based Specialty Treatment
Federally-Provided Specialty Treatment
Department of Defense
Indian Health Services
Bureau of Prisons
Department of Veterans Affairs
Support
Federal Prevention
State and Local Prevention
Training
Prevention Research
Treatment Research
Insurance Administration
Medical Consequences
Hospital and Ambulatory Care Costs
Drug-Exposed Infants
Tuberculosis
HIV/AIDS
Hepatitis B and C
Crime Victim Health Care Costs
Health Insurance Administration

Productivity losses are divided into six components. These components are listed in ***Figure III-2***.

Figure III-2
Components of the Productivity Loss Estimate

Cost Categories
Premature Death
Drug Abuse Related Illness
Institutionalization/Hospitalization
Productivity Loss of Victims of Crime
Incarceration
Crime Careers

Finally, the cost of other effects is divided into eight components and these components are listed in ***Figure III-3***.

Figure III-3
Components of the Cost of Other Effects Estimate

Cost Categories
Criminal Justice System and Other Public Costs
Police Protection
Legal Adjudication
State and Federal Corrections
Local Corrections
Federal Spending to Reduce Supply
Private Costs
Private Legal Defense
Property Damage for Victims of Crime
Social Welfare

For each of the components listed above one of two approaches was taken to update the estimate. If the component could be re-estimated through simple tabulations of published data then the value of the component was re-estimated for each year from 1992 through the most recent available year of published data. For subsequent years, the component value was trended forward based on the historical trend of the component value. This approach was used for 22 of the 32 components. For the remaining components, simple tabulations of published data would not be sufficient to re-estimate the component's value. Therefore, for these components, trend factors were developed based on published statistics that are expected to parallel changes in the value of the component and these trend factors were applied to the original estimate. The reliability of the resulting estimates depends on which of these methodologies was used to calculate the updates as well as the reliability of the underlying data for the calculations. The components whose values were re-estimates can be viewed as more reliable than those whose values were simply trended. A detailed discussion of the reliability of the estimates is provided in ***Section IV.D.2***. In the next section, an overview of the re-estimation and trending methods is provided. In ***Section IV***, each component is presented along with the specific data sources and methods used to update that component.

1. Re-estimation

In many cases simple tabulations of published data are used to completely re-estimate the value of the cost component for this update. There are four groups of components for which the updates are essentially re-estimated. These are:

1. Components measuring federal government spending by function (e.g., specialty treatment, prevention, research, and supply reduction);

2. Components measuring crime related costs (e.g., costs to victims, crime related productivity losses, and criminal justice system costs);

3. Costs for premature death; and

4. Components for which other authors have published re-estimates (e.g., HIV/AIDS spending and specialty treatment costs).

The first group of components are re-estimated based on estimates of federal government spending that are published annually by ONDCP in the National Drug Control Strategy: Budget Summary that presents estimates of spending by federal agencies by function (e.g., treatment, supply reduction). These estimates are used to re-estimate several cost components with minor adjustments to account for issues such as overlap with costs included in other component estimates.

The second group of components is re-estimated based on data published by the Bureau of Justice Statistics in the Sourcebook of Criminal Justice Statistics which includes statistics on arrests, victimizations, persons under incarceration, and criminal justice system costs. Using these data the cost components that are related to crime are divided into numerous subcategories and data for each of these categories are refreshed. Then, the same methods that were employed by Harwood et al. (1998) to calculate the 1992 estimate are replicated to re-estimate the value for 1993 through the most recent year of data available.

The third category, costs related to premature death, is re-estimated based on counts of deaths published annually by the Center for Disease Control (CDC). Again, the same methods employed by Harwood et al. (1998) to calculate the 1992 estimate were employ to re-estimate the value for 1993 through 1998.

Finally, the fourth category of updates whose values were re-estimated consists of components whose values have been re-estimated by other authors. The cost of specialty treatment for drug abuse was estimated by Mark et al. (1999) for 1992 through 1997. These values were adopted with minor adjustments for overlap with the costs included in other components. Similarly, Hellinger and Fleishman (2000) estimated the cost of HIV/AIDS care for 1996. This value was disaggregated into the non-drug abuse and drug abuse related costs and the drug abuse related costs were adopted for this study.

Section IV provides detail on the data sources and methods used to re-estimate each of these components.

2. Application of Trend Factors

As noted above, the second approach to calculating the updates is to use the detailed estimate of the economic cost of drug abuse developed for 1992 as the baseline estimate and then apply trend factors for changes in the economic costs between 1992 and the year desired for the update. This section provides an overview of this method and then demonstrates the method in a sample calculation.

a) Overview

Changes in the actual cost of drug abuse and dependence between the year for which detailed estimates were developed and more recent years for which estimates are desired may be decomposed into two categories: changes in the frequency and intensity of the underlying behavioral outcomes and changes in the monetary valuation of these outcomes. For this project, changes in these components are measured using indicators of the following types:

- Population;
- Incidence/prevalence of selected drug-specific consequences;
- Prices for health care services;
- Worker compensation (wage rates); and
- General prices.

The first two factors might be thought of as "real" changes in the impacts related to drug abuse and dependence. The latter three indicators can be thought of as measures of price change.

The simplest approach to updating or adjusting cost estimates would be to adjust the original total cost estimate for population change (about 1 percent annually) and the general change in prices (consumer prices increased by an average of about 2.5 percent annually between 1992 and 1998 based on the consumer price index). This approach is readily applied, the data are readily available and easily explained and understood. However, there are disadvantages to such a limited approach. There may be factors that lead various cost components to change at different rates across time, relating to both real changes in behavioral outcomes and changes in sub-component prices.

Therefore, for this project, the original cost estimates are disaggregated into 32 components and numerous subcomponents--each of which comprises multiple components that are similar to each other in the nature of the economic impact that has been measured. The components within a group are hypothesized to be affected similarly by changes in both the real factors (population and/or incidence/prevalence) and by price/wage trends. Thus, a distinct trend factor is developed and applied to each of these components to calculate the updated cost estimate.

b) Sample Algorithm

To illustrate how this methodology is applied, a detailed example is provided. In 1992 $14.2 billion in lost productivity was attributed to drug abuse related illness. The real change in the estimated cost of lost productivity related to drug related illness is measured as the change in the number of persons reporting more than 100 days of marijuana or cocaine use in their lifetime as

reported from the National Household Survey of Drug Abuse (NHSDA). ***Table III-1*** shows that between 1992 and 1993, the number of persons reporting more than 100 days of marijuana or cocaine use in their lifetime declined 5.4 percent. The price change in the estimated cost of lost productivity related to drug related illness is measured based on the Bureau of Labor Statistics hourly compensation index. ***Table III-1*** also shows that between 1992 and 1993 the hourly compensation index rose from 100.0 to 102.4 or 2.4 percent.

Table III-1
Components of the Cost of Lost Productivity
Due to Drug Related Illness Update
1992-1993

Data Series	1992	1993	Trend 1992-1993
Number of Adults Reporting More Than 100 Days of Marijuana and Cocaine Use in Their Lifetime	19,224	18,193	0.946
BLS Hourly Compensation Index	100.0	102.4	1.024

Source: Analysis by The Lewin Group, 2001.

These two factors were applied to the base 1992 estimate to derive the 1993 update value.

$14,205 * 0.9464 * 1.0240 = $13,766

This process was repeated to calculate the 1994 value based on the 1993 update and so on until updated values through 2000 were calculated.

IV. DATA AND ESTIMATION OF BASE COST COMPONENTS

The societal costs related to drug abuse are divided into three broad categories: health care costs, the cost of lost productivity, and the cost of other effects. Within each cost category, the cost components that had been developed by Harwood et al. (1998) were reviewed to calculate the 1992 base estimates. For each of these cost components, the available data for updating the estimate were reviewed and the data that were believed to provide the most accurate update were selected.

This section discusses the available data for each cost component and describes how the available data were used to update the cost estimate. The tables included in each section below display the data used to update the respective component value. The number of years of data included in each table varies based on the amount of information that was available from the source. Thus, data on the number of chronic hardcore drug users in ***Table IV-20*** is reported for 1992 through 1998, because ONDCP has published these data through 1998. However, the data on the cost of police protection in ***Table IV-22*** is only report through 1996, because the Bureau of Justice Statistics has only published these data through 1996. Similarly, when the source for the data provided a projection, this projection was adopted, presented in the table, and labeled as such. For example, ***Table IV-4*** presents data on the U.S. resident population from 1992 through 2000. The estimates for 1992 through 1999 are actuals. That for 2000 is a projection derived by the Bureau of the Census. When the source for the base data did not provide actual or projected values through 2000, The Lewin Group developed their own projections through 2000 for the component. The methodology The Lewin Group used to derive these projections is described in detail within the respective section. Below each table in this section that presents the data used to update the cost estimates, a brief description of the source of the data is provided. Additional detail about the sources of the data is provided in ***Appendix A***.

A. Health Care Costs

Table IV-1 displays the health care cost components and their estimated cost for 1998.

Table IV-1
Health Care Costs, 1998
(in millions of dollars)

Cost Categories	1998
Community-Based Specialty Treatment	$4,933
Federally-Provided Specialty Treatment	
Department of Defense	$5
Indian Health Services	$32
Bureau of Prisons	$21
Department of Veterans Affairs	$416
Support	
Federal Prevention	$725
State and Local Prevention	$85
Training	$60
Prevention Research	$250
Treatment Research	$328
Insurance Administration	$286
Medical Consequences	
Hospital and Ambulatory Care Costs	$969
Special Disease Costs	
Drug-Exposed Infants	$503
Tuberculosis	$24
HIV/AIDS	$3,377
Hepatitis B and C	$434
Crime Victim Health Care Costs	$127
Health Insurance Administration	$287
Total	**$12,862**

Source: Analysis by The Lewin Group, 2001.

The Lewin Group assessed the available data and determined the most appropriate method for updating each of these numerous components. The methods for updating each component are described in the following sections.

1. Community-Based Specialty Treatment

Community-based specialty treatment includes all specialty drug abuse treatment that is not funded through a federal agency. A recent report Mark et al. (1999) provides estimates of specialty drug treatment costs from 1992 through 1997. These costs are reported in ***Table IV-2***.

Table IV-2
Specialty Treatment Costs, 1992-1997
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996	1997
Specialty Treatment Costs	$3,940	$4,374	$4,629	$4,792	$5,139	$5,282

Source: Mark et al. (1999) *National Spending Estimates for Mental health Alcohol and Other Drug Abuse Treatment, 1987-1997.*

The Mark et al. (1999) estimates include costs for community-based specialty treatment as well as for the Department of Defense, Bureau of Indian Affairs, Bureau of Prisons, and Veterans Affairs. To update the estimate of community-based specialty treatment costs, The Lewin Group obtained estimates of the federal cost for the Department of Defense, Bureau of Indian Affairs, Bureau of Prisons, and Veterans Affairs treatment costs from the ONDCP National Drug Control Strategy: Budget Summary and subtracted these costs from the overall Mark et al (1999) estimates. The federal specialty treatment costs are discussed in the next section.[8]

Since the Mark et al. (1999) estimates are only available through 1997, spending for 1998 through 2000 was projected. Between 1995 and 1997 community-based specialty care costs increased 5.1 percent annually. Between 1997 and 2000, these costs were projected to continue increasing at 5.1 percent annually.

2. Federal Specialty Treatment Costs

Federal specialty treatment costs consist of costs for specialty treatment funded through a federal agency. Specifically, cost estimates for the Department of Defense, Bureau of Indian Affairs, Bureau of Prisons, and Veterans Affairs were obtained from ONDCP National Drug Control Strategy: Budget Summary. The ONDCP National Drug Control Strategy: Budget Summary is published annually. Thus, estimates of these costs were obtained for each year between 1993 and 1999 from these reports. The estimate for 2000 is based on the budget request for that year as reported in the Budget Summary for 2000.

3. Support

Support for drug abuse related health care services includes prevention, training, research, and health administration. The methodology for updating each of the six components of support is discussed, respectively, below.

a) Prevention

Spending on prevention is decomposed into federal spending and state and local spending. The actual level of federal spending on prevention is published annually by ONDCP. This estimate

[8] Once these amounts were subtracted, the Mark et al. (1999) estimate for the cost of community-based specialty treatment in 1992 is $374 million higher than the Harwood et al (1998) estimate of community-based specialty treatment costs. The Mark et al. (1999) estimate is higher because it is more comprehensive.

includes funding for prevention of alcohol abuse, however, as well as drug abuse. The spending estimate was apportioned between alcohol and drug abuse based on data from analyses of the primary reason for treatment among clients in the Uniform Facility Data Set (UFDS). Analysis of these data indicated that 48 percent of current clients were treated for alcohol abuse only, 28 percent for drug abuse only, and 24 percent for both alcohol and drugs. Splitting the comorbid group in half, the cost of alcohol and drug abuse treatment was apportioned 60-percent to alcohol and 40-percent drugs (Harwood et al., 1998). The actual value of spending for 2000 is not yet available. Therefore, the 2000 budget request was used as the estimate for 2000 spending.

State and local government spending for drug abuse prevention can be estimated based on data included in an annual report called *State Resources and Services Related to Alcohol and Other Drug Problems* published by the National Association of State Alcohol and Drug Abuse Directors (NASADAD). Ideally, an estimate of spending on prevention that is limited to drug abuse and that includes only spending funded by state and local government would be used. The prevention spending estimates listed in the NASADAD report however include funding for prevention of alcohol abuse and include federal funding and funding from other non-governmental sources. To apportion the spending between alcohol and drug abuse, the same ratios that were applied for federal spending on prevention were used. To apportion the prevention spending between state and local government spending and spending from the federal government and other sources, estimates of the proportion of total spending included in the NASADAD (i.e., spending for treatment, prevention, and all other activities) for alcohol and drug abuse that is from state and local government funds were used. This proportion ranges from 41.1 to 44.9 percent depending on the year. ***Table IV-3*** displays the components used to derive the estimate of state and local prevention spending and the final spending estimates for 1992 through 1997.

Table IV-3
Derivation of State and Local Drug Abuse Prevention Spending, 1992-2000

Data Series	1992	1993	1994	1995	1996	1997
Total Spending on Alcohol and Drug Abuse Prevention	$514.5	$517.3	$523.8	$562.5	$494.5	$491.9
State and Local Spending as a Proportion of Total Spending	43.4%	44.9%	43.6%	44.7%	41.1%	43.3%
Proportion of Total Spending Attributed to Drug Abuse	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Estimate of State and Local Spending for Drug Abuse	**$89.3**	**$92.9**	**$91.3**	**$100.5**	**$81.3**	**$85.2**

Source: National Association of State Alcohol and Drug Abuse Directors. (1999) *State Resources and Services Related to Alcohol and Other Drug Problems, Fiscal Years 1996 and 1997: An Analysis of State Alcohol and Drug Abuse Profile (SADAP) Data.*

Based on these estimates, state and local spending for prevention declined 19.1 percent between 1995 and 1996 and then increased 4.7 percent between 1996 and 1997. Since a consistent trend in funding in the prior years was not observed, it was assumed that state and local prevention funding would remain constant at the 1997 level in 1998 through 2000.

b) Training

The cost of training includes initial and continuing education for specialists in drug and alcohol treatment as well as for other health professionals, law enforcement officials, criminal justice professionals, and clergy. No published data specific to these costs were available. Therefore, this estimate was updated based on two components. The first component measures real change based on the change in the U.S. population age 18 years of age or older. The second component measures the price change based on the change in the Consumer Price Index. ***Table IV-4*** displays these two components of the update for 1992 through 2000.

Consumer Price Index estimates are not yet available for 2000. Between 1996 and 1999, the consumer price index increased at two percent annually. This two-percent increase is assumed to continue between 1999 and 2000.

Table IV-4
U.S. Population Age 18 or Older
and Consumer Price Index, 1992-2000

	Actual								Projected
Data Series	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000[3]**
U.S. Resident Population 18+ (in Thousands)[1]	188,892	190,737	192,422	194,249	196,121	198,180	200,344	202,491	205,162
Consumer Price Index[2]	140.3	144.5	148.2	152.4	156.9	160.5	163	166.6	N.A.

[1.] Source: U.S. Department of Commerce, U.S. Census Bureau (2001).
[2.] Source: U.S. Department of Labor, Bureau of Labor Statistics (2001).
[3.] Population estimate for 2000 is projected by the Bureau of the Census as of September 2000.

c) Research

Research spending can be decomposed into prevention and treatment related research. ONDCP publishes annual estimates for these two types of research costs in the National Drug Control Strategy: Budget Summary. Actual spending estimates are available for these two components through 1999. For 2000, the budget request is used as the estimate of spending for these components.

d) Health Administration

The Health Care Financing Administration (HCFA) estimates the percentage of health care spending that is for administration as part of the national health accounts. These percentages were adopted for 1992 through 1998 to estimate the administrative costs related to specialty drug treatment. These percentages are applied to the estimates of the cost of specialty treatment in each respective year to determine the cost of administration related to the specialty treatment. The components of this calculation and the resulting estimates are displayed in ***Table IV-5***.

Table IV-5
Health Administration Costs Related to Specialty Treatment, 1992-2000

Data Series	Actual							Projected	
	1992	1993	1994	1995	1996	1997	1998	1999	2000
Percent of Health Spending Related to Administration[1]	5.4%	6.0%	5.8%	5.4%	5.0%	4.6%	5.0%	5.3%	5.7%
Specialty Treatment Costs[2]	$3,940	$4,374	$4,629	$4,792	$5,139	$5,282	$5,406	$5,771	$6,116
Estimated Administrative Costs Related to Specialty Treatment	**$223**	**$278**	**$286**	**$273**	**$271**	**$256**	**$286**	**$323**	**$367**

[1] Source: Health Care Financing Administration, (1998) *Data View, National Health Expenditures, 1997.*
[2] Source: Mark et al. (1999) *National Spending for Mental Health, Alcohol and Other Drug Abuse Treatment, 1987-1997.*

The projected percentage of health care costs that are related to administration for 1999 and 2000 were estimated by HCFA based on observed data for 1997.

The 5.4 percent estimate of administrative spending for 1992 is higher than the 4.8 percent estimate used by Harwood et al. (1998). Since the 5.4 percent estimate is based on more current data, this percentage was adopted to calculate the 1992 estimate.

4. Medical Consequences

The specialty treatment costs discussed in ***Section IV.A.1*** include costs for specialty providers who provide rehabilitation, counseling, case management, and other types of services to persons or their families who have problems with drug abuse. In addition to the treatment offered by these providers drug abuse increases health care costs in the following ways:

- Drug abuse may contribute to other illnesses or injuries that require treatment;
- Drug abuse may complicate the treatment of other illnesses or injuries, perhaps resulting in longer lengths of hospital stays; or
- Drug abuse may precipitate violent crimes that result in injuries that require medical care.

The methodology for updating these costs is described in the next four sections. In the first section, hospital and ambulatory care costs, the methodology for updating the costs for the following types of hospital and outpatient medical care is described:

- Care for conditions specifically caused by drug abuse (e.g., polyneuropathy due to drugs, narcotics affecting fetus or newborn via placenta or breasts); and
- Additional hospital days resulting from comorbid drug abuse (secondary to other disorders).

In the second section, the methodology for updating the estimated cost of four specific illnesses that are partially attributable to drug abuse is described. These illnesses are: drug-exposed

infants, TB, HIV/AIDS, and hepatitis B and C. In the third section, the methodology for updating the health care costs related to violent crime is described. Finally, in the last section, the methodology for updating the health administration costs related to these costs for medical consequences is described.

a) Hospital and Ambulatory Care Costs

There were no published data available which could be used to re-estimate the hospital and ambulatory care costs related to the medical consequences of drug abuse through simple tabulations. Therefore, the baseline 1992 estimate of these costs is updated based on two factors. The real change is measured based on changes in the number of adults reporting more than 100 days of using marijuana or cocaine during their lifetime as displayed in ***Table IV-6.*** The derivation of the estimates presented in ***Table IV-6*** is based on data from the NHSDA as presented in ***Appendix Table B-1***. This number fluctuated between 1995 and 1998. Since there is no consistent historical trend in this measure, it was assumed that it would be constant from 1998 through 2000. While trends in drug abuse related illness are expected to parallel trends in the number of heavy drug users, the measure of heavy drug users from the NHSDA is limited, because of sampling error and because it is self-reported.

Table IV-6
Adults 18 or Older Reporting More than 100 Days
of Using Marijuana or Cocaine in Their Lifetime, 1992-1998
(in thousands)

Data Series	1992	1993	1994	1995	1996	1997	1998
Number of Adults Report More Than 100 Days of Marijuana or Cocaine Use in Their Lifetime	19,224	18,193	20,520	22,497	24,915	23,601	26,035

Source: Substance Abuse and Health Services Administration (2001) *National Household Survey of Drug Abuse.*

The price change is measured as the change in the Consumer Price Index for Medical Services (CPI-M). The actual and projected values for these measures are reported in ***Table IV-7***.

Table IV-7
The Consumer Price Index for Medical Services, 1992-2000

	Actual								Projected
Data Series	1992	1993	1994	1995	1996	1997	1998	1999	2000
Consumer Price Index - Medical Services	140.3	144.5	148.2	152.4	156.9	160.5	163	166.6	169.9

Source: U.S. Department of Labor, Bureau of Labor Statistics. (2001).

The value for 2000 reported in this table was projected based on the CPI-M for the months of January through September 2000.

b) Specific Disease Costs

Certain types of medical consequences of drug abuse are underrepresented in the hospital and ambulatory care costs updated in ***Section IV.4.A***. These include the full cost of drug-exposed infants, TB, HIV/AIDS, and hepatitis B and C. The methods for updating these disease specific costs are described in this section.

(1) Drug-Exposed Infants

Ideally, the real change in this estimate would be measured based on the change in the number of drug-exposed infants born each year, but this information was not available. As an alternative an estimate of the number of pregnant women reporting current illicit drug use was considered. The NHSDA includes pregnant respondents who are asked about current drug use. The sample of pregnant women in the NHSDA is small however. To calculate statistically valid estimates, two years worth of data on pregnant women are combined. The estimates of the percent of pregnant women who use illicit drugs are small. They vary from 2.3 to 3.2 percent depending on the years and the estimates fluctuate from year to year. Because the sample size is small and the estimates fluctuate from year to year, data from the NHSDA was not used to update the cost of drug-exposed infants.

Instead, the real change in this estimate was measured as the change in the number of births. Doing this assumes that the percentage of births that are drug-exposed has remained constant. The number of births in each year between 1992 and 2000 is displayed in ***Table IV-8*** below. The actual count of births is displayed for 1992-1998. The number of births is assumed to remain constant at the 1998 level in 1999 and 2000.

Table IV-8
Number of Births, 1992-1998

Data Series	1992	1993	1994	1995	1996	1997	1998
Number of Births	4,065	4,000	3,953	3,900	3,891	3,881	3,942

Source: National Center for Health Statistics. (2001) *Births: Final Data for 1998.*

The price change in this component is measured based on the change in the CPI-M. The values of this index for 1992-2000 are displayed in ***Table IV-7***.

(2) Tuberculosis

The real change in health care costs attributable to tuberculosis (TB) was measured as the change in the number of cases of TB that were attributable to injecting or non-injecting drug use according to the Center for Disease Control (CDC). The number of TB cases was available from the CDC for each year between 1992 and 1999. However, the percentage of cases attributable to injecting or non-injecting drug use was only available for 1996 through 1999. Between 1992 and 1996, the percentage of cases attributable to injecting or non-injecting drug use was assumed to be fixed at the 1996 level. Also, since 2000 values were not yet available from the CDC, the change in the number of cases observed between 1999 and 2000 was assumed to be the same as that observed between 1998 and 1999. The percentage of cases attributable to drug abuse in 2000

was assumed to be the same as the number observed for 1999. ***Table IV-9*** shows the number of TB cases overall and related to drug use between 1992 and 1999.

Table IV-9
Tuberculosis Cases, 1992-1999

Data Series	1992	1993	1994	1995	1996	1997	1998	1999
Total Cases[1]	26,673	25,287	24,361	22,860	21,337	19,851	18,361	17,531
Percent Non-Injecting Drug Use[1]	N.A.	N.A.	N.A.	N.A.	7.7%	7.8%	7.7%	7.1%
Percent Injecting Drug Use[1]	N.A.	N.A.	N.A.	N.A.	3.8%	3.3%	2.9%	2.6%
Drug Related TB Cases[2]	**3,067**	**2,908**	**2,802**	**2,629**	**2,454**	**2,203**	**1,946**	**1,701**

[1.] Source: National Center for Health Statistics. (2001) *TB Surveillance Reports, 1996-1999.*
[2.] Source: Analysis by The Lewin Group, 2001.

The price change in the TB costs related to drug abuse was measured based on the change in the CPI-M. The values of this index for 1992 through 2000 are displayed in ***Table IV-7***.

These updates assume that there has not been a major change in the treatment cost per case for TB between 1992 and 2000. Since TB was targeted for elimination by the CDC after an increase in cases was observed in the late 1980s and early 1990s, there have been improvements in treatment practice observed between 1993 and 1999 and a decrease in multidrug resistant TB. The improvements in treatment practice and the decline in multidrug resistant cases may have led to a change in the cost of care per case. No adjustment was made to the estimates to reflect such a change.

c) HIV/AIDS

The most recent tabulation of the cost of caring for individuals with HIV/AIDS is Hellinger and Fleishman (2000). These authors estimate that the cost of treating all people with HIV disease in 1996 was between $6.7 and $7.8 billion. This range was calculated through two different approaches (i.e., payer-based and provider-based). The estimates calculated under each approach were compared. The mid-point between these two estimates, $7.25 billion, is used as the estimate for total medical spending on HIV/AIDS in 1996.

Not all cases of HIV/AIDS are attributable to drug abuse. The portion of HIV/AIDS spending attributable to drug abuse was estimated based on data from the CDC. The CDC monitors the exposure category of each reported case. In 1996, 37 percent of individuals living with AIDS had an exposure category related to intravenous drug use (IVDU). Thus, 37 percent of the 7.25 billion or $2.68 billion are assumed to be related to drug abuse.

Estimates for 1993 through 1995 were developed by assuming a constant annual trend between the baseline 1992 Harwood et al. (1998) estimate and this 1996 estimate.

Spending for 1997 through 2000 was projected based on two factors. The real change was measured as the increase in the number of individuals living with AIDS who were exposed through IVDU. ***Table IV-10*** shows the number of individuals living with AIDS in 1996 through

1998. The derivation of these estimates based on raw data available from the CDC is displayed in ***Appendix Table B-2***. Between 1999 and 2000, the number of individuals living with AIDS was assumed to continue to increase at the 7.0 percent annual rate that was observed between 1998 and 1999.

Table IV-10
Individuals Living with AIDS
Exposed Through IVDU, 1996-1999

Data Series	1996	1997	1998	1999
Individuals Living with AIDS Exposed Through IVDU	86,647	95,306	102,807	109,990

Source: Analysis by The Lewin Group, 2001.

Between 1996 and 2000, price change was measured based on the CPI-M. The values for the CPI-M for 1992-2000 are presented in ***Table IV-7***.

There was a great deal of change in the treatment of HIV/AIDS patients between 1996 and 2000 due to the use of new pharmaceuticals. The estimates presented here have not been adjusted to reflect the impact of these new treatments on cost per case. This is a significant limitation of these estimates.

(1) Hepatitis B and C

To update the estimate for drug abuse related hepatitis spending, a real and a price change factor were calculated. The real change was based on the change in the number of hepatitis cases attributed to IVDU between 1992 and 1998. ***Table IV-11*** displays the total number of hepatitis B and C cases in each year between 1992 and 1998. This table also displays the percentage of cases attributable to drug use for 1993 through 1995. The percentage of cases attributable to drug abuse is not available for 1992 nor for 1996 through 1998. The percentage of cases attributable to IVDU in 1992 was assumed to be the same as in 1993. Similarly, the percentage of cases attributable to IVDU in 1996 through 1998 was assumed to be the same as in 1995. Between 1995 and 1998 the number of hepatitis cases associated with IVDU declined at a five percent annual rate. However, there was considerable fluctuation in the rate of growth across these years. Since there was no consistent trend in the historical data, the number of cases was assumed to remain at the 1998 level in 1999 and 2000.

Table IV-11
Hepatitis Cases, 1992-1998

Data Series	1992	1993	1994	1995	1996	1997	1998
Total Cases[1]							
Hepatitis B	16,126	13,361	12,517	10,805	9,994	10,416	10,258
Hepatitis C	6,010	4,786	4,470	4,576	3,321	3,816	3,518
Percent of Cases Attributable to IVDU[1]							
Hepatitis B	N.A.	10.5%	12.1%	12.9%	N.A.	N.A.	N.A.
Hepatitis C	N.A.	22.6%	21.9%	26.4%	N.A.	N.A.	N.A.
Cases Attributed to IVDU[2]							
Hepatitis B	**1,693**	**1,403**	**1,515**	**1,394**	**1,289**	**1,344**	**1,323**
Hepatitis C	**1,358**	**1,082**	**979**	**1,208**	**877**	**1,007**	**929**

1. Source: Center for Disease Control. (2001) *Hepatitis Surveillance: Viral Hepatitis Surveillance Program, 1993-1995.*
2. Source: Analysis by The Lewin Group, 2001.

Price change was measured based changes on the CPI-M. The values of this index for 1992-2000 are displayed in ***Table IV-7***.

These updates assume that there has not been a major change in the treatment cost per case for hepatitis between 1992 and 2000. Since hepatitis was targeted for surveillance by the CDC in the early 1990s, there may have been changes in treatment practices that have affected the cost of care per cases. The estimates presented in this study have not been adjusted to reflect such changes.

d) Violent Crime

To create a measure of the change in the cost of medical care related to violent crime, estimates for the following three components were obtained:

- The number of victims by type of crime;
- The percent of victimizations that were related to drug abuse by type of crime; and
- The average cost of medical care per victim by type of crime.

The number of victims by type of crime was available from the Bureau of Justice Statistics for each year between 1992 and 1998, except for 1996[9]. The number of victims in 1996 was assumed to be the average of the number in 1995 and 1997. The methodology for counting victims was revised between 1992 and 1993 making the 1993 definition more comprehensive than the 1992 definition. No adjustment was made for this revision. The revision would imply that the 1992 cost may be understated and the increase between 1992 and 1993 may be overstated.

[9] The definition of crimes was revised between 1992 and 1993 making the 1993 count of victimizations more comprehensive than the 1992 definition. No adjustment was made for this redefinition. The redefinition would imply that the 1992 cost of crime may be understated and that the growth between 1992 and 1993 is overstated.

Victimizations of all types were declining between 1995 and 1998. It is uncertain whether this decline continued between 1998 and 2000. Therefore, to project the cost of medical services related to violent crime, the number of victimizations was assumed to have declined at the annual rate observed between 1995 and 1998 between 1998 and 1999. Then, the number of crimes was assumed to have remained constant at the 1999 level in 2000. The overall number of victims for each year and the percentage of victimizations attributable to drug abuse are presented in ***Appendix Table B-3***.

The attribution factors used to attribute crimes to drug abuse in this analysis are discussed in Harwood et al (1998). They are the same factors used to derive the estimate of 1992 drug abuse related crime costs. The attribution factors are based directly on estimates that about 30 percent of prison inmates serving time for robbery, burglary, and larceny (income-generating, or acquisitive crimes) and two to five percent of violent offenders reported that they committed the crime for which they were incarcerated in order to get drugs (U.S. Department of Justice, 1994a). The 15.8 percent homicide factor is based on FBI analyses. Their study of crime circumstances and offender relationships found 15.8 percent of homicides either listed drugs as a factor, or were "gang" related. This study is found in U.S. Department of Justice (1994b). *Crime in the United States, 1993*. Washington DC, Federal Bureau of Investigation. These attribution factors might be termed "conservative", given that somewhat higher proportions of inmates reported use of drugs at the time they committed their crime, and more than twice as many arrestees tested positive for drug use based on a study found in U.S. Department of Justice (1994a). *Fact Sheet: Drug-Related Crime*. Office of Justice Programs, Bureau of Justice Statistics, Publication NCJ-149286. However, the issues of attribution and causality are quite complex with criminal behavior, particularly given that many offenders also drink alcohol at the time of offenses.

The average costs of medical care for victims of assault, rape, robbery, and homicide were also obtained from Harwood et al. (1998). ***Table IV-12*** displays the estimated cost of medical care per victim for 1992. These data are not updated annually. Therefore, the CPI-M was used as displayed above in ***Table IV-7*** to trend these estimates forward to each year between 1992 and 2000.

Table IV-12
Estimated Cost of Medical Care per Victim, 1992

Type of Crime	Average Medical Expense per Victim
Assault	$210
Rape	$28
Robbery	$4
Homicide	$9,258

Source: Harwood et al. (1998). *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992.*

The number of victimizations, the percent of victimizations attributable to drug abuse, and the estimated cost per victimization were multiplied by type of crime for each year. Then, these

products were summed across the types of crime within a given year to obtain the estimate of the total cost of medical care for crime victims in that year.

e) Health Administration

Similar to the calculation of health administration costs related to specialty care, health administration costs related to the medical consequences of drug abuse were calculated as a percentage of the total medical service costs related to medical consequences of drug abuse. ***Table IV-13*** displays this calculation.

Table IV-13
Health Administration Costs Related to Medical Consequences, 1992-2000

	Actual							Projected	
Data Series	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Percent of Health Spending Related to Administration[1]	5.4%	6.0%	5.8%	5.4%	5.0%	4.6%	5.0%	5.3%	5.7%
Cost of Medical Consequences	$5,253	$4,973	$4,853	$4,749	$4,583	$4,962	$5,434	$5,858	$6,336
Estimated Administrative Costs Related to Specialty Treatment	**$298**	**$316**	**$300**	**$271**	**$242**	**$240**	**$287**	**$328**	**$380**

Source: Health Care Financing Administration. (1998) *Data View, National Health Expenditures, 1997.*

B. Productivity Losses

Table IV-14 displays the cost components of lost productivity and the 1998 estimated cost for each component.

Table IV-14
Lost Productivity Due to Drug Use, 1998

Cost Categories	**1998**
Premature Death	$16,611
Drug Abuse Related Illness	$23,143
Institutionalization/Hospitalization	$1,786
Productivity Loss of Victims of Crime	$2,165
Incarceration	$30,133
Crime Careers	$24,627
Total	**$98,467**

Source: Analysis by The Lewin Group, 2001.

The next six sections address how each of these cost components was updated.

1. Premature Death

The costs due to premature death were updated based on the following components:

- The number of deaths by diagnosis, age, and sex;
- The percent of deaths attributable to drug abuse by diagnosis; and
- The estimated lost lifetime productivity per death by age and sex.

The same list of diagnoses and attribution factors that was used by Harwood et al. (1998) to calculate the baseline 1992 estimate was used.[10] The initial list of diagnoses and attribution factors was obtained from the National Institute on Drug Abuse which developed the list for the Drug Abuse Warning System (Gottshalk et al. 1977 and 1979). This list includes diagnoses representing abuse of and dependence on psychoactive drugs as well as accidental and intentional (i.e., suicide) poisoning by a broad range of drugs and medications-psychoactive and otherwise. The Harwood et al (1998) study then added TB, hepatitis B and C and HIV/AIDS to the list of diagnoses attributable to drug abuse.

Data on the number of deaths by age and sex were obtained for each cause of death from death certificate data published by the National Center for Health Statistics for each year from 1992 through 1998. ***Table IV-15*** shows the total number of deaths attributable to drug abuse for each year. ***Appendix Table B-4*** shows the number of deaths and the attribution factor for each diagnosis used in the calculations.

Table IV-15
Number of Deaths Attributable to Drug Abuse, 1992-1998

Data Series	1992	1993	1994	1995	1996	1997	1998
Deaths Attributable to Drug Abuse	24,476	24,206	26,234	26,823	23,283	19,268	19,227

Source: Analysis by The Lewin Group, 2001.

Between 1993 and 1995 the number of deaths attributed to drug abuse increased 5.3 percent annually. Between 1995 and 1997 the number of deaths attributed to drug abuse declined 15.2 percent annually. Between 1997 and 1998 the number of deaths declined less than one percent. These shifts are mainly due to HIV/AIDS which saw an increase in deaths between 1993 and 1995 and then sharp reductions between 1995 and 1998. Between 1998 and 2000, the number of deaths was assumed to remain constant.

The number of deaths for each age/sex category was multiplied by the estimated value of lifetime earnings. The lifetime earnings table was obtained in personal communication with Dorothy Rice (1997). The formula for these calculations appears in Rice et al. (1990). The estimates for the expected value of lifetime earnings for 1992 are trended to future years based

[10] The definition of deaths attributed to drug abuse in this study is broader than the definition used by the CDC in its tabulation of "drug-induced" deaths.

on the Bureau of Labor Statistics (BLS) hourly compensation index (HCI). The values for the HCI for each year between 1992 and 1999 are displayed in ***Table IV-16***. The index for 2000 is projected based on the annualized increase between 1996 and 1999 of 4.7 percent.

Table IV-16
Hourly Compensation Index, 1992-2000

	Actual								Projected
Data Series	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Hourly Compensation Index	100.0	102.4	104.5	106.7	110.1	114.2	120.3	126.3	132.2

Source: U.S. Department of Labor, Bureau of Labor Statistics. (2000) *Annual Indexes of Productivity, Hourly Compensation, Unit Costs, and Prices, Selected Years.*

2. Drug Abuse Related Illness

Two factors were used to update this estimate. The real change in the estimated cost of lost productivity related to drug abuse related illness is measured as the change in the number of persons reporting more than one hundred days of marijuana or cocaine use in their lifetime in the NHSDA as displayed in ***Table IV-6***. The price change in the estimate is measured based on the BLS HCI as displayed in ***Table IV-16***.

3. Institutionalization/Hospitalization

The estimates of lost productivity due to institutionalization/hospitalization were updated based on two factors. The real change in these costs was measured based on the number of clients using inpatient hospital or residential treatment services. The count of clients using these two types of services in 1992 through 1998 is displayed in ***Table IV-17***.

Table IV-17
Clients Using Inpatient Hospital or Residential Treatment, 1992-1998

Data Series	**1991**	**1992**	**1993**	**1994**[1]	**1995**	**1996**	**1997**	**1998**
Clients Using Inpatient Hospital or Residential Treatment	99,150	121,939	121,061	132,952	144,842	114,965	120,130	122,580

Source: Substance Abuse and Health Services Administration. (2001) Uniform Facility Data Set.
[1.] Estimated as the mean of the 1993 and 1995 values.

There was not a consistent trend in this measure between 1992 and 1998. Therefore, the projections for 1999 and 2000 assume that the number of clients will remain constant at the 1998 level.

The price change was measured based on the BLS HCI as discussed in ***Section IV.B.1*** and displayed in ***Table IV-16***.

4. Victims of Crime

This estimate was updated based on two factors. First, the real change in this component is measured based on the estimated change in the number of hours lost by crime victims due to drug abuse.

The number of hours lost by crime victims due to drug abuse in each year between 1992 and 1998 was calculated based on three components:

- The number of victimizations by type of crime (e.g., burglary, rape);
- The average number of days of productivity lost by crime type; and
- The percentage of crimes of each type that are attributable to drug abuse.

Appendix Table B-3 lists the number of victimizations by type in 1992 through 1998 as reported annually by the U.S. Department of Justice and the percent of each type of crime that is attributed to drug abuse. The source of the attribution factors is discussed ***Appendix Table B-3*** and in ***Section IV.A.4.d***. ***Table IV-18*** lists the average number of days of lost productivity for victims of each type of crime.

Table IV-18
Average Number of Days Lost per Victim, 1992

Crime	Average Work Days Lost
Rape	4.6
Assault	3.7
Robbery	4.4
Burglary	1.7
Larceny	1.7
Auto Theft	2.7

Source: Harwood et al. (1998) *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992*.

The estimated number of days lost by crime type is not updated annually. The most recent published estimates were from 1992 and were applied to estimate the number of days lost to crime for each year between 1992 and 1998. The value of each day lost was estimated to be $133 in 1992. To estimate the value of hours lost in 1993 through 2000, this value was updated via the BLS's HCI as presented in ***Table IV-16***.

5. Incarceration

Similar to the update factors derived for the lost productivity of crime victims the productivity lost due to incarceration was updated based on two factors. The number of individuals under incarceration for drug abuse related crime in each year between 1992 and 1998 was calculated based on three components:

- The number of individuals under incarceration on June 30th of the year;

- The distribution of individuals under incarceration by primary offense; and
- The percentage of crimes of each type that are attributable to drug abuse.

The number of individuals under incarceration in local jails is reported by the Bureau of Justice Statistics as of June 30th of each year. The number of individuals in state and federal prison was reported as of December 31st of each year between 1992 and 1997. For this time period, the number of prisoners as of June 30th of a particular year is estimated by averaging the number of prisoners from the preceding and subsequent December 31st. Beginning in 1998 the number of state and federal prison inmates was reported in each year as of June 30th of the year.

The offense distribution of jail inmates was only available for 1989 and 1996. The offense distribution of state and federal inmates was only available for 1991 and 1997. The distribution of individuals under incarceration by primary offense was calculated for the remaining years by assuming a constant trend between these years. ***Appendix Table B-4*** lists the percentage of local jail, state prison, and federal prison inmates by primary offense based on this assumption.

The attribution factors used in this analysis are discussed in Harwood et al. (1998). They are the same factors used to derive the estimate of 1992 drug abuse related crime costs. ***Appendix Table B-5*** provides detail on the number individuals under incarceration by offense and the attribution factors for drug abuse. ***Table IV-19*** shows the number of individuals incarcerated for drug abuse related offenses between 1992 and 1999. The estimate for 2000 was projected assuming the percent increase in the number of inmates observed between 1999-2000 would be the same as that observed between 1998 and 1999.

Table IV-19
Incarcerations Due to Drug Related Crime, 1992-1999

Data Series	1992	1993	1994	1995	1996	1997	1998	1999
Number of Local, State and Federal Individuals Incarcerated for Drug Related Crime	431,291	455,493	486,202	518,795	543,248	574,095	603,298	625,358

Source: Analysis by The Lewin Group, 2001.

The price change in the cost of lost productivity due to drug abuse related crime was measured via the BLS's HCI as presented in ***Table IV-16***.

6. Crime Careers

The estimate of lost productivity due to drug related crime careers was updated based on two factors. The real change was measured based on the change in the number of chronic hardcore users of drugs. The number of chronic hardcore users of drugs was estimated annually in the NHSDA between 1992 and 1996. The estimates derived from this survey are displayed in ***Table IV-20***.

Table IV-20
Chronic Hardcore Drug Users, 1992-1998
(in thousands)

Data Series	1992	1993	1994	1995	1996	1997	1998
Number of Chronic Hardcore Drug Users	4,718	4,741	4,610	4,646	5,303	5,726	5,031

Source: ONDCP (2001) *National Drug Control Strategy.*

The number of hardcore drug users for 1999 and 2000 are projected. The number of hardcore drug users was fairly level between 1992 and 1995 and then there was a sharp 14 percent increase between 1995 and 1996. The projections assume that the number of hardcore users remained constant between 1998 and 2000. The price change in the cost of lost productivity due to drug abuse related crime was measured via the BLS's HCI as presented in ***Table IV-16***.

C. Cost of Other Effects

There are two additional costs related to drug abuse that are not included under the health care and productivity costs. These costs are the cost of goods and services lost due to crime and costs to the social welfare system. ***Table IV-21*** displays the estimates of these costs for 1998.

Table IV-21
Cost of Other Effects of Drug Abuse, 1998
(in millions of dollars)

Cost Category	1998
Cost of Goods and Services Lost to Crime	
Criminal Justice System and Other Public Costs	
Police Protection	$9,096
Legal Adjudication	$4,489
State and Federal Corrections	$11,027
Local Corrections	$1,660
Federal Spending to Reduce Supply	$4,827
Private Costs	
Private Legal Defense	$548
Property Damage for Victims of Crime	$186
Social Welfare	$249
Total	**$32,083**

Source: Analysis by The Lewin Group, 2001.

1. Goods and Services Lost to Crime

In this section, the methodology for updating costs for other goods and services lost to crime is presented. These costs include costs for police protection, legal adjudication, corrections, federal

funds for supply reduction efforts, and private costs for legal defense and property damage. Each of these categories of cost is discussed in the following sections.

a) Criminal Justice System and Other Public Costs

Three types of public costs are included in the estimates. These are police protection and legal adjudication, corrections costs, and the cost of federal efforts to reduce the supply of drugs.

(1) Police Protection and Legal Adjudication Costs

Total police protection and legal adjudication costs are published periodically by the Bureau of Justice Statistics. There is a substantial lag in the publication of these estimates. The most recent estimates available were for 1996. The estimates for 1992 through 1996 are listed in ***Appendix Table B-7***. For 1997 through 2000, the costs were projected to increase at a six-percent annual rate. This rate of increase is consistent with the magnitude of the increases in police protection and legal adjudication costs that were observed between 1992 and 1996. Police protection and legal adjudication costs were attributed to drug abuse based on the percentage of arrests attributable to drug abuse**.** ***Appendix Tables B-8*** and ***B-9*** provide detail on the calculation of the percentage of arrests that are attributable to drug abuse. ***Appendix Table B-8*** lists the number of arrest by offense for 1992 through 2000. The number of arrests for 2000 was not available. The number and distribution of arrests in 2000 were assumed to be the same as in 1999. ***Appendix Table B-8*** also displays the percent of arrests for each type of offense that are attributed to drug abuse. ***Appendix Table B-9*** displays the total number and percentage of arrests attributed for each year calculated based on the data presented in ***Appendix Table B-8***. When these percentages are applied to total police protection and legal adjudication costs the resulting costs attributable to drug abuse are listed in ***Table IV-22***.

Table IV-22
Police Protection and Legal Adjudication Costs
Attributable to Drug Abuse, 1992-1996
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996
Police Protection Costs	$5,348	$5,868	$6,630	$7,211	$7,278
Legal Adjudication Costs	$2,716	$2,873	$3,257	$3,628	$3,592

Source: Analysis by The Lewin Group, 2001.

Because of the lag in publication of the police protection and legal adjudication costs, the 1992 estimate published in Harwood et al. (1998) was derived by projecting forward the 1990 estimates for police protection and legal adjudication costs. Because the observed value for 1992 is now available, the 1992 estimate was updated as well as deriving the estimates for subsequent years. The estimates produced by Harwood et al (1998) were $4,644 and $1,210 million for police protection and legal adjudication, respectively. The estimates produced in this study based on the observed cost estimates for 1992 are substantially higher, $5,348 and $2,716, because the actual costs for police protection and legal adjudication were substantially higher than the projected costs.

(2) Corrections Costs

Corrections costs for local jails and state and federal prisons are published periodically by the Bureau of Justice Statistics in the Criminal Justice Expenditure and Employment Extract Program. There is a substantial lag in the publication of these estimates. The most recent estimate available for this study was from 1996. ***Appendix Table B-10*** displays the total corrections costs in each year between 1992 and 1996. For 1997 through 2000, the costs were projected to increase at a six-percent annual rate. This rate of increase is consistent with the magnitude of the increases in corrections costs that were observed between 1992 and 1996.

Corrections costs for local jails were attributed to drug abuse based on the percentage of arrests that are associated with drug abuse. Corrections costs for state and federal prisons were attributed to drug abuse based on the percentage of persons under incarceration in state and federal prisons that were attributable to drug abuse. ***Appendix Table B-11*** displays these percentages for 1992 through 1999. The number of people incarcerated is expected to increase between 1999 and 2000 at the same rate of increase that was observed between 1998 and 1999. The percentage of persons under incarceration whose primary offense is drug related was assumed to remain constant between 1999 and 2000.

Based on these percentages ***Table IV-23*** below shows the corrections costs attributable to drug abuse for 1992-1996.

Table IV-23
Corrections Costs Attributable to Drug Abuse, 1992-1996
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996
Local Jail	$1,333	$1,390	$1,587	$1,746	$1,679
State and Federal Prison	$7,495	$7,616	$8,416	$9,806	$10,046

Source: Analysis by The Lewin Group, 2001.

(3) Federal Funds to Reduce the Supply of Drugs

ONDCP reports annually on federal funds spent to reduce the supply of drugs. The detailed components of this funding for 1992 through 2000 are presented in ***Appendix Table B-12***. In ***Table IV-24,*** the overall total spending for each year between 1992 and 2000 are presented. The estimates for 1992 through 1999 indicate actual spending. Since actual spending for 2000 is not available, the 2000 costs indicate the budget request.

Table IV-24
Federal Funds to Reduce the Supply of Drugs, 1992-2000
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996	1997	1998	1999
Federal Funds to Reduce the Supply of Drugs	$4,126.3	$3,690.5	$3,520.8	$3,697.1	$3,827.2	$4,619.9	$4,826.7	$5,867.5

Source: ONDCP (1992-2000) *National Drug control Strategy: Budget Summary.*

b) Private Costs

There are two types of private costs related to crime. The first is private legal defense costs. The second cost is the cost of property lost due to crime. The next two sections, respectively, describe how these two components were updated.

(1) Private Legal Defense

The cost of private legal defense attributable to drug abuse was calculated based on three components:

- total annual revenue for legal services as reported by the Bureau of the Census;
- the percentage of lawyers practicing criminal law; and
- the percentage of arrests attributed to drug abuse.

The Bureau of the Census reports revenue for legal services annually. Annual revenue for 1992-1997 is presented in ***Table IV-25***. Between 1992 and 1997, total annual revenue for legal services increased four-percent annually. To project annual revenue for 1998 through 2000, revenues were assumed to continue to grow at a four-percent annual rate. The criminal law section represents 2.6 percent of American Bar Association members. Based on this, the overall percentage of lawyers practicing criminal law was assumed to be 2.6 percent and is constant across the years. The percentage of arrests attributed to drug abuse was calculated in ***Appendix Table B-9***. Below in ***Table IV-25*** the annual revenue for legal services is multiplied times 2.6 percent (the percentage of lawyers practicing criminal law) and the percentage of arrests attributed to drug abuse to derive the estimate of private legal defense spending.

Table IV-25
Private Legal Defense Spending, 1992-1997
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996	1997
Total Annual Receipts for Legal Services (billions of dollars)[1]	$108.4	$112.1	$114.6	$116.0	$124.6	$132.8
Estimated Percent of Lawyers Practicing Criminal Law[2]	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
Percentage of Arrests for Drug Abuse Related Crimes[3]	12.9%	13.3%	14.4%	14.8%	13.7%	15.1%
Estimated Drug Abuse Related Legal Spending (in millions of dollars)	**$364.7**	**$388.4**	**$429.4**	**$447.1**	**$444.8**	**$522.3**

1. Source: Statistical Abstract of the United States, 1998.
2. Based on the percentage of lawyers in the American Bar Association who belong to the criminal law section.
3. Source: Analysis by The Lewin Group, 2001.

The 1992 estimate of $364.7 million is $16.7 million higher than the amount estimated by Harwood et al. (1998). Since the current estimate is based on more recent data the 1992 amount was updated based on this revised estimate.

(2) Property Lost to Crime

Property lost due to crime was estimated based on the following three components:

- Number of victimizations by offense;
- Percentage of victimizations for each offense attributed to drug abuse; and
- Estimated mean property loss per crime by offense.

The number of victimizations is reported annually in the National Crime Victimization Survey. ***Appendix Table B-3*** lists the property-related crimes and the number of offenses in each year between 1992 and 1999. The number of offenses in 2000 was not available. The number of crimes was assumed to remain constant at the 1999 level in 2000. This table also displays the percent of crimes by offense that was attributed to drug abuse.

The estimated mean property loss per offense was not available annually. The most recent estimates available were for 1992. These estimates were trended to subsequent years based on the CPI for all services. ***Table IV-4*** lists the CPI for all services for each year between 1992 and 2000.

Table IV-26 lists estimated mean cost of lost property for each offense in 1992.

Table IV-26
Mean Cost of Property Lost per Offense, 1992

Crime	Average Loss per Crime
Robbery	$4.59
Rape	$0.70
Larceny	$5.75
Burglary	$11.06
Motor Vehicle Theft	$8.89

Source: Harwood et al. (1998) *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992.*

2. Social Welfare

This category was divided into two separate components for updating Supplemental Security Income (SSI) payments and all other social welfare payments. Beginning in 1997 drug abuse related disorders no longer constituted an acceptable basis for SSI eligibility, and this value was set to zero. Other changes in social welfare becoming effective in 1997 have significantly reduced payments to beneficiaries. This trend has been estimated/represented by the change in Food Stamp benefits as presented in ***Table IV-27***. While the Social Security Administration (SSA) compiles national (federal plus state) estimates of social welfare outlays (and particularly public aid), publication of these data lags about 4 to 5 years—1994 data were the most recent available for this study.

Table IV-27
Food Stamp Expenditures
(in billions of dollars)

	Actual								Projected
Data Series	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Food Stamp Expenditures	$22.5	$23.7	$24.5	$24.6	$24.3	$21.5	$18.9	$17.7	$16.6

Source: U.S. Department of Agriculture (2001) *Food Stamp Program Participation Costs.*

D. Summary and Discussion

1. Summary of Cost Components and Data Sources

Tables IV-28 through ***IV-30*** display the 32 base cost components and the data sources used to update each component for health care costs, lost productivity, and other effects, respectively.

Table IV-28 displays the methodology used to update the health care cost components. The values for 12 cost components were re-estimated. These components are community-based specialty treatment, the four components of federally funded specialty treatment, the five components of support, HIV/AIDS costs, the medical costs of violent crime, and the health insurance costs related to medical consequences. The values for the remaining components were estimated by applying update factors for real and price change in the costs.

Table IV-28
Base Cost Components and the Data Sources for the Updates
Health Care Costs

Cost Component	Real Change	Cost/Price Index
Community-Based Specialty Treatment	Mark et al. (1999) National Spending Estimates for Mental Health, Alcohol, and Drug Abuse Treatment, 1987-1997.	
Federally-Funded Specialty Treatment		
Department of Defense	ONDCP National Drug Strategy Budget Summary (1992-2000)	
Veterans Affairs	ONDCP National Drug Strategy Budget Summary (1992-2000)	
Bureau of Prisons	ONDCP National Drug Strategy Budget Summary (1992-2000)	
Indian Health Services	ONDCP National Drug Strategy Budget Summary (1992-2000)	
Support		
Prevention (Federal)	ONDCP National Drug Strategy Budget Summary (1992-2000)	
Prevention (State and Local)	National Association of State Alcohol and Drug Abuse Directors (1999)	
Training	Growth in Population 18 or Older (U.S. Department of Commerce, U.S. Census Bureau)	Consumer Price Index-All Services (U.S. Department of Labor, Bureau of Labor Statistics [BLS])
Research	ONDCP National Drug Strategy Budget Summary (1992-2000)	
Insurance Administration	National Health Expenditures, Health Care Financing Administration	
Medical Consequences		
Hospital and Ambulatory Care Costs	Number of Individuals 18 or Older Reporting Any Lifetime History of Drug Abuse (National Household Survey of Drug Abuse [NHSDA])	Consumer Price Index - Medical Services (BLS)
Special Disease Costs		
Drug-Exposed Infants	Number of Births (National Center for Health Statistics [NCHS])	Consumer Price Index - Medical Services (BLS)
Tuberculosis	Number of Tuberculosis Cases Related to Drug Use (Center for Disease Control [CDC])	Consumer Price Index - Medical Services (BLS)
HIV/AIDS	Hellinger and Fleishman (2000) "Estimating the National Cost of Treating People with HIV Disease: Patient, Payer, and Provider Data."	
Hepatitis B and C	Number of Hepatitis Cases Related to Drug Use (CDC)	Consumer Price Index - Medical Services (BLS)
Violent Crime	Number of Victimizations (U.S. Department of Justice, Bureau of Justice Statistics [BJS])	Consumer Price Index - Medical Services (BLS)
Health Insurance Administration	National Health Expenditures, Health Care Financing Administration	

Table IV-29 displays the methodology used to update the productivity loss components. The values for three of these cost components were re-estimated. These components are premature death, lost productivity for victims of crime, and incarceration. The values for the remaining components were estimated by applying update factors for real and price change in the costs.

Table IV-29
Base Cost Components and the Data Sources for the Updates
Productivity Costs

Cost Component	Real Change	Cost/Price Index
Premature Death	Tabulated Based on Age/Sex Weighted Count of the Number of Deaths Related to Drug Use (CDC)	Hourly Compensation Index (BLS)
Drug Abuse Related Illness	Number of Persons Reporting More Than 100 Days of Marijuana or Cocaine in Their Lifetime (NHSDA)	Hourly Compensation Index (BLS)
Institutionalization/ Hospitalization	Number of Clients Using Inpatient Hospital or Residential Treatment (Uniformed Facilities Data Set)	Hourly Compensation Index (BLS)
Lost Productivity of Victims of Crime	Number of Victims for Crimes Attributed to Drug Abuse Weighted by the Mean Hours Lost per Offense (BJS)	Hourly Compensation Index (BLS)
Incarceration	Number of Individuals Incarcerated for Offenses Attributed to Drug Abuse (BJS)	Hourly Compensation Index (BLS)
Crime Careers	Change in Number of Chronic Hardcore Drug Users (ONDCP National Drug Control Strategy)	Hourly Compensation Index (BLS)

Table IV-30 displays the methodology used to update the cost of other effects components. The values for all of the cost components except social welfare spending were re-estimated. The values for social welfare were estimated by applying update factors for real and price change in the costs.

Table IV-30
Base Cost Components and the Data Sources for the Updates
Cost of Other Effects

Cost Component	Real Change	Cost/Price Index
Value of Goods and Services Lost to Crime		
Criminal Justice System and Other Public Costs		
Police Protection	Tabulated the Change in Police Protection Costs Attributable to Drug Abuse Related Crimes Based on Total Police Protection Costs and the Percent of Arrests Attributable to Drug Abuse (BJS)	
Legal Adjudication	Tabulated the Change in Legal Adjudication Costs Attributable to Drug Abuse Related Crimes Based on Total Legal Adjudication Costs and the Percent of Arrests Attributable to Drug Abuse (BJS)	
State and Federal Corrections	Tabulated the Change in State and Federal Corrections Costs Attributable to Drug Abuse Related Crimes Based on Total State and Federal Corrections Costs and the Percent of Incarcerations Attributable to Drug Abuse (BJS)	
Local Corrections	Tabulated the Change in Local Corrections Costs Attributable to Drug Abuse Related Crimes Based on Total Local Corrections Costs and the Percent of Arrests Attributable to Drug Abuse (BJS)	
Federal Funding to Reduce the Supply of Drugs	ONDCP National Drug Control Strategy Budget Summary	
Private Costs		
Private Legal Defense	Proportion of Arrest that are Drug Related (BJS), the Percent of the American Bar Association in the Criminal Justice Section, and Total Revenue for Legal Services (Statistical Abstract of U.S.)	
Property Damage for Victims of Crime	Number of Property Related Offenses Attributed to Drug Abuse Weighted by the Average Loss per Offense (BJS)	Consumer Price Index-All Services (BLS)
Social Welfare	SSI=0; Balance Trended by Food Stamps (Department of Agriculture)	

2. Reliability of Resulting Estimates

As noted above, the original 1992 estimate was initially divided into 32 components. Then, for each component one of two approaches was taken to update the estimate: re-estimation through simple tabulations of published data or trending based on published statistics. The reliability of the resulting estimates depends on which of these methodologies was used to calculate the updates as well as the reliability of the underlying data for the calculations. In this section, an assessment of the reliability of each component of the overall estimate is provided.

In general, the re-estimated costs should be considered comparable in reliability to the original estimates. The costs that have been trended are somewhat less reliable, although they are still believed to provide valid order of magnitude estimates of these respective impacts.

a) Health Care Costs

Approximately half of the health care costs for this report were re-estimated based on actual data for the particular component and year. The remaining half were derived by trending the base 1992 estimate for the component using data that are expected to be predictive of trends in the particular component. The re-estimated components are expected to be more reliable than those calculated through application of trend factors.

All of the components for specialty treatment and support costs were re-estimated. These costs represented 47.9 and 5.2 percent of health care related costs and overall drug abuse related costs, respectively, in 1992. The largest component of these costs is community-based specialty treatment representing 36.4 percent of total health care spending. These costs were derived in a highly detailed analysis conducted by Mark et al. Support costs, 11.5 percent of health care costs, were primarily obtained from the ONDCP National Drug Control Strategy Budget Summary for each year. Thus, all of the estimates for specialty treatment and support should be highly reliable.

Estimates of the costs for medical consequences were derived based on application of trend factors. The largest component of these costs is the cost of the medical consequences of HIV/AIDS. This component represents a large share of health care treatment costs, 34.2 percent. Unfortunately, this is one of the less reliable health care cost estimates. As noted in ***Section IV.A.4.c***, reliable source data for the HIV/AIDS cost estimates are only available for 1996. The general direction of the trend in HIV/AIDS costs between 1992 and 1996 is also reliable. However, there are limited data available upon which to base the particular point estimates for HIV/AIDS costs for 1992 through 1995 and 1997 and 1998. Since the introduction of new medications has resulted in substantial change in the treatment of HIV/AIDS since 1992, it is unlikely that the consistent downward trend between 1992 and 1996 used to estimate point estimates for HIV/AIDS costs for 1993 through 1995 and the general trends in AIDS cases resulting from IVDU exposure and the CPI-M are strong proxies for the actual trends that occurred in these time periods.

The estimates for the remaining components of the cost of medical consequences represented 17.1 percent of the health care costs associated with drug abuse in 1992. These components are also derived based on application of trend factors, however, since there has been less dramatic change in the treatment of these consequences the general trends used to develop the estimates for these components are more likely to result in accurate estimates than the trends applied for HIV/AIDS.

Thus, the main potential source of error in the health care cost estimates is the estimate of costs attributable to the medical consequences of HIV/AIDS care. While these costs represent a substantial portion of health care costs related to drug abuse, 34.2 percent, they represent only a small portion, 3.6 percent, of the overall cost of drug abuse. In addition, while the particular point estimates of the cost of HIV/AIDS care in each year should not be viewed as reliable, the general magnitude of these estimates and the general direction of the trend in costs between 1992 and 1996 can be viewed as accurate.

b) Lost Productivity

Several of the components of lost productivity due to drug abuse were re-estimated. These components are productivity losses related to:

- Premature death;
- Incarceration; and
- Victim of Crime.

Because of the detailed analysis and quality of the data used to re-estimate these components, they should be highly reliable. The value of hours lost for each component was trended forward based on the BLS-HCI. This index is likely to be a good proxy for the actual change in the value of the hours lost. The real increase in premature death was estimated based on detailed analysis of data on the number of deaths by diagnosis as well as age and sex. The real increase in incarceration losses was estimated based on the number of persons incarcerated by type of crime for each year in this study. The real change in productivity losses related to victims of crime was based on the change in victimizations by type of crime weighted by the estimated number of days of productivity lost for each type of crime. These trends should also be good proxies for the real change in these components.

The cost of lost productivity due to institutionalization/hospitalization was estimated based on application of trend factors, however, this estimate is also expected to be reliable. The price increase in this component was estimated based on the change in the BLS-HCI and the real increase was measured based on the change in clients enrolled in inpatient hospital or residential treatment (the same measures used to develop the 1992 estimates). Both of these trends should be good proxies for the actual increase in this measure.

Lost productivity due to crime careers and drug abuse related illness is likely to be less accurately measured than the other components of lost productivity. The real change in lost productivity due to crime careers was estimated based on the change in the number of hardcore drug users. This may not be an accurate proxy for the trend in losses related to crime careers. However, since limited data are observable on crime careers, even a more detailed study would have difficulty accurately estimating these costs. The real change in lost productivity due to drug related illness is measured based on the number of individuals reporting 100 or more days of marijuana or cocaine use in their lifetime. Since this is a self-reported measure included in the NHSDA, it may be subject to changing views on drug use. Also, changes in the number of individuals using marijuana and cocaine for more than 100 days may not be closely related to drug abuse related illness.

Overall the four components of the productivity cost estimates that are expected to be highly reliable represent 52 and 35 percent of productivity losses and overall drug abuse costs in 1992, respectively. The remaining two components represent 48 and 33 of productivity losses and overall drug abuse costs, respectively, in 1992. While the cost of crime careers and drug abuse related illness is less accurately measured, the general magnitude of the estimates should be reliable. The point estimates and general trends in these components should be used with caution.

c) Other Effects

Most of the components of the cost of other effects were re-estimated and are therefore highly reliable. These include the following components:

- Criminal justice system costs (i.e., police protection, legal adjudication, and corrections);
- Federal spending to reduce the supply of drugs; and
- Property loss by crime victims.

The criminal justice system costs were estimated based on observed data by the BJS through 1996 and are thus highly reliable. The trends in these costs after 1996 should be used with some caution. Estimates of federal spending to reduce the supply of drugs were available from the ONDCP National Drug Control Strategy Budget Summary through 1999. The trend in the real cost of property loss to crime victims is estimated based on the CPI for all services and the real trend in these costs is estimated based on detailed data on the number of arrests by crime type weighted by the mean cost of property loss per offense. These trends are likely to be good proxies for the actual changes in these costs. Overall these components represent 94.8 and 20.8 percent of the cost of other effects and overall drug abuse costs, respectively.

Two components of the cost of other effects are less accurately projected. These are the costs of private legal defense and social welfare costs. Together these two costs represent only 3.2 and 0.7 percent of the cost of other effects and overall drug abuse costs, respectively. Data on total annual receipts for legal services were reported annually through 1997. However, the portion of this spending that was attributable to drug related crime was not available. Trends in social welfare administration expenses are proxied by trends in food stamp expenditures. These trends may not be highly correlated, given the recent major welfare reforms.

Thus, overall about 94.8 percent of the costs of other effects are reliably measured. The estimates for the remaining two components should be used with caution.

d) Summary

Overall about 61.2 percent of the costs estimated here are likely to be highly reliable. The main components included in the remaining 38.8 percent of the estimates should be used with caution. They are:

- Health care costs related to the medical consequences of HIV/AIDS;
- Productivity losses for drug abuse related illness; and
- Productivity losses related to crime careers.

The general magnitude of the estimates of these components should be accurate. However, the point estimates and the trends from year-to-year for these components should be used with caution.

V. ESTIMATES FOR 1992-1998

In this section the updated cost estimates derived based on the methodology discussed above are presented. The updated cost estimates overall and for health care, productivity, other costs, and crime-related costs are displayed, respectively, in ***Tables V-1*** through ***V-5***. For the majority of the cost components observed data are available to calculate the updates through 1998. There are several exceptions, however. Public Criminal Justice System costs for police protection, legal adjudication, and corrections are only available through 1996. Costs for community-based specialty treatment, state and local prevention, and private legal adjudication are only available through 1997. The estimates for these cost categories subsequent to the last year of observed data are projections based on the observable trends in the cost category.

A. Overall Costs

Table V-1 displays the estimates for 1992 through 1998 overall and for the three major categories.

Table V-1
Estimated Societal Cost of Drug Abuse, 1992-1998
Overall Costs
(in millions of dollars)

Cost Category	1992	1993	1994	1995	1996	1997	1998
Health Care Costs	$10,820	$11,114	$11,279	$11,305	$11,428	$12,085	$12,862
Productivity Losses	$69,421	$77,972	$82,685	$88,085	$92,423	$94,470	$98,467
Other Costs	$21,912	$22,410	$24,440	$27,120	$27,444	$30,526	$32,083
Total	**$102,154**	**$111,496**	**$118,404**	**$126,510**	**$131,295**	**$137,082**	**$143,411**

Source: Analysis by The Lewin Group, 2001.

Between 1992 and 1998 the overall economic cost of drug abuse to society increased at a rate of 5.9 percent annually. By 1998 the economic cost of drug abuse was $143.4 billion.[11] The rate of increase in costs was in excess of the combined increase of 3.5 percent for the adult population and the consumer price index for all services for this period.

B. Health Care Costs

Table V-2 displays the estimates of health care related costs for 1992 through 1998. [12] Overall the health care costs related to drug abuse increased 2.9 percent annually over this six-year period.

[11] The 1992 cost of drug abuse originally estimated by Harwood et al. (1998) was re-estimated based on more recent data. The revised estimate is $102.2 billion. This estimate is 4.6 percent higher than the previous Harwood et al. (1998) estimate of $97.7 billion.

[12] The 1992 cost of drug abuse originally estimated by Harwood et al. (1998) was re-estimated based on more recent data. The revised estimate for health care related costs is $10.8 billion. This estimate is 9.0 percent higher than the previous Harwood et al. (1998) estimate. The largest source of this increase is a revised estimate of spending

This rate of increase is somewhat lower than the increases in the adult population and prices for medical services. Between 1992 and 1998, the adult population increased at 1.0 percent annually and prices for medical services increased 4.1 percent annually for a combined 5.1 percent annual increase. The rate of growth in health care service costs was moderated by projected declines in the cost of caring for HIV/AIDS patients that have resulted from the new treatments available to these patients. The cost of HIV/AIDS care is estimated to have declined from $3.7 billion in 1992 to $3.4 billion in 1998.

Table V-2
Estimated Societal Cost of Drug Abuse, 1992-1998
Health Care Costs
(in millions of dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998
Community-Based Specialty Treatment	$3,415	$3,772	$3,983	$4,086	$4,489	$4,633	$4,933
Federally-Provided Specialty Treatment							
Department of Defense	$14	$9	$5	$5	$5	$5	$5
Indian Health Services	$26	$33	$31	$31	$33	$31	$32
Bureau of Prisons	$17	$17	$17	$18	$19	$20	$21
Department of Veterans Affairs	$468	$543	$592	$652	$593	$592	$416
Support							
Federal Prevention	$616	$623	$639	$624	$560	$657	$725
State and Local Prevention	$89	$93	$91	$101	$81	$85	$85
Training	$49	$51	$53	$55	$57	$59	$60
Prevention Research	$158	$164	$175	$180	$212	$231	$250
Treatment Research	$195	$242	$254	$261	$283	$313	$328
Insurance Administration	$223	$278	$286	$273	$271	$256	$286
Medical Consequences							
Hospital and Ambulatory Care Costs	$562	$563	$666	$763	$874	$851	$969
Special Disease Costs							
Drug-Exposed Infants	$407	$424	$439	$453	$468	$480	$503
Tuberculosis	$30	$30	$30	$30	$29	$27	$24
HIV/AIDS	$3,700	$3,414	$3,150	$2,907	$2,683	$3,033	$3,377
Hepatitis B and C	$462	$399	$419	$457	$394	$439	$434
Crime Victim Health Care Costs	$92	$142	$148	$139	$136	$132	$127
Health Insurance Administration	$298	$316	$300	$271	$242	$240	$287
Total	**$10,820**	**$11,114**	**$11,279**	**$11,305**	**$11,428**	**$12,085**	**$12,862**

Source: Analysis by The Lewin Group, 2001.

on drug abuse by the Department of Veterans Affairs (VA). The revised estimate is $671 million relative to the original estimate of $235 million. The second component of health care costs that was revised substantially is spending for community-based specialty treatment. The original estimate for this component was $2.8 billion. The revised estimate is $3.2 billion. The revised estimate is based on a study by Mark et al. (1999) that was more comprehensive than the original study.

The two categories of service with the greatest annual increase in spending were treatment research and hospital and ambulatory care for the medical consequences of drug abuse which increased at a 9.1 and 9.5 percent annually, respectively. One category of service, Department of Defense spending on treatment saw a sharp decline between 1992 and 1994, dropping from $14 to $5 million.

The distribution of spending across the components remained relatively constant during this period. However, the share of HIV/AIDS spending declined. In 1992, HIV/AIDS spending represented the largest component of health care spending attributable to drug abuse. HIV/AIDS costs were $3.7 billion or 34.2 percent of total health care costs in 1992. In 1998, the spending level dropped to $3.4 billion or 26.3 percent of all spending. Meanwhile, the cost of community-based specialty health treatment increased from $3.2 billion to $4.6 billion. Community-based specialty represented 31.6 percent of all health care related drug abuse costs in 1992. By 1998, this component represented 38.4 percent.

C. Productivity Losses

Table V-3 displays the estimates of productivity losses related to drug abuse for 1992 through 1998.[13] Overall the productivity losses related to drug abuse increased 6.0 percent annually over this six-year period. This rate of increase is somewhat higher than the 4.1 percent annual combined increase in the adult population and the BLS HCI. Between 1992 and 1998, the adult population increased 1.1 percent annually and the BLS HCI increased 3.1 percent annually for a combined 4.1 percent annual increase.

Costs related to premature death increased dramatically between 1992 and 1995 with the increase in the number of HIV/AIDS deaths. New treatments lead to a decline in AIDS' deaths between 1995 and 1998. For the period as a whole the percentage of the productivity losses attributed to premature death declined from 21.0 to 16.9 percent.

Meanwhile during this period the share of productivity losses related to incarceration increased from 25.8 to 30.6 percent. The productivity losses related to incarceration increased at a 9.1 percent annualized rate during this period. The productivity loss related to incarcerations was updated based on the change in the number of incarcerations attributable to drug abuse and the BLS HCI. The number of persons under incarceration in local jails and federal and state prisons increased 6.1 percent annually in this period. The estimated number attributable to drug abuse increased at 5.8 percent annually.

In addition to the increase in productivity losses related to incarceration, there was an 8.5 percent annual increase in productivity losses due to drug abuse related illness. The productivity loss for drug abuse related illness was updated based on two factors. The real change was measured based on the change in the number of persons reporting more than 100 days of marijuana or cocaine use in their lifetime. This measure increased at a 5.1 percent annual rate between 1992 and 1998. The price change in this component was measured based on the BLS HCI. This measure increased at 3.2 percent annually for the combined increase of 8.4 percent annually. The

[13] The 1992 estimates are identical to the Harwood et al. (1998) estimates for the productivity loss cost components.

share of productivity related losses represented by this component increased from 20.5 to 23.5 percent.

Table V-3
Estimated Societal Cost of Drug Abuse, 1992-1998
Productivity Losses
(in millions of dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998
Premature Death	$14,575	$21,095	$21,905	$22,943	$19,697	$16,771	$16,611
Drug Abuse Related Illness	$14,205	$13,766	$15,845	$17,737	$20,270	$19,916	$23,143
Institutionalization/Hospitalization	$1,477	$1,502	$1,683	$1,872	$1,533	$1,662	$1,786
Productivity Loss of Victims of Crime	$2,059	$2,488	$2,554	$2,377	$2,332	$2,293	$2,165
Incarceration	$17,907	$19,366	$21,095	$22,983	$24,833	$27,221	$30,133
Crime Careers	$19,198	$19,755	$19,603	$20,172	$23,758	$26,608	$24,627
Total	**$69,421**	**$77,972**	**$82,685**	**$88,085**	**$92,423**	**$94,470**	**$98,467**

Source: Analysis by The Lewin Group, 2001.

D. Cost of Other Effects

Table V-4 displays the estimates of losses for other effects related to drug abuse for 1992 through 1998. Overall the losses related to other effects increased 6.6 percent annually over this six-year period. This rate of increase is somewhat higher than the increases in the adult population and prices for all services. Between 1992 and 1998, the adult population increased 1.1 percent annually and prices for all goods and services increased 2.5 percent annually for a combined 3.5 percent annual increase.

Table V-4
Estimated Societal Cost of Drug Abuse, 1992-1998
Cost of Other Effects
(in millions of dollars)

Cost Category	1992	1993	1994	1995	1996	1997	1998
Cost of Goods and Services Lost to Crime							
Criminal Justice System and Other Public Costs							
Police Protection	$5,348	$5,868	$6,630	$7,211	$7,278	$8,500	$9,096
Legal Adjudication	$2,716	$2,873	$3,257	$3,628	$3,592	$4,195	$4,489
State and Federal Corrections	$7,495	$7,616	$8,416	$9,806	$10,046	$10,467	$11,027
Local Corrections	$1,333	$1,390	$1,587	$1,746	$1,679	$1,730	$1,660
Federal Spending to Reduce Supply	$4,126	$3,691	$3,521	$3,697	$3,827	$4,620	$4,827
Private Costs							
Private Legal Defense	$365	$388	$429	$447	$445	$522	$548
Property Damage for Victims of Crime	$193	$229	$231	$217	$214	$208	$186
Social Welfare	$337	$355	$367	$368	$364	$283	$249
Total	**$21,912**	**$22,410**	**$24,440**	**$27,120**	**$27,444**	**$30,526**	**$32,083**

Source: Analysis by The Lewin Group, 2001.

Criminal justice system costs increased rapidly in this period. Costs for police protection and legal adjudication increased at a 9.3 and 8.7 percent annualized rate, respectively. These increases are due to increases in overall police protection and legal adjudication spending as well as increases in the proportion of that spending that is attributed to drug abuse. Total police protection and legal adjudication costs increased at 6.4 and 5.7 percent annually, respectively, during this period. In addition, the percentage of these costs attributable to drug abuse rose from 12.9 percent in 1992 to 15.3 percent in 1998.

E. Crime Related Costs

Many health care, productivity, and other costs listed in the three previous sections are crime-related costs. In this section, all the crime-related costs attributed to drug abuse are aggregated.

Table V-5 displays the estimates of crime related costs for 1992 through 1998. In 1992, crime related costs represented 59.5 percent of the total cost of drug abuse. In 1998 crime costs represented a similar share, 62.0 percent of the overall cost of drug abuse. Overall the costs related to crime increased 6.5 percent annually over this six-year period between 1992 and 1998. This rate of increase is somewhat higher than the increases in the adult population and prices for all services. Between 1992 and 1998, the adult population increased 1.1 percent annually and prices for medical services increased 2.5 percent annually for a combined 3.5 percent annual increase.

Table V-5
Estimated Societal Cost of Drug Abuse, 1992-1998
Crime Related Costs
(in millions of dollars)

Cost Category	1992	1993	1994	1995	1996	1997	1998
Health Care Costs							
Crime Victim Health Care Costs	$92	$142	$148	$139	$136	$132	$127
Productivity Losses							
Productivity Loss of Victims of Crime	$2,059	$2,488	$2,554	$2,377	$2,332	$2,293	$2,165
Incarceration	$17,907	$19,366	$21,095	$22,983	$24,833	$27,221	$30,133
Crime Careers	$19,198	$19,755	$19,603	$20,172	$23,758	$26,608	$24,627
Cost of Other Effects							
Criminal Justice System and Other Public Costs							
Police Protection	$5,348	$5,868	$6,630	$7,211	$7,278	$8,500	$9,096
Legal Adjudication	$2,716	$2,873	$3,257	$3,628	$3,592	$4,195	$4,489
State and Federal Corrections	$7,495	$7,616	$8,416	$9,806	$10,046	$10,467	$11,027
Local Corrections	$1,333	$1,390	$1,587	$1,746	$1,679	$1,730	$1,660
Federal Spending to Reduce Supply	$4,126	$3,691	$3,521	$3,697	$3,827	$4,620	$4,827
Private Costs							
Private Legal Defense	$365	$388	$429	$447	$445	$522	$548
Property Damage for Victims of Crime	$193	$229	$231	$217	$214	$208	$186
Total	**$60,832**	**$63,806**	**$67,473**	**$72,423**	**$78,139**	**$86,497**	**$88,887**

Source: Analysis by The Lewin Group, 2001.

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VI. PROJECTIONS FOR 1999-2000

In this section the update factors for 1999 and 2000 described for each cost component above are applied to the base cost estimates. The resulting cost estimates overall and for health care, productivity, other costs, and crime-related costs are displayed, respectively, in ***Tables VI-1*** through ***VI-5***. Observed data were not available upon which to base most of the updates reported in this section. Therefore, most of the updates reported in this section are projections based on the observable trends for 1992 through 1998 for the respective cost component. Since observable data for the 1999 and 2000 period were generally not available, the projections for these years displayed below should be used with caution until they can be re-estimated based on observed data.

A. Overall Costs

Table VI-1 displays the projected economic cost of drug abuse for 1998 through 2000.

Table VI-1
Projected Societal Cost of Drug Abuse, 1998-2000
Overall Costs
(in millions of dollars)

Cost Categories	1998	1999	2000
Health Care Costs	$12,862	$13,860	$14,899
Productivity Losses	$98,467	$104,353	$110,491
Other Costs	$32,083	$34,295	$35,274
Total	**$143,411**	**$152,508**	**$160,664**

Source: Analysis by The Lewin Group, 2001.

Between 1998 and 2000, the economic costs of drug abuse are estimated to continue to increase at a rate of 5.8 percent annually. By 2000, the economic cost of drug abuse is projected to be $160.7 billion.

B. Health Care Costs

Table VI-2 displays the projected health care costs for 1999 and 2000. Between 1998 and 2000 health care costs are expected to grow at a 7.6 percent annual rate. This trend is generally related to steady growth in all of the cost components. However, the estimates for three of the components indicate more rapid growth. Spending for Bureau of Prison Affairs treatment is expected increase at 14.7 percent annually in this period. Federal spending for prevention research and treatment research are expected to increase at 13.7 and 12.9 percent annually, respectively.

Table VI-2
Projected Societal Cost of Drug Abuse, 1998-2000
Health Care Costs
(in millions of dollars)

Cost Categories	1998	1999	2000
Community-Based Specialty Treatment	$4,933	$5,253	$5,594
Federally-Provided Specialty Treatment			
Department of Defense	$6	$5	$6
Indian Health Services	$32	$33	$33
Bureau of Prisons	$21	$26	$28
Department of Veterans Affairs	$416	$439	$439
Support			
Federal Prevention	$725	$781	$826
State and Local Prevention	$85	$85	$85
Training	$60	$62	$64
Prevention Research	$250	$286	$323
Treatment Research	$328	$383	$419
Insurance Administration	$286	$323	$367
Medical Consequences			
Hospital and Ambulatory Care Costs	$969	$1,003	$1,309
Special Disease Costs			
Drug-Exposed Infants	$503	$520	$539
Tuberculosis	$24	$22	$20
HIV/AIDS	$3,377	$3,739	$4,144
Hepatitis B and C	$434	$449	$466
Crime Victim Health Care Costs	$127	$124	$128
Health Insurance Administration	$287	$328	$380
Total	**$12,862**	**$13,860**	**$14,899**

Source: Analysis by The Lewin Group, 2001.

C. Productivity Losses

Table VI-3 displays the projected productivity losses for 1999 and 2000. Between 1998 and 2000 productivity losses are expected to grow at a 5.9 percent annual rate. This trend is generally related to steady growth in all of the cost components. Estimated losses from drug related incarcerations are expected to grow more rapidly than the other components increasing at an 8.7 percent annual rate.

Table VI-3
Projected Societal Cost of Drug Abuse, 1998-2000
Productivity Losses
(in millions of dollars)

Cost Categories	1998	1999	2000
Premature Death	$16,611	$17,439	$18,256
Drug Abuse Related Illness	$23,143	$24,298	$25,435
Institutionalization/Hospitalization	$1,786	$1,849	$1,915
Productivity Loss of Victims of Crime	$2,165	$2,118	$2,217
Incarceration	$30,133	$32,793	$35,601
Crime Careers	$24,627	$25,856	$27,066
Total	**$98,467**	**$104,353**	**$110,491**

Source: Analysis by The Lewin Group, 2001.

D. Cost of Other Effects

Table VI-4 displays the projected cost of other effects for 1999 and 2000. Between 1998 and 2000 the cost of other effects is expected to grow at a 4.9 percent annual rate. This trend is generally related to steady growth in all of the cost components. The exceptions are estimated spending on property damage for crime victims, local corrections costs, and the cost of social welfare spending which are all expected to decline slightly in this period.

Table VI-4
Projected Societal Cost of Drug Abuse, 1998-2000
Costs of Other Effects
(in millions of dollars)

Cost Categories	1998	1999	2000
Cost of Goods and Services Lost to Crime			
Criminal Justice System and Other Public Costs			
Police Protection	$9,096	$9,612	$10,189
Legal Adjudication	$4,489	$4,743	$5,028
State and Federal Corrections	$11,027	$11,495	$11,990
Local Corrections	$1,660	$1,599	$1,599
Federal Spending to Reduce Supply	$4,827	$5,868	$5,479
Private Costs			
Private Legal Defense	$548	$569	$591
Property Damage for Victims of Crime	$186	$177	$181
Social Welfare	$249	$233	$218
Total	**$32,083**	**$34,295**	**$35,274**

Source: Analysis by The Lewin Group, 2001.

E. Crime Related Costs

Table VI-5 displays the projected crime related costs for 1999 and 2000. Between 1998 and 2000 crime related costs are expected to grow at a 6.1 percent annual rate. This trend is generally related to steady growth in all of the cost components. Estimated spending on incarcerations is expected to grow more rapidly than the other components increasing at an 8.7 percent annual rate.

Table VI-5
Projected Societal Cost of Drug Abuse, 1998-2000
Crime Related Costs
(in millions of dollars)

Cost Categories	1998	1999	2000
Health Care Costs			
Crime Victim Health Care Costs	$127	$124	$128
Productivity Losses			
Productivity Loss of Victims of Crime	$2,165	$2,118	$2,217
Incarceration	$30,133	$32,793	$35,601
Crime Careers	$24,627	$25,856	$27,066
Other Costs			
Criminal Justice System and Other Public Costs			
Police Protection	$9,096	$9,612	$10,189
Legal Adjudication	$4,489	$4,743	$5,028
State and Federal Corrections	$11,027	$11,495	$11,990
Local Corrections	$1,660	$1,599	$1,599
Federal Spending to Reduce Supply	$4,827	$5,868	$5,479
Private Costs			
Private Legal Defense	$548	$569	$591
Property Damage for Victims of Crime	$186	$177	$181
Total	**$88,887**	**$94,953**	**$100,069**

Source: Analysis by The Lewin Group, 2001.

VII. DISCUSSION

This study estimates the societal cost of drug abuse in the United States to be $143.4 billion in 1998. The majority of these costs are productivity losses, particularly those related to incarceration, crime careers, drug abuse related illness, and premature death. The share of the societal cost related to the three major categories of costs and that related to crime remained relatively constant between 1992 and 1998.

The overall cost of drug abuse rose 5.9 percent annually between 1992 and 1998 increasing from $102.2 to $143.4 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 sources of this increase are increases in productivity losses related to incarceration and drug abuse related illness. Between 1998 and 2000, the economic cost of drug abuse is expected to continuing rising at a 5.8 percent annual rate, continuing to outpace the combined increase in the adult population and consumer prices which are expected to have an annual combined increase of about 3.4 percent in this period.

There are several limitations to this study that should be recognized when applying its findings. Many of these limitations have been discussed by other authors (Reuter, 1999; Kleiman, 1999; Kopp, 1999; and Cohen, 1999) in commentaries on a previous study which estimated the cost of drug abuse using a similar approach to the approach used in this report. These limitations include:

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

The methods used in this study yield seemingly very precise values, however they should be treated as approximations. This is true for several reasons. First, many of the component values were estimated through the trending method. This method is less reliable than re-estimation, because these estimates are based on data that are not as closely related to the actual component value. Second, all the estimates for this study are based on data from secondary sources. Where there are gaps in the data available from these sources or where the data from these sources are less reliable, the estimates in this study will also be less reliable. Third, the estimates for some component values particularly crime related components rely on attribution factors. These attribution factors cannot be estimated 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 information used to estimate the attribution factors was not revisited for this study. The values for this study were adopted from Harwood et al. (1998). Our ability to understand and measure these relationships is constantly improving, and future studies will need to re-examine the scientific literature on crime and drugs as well as health and drugs. Finally, the data upon which some component estimates for this study are based were not available through 1998. In these cases, the values of the components from the last available published data through 1998 were projected.

The scope of this study is limited. The study follows 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 and these methods may be more appropriate for

examining certain facets of the economic impacts of drug abuse. 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. Similarly, while these data may inform the evaluation of particular policies, the results of this study were not designed to address any specific policies to related to drug abuse.

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APPENDIX A: ACRONYMS AND ABBREVIATIONS

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Acronyms and Abbreviations

BJS – Bureau of Justice Statistics

BLS – Bureau of Labor Statistics

CDC – Center for Disease Control and Prevention

CJEE – Bureau of Justice Statistics Criminal Justice Expenditures and Employment Extracts Program

CPI-M – Consumer Price Index for Medical Services

HCFA – Health Care Financing Administration

HCI – Hourly Compensation Index

IVDU – Intravenous Drug Use

NASADAD – National Association of State Alcohol and Drug Abuse Directors

NCHS – National Center for Health Statistics

NHSDA – National Household Survey of Drug Abuse

ONDCP – Office of National Drug Control Policy

SAMHSA – Substance Abuse and Mental Health Services Administration

SAODAP – Special Action Office of Drug Abuse Policy

SB – Sourcebook of Criminal Justice Statistics

SSA – Social Security Administration

SSI – Supplemental Security Income

TB – Tuberculosis

UFDS – Uniform Facility Data Set

VA – Department of Veterans Affairs

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APPENDIX B: SUPPLEMENTAL TABLES FOR CALCULATION OF COST ESTIMATES

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Table B-1
Number of Individuals with 100 or More Days of Marijuana or Cocaine Use in Their Lifetime, 1992-1998

Age Group	1992	1993	1994	1995	1996	1997	1998
Population (in thousands)							
18-25	27,964	28,327	28,027	27,820	27,796	27,691	27,966
26-34	38,215	37,194	36,588	35,975	35,474	35,246	34,603
35 +	118,850	120,453	123,023	125,529	128,265	130,722	133,136
Percentages of persons reporting more than 100 days of cocaine use in their lifetime							
18-25	1.9%	1.5%	1.2%	2.0%	1.6%	1.3%	1.5%
26-34	4.5%	4.0%	4.2%	4.2%	4.7%	3.3%	3.1%
35 +	1.1%	1.2%	1.5%	1.7%	2.1%	2.0%	2.1%
Percentages of persons reporting more than 100 days of marijuana use in their lifetime							
18-25	10.4%	8.6%	9.7%	10.4%	13.5%	12.2%	14.9%
26-34	16.9%	15.2%	16.3%	14.9%	16.1%	13.0%	13.1%
35 +	5.3%	5.6%	6.6%	8.0%	8.3%	8.8%	9.8%
Sum of the percentage of persons reporting 100 or more days of cocaine or marijuana use in their lifetime							
18-25	12.3%	10.1%	10.9%	12.4%	15.1%	13.5%	16.4%
26-34	21.4%	19.2%	20.5%	19.1%	20.8%	16.3%	16.2%
35 +	6.4%	6.8%	8.1%	9.7%	10.4%	10.8%	11.9%
Estimated number of persons using 100 or more days of cocaine or marijuana in their lifetime							
18-25	3,440	2,861	3,055	3,450	4,197	3,738	4,586
26-34	8,178	7,141	7,501	6,871	7,379	5,745	5,606
35 +	7,606	8,191	9,965	12,176	13,340	14,118	15,843
Total	**19,224**	**18,193**	**20,520**	**22,497**	**24,915**	**23,601**	**26,035**

Source: Substance Abuse and Mental Health Services Administration. (1996-1998) National Household Survey of Drug Abuse.

Table B-2
Number of Persons Living with AIDS with Drug Related Exposure

Exposure Category	1992	1993	1994	1995	1996	1997	1998	1999
Male Adult - Injecting Drug Use	26,176	34,465	40,153	44,589	49,074	54,249	58,843	63,137
Male Adult - Have Sex with Men and Injecting Drug Use	11,325	13,645	14,635	15,369	16,034	17,203	18,181	19,345
Female Adult - Injecting Drug Use	10,245	13,793	16,175	18,294	20,285	22,586	24,500	26,235
Total Adults Living with AIDS Related to Drug Use	47,746	61,903	70,963	78,252	85,393	94,038	101,524	108,717
Total Children Age <13 Living with AIDS	2,654	3,039	3,267	3,404	3,475	3,569	3,673	3,706
Estimated Percentage of Adult Exposure Related to Drug Use	34.7%	36.1%	36.6%	36.7%	36.1%	35.5%	34.9%	34.3%
Estimated Number of Children Living with AIDS Related to Drug Use*	922	1,098	1,194	1,248	1,254	1,268	1,283	1,273
Total Persons Living with AIDS Attributable to Drug Use	**48,668**	**63,001**	**72,157**	**79,500**	**86,647**	**95,306**	**102,807**	**109,990**

*Estimated Based on the percentage of adults whose exposure was drug related.

Source: Centers for Disease Control and Prevention. (1993-2000) *HIV/AIDS Surveillance Report*.

Table B-3
Number of Crime Victims
and the Percentage of Victimizations Atributable to Drug Abuse, 1992-1998

Crime	Percentage Attributable to Drug Abuse	Actual				Estimated	Actual	
		1992	1993	1994	1995	1996[1]	1997	1998
Rape	2.4%	140,930	160,380	167,550	140,820	127,970	115,120	110,000
Assault	5.1%	5,254,690	9,071,790	9,129,120	8,122,370	7,740,700	7,359,030	6,897,000
Robbery	27.2%	1,225,510	1,291,020	1,298,750	1,141,820	1,042,880	943,940	886,000
Burglary	30.0%	4,757,420	5,984,000	5,482,720	4,822,480	4,728,700	4,634,920	4,005,400
Larceny	29.6%	20,311,980	23,020,050	23,765,790	22,006,050	20,877,445	19,748,840	17,703,000
Motor vehicle Theft	6.8%	1,958,780	1,960,540	1,763,690	1,653,820	1,543,595	1,433,370	1,138,000
Homicide	15.8%	23,760	24,350	23,330	21,610	19,910	18,210	16,970

[1.] Data for 1996 is not available. Therefore the 1996 values are estimated to be the mid-point of the 1995 and 1997 values. The methodology for counting crimes was revised between 1992 and 1993 making the 1993 definition of crimes more comprehensive than the 1992 definition. No adjustment is made for this revision. The revision would imply that the 1992 cost of crime may be understated and the increase between 1992 and 1993 may be overstated.

Source: Bureau of Justice Statistics (1992-1998) Sourcebook of Criminal Statistics.

Table B-4
Number of Deaths Related to Drug Abuse, 1992-1998

Cause of Death	ICD-9 Code	Percent Attributable to Drug Abuse	Number of Deaths Attributable to Drug Abuse						
			1992	1993	1994	1995	1996	1997	1998
DIRECT PRIMARY CAUSES									
Drug psychosis	292	100%	13	3	10	9	8	4	11
Drug dependence	304	100%	309	333	267	301	335	273	264
Nondependent abuse of drugs	305.2-305.9	100%	777	806	932	1,104	1,276	1,251	1,336
Drug withdrawal syndrome in newborn	779.5	100%	6	0	1	0	0	0	3
Accidental overdose of psychoactive drugs									
Opiates and related narcotics	E850.0	100%	1,279	1,728	1,732	1,904	2,075	2,377	2,718
Aromatic analgesics, not elsewhere classified	E850.2	100%	69	88	90	85	80	107	94
Other non-narcotic analgesics	E850.7	100%	0	0	0	0	0	0	0
Other	E850.8	100%	167	149	182	181	179	178	175
Unspecified analgesics and antipyretics	E850.9	100%	2	1	4	3	2	7	9
Barbiturates	E851	100%	21	17	15	17	19	24	16
Other sedatives and narcotics	E852	100%	11	17	10	13	15	9	8
Tranquilizers	E853	100%	65	11	63	73	82	94	107
Other psychotropic agents (i.e. antidepressants)	E854	100%	269	315	355	350	344	393	334
Other drugs acting on the central and autonomic nervous system	E855	100%	1,113	1,183	1,393	1,402	1,411	1,336	1,540
Agricultural and horticultural chemical pharmaceutical preparations other than plant foods and fertilizers	E863	100%	18	16	11	14	16	12	8
Accidental Overdose of Drugs and Medicaments									
Salicylates	E850.1	100%	56	47	37	42	47	27	32
Pyrazole derivatives	E850.3	100%	2	1	1	1	1	2	2
Antirheumatics	E850.4	100%	3	3	6	5	4	4	7
Other non-narcotic analgesics	E850.5	100%	79	77	96	99	102	111	104
Accidental poisoning by antibiotics	E856	100%	55	43	44	46	47	48	39
Accidental poisoning by other anti-infectives	E857	100%	5	9	11	9	6	8	4
Hormones and synthetic substitutes	E858.0	100%	18	9	26	24	21	29	21
Primarily systemic agents	E858.1	100%	44	60	51	47	42	49	57
Agents primarily affecting blood constituents	E858.2	100%	33	34	27	32	36	53	51
Agents primarily affecting cardiovascular system	E858.3	100%	218	213	244	236	227	195	194
Agents primarily affecting gastrointestinal system	E858.4	100%	3	5	3	4	5	1	3
Water mineral and uric acid metabolism drugs	E858.5	100%	75	74	72	58	44	42	33
Agents primarily acting on the smooth and skeletal muscles and respiratory system	E858.6	100%	8	18	15	17	18	12	27
Agents primarily affecting skin and mucous membrane, opthalmological, otorhinolaryngological, dental drugs	E858.7	100%	7	7	11	11	10	9	4
Other specified drugs	E858.8	100%	1,328	1,902	1,981	1,997	2,012	2,163	2,465
Unspecified drug	E858.9	100%							
Heroin, methadone, other opiates and related narcotics, and other drugs causing adverse effects in therapeutic use.	E935.0-E935.2, E937-E940	100%	27	20	20	22	23	44	60
INJURY UNDETERMINED WHETHER ACCIDENTAL OR PURPOSELY INFLICTED									
Analgesics, antipyretics, and antirheumatics	E980.0	100%	491	689	687	712	737	857	899
Barbiturates	E980.1	100%	13	7	10	8	6	10	8
Other sedatives and hypnotic	E980.2	100%	8	3	9	8	6	4	8
Tranquilizers and other psychotropic agents	E980.3	100%	159	168	180	173	166	178	171
Other unspecified drugs and medicinal substances	E980.4	100%	478	618	657	659	661	780	846
Unspecified drug or medicinal substance	E980.5	100%	252	257	291	290	288	371	366
Other and unspecified solid or liquid substances	E980.9	100%	63	50	32	36	39	50	48
Homicide and injury inflicted purposely by other persons	E960-E969	10%	2,514	2,565	2,455	2,259	2,063	1,949	1,789
OTHER CAUSES									
Tuberculosis	010-018	4.5%	77	73	67	60	54	52	50
Hepatitis C	various	20%	900	214	326	404	476	545	691
Hepatitis B	various	30%	2,700	312	336	323	340	326	329
AIDS	various	32%	10,741	12,060	13,475	13,794	9,959	5,283	4,295
Total			**24,476**	**24,206**	**26,234**	**26,823**	**23,283**	**19,268**	**19,227**

Source: National Center for Health Statistics (1993-1998).

Table B-5
Jail and Prison Inmates by Offense

	Percentage of Jail Inmates		Percentage of State Prison Inmates		Percentage of Federal Prison Inmates	
Offense	**1989**	**1996**	**1991**	**1997**	**1991**	**1997**
Homicide	2.8%	2.8%	10.6%	11.7%	1.9%	1.5%
Assault	7.2%	11.6%	8.2%	9.4%	1.5%	1.3%
Sexual Assault	3.4%	3.2%	9.4%	8.6%	0.7%	0.8%
Robbery	6.7%	6.5%	14.8%	14.1%	11.2%	10.0%
Burglary	10.7%	7.6%	12.4%	10.7%	0.7%	0.3%
Larceny-Theft	7.9%	8.0%	4.9%	4.2%	0.9%	0.5%
Auto Theft	2.8%	2.6%	2.2%	1.8%	0.5%	0.2%
Drug Laws	23.0%	22.0%	21.3%	20.7%	57.9%	62.6%
Receiving Stolen Property	2.4%	2.1%	1.4%	1.6%	0.8%	0.5%

Source: Sourcebook of Criminal Justice, 1998 Tables 6.31 and 6.0016.

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Table B-6
Number of Inmates by Offense
And the Number Attributable to Drug Related Crime, 1992-2000

Data Series	Percentage Attributable to Drug Abuse	1992	1993	1994	1995	1996	1997	1998	1999	2000
Estimated Number of State and Federal Prison Inmates										
Homicide		94,953	102,346	111,662	122,934	132,365	140,629	147,174	151,716	156,408
Assault		104,689	114,866	127,741	142,040	154,362	166,101	173,742	178,662	183,731
Sexual Assault		85,051	89,058	94,463	100,993	105,585	109,546	114,619	118,080	121,651
Robbery		147,532	155,585	165,938	177,916	186,809	195,263	204,679	211,444	218,484
Burglary		133,400	136,572	141,790	147,836	150,755	156,131	163,300	168,020	172,880
Larceny-Theft		71,924	74,671	78,792	83,021	85,632	90,111	94,232	96,802	99,446
Auto Theft		28,449	29,261	30,549	31,896	32,578	33,906	35,461	36,449	37,466
Drug Laws		300,007	318,131	340,504	363,576	381,363	404,470	425,747	442,445	460,087
Receiving Stolen Property		21,409	22,567	24,173	25,908	27,231	29,259	30,616	31,500	32,413
Total		1,266,135	1,339,778	1,436,238	1,541,389	1,621,527	1,719,125	1,802,187	1,860,520	1,921,272
Estimated Number of Jail and Prison Incarcerations Due to Drug Abuse										
Homicide	15.8%	15,003	16,171	17,643	19,424	20,914	22,219	23,253	23,971	24,712
Assault	5.1%	5,339	5,858	6,515	7,244	7,872	8,471	8,861	9,112	9,370
Sexual Assault	5.1%	4,338	4,542	4,818	5,151	5,385	5,587	5,846	6,022	6,204
Robbery	27.2%	40,129	42,319	45,135	48,393	50,812	53,112	55,673	57,513	59,428
Burglary	30.0%	40,020	40,971	42,537	44,351	45,226	46,839	48,990	50,406	51,864
Larceny-Theft	29.6%	21,290	22,103	23,322	24,574	25,347	26,673	27,893	28,653	29,436
Auto Theft	6.8%	1,935	1,990	2,077	2,169	2,215	2,306	2,411	2,479	2,548
Drug Laws	100.0%	300,007	318,131	340,504	363,576	381,363	404,470	425,747	442,445	460,087
Receiving Stolen Property	15.1%	3,233	3,408	3,650	3,912	4,112	4,418	4,623	4,757	4,894
Total		**431,291**	**455,493**	**486,202**	**518,795**	**543,248**	**574,095**	**603,298**	**625,358**	**648,544**

Source: Bureau of Justice Statistics (2001) *Prison and Jail Inmates at Midyear 1999.*

Table B-7
Total Police Protection and Legal Adjudication Costs, 1992-1996
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996
Police Protection Costs	$41,327	$44,037	$46,005	$48,645	$53,007
Legal Adjudication Costs	$20,989	$21,558	$22,602	$24,472	$26,158

Source: Bureau of Justice Statistics (2001) Criminal Justice Expenditure and Employment Extracts Program (CJEE), Table 05: *Total direct and intergovernmental expenditure, by activity and type of government, fiscal years 1980-96.*

Table B-8
Number of Arrests by Type of Offense and Drug Abuse Attribution Factors, 1992-2000

Type of Offense	Percent Attributed to Drug Abuse	1992	1993	1994	1995	1996	1997	1998	1999	2000[1]
Homicide[2]	15.8%	22,510	23,400	22,100	21,230	19,020	18,290	17,450	14,790	14,790
Aggravated Assault	5.1%	507,210	518,670	547,760	568,480	521,570	534,920	506,630	483,530	483,530
Forcible Rape	2.4%	39,100	38,420	36,610	34,650	33,050	32,060	31,070	28,830	28,830
Other Assaults	5.1%	1,074,700	1,144,900	1,223,600	1,290,400	1,329,000	1,395,800	1,338,800	1,294,400	1,294,400
Robbery	27.2%	173,310	173,620	172,290	171,870	156,270	132,450	120,870	108,850	108,850
Burglary	30.0%	424,000	402,700	396,100	386,500	364,800	356,000	330,700	296,100	296,100
Larceny-Theft	29.6%	1,504,500	1,476,300	1,514,500	1,530,200	1,486,300	1,472,600	1,307,100	1,189,400	1,189,400
Motor Vehicle Theft	6.8%	197,600	195,900	200,200	191,900	175,400	167,000	150,700	142,200	142,200
Driving Under the Influence	0.0%	1,624,500	1,524,800	1,384,600	1,436,000	1,467,300	1,477,300	1,402,800	1,511,300	1,511,300
Liquor Laws	0.0%	541,700	518,500	541,800	594,900	677,400	636,400	630,400	657,900	657,900
Drunkenness	0.0%	832,300	726,600	713,200	708,100	718,700	734,800	710,300	656,100	656,100
Stolen Property	15.1%	161,500	158,100	164,700	166,500	151,100	155,300	137,900	121,900	121,900
Prostitution	12.8%	96,200	97,800	98,800	97,700	99,000	101,600	94,000	92,100	92,100
Drug Abuse Violations	100.0%	1,066,400	1,126,300	1,351,400	1,476,100	1,506,200	1,583,600	1,559,100	1,532,200	1,532,200
Other	0.0%	5,809,570	5,910,290	6,281,040	6,445,270	7,635,720	6,486,180	6,190,480	5,901,470	5,901,470
Total		**14,075,100**	**14,036,300**	**14,648,700**	**15,119,800**	**16,340,830**	**15,284,300**	**14,528,300**	**14,031,070**	**14,031,070**

1. Data is not yet available for 2000. The same number of arrests is assumed to have occurred for each offense in 2000 as in 1999.
2. Homicide includes murder and non-negligent manslaughter.

Source: Federal Bureau of Investigation (2001) *Uniform Crime Reports.*

Table B-9
Percentage of Arrests Attributed to Drug Abuse, 1992-2000

Data Series	1992	1993	1994[1]	1995	1996	1997	1998	1999
Total Arrests[1]	14,075	14,036	14,649	15,120	16,341	15,284	14,528	14,031
Number of Arrests Attributed to Drug Abuse[2]	1,821	1,870	2,111	2,241	2,244	2,312	2,219	2,136
Percentage of Total Arrests Attributed to Drug Abuse	**12.9%**	**13.3%**	**14.4%**	**14.8%**	**13.7%**	**15.1%**	**15.3%**	**15.2%**

Source: Analysis by The Lewin Group, 2001.

Table B-10
Total Corrections Expenditures, 1992-1996
(in millions of dollars)

Data Series	1992	1993	1994	1995	1996
Local Jail	$10,300	$10,433	$11,011	$11,777	$12,229
State and Federal Prison	$21,162	$21,513	$23,853	$27,975	$28,800

Source: Bureau of Justice Statistics Criminal Justice Expenditure and Employment Extracts Program (CJEE), Table 05: *Total direct and intergovernmental expenditure, by activity and type of government, fiscal years 1980-96.*

Table B-11
Percentage of Arrests in Local Jails and Persons Under Incarceration in State and Federal Prison for Drug Related Crimes, 1992-1999

Data Series	1992	1993	1994	1995	1996	1997	1998	1999
Local Jails								
Number of Individuals Arrested for Drug Related Crime (in thousands)[1]	1,821	1,870	2,111	2,241	2,244	2,312	2,219	2,136
Total Number of Individuals Arrested (in thousands)[2]	14,075	14,036	14,649	15,120	16,341	15,284	14,528	14,031
Percentage of Individuals Incarcerated for Drug Related Crime	12.9%	13.3%	14.4%	14.8%	13.7%	15.1%	15.3%	15.2%
State and Federal Prison								
Number of Individuals Incarcerated for Drug Related Crime[1]	290,970	311,516	335,114	362,549	384,741	400,895	422,341	440,260
Total Number of Individuals Incarcerated[2]	821,551	879,974	949,764	1,034,345	1,103,035	1,152,046	1,209,725	1,254,577
Percentage of Individuals Incarcerated for Drug Related Crime	35.4%	35.4%	35.3%	35.1%	34.9%	34.8%	34.9%	35.1%

Source: Analysis by The Lewin Group, 2001.

Table B-12
Federal Funds for Reducing the Supply of Drugs, 1992-2000

	Actual								Projected
Federal Agency	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Justice									
Drug Enforcement Administration	$707.9	$756.6	$768.1	$801.4	$866.7	$1,056.9	$1,208.4	$1,304.0	$1,341.3
Federal Bureau of Investigation	$204.7	$257.0	$476.5	$540.0	$694.6	$802.2	$823.7	$589.4	$658.9
Immigration and Naturalization Service	$141.2	$147.0	$157.4	$184.6	$225.2	$324.1	$372.2	$428.7	$484.6
Interpol	$1.9	$1.9	$1.9	$1.8	$1.6	$0.8	$0.4	$0.2	$0.2
Treasury									
Bureau of Alcohol, Tobacco and Firearms	$135.9	$151.0	$158.8	$166.7	$171.2	$175.6	$212.8	$231.7	$252.0
Internal Revenue Service	$102.8	$91.8	$113.0	$100.9	$68.2	$73.4	$72.3	$72.4	$85.4
U.S. Customs Service	$784.7	$561.0	$572.9	$536.4	$531.2	$583.2	$606.4	$956.1	$660.0
Transportation									
Federal Aviation Administration	$15.8	$21.0	$25.3	$18.0	$18.1	$19.0	$22.7	$23.6	$26.3
U.S. Coast Guard	$436.4	$310.5	$314.8	$306.1	$323.2	$478.1	$485.0	$815.3	$573.6
State									
Agency for International Development	$250.2	$139.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bureau of International Narcotics and Law Enforcement Affairs	$144.8	$147.8	$144.9	$231.8	$135.0	$193.0	$210.0	$489.2	$273.8
U.S. Information Agency	$9.7	$9.3	$7.9	$8.0	$8.3	$7.2	$8.2	$8.5	$8.0
Agriculture									
Agriculture Research Service	$6.5	$6.5	$6.5	$6.5	$4.7	$4.7	$4.8	$5.3	$4.8
U.S. Forest Service	$9.4	$9.6	$9.6	$9.8	$9.8	$5.8	$5.8	$5.8	$6.8
Interior									
Bureau of Indian Affairs	$19.1	$19.4	$22.2	$19.9	$15.6	$16.0	$21.3	$17.5	$20.3
Bureau of Land Management	$8.5	$10.0	$5.1	$5.1	$5.0	$5.0	$5.0	$5.0	$5.0
Fish and Wildlife Service	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0
National Park Service	$10.8	$8.7	$8.8	$8.8	$8.8	$9.3	$9.4	$9.5	$9.5
Defense	$1,135.0	$1,040.6	$726.1	$750.3	$739.0	$864.6	$757.3	$904.3	$1,067.1
Total	**$4,126.3**	**$3,690.5**	**$3,520.8**	**$3,697.1**	**$3,827.2**	**$4,619.9**	**$4,826.7**	**$5,867.5**	**$5,478.6**

Source: ONDCP (1992-2000) *National Drug Control Strategy: Budget Summary*.

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APPENDIX C: ESTIMATED COSTS IN CONSTANT 2000 DOLLARS

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Table C-1
The Economic Cost of Drug Abuse, 1992-2000
Overall Costs
(in millions of 2000 dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000
Health Care Costs	$13,132	$13,095	$12,959	$12,630	$12,402	$12,821	$13,435	$14,165	$14,899
Productivity Losses	$69,421	$91,874	$94,996	$98,411	$100,296	$100,218	$102,855	$106,648	$110,491
Other Costs	$21,912	$26,406	$28,078	$30,300	$29,782	$32,383	$33,513	$35,050	$35,274
Total	**$104,465**	**$131,376**	**$136,033**	**$141,340**	**$142,479**	**$145,422**	**$149,803**	**$155,863**	**$160,664**

Source: Analysis by The Lewin Group, 2001.

Table C-2
The Economic Cost of Drug Abuse, 1992-2000
Health Care Costs
(in millions of 2000 dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000
Community-Based Specialty Treatment	$4,144	$4,445	$4,576	$4,565	$4,872	$4,915	$5,153	$5,369	$5,594
Federally-Provided Specialty Treatment									
Department of Defense	$17	$10	$6	$6	$5	$5	$5	$5	$6
Indian Health Services	$31	$39	$36	$35	$36	$33	$33	$33	$33
Bureau of Prisons	$21	$20	$20	$20	$21	$21	$22	$26	$28
Department of Veterans Affairs	$568	$639	$680	$729	$643	$628	$434	$449	$439
Support									
Federal Prevention	$747	$734	$734	$697	$608	$697	$757	$799	$826
State and Local Prevention	$108	$109	$105	$112	$88	$90	$89	$87	$85
Training	$59	$60	$61	$61	$62	$62	$63	$64	$64
Prevention Research	$191	$194	$201	$201	$230	$245	$261	$292	$323
Treatment Research	$236	$285	$291	$292	$307	$332	$343	$391	$419
Insurance Administration	$271	$328	$329	$305	$294	$272	$299	$330	$367
Medical Consequences									
Hospital and Ambulatory Care Costs	$682	$664	$765	$852	$949	$903	$1,013	$1,025	$1,039
Special Disease Costs									
Drug-Exposed Infants	$494	$500	$505	$506	$508	$509	$525	$532	$539
Tuberculosis	$36	$36	$35	$33	$31	$28	$25	$22	$20
HIV/AIDS	$4,490	$4,023	$3,619	$3,248	$2,911	$3,218	$3,527	$3,822	$4,144
Hepatitis B and C	$561	$470	$481	$510	$427	$466	$454	$459	$466
Violent Crime	$112	$168	$170	$155	$148	$140	$133	$126	$128
Health Insurance Administration	$362	$372	$345	$303	$262	$255	$300	$335	$380
Total	**$13,132**	**$13,095**	**$12,959**	**$12,630**	**$12,402**	**$12,821**	**$13,435**	**$14,165**	**$14,899**

Source: Analysis by The Lewin Group, 2001.

Table C-3
The Economic Cost of Drug Abuse, 1992-2000
Productivity Losses
(in millions of 2000 dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000
Premature Death	$14,575	$24,857	$25,167	$25,633	$21,375	$17,791	$17,351	$17,823	$18,256
Drug Abuse Related Illness	$14,205	$16,220	$18,204	$19,817	$21,997	$21,128	$24,175	$24,832	$25,435
Institutionalization/Hospitalization	$1,477	$1,769	$1,933	$2,091	$1,664	$1,763	$1,866	$1,890	$1,915
Productivity Loss of Victims of Crime	$2,059	$2,932	$2,934	$2,656	$2,530	$2,432	$2,262	$2,164	$2,217
Incarceration	$17,907	$22,819	$24,236	$25,678	$26,949	$28,877	$31,477	$33,515	$35,601
Crime Careers	$19,198	$23,277	$22,521	$22,536	$25,782	$28,227	$25,725	$26,424	$27,066
Total	**$69,421**	**$91,874**	**$94,996**	**$98,411**	**$100,296**	**$100,218**	**$102,855**	**$106,648**	**$110,491**

Source: Analysis by The Lewin Group, 2001.

Table C-4
The Economic Cost of Drug Abuse, 1992-2000
Costs for Other Effects
(in millions of 2000 dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000
Cost of Goods and Services Lost to Crime									
Criminal Justice System and Other Public Costs									
Police Protection	$5,348	$6,915	$7,618	$8,057	$7,898	$9,017	$9,501	$9,824	$10,189
Legal Adjudication	$2,716	$3,385	$3,742	$4,053	$3,898	$4,450	$4,689	$4,848	$5,028
State and Federal Corrections	$7,495	$8,974	$9,669	$10,955	$10,901	$11,104	$11,519	$11,748	$11,990
Local Corrections	$1,333	$1,638	$1,823	$1,951	$1,822	$1,836	$1,734	$1,634	$1,599
Federal Spending to Reduce Supply	$4,126	$4,349	$4,045	$4,130	$4,153	$4,901	$5,042	$5,997	$5,479
Private Costs									
Private Legal Defense	$365	$458	$493	$500	$483	$554	$573	$581	$591
Property Damage for Victims of Crime	$193	$269	$266	$243	$232	$221	$195	$181	$181
Social Welfare	$337	$418	$422	$412	$395	$300	$260	$238	$218
Total	**$21,912**	**$26,406**	**$28,078**	**$30,300**	**$29,782**	**$32,383**	**$33,513**	**$35,050**	**$35,274**

Source: Analysis by The Lewin Group, 2001.

Table C-5
The Economic Cost of Drug Abuse, 1992-2000
Crime Related Costs
(in millions of 2000 dollars)

Cost Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000
Health Care Costs									
Crime Victim Health Care Costs	$92	$168	$170	$155	$148	$140	$133	$126	$128
Productivity Losses									
Productivity Loss of Victims of Crime	$2,059	$2,932	$2,934	$2,656	$2,530	$2,432	$2,262	$2,164	$2,217
Incarceration	$17,907	$22,819	$24,236	$25,678	$26,949	$28,877	$31,477	$33,515	$35,601
Crime Careers	$19,198	$23,277	$22,521	$22,536	$25,782	$28,227	$25,725	$26,424	$27,066
Other Costs									
Criminal Justice System and Other Public Costs									
Police Protection	$5,348	$6,915	$7,618	$8,057	$7,898	$9,017	$9,501	$9,824	$10,189
Legal Adjudication	$2,716	$3,385	$3,742	$4,053	$3,898	$4,450	$4,689	$4,848	$5,028
State and Federal Corrections	$7,495	$8,974	$9,669	$10,955	$10,901	$11,104	$11,519	$11,748	$11,990
Local Corrections	$1,333	$1,638	$1,823	$1,951	$1,822	$1,836	$1,734	$1,634	$1,599
Federal Spending to Reduce Supply	$4,126	$4,349	$4,045	$4,130	$4,153	$4,901	$5,042	$5,997	$5,479
Private Costs									
Private Legal Defense	$365	$458	$493	$500	$483	$554	$573	$581	$591
Property Damage for Victims of Crime	$193	$269	$266	$243	$232	$221	$195	$181	$181
Total	**$60,832**	**$75,183**	**$77,518**	**$80,913**	**$84,795**	**$91,759**	**$92,849**	**$97,042**	**$100,069**

Source: Analysis by The Lewin Group, 2001.

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