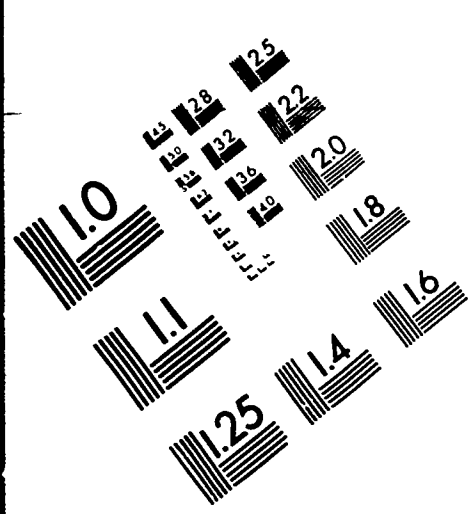

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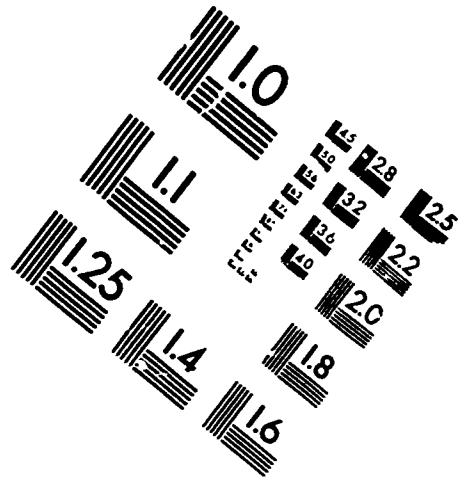

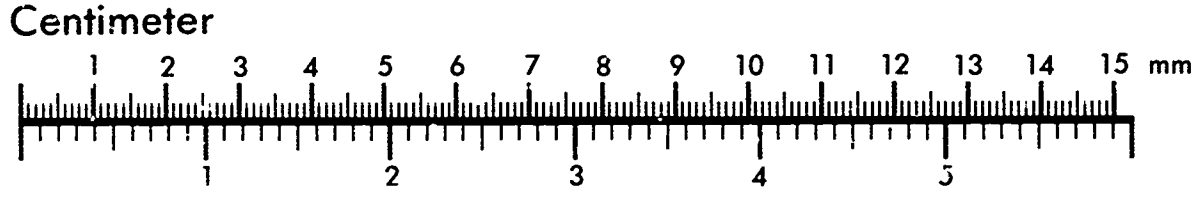

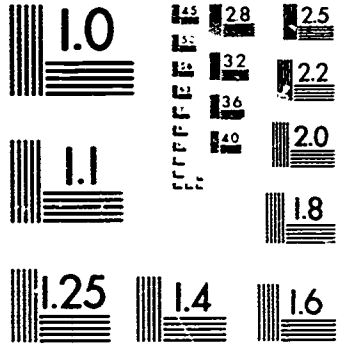

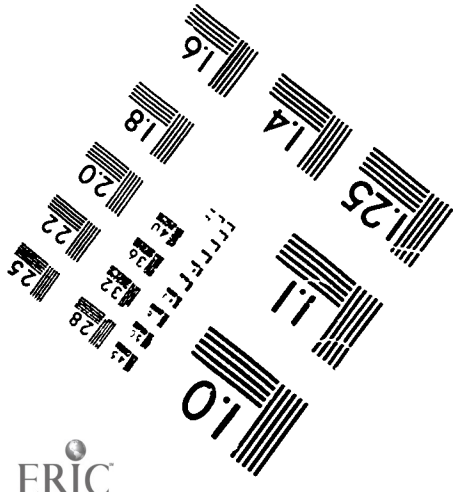

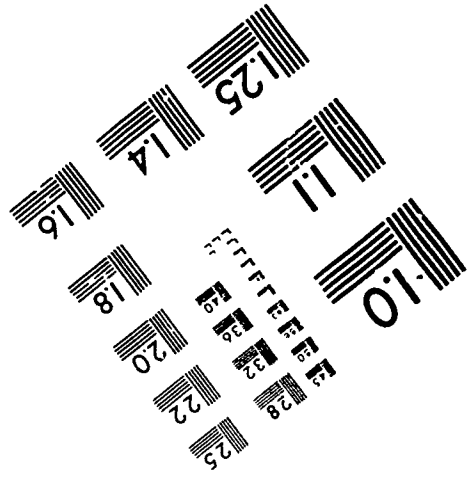

DOCUMENT RESUME

ED 325 208 PS 019 102

AUTHOR Falco, Mathea
TITLE Preventing Abuse of Drugs, Alcohol, and Tobacco by Adolescents.
INSTITUTION Carnegie Council on Adolescent Development, Washington, DC.
SPONS AGENCY Carnegie Corp. of New York, N.Y.
PUB DATE Jun 88
NOTE 75p.; For related papers, see ED 323 017-023 and PS 019 100-101. Paper commissioned for the Meeting of the Carnegie Council on Adolescent Development (June 1987).
AVAILABLE FROM Carnegie Council on Adolescent Development, 2400 N Street, NW, 6th Floor, Washington, DC 20037-1153 (free).
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Alcohol Abuse; Drug Abuse; Federal Legislation; *Federal Programs; *Intervention; *Mass Media Role; Outcomes of Treatment; *Prevention; *Public Policy; Smoking; State of the Art Reviews; *Substance Abuse; Supply and Demand
IDENTIFIERS *Legal Status

ABSTRACT

From the mid-1960s until 1980, adolescent drug use rose sharply. Although use has declined somewhat since, adolescent cocaine use remains at peak levels, and crack presents a major threat. Treatment for compulsive drug or alcohol use is needed by 5 to 15 percent of the teenagers who experiment with drugs and alcohol. Drug abuse experts now believe that reducing demand for drugs through education and prevention programs is the most promising strategy for combatting drugs. However, past prevention and education efforts have generally proved unsuccessful in reducing substance use. Reaching adolescents who have dropped out of school and are at highest risk for substance abuse is extremely difficult. During the past 6 years, federal drug policy has emphasized supply control. The Anti-Drug Abuse Act of 1986 represents an important first step in developing a comprehensive, well-funded national response to the drug problem. However, a cabinet-level office is needed to lead and coordinate agencies and insure the implementation of a comprehensive, coherent national strategy. Citations number 92. (RH)

PREVENTING ABUSE OF DRUGS, ALCOHOL, AND TOBACCO BY ADOLESCENTS

Mathea Falco

June 1988

This paper was commissioned for the June 1987 meeting of the Carnegie Council on Adolescent Development as part of its discussion about issues in adolescent health. The Working Papers aim to communicate to interested persons about the ongoing activities of the Council. The papers do not necessarily reflect the views of the Council or Carnegie Corporation.

The Carnegie Council on Adolescent Development is a program of Carnegie Corporation of New York, and is located at 11 Dupont Circle, N.W., Washington, D.C. 20036. Telephone: (202) 265-9080.

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Executive Summary

The widespread use of drugs, alcohol, and tobacco among young people is a major national concern. It is now clear that chronic use of these substances can cause serious, sometimes irreversible damage to adolescent physical and psychological development. Moreover, adolescent substance abuse is closely correlated with other problem behaviors, such as early pregnancy, dropping out of school, delinquency, and violence. The strong public demand for effective action to combat drugs may provide the means to develop a national strategy which will address not only substance abuse but also the related problem behaviors of many adolescents.

Although national data on the extent of adolescent substance use are limited, certain trends are apparent. From the mid-1960's until 1980, adolescent drug use rose sharply. Although use has declined somewhat since then (except for cocaine), alcohol, marijuana, and tobacco are commonly used by most high school students. The 1986 High School Senior Survey reported that 60% of the senior class had tried an illicit drug, more than two-thirds had used cigarettes, and 91% had used alcohol.

Adolescent cocaine use remains at peak levels: in 1986, one in six seniors reported having tried it. Daily use of cocaine doubled between 1983 and 1986, and more seniors are reporting difficulties in stopping cocaine use. The recent emergence of crack, a powerful form of smokeable cocaine, presents a major threat to adolescents. Crack produces an intense, instant euphoria, followed quickly by severe let-down and the need to obtain more crack. Crack is also sold in cheaper units than

cocaine, well within the reach of most teenagers. Because of lag time in data collection, national surveys dc not yet provide an accurate picture of crack use. However, the most recent surveys show a substantial increase in the proportion of adolescents who have smoked cocaine, some of which probably was crack.

The Federal strategy for dealing with the drug problem consists of supply control efforts, involving law enforcement and legal restrictions on availability; and demand reduction efforts, involving prevention, education, and treatment. With regard to totally prohibited drugs, like marijuana, cocaine, and heroin, supply control efforts focus on law enforcement: keeping drugs from entering the country and eliminating illicit domestic production and trafficking. For substances which are legal for some groups but not for others, like alcohol, tobacco, and prescription drugs, supply control efforts concentrate on restricting availability through minimum age laws and physician prescription requirements. Supply control efforts at their most successful can reduce availability, which can have substantial impact in preventing first use.

Treatment for compulsive drug/alcohol use is needed by approximately five to fifteen percent of the teenagers who experiment with drugs and alcohol. Very little work has been done on developing treatment programs specifically designed for adolescent substance abusers, who often have multiple behavior problems. The absence of reliable outcome data for existing programs means that very little is known about the effectiveness of various treatment approaches. It will be a number of years

before studies now being undertaken with Federal support will begin to provide answers about treatment effectiveness.

Drug abuse experts now believe that reducing demand for drugs through education and prevention programs is the most promising strategy for combatting drugs, although past prevention and education efforts have generally not proved successful in reducing substance use. However, new prevention models based on social influences theory are having some impact in preventing adolescent cigarette smoking and may have broader applicability to prevention of marijuana and alcohol use as well. These new models are currently being evaluated in schools around the country.

The problem of reaching adolescents who have dropped out of school and who are at highest risk for substance abuse is even harder to resolve. Research is lacking on what kind of prevention and intervention efforts might be effective for this group and how these programs could be successfully delivered outside the school system.

During the past six years, the major emphasis of Federal drug policy has been on supply control. Funding for drug law enforcement has increased by more than $700 million, while Federal funds for drug education, prevention, and treatment have been reduced by forty percent. Despite the substantial funding increases for law enforcement, supplies of illicit drugs have continued to grow. The reduction in Federal support for drug prevention and treatment left many state and local government programs underfunded. As a result, treatment is not available in

some areas for those who cannot afford private care, and prevention programs are severely limited.

Widespread frustration at the failure of Federal drug policies led to the Anti-Drug Abuse Act of October 1986, which was adopted with overwhelming bipartisan support. The most far reaching drug law ever passed by Congress, the Act provides $1.7 billion in new money for drug law enforcement, treatment, prevention, and education, as well as international narcotic control efforts. The Act is an important first step in developing a comprehensive, well funded national response to the drug problem. However, a single Cabinet-level office is needed to provide leadership for the dozens of Federal agencies responsible for domestic and foreign drug control programs and to ensure the implementation of a comprehensive, coherent national strategy.

The media plays a powerful, although still largely unexplored role in influencing adolescent substance use. Public service messages directed at reducing drug use have generally not succeeded. A major new initiative by the Media-Advertising Partnership for a Drug Free America will attempt to change public attitudes towards marijuana and cocaine through an intensive advertising campaign. The data collected on changes in attitudes through the three year campaign will provide valuable information for future media efforts.

The legal status of a substance has only limited impact in reducing use if it is not accompanied by a strong social consensus regarding its dangers and undesirability. When 62 million Americans admit having used marijuana and another 22 million

report cocaine use, the deterrent effect of the illegal status of these substances is clearly marginal. Yet that margin can be important at the threshhold of first use as children model their behavior on the adults around them. The greatest impact of the illegal status of a drug may be in preventing first use and in discouraging further use after initial experimentation.

A number of areas for further consideration arise from the issues discussed in the paper. The new Anti-Drug Abuse Act of 1986 provides an opportunity to develop a comprehensive national strategy which addresses both supply control and demand reduction efforts. A key part of such a strategy will be to plan effective use of substantial new prevention and treatment research funds.

Federal support is needed for certain kinds of research not presently being done which could have significant impact on prevention efforts. Two examples are research on the mechanisms underlying adolescent risk-taking behavior and research evaluating the impact of social policy changes on substance use. More timely, better data on drug use and availability could also be developed. Several new policy directions are suggested to improve Federal supply control efforts. Because of the importance of international cooperation in reducing drug availability, drug control should be given top priority on the diplomatic agenda. Cocaine, particularly crack, now presents a very serious threat to adolescents and young adults and should be the primary focus of current supply efforts.

Introduction

National polls indicate that public concern about combatting drug abuse exceeds worry about nuclear war. Much of this preoccupation comes from the continuing high levels of experimental and regular drug use among teenagers and young adults, and by the drop in age of first use for alcohol, tobacco, and marijuana. Although adolescent use levels- except for cocaine--are generally lower than they were at the end of the 1970's, many parents are alarmed that both the health and development of their children may be threatened by the widespread use of drugs, particularly marijuana and alcohol. The recent emergence and rapid spread of the potent cocaine derivative "crack" has increased the sense of frustration that effective action is not being taken to combat drugs.

The ambivalent tolerance many adults exhibited towards adolescent use of tobacco, alcohol, and marijuana in the 1970's has eroded as the dangers of these substances--and their dependence producing potential--have become increasingly apparent. Of the large numbers of adolescents who try these substances, some will go on to try other "harder" drugs, like cocaine. Some will become compulsive drug abusers; some will become alcoholics; and some will become chronic smokers, often using these substances in combination.

In addition to serious public health consequences, adolescent substance abuse is highly correlated with other problem adolescent behviors, such as early pregnancy, dropping out of school, delinquency, and violence. The strong public

demand for effective action to combat drugs may provide the means to develop a national strategy which not only will address substance abuse but will also have an impact on the related problem behaviors of many adolescents.

This paper will examine the extent of the adolescent drug problem, assess the adequacy of the national response, and recommend new policy directions and further research. Specifically, the paper will review present trends in adolescent drug, alcohol, and cigarette use. These trends will be analysed in the historical context of the past twenty years to provide a long-term basis of comparison for current figures. The paper will then examine the two basic strategies for controlling substance use: supply reduction, involving law enforcement and legal restrictions on availability; and demand reduction, involving prevention, education, and treatment. The effectiveness of these strategies on reducing adolescent substance use will be evaluated. New research approaches to prevention will also be assessed. The paper will appraise the impact of Federal policy on the drug problem particularly in the past decade, when the primary emphasis has been on law enforcement. Finally, recommendations for new policy directions and areas for further study will be made.

Trends in Adolescent Drug Use

Drug, alcohol and tobacco use have become an integral part of the lives of most American adolescents. The United States has the highest rate of teenage drug use of any industrialized

nation. Nearly 60% of American youth try an illicit drug before they finish high school; more than two thirds have used cigarettes and 91% have used alcohol.[1]

The terms "experimentation," "use," and "abuse" are often used interchangeably, even though their meaning can be quite different. In this paper, the term "experimentation" generally connotes trying a substance once or twice while "use" includes both experimentation and more regular use. "Abuse" signifies levels of chronic, compulsive use which engender serious physical and/or psychological problems.

Since 1972, the major drugs which young people have reported using are (in decreasing order of prevalence) alcohol, tobacco, marijuana, stimulants, sedatives and tranquilizers, cocaine, hallucinogens and inhalants, and heroin. Alcohol, tobacco, and marijuana have been the most widely used drugs while heroin is the least used. Since 1980, although adolescent drug use has declined slightly, except for cocaine, initial drug use occurs at increasingly younger ages. The percentage of students using drugs by the 6th grade has tripled in the last ten years: twenty five years ago, marijuana use was virtually non-existent among 13 year-olds; now, one in six 13 year-olds has used marijuana. Alcohol has become a serious problem among ten to fifteen year-olds; peer and social pressure to drink now begins in the fourth grade.[2]

Our knowledge of adolescent substance use comes from two primary sources: the annual High School Senior Survey conducted by the University of Michigan's Institute for Social

Research and the periodic National Household Survey on Drug Abuse sponsored by the National Institute on Drug Abuse. Although they provide very useful data, their ability to give an accurate, comprehensive picture is limited. First, they rely entirely on self-report data. Young people often underreport their use to avoid adult disapproval, even with relatively acceptable substances like tobacco, sometimes by as much as half. Further, these surveys report only on seniors in school and young people (age 12-17) in homes. School drop outs, absentees, or institutionalized youngsters are not included. A quarter of all Americans do not graduate from high school; this drop-out rate is higher in big city schools. Almost 50% of Boston's predominantly minority high school population, for example, drop out before the senior year. Drug abuse is particularly prevalent among this population and is very difficult to measure. Because of these limitations on reporting, the actual prevalence and frequency of adolescent drug use are probably significantly higher than the surveys themselves indicate. The very low rates of reported heroin use may reflect the absence of this population from the national surveys.

Other sources of information are of limited use because they do not focus on adolescents. The Drug Abuse Warning Network (DAWN), which reports hospital emergency room admissions, and the Client Oriented Data Acquisition Process (CODAP), which until it was disbanded in 1981 because of Federal budget cuts, provided nationwide data on persons

entering treatment, measure only those who get into medical difficulties with drug use. However, despite the limits of available data, certain broad trends in adolescent substance use over the past 25 years are clearly visible.

Until the late 1960's, the incidence of drug use generally remained low among young people. However, during the next decade there was a rapid increase in the use of marijuana and a substantial, although smaller increase in the use of other drugs.

The first national survey on marijuana use was conducted by the National Commission on Marihuana and Drug Abuse, in September 1971. Using a national probability sample of 2,405 adults, and 781 young people ages 12-17, the researchers found that 15% of the adults and 14% of the young people had used marijuana at some time and that 5% of the adults and 6% of the young people were present users. 5% of the young marijuana users reported daily use compared to 3% of the adults. 44% of college students interviewed reported having tried marijua[3]

The National Commission conducted a more comprehensive survey on substance use in the fall of 1972. The survey found that while 47.9% of young adults (18-25) had used marijuana, youthful (12-17) experimentation remained level at 14%. The survey also found that 17% of youth (12-17) were current cigarette smokers, predominantly male. Cigarette smoking was closely related to consumption of alcohol, marijuana and non-prescription pills. One quarter of the young people had used

alcohol in the week prior to the survey. Other drugs tried were inhalants (6.4%); LSD (4.8%); cocaine (1.5%), and heroin (.6%).[4]

The first Senior High School Survey, conducted in 1975, reported that almost half the class had used marijuana; 90% had used alcohol and 73.6% had smoked cigarettes. Over a fifth of the class had used stimulants, although only 9% had tried cocaine. By 1979, drug use in this group reached all time highs: 60% reported marijuana use; 15.4% cocaine use; 24.2% stimulant use; 93% alcohol use and 74% cigarette use. These trends are also reflected in the National Household Surveys conducted in 1977 and 1979.

Since 1980, adolescent use of most drugs, except for cocaine, has generally decreased. In 1986, daily marijuana use had fallen to 4% from its peak of 11% in 1978, while current amphetamine use dropped to 5.5% from its peak of 13% in 1981. PCP, LSD, and heroin use have remained quite low.

The 1986 Senior High School Survey found that one in six (17%) seniors had tried cocaine; 13% had used it in the prior year, and 6% in the prior month. Cocaine is now the second most used illicit drug, after marijuana, among seniors. While the proportion of high school students using cocaine has grown only slightly since 1981, there has been an increase in frequency of use. Daily use of cocaine doubled between 1983 and 1986, from .2% to .4%. Similar trends were noted by the National Household Survey.

Alcohol use among adolescents remains very high. Nearly two-thirds of the 1986 senior class report having used alcohol within the previous thirty days, down from 72% of the 1980 seniors. Of the 1986 class, 37% had had five drinks at a single sitting at least once in the prior two weeks, and almost 6% are daily drinkers. The 1985 National Household Survey reported an increase in alcohol use by youth: 31.5% of the group aged 12-17 reported current use, up from 26.9% in 1982. This increase in current use was also reflected among young adults (67.9% in 1982 to 71.5% in 1985), as well as adults (56.7% in 1982 to 60.7% in 1985).

Although daily teenage cigarette smoking dropped by one third from 1977 to 1981, there has been almost no further decline, despite intensive anti-smoking education campaigns. Smoking among high school seniors reached a peak in 1976 and 1977 when 38% reported smoking within the prior month and 29% reported daily smoking. By 1981, 30% reported prior month use while 19% reported daily smoking. The 1986 survey found virtually no further change in these rates. The age of first use among 12-17 year olds has increased slightly: in 1982, the average age was 10.9 years; by 1985 it had risen to 11.4 years.[5]

In 1968, almost twice as many boys smoked as girls, but smoking by girls then increased until 1977, when the percentage of girls smoking matched that of boys. Between 1977 and 1981, the percentage of both girls and boys who smoked declined, but with boys at a faster rate. Now more girls smoke than boys.

However, the use of smokeless tobacco, particularly by boys, has increased in recent years.[6]

In summary, although the peak levels of teenage illicit drug use at the end of the 1970's have declined somewhat during this decade, cocaine use remains at high levels. Cigarette smoking has not dropped since 1981, despite massive public education efforts. Alcohol use has declined slightly but remains very widespred. Common teenage use of the legal drugs, alcohol and tobacco, may reflect their ready availability at low cost, their general social acceptability, as well as their capacity to produce physical dependence. The high levels of cocaine use among adolescents may be increasing further now with the emergence of crack, a potent, inexpensive cocaine derivative. Many drug abuse experts believe that crack presents a major threat that could lead to epidemic use levels.

CRACK

Crack, a form of cocaine freebase, has received a great deal of media attention since it first appeared on the streets two years ago. Medical and treatment experts agree that it is particularly dangerous to adolescents because of its pharmacology and the way it is marketed.

Crack, so called because of the cracking sound it makes when smoked, is made by mixing cocaine hydrochloride (white powder known as "snow") with baking soda and water, and then removing the water by heating--a simple process which takes

less than two hours. The crack which results is a far more concentrated form of cocaine, which retains full potency when smoked. Before the crack process was developed, the only way to produce freebase (smokeable cocaine derivative) involved using highly flammable solvents, usually ether, and often resulted in explosions, like the one in which comedian Richard Pryor was severely burned. Because crack is easy and safe to produce, traffickers and distributors are marketing it far more actively than the traditional freebase.

Crack can also be bought in cheaper units than cocaine hydrochloride, making it more accessible to teenage users. Cocaine sells for $80 to $120 a gram on the street while crack is sold in $5 to $15 vials. The Drug Enforcement Agency reports, however, that crack is more profitable for the pusher than cocaine. One ounce of cocaine, which costs $1,600-$1,800, can be made into 370 units of crack, which sell for $3,700 or more, giving the distributor a profit of at least 200%.[7] This profit margin has greatly expanded the numbers of low level retail dealers, who do not need to be part of major importation networks. At the same time, individual doses of crack are sold at affordable prices: one vial costs no more than the movies. Nonetheless, crack is highly addictive, and the costs of supporting compulsive crack use soon become prohibitively expensive.

Crack is generally smoked in a water pipe or sprinkled on tobacco or marijuana. The drug enters the blood stream within seconds, creating an almost instantaneous, intense euphoria

which lasts ten to fifteen minutes. The sharp let down as the effects disappear drives users to smoke more crack, creating a cycle of compulsive use which often ends only when the supply of crack runs out. Cocaine, which is usually inhaled or "snorted," produces similar, although somewhat less intense euphoria, but it takes a few minutes to be felt and its let down is more gradual. Treatment experts report that while cocaine users often use the drug for four to five years before seeking help, the new crack users get into physical and psychological difficulties quickly, sometimes within weeks.[8]

Cocaine psychosis, first described by Sigmund Freud in 1884 and never experienced by most cocaine users, manifests itself frequently in crack users. Scientists believe that the psychotic symptoms are caused by the effect of cocaine on dopamine production, which rises suddenly when the drug enters the bloodstream and drops again when the drug wears off. When dopamine levels rise repeatedly, particularly in day long binges of crack use, psychotic symptoms can develop. Even when psychosis does not develop, users tend to be highly agitated and prone to violence, threatening their own and others' safety.[9] For example, New York City police reported that in 1986, homicides in all of Manhattan north of 59th Street, where crack trafficking has been heavy, rose 22% compared with a 9% drop in 1985.[10]

While adolescent use of cocaine has grown only slightly since 1981, crack use is increasing. The 1986 High School Senior Survey contained specific questions on crack for the

first time. While one in six seniors reported having used powdered cocaine, 4.1% already had tried crack. The proportion of students who smoked cocaine remained at 2.5% between 1979 and 1983; by 1986, the figure rose to 6%, most of which was crack. Significantly, the proportion who reported that they were unable to stop using cocaine at some time doubled from .4% in 1983 to .8% in 1986.[11]

According to the 1986 Senior Survey, crack users have a demographic profile similar to that of users of powdered cocaine. Males are somewhat more likely to be users than females, and use is higher in large cities in the Northeastern and Western regions of the country. However, crack use is even more common than cocaine use among students who are not bound for college.[12]

The 1985 National Household Survey did not include questions on crack, but did ask about smoking cocaine. The survey found that 44% of those aged 12-17 who used cocaine had smoked the drug compared to 21% of young adults aged 18-25. These data were collected in the spring of 1985 when crack was first becoming widely available on the streets, and do not fully reflect new use.[13] The 1988 Household Survey will include questions on crack, as will a U.S. Department of Health and Human Services Office of Disease Prevention survey of eighth and tenth graders in the fall of 1987.[14]

Smoking cocaine continues to increase as a proportion of all cocaine related incidents reported from hospital emergency rooms in the national Drug Abuse Warning Network (DAWN). In the

third quarter of 1986, almost 20% of the cocaine cases reported smoking as a route of administration compared to 14% in the first quarter of 1986 and 4% in the first quarter of 1984.[15] Although data were not collected on the type of cocaine smoked (traditional freebase or crack), the recent increase in smoking cocaine cases probably reflects the new availability of crack, which is cheaper than freebase. These data are confirmed at various treatement programs: for example, at New York's Phoenix House, cocaine was the drug of choice of 30% of those entering treatment in 1984; by 1986, that figure had doubled to 60%.[16]

There has also been a sharp increase in the numbers of women seeking treatment for cocaine addiction. In New York State, for example, the proportion of women in cocaine treatment rose from 20% in 1982 to 35% in 1986.[17] Women may be more likely to use a drug that can be smoked rather than injected, without the fear of needles, disfiguring track marks and AIDS.

The media responded vigorously to the emergence of crack with major stories on TV and in the press. The cocaine related deaths of sports stars Len Bias and Don Rogers in 1986 further heightened public awareness of crack. Some states like Massachusetts responded with extensive educatien efforts, distributing over 100,000 warning bulletins on crack to local organizations. Nevertheless, many adolescents still believe that experimenting with cocaine is not harmful. The 1986 Senior High School Survey found that while a majority of

students recognized great risk in regular use of cocaine, only a third saw experimenting with cocaine as endangering the user.[18]

Despite adverse publicity about its dangers, cocaine continues to have a more glamorous image than oth illicit drugs. The fact that major sports stars use it--even if it kills them--sends a powerful message to young people. So does the widespread use of cocaine on Wall Street. The recent arrests of a dozen stock brokers, particularly if followed by convictions and jail sentences, may help dim some of cocaine's image. But the reality remains that more than 22 million Americans have used cocaine and many more have tacitly accepted its use despite its illegality.[19] The profound ambivalence within American society towards cocaine will make efforts to prevent widespread teenage use of crack even more difficult.

DRUG CONTROL STRATEGIES--REDUCING SUPPLY AND DEMAND

Federal strategy for dealing with the drug problem is basically two pronged: supply control efforts designed to reduce availability, and demand control efforts designed to reduce the consumer market for drugs. The goal of both efforts is to prevent first use and if that is not possible, then reduce or eliminate subsequent use.

SUPPLY CONTROL--LAW ENFORCEMENT

Supply control efforts include (1) laws prohibiting or restricting the availability of certain substances; (2) enforcement of those laws at the Federal, state, and local

level; and (3) international diplomatic and foreign assistance initiatives to enlist the support of other governments in reducing the illicit production and traffic of drugs. The assumption behind these efforts is that reduced supply will necessarily result in reduced consumption, and that disruption of illicit drug production and trafficking will drive up drug prices, reducing both the amount of consumption among current users and the numbers of new users who might otherwise try lower priced substances.

With regard to totally prohibited drugs, like marijuana, heroin, cocaine, and the hallucinogens, supply control efforts focus entirely on law enforcement: keeping drugs from coming across our borders and eliminating illicit domestic production and trafficking.

International supply control efforts are designed to encourage other governments to eradicate illegal drug production and to break up trafficking networks. Diplomatic initiatives through the United Nations and support for multilateral organizations, like the United Nations Fund for Drug Abuse Control and the International Narcotics Control Board, are also designed to enlist active international support for combatting drugs.

The assumption behind international efforts is that the most cost effective way to reduce the amount of illicit drugs available in the U.S. is to destroy them at their source, rather than stop them at our borders or search for them within the U.S. The policy has had some success, primarily in

reducing heroin imports from Turkey in the early 1970's and Mexico in the late 1970's. However, it has also led to unintended, paradoxical results, most notably in the case of Mexican marijuana. In 1975, the Mexican government with U.S. assistance initiated a marijuana eradication program using aerial spraying of the herbicide paraquat. Mexico was then a major source for the U.S. market of relatively cheap ($25/ounce), low potency marijuana (1-3% THC content). Although the Mexican program effectively eliminated much of the illicit marijuana cultivation, that which survived the paraquat spraying continued to come into the U.S., raising widespread public concern about possible adverse health effects for marijuana users. Imports of Mexican marijuana plummeted, principally because most users refused to smoke a paraquat-contaminated product.[20]

Jamaica and Colombia, which had previously been relatively minor marijuana suppliers for the U.S., quickly stepped up production to meet American demand. Their product was much more potent and more expensive which increased both health hazards to U.S. users and profits for the traffickers. At the same time, illicit production in the U.S. rapidly expanded. By 1980, marijuana had become the largest cash crop in California, Hawaii, and Oregon, and now ranks nationwide as the second largest cash crop after corn.[21]

Limited eradication efforts by the U.S. Drug Enforcement Administration (DEA) using aerial herbicide spraying have not been successful because they have been resisted forcefully by

local communities. The manual cutting and burning method has been used in some areas, but is too slow and costly to have much impact on marijuana acreage. Growers have also responded to enforcement threats by producing smaller, more potent crops, often grown indoors hydroponically. Much of the marijuana now grown in the U.S. is so much stronger (4-14% THC content) than the marijuana of the 1960's making it far more dangerous to health and development than the Mexican marijuana of two decades ago.[22]

With regard to substances which are legal for some groups but not for others, like alcohol, tobacco, and prescription drugs, supply control efforts focus on restricting availability to those excluded groups. Since 1980, a number of states have attempted to reduce adolescent consumption of alcohol by raising the legal drinking age from 18 back to 21, where it had been for decades. States are also strengthening laws prohibiting sale of cigarettes to minors, as well as undertaking active enforcement of those laws.

Laws raising the legal drinking age seem to be having an impact on adolescent alcohol use and on alcohol related driving accidents. A recently released study by the New York State Division of Alcoholism and Alcohol Abuse found that alcohol consumption among 16 to 20 year olds declined by 21% and alcohol purchase by 50% in 1986, the first year after the drinking age in New York was raised to 21 from 19.[23]

Laws prohibiting the non-medical use of prescription drugs, like sedatives and tranquilizers, have long existed.

Restrictions on legal psychoactive pharmaceutic drugs, like tranquilizers, are not age-based; they depend on physician prescription controls to prevent diversion to illicit uses. However, these drugs are often illegally manufactured for the illicit market, so that Federal prescription and distribution controls have no impact.

For example, the sedative methaqualone, originally in the lowest Federal controlled drug schedule, was subjected to the strictest controls after it bacame a major drug of adolescent abuse (known as "ludes") in the early 1970's. Its availability continued, however, because of illicit manufacture, both in the U.S. and in other countries. By the early 1980's, major diplomatic and law enforcement efforts began to reduce supply and drive up cost. Negative publicity about overdose deaths attributed to methaqualone and alcohol in combination also had an impact on adolescent use. The Senior High School Survey reported that only 2% of the 1986 senior class had tried methaqualone in the previous year, compared to 7.6% in 1981. A similar reduction was seen in those who had used methaqualone within the previous thirty days--.8% in 1986 compared to 3.3% in 1980.[24]

Supply control efforts at their most successful can reduce substance availability, sometimes dramatically, and drive prices up. A certain proportion of chronic users will then seek treatment, quit by themselves, or instead switch to other less expensive, more easily accessible drugs. Many former heroin addicts, for example, become compulsive drinkers and

smokers. Whether these switching patterns occur among adolescent users has not been tested. Since many adolescents use a number of drugs, including alcohol and tobacco, at the same time, it may be that specific substance consumption within the overall drug using behavior may change depending on drug availability.

Supply control efforts probably have their greatest effect on the behavior of youngsters who have never used or who are early experimenters: unavailability and/or high prices can be an effective deterrent for them. For adolescents who are already using drugs, particularly if use has become compulsive, reducing availability of one substance may have only marginal impact on their overall substance abuse. Since compulsive adolescent substance use is usually part of a cluster problem behaviors, treatment is probably the only means to deal with all of their problems.

DEMAND CONTROL--TREATMENT OF ADOLESCENT SUBSTANCE ABUSERS

Very little is known about the population of young people currently receiving treatment for alcohol and drug problems. The last available nationwide figures are from 1981, when NIDA estimated that 12% of the total treatment population was under 18. The vast majority were in treatment for marijuana, alcohol, and cocaine abuse; only 1.5% were being treated for opiate dependence.[25] Many young people with drug and alcohol problems get help privately, from family physicians, therapists, and private programs. Either their families or

their medical insurance carriers cover the sometime considerable costs of treatment. There are no national figures available on how many adolescents are in private treatment.[26]

In 1981, the last year CODAP data were gathered nationwide, 47,462 teenagers (ages 12-19) received treatment in federally sponsored programs. Of this group, three-quarters were white; 11.5% were black; and 10% were Hispanic. More than half reported primary marijuana use, and an additional 19.6% reported marijuana as the secondary drug of abuse. Alcohol was the secondary drug of abuse for a third of the treatment group, although only 6.1% reported alcohol as the primary problem (perhaps because these drug treatment programs would not attract primary alcohol abusers). The rising trend of cocaine abuse was alredy apparent: the percentage of CODAP adolescents who reported primary cocaine abuse rose from 1.1% in 1978 to 4.1% in 1981.[27]

It is important to note that treatment for compulsive drug/alcohol use is needed by what experts estimate is between five and fifteen percent of the millions of teenagers who experiment with drugs and alcohol.[28] Many young people do not see their drug and alcohol use as a problem, even when they have become dysfunctional, and lack the motivation to change their behavior. Most adolescents come to treatment involuntarily, because of problems in school, or at home, or because of delinquent behavior resulting in social service agency or court referrals.

Adolescents who are compulsive users usually present a complex array of personal and family problems, and often rely on drugs/alcohol to relieve their stress. Rebelliousness, poor school performance, delinquency, sexual precocity are behavior traits which have been found to precede compulsive drug use. Low self-esteem, anxiety, depression, and lack of self-control are also correlated with compulsive adolescent drug use. Family problems are high on the list of reasons adolescents give for entering drug treatment. Lack of parental closeness, absence of parents, and drinking and drug use patterns of parents have been positively correlated with drug and alcohol use.[29]

Very little work has been done on developing treatment programs specifically designed for adolescent drug and alcohol abusers. Only 5% of the three thousand substance abuse treatment facilities surveyed by NIDA and NIAAA in 1982 served a predominantly adolescent population.[30] The vast majority of programs for adolescents are patterned on the traditional drug free treatment models for adults developed in the 1960's. As more adolescents began seeking treatment in the late 1970's, they were accepted into adult programs. Very few were adapted to take account of the different problems of adolescent users and the importance of their family situations.

The traditional drug treatment models for adults can generally be classified as detoxification; methadone maintenance; therapeutic communities; and drug-free programs, which are usually outpatient. Most of the treatment in the

first three types of programs has been for heroin addiction. The great majority of adolescents in treatment are in drug-free programs. These programs include a wide range of organizations and activities, such as drop-in centers, clinics which provide psychotherapy and family therapy, and activity programs, like stress challenge experiences and camping trips.[31]

The next largest group of adolescents receive treatment in residential programs, often therapeutic communities. These adolescents are generally lower in educational level than those in the drug-free programs, more likely to have been referred by the criminal justice system and to have had previous treatment attempts. In recent years, there has been a rapid growth of private residential adolescent treatment programs operated by for-profit corporations. Since these programs are not supported by state and federal funding agencies, little is known about them. Many operate on a mental health residential program model, using psychiatrically trained staff, rather than on the therapeutic community model which relies on peer influence and group action to change behavior.

A much smaller group of adolescents attend alternative schools and day care programs which provide more comprehensive services than drug-free outpatient programs, but have less structured programs than residential communities. Most day care programs provide counseling, educational services and social and recreational activities; clients participate in two or more hours daily. Alternative schools provide both treatment services and education for high school abusers.

Finally, a very small percentage of abusers are treated in inpatient hospital programs which are generally short term (less than six months) followed by outpatient aftercare.[32]

Multi-modality programs like Phoenix House in New York City have adapted the traditional treatment models to respond to adolescents' special needs. Phoenix House currently treats about 500 teenagers, primarily for cocaine and related alcohol and drug problems. Depending on the severity of the youth's problems, there are three program levels available: an after school program of counseling and group discussions; an alternative day school staffed by special education teachers and Phoenix House counselors; and a residential therapeutic community in Westchester County which has its own schools and where the average length of stay is 18-24 months.[33]

There is very little systematic data on the effectiveness of adolescent treatment, largely because programs have usually chosen to allocate their limited resources to providing service rather than to conducting controlled evaluation studies. Phoenix House, where half the teenagers are minorities and many are court referrals, has not conducted long-term follow-up studies on their adolescent programs because of a lack of resources. However, Phoenix House staff believe that the 15% drop out rate at their residential therapeutic community, considerably lower than the drop out rate of the schools from which many of their residents come, is encouraging evidence that the program is working.

The few systematic efforts to evaluate program effectiveness that have been done used descriptive rather than controlled studies. They found gererally that although adolescent clients showed some favorable treatment outcomes, like reduction in criminal activities and opiate use, they did not reduce their marijuana and alcohol use significantly.[34] The widespread availability and use of these drugs within the culture may undermine the individual adolescent's capacity to resist once the treatment program has ended.

search has shown a high correlation between length of treatment, particularly in a residential program, and reduced alcohol and drug use. Among youths who entered residential treatment programs, more positive behavioral changes were found in the first years after treatment for those who remained in treatment for three months or more. The results for outpatient drug free program clients were in general not as good as for those in residential programs.[35]

A nationwide survey of treatment facilities in December 1984, found that about 400 programs treat adolescents. All of these programs attempt to provide family therapy wherever possible and obtain familial involvement in the treatment process. Many make use of self-help programs like Alcoholics Anonymous or Narcotics Anonymous for older adolescents. The self-help groups may meet at the drug programs, or the clients may be encouraged to attend AA or NA meetings on their own. Very few drug treatment programs identify or treat problems related specifically to alcohol abuse.[36]

The current lack of treatment programs designed for adolescents means that many adolescents who need treatment but who cannot afford private programs may not get help. The National Institute on Drug Abuse (NIDA) and the National Institute on Alchohol Abuse and Alcoholism (NIAAA) located within the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) of the U.S. Department of Health and Human Services are now supporting efforts to improve existing adolescent treatment models and to develop new approaches to deal with the multiple, interrelated problems presented by adolescent abusers. The absence of reliable outcome data for existing programs means that very little is known about what works. Controlled studies with long term follow up are needed to determine how early experiences affect behavior through time. It will be a number of years before the studies now being undertaken with NIDA and NIAAA support will begin to provide answers.

PREVENTION OF ADOLESCENT SUBSTANCE USE AND ABUSE

The emerging consensus of drug abuse experts, including law enforcement officials, is that reducing demand for drugs through education and prevention programs is the most promising strategy to combat drugs. Due to the failure of supply control efforts to make an appreciable dent in the availabiity of illicit drugs despite massive Federal expenditures, the new emphasis on preventive efforts is stimulating a broad range of experimental programs. These programs are still too new to

have produced conclusive results in terms of long-term impact. However, unlike prevention efforts of the previous two decades, the new programs generally have adequate evaluation components so that outcome can be measured objectively.

The history of drug prevention and education efforts in the United States has not been fruitful, except to identify what approaches do not effectively change drug taking behavior.[37] The earliest prevention efforts in this century were moral exhortations advocating temperance or abstinence both from alcohol and drugs. When these exhortations failed to produce results, the advocates of temperance succeeded in having the substances prohibited, believing that supply control measures would succeed where demand reduction had failed. Although the Constitutional Amendment prohibiting alcohol was repealed in 1933, the prohibition of other drugs, like heroin, has remained in effect since the Harrison Narcotic Act was passed in 1914.[38]

The second major approach to reducing demand for drugs was based on trying to frighten young people out of trying drugs. The best example of this approach is the short film, "Reefer Madness," produced in 1937, the year marijuana was outlawed. The film, which became a cult classic among the generation of young marijuana users of the late 1960's, depicted the precipitous downfall of a promising young man who tried one puff of a marijuana cigarette, known then as "reefer." The fear tactics had an opposite effect on many young people: since terrible things did not occur when they tried marijuana, they

stopped believing all negative drug information provided by adult authority figures, even with regard to potentially fatal drugs like barbiturates. The loss of credibility that ensued was a major setback for all efforts to reach the burgeoning numbers of adolescent drug users.

Subsequent efforts at drug education focussed on providing more accurate, comprehensive information about the pharmacologic, legal, and health consequences of use, on the theory that knowledge of the consequences of drug, alcohol and tobacco use would be an effective deterrent. The Surgeon General's Reports on the dangers of smoking and the negative publicity they generated did convince many young smokers to quit, or not to start. Between 1977 and 1981, the proportion of high school seniors who smoked daily decreased by one-third. The perceived harmfulness of smoking rose with subsequent senior classes through 1980 which may have reflected changed attitudes as early as age 10 or 11, influenced by the negative publicity on smoking.[39]

Studies of the drug education programs found that providing information often had the paradoxical result of arousing interest in some youth in trying the substance, perhaps because the mood-altering aspects of the drug's effects were presented as well as its dangers. The studies also found that information alone was not sufficient to change either attitudes or behavior towards substance use.[40]

The next phase in the development of drug prevention efforts focussed on "affective" education, designed to

strengthen personal and social development, often without specific reference to the substances themselves. Information about drugs and their effects was secondary to the development of skills related to problem-solving, decision making, values awareness, stress reduction, and interpersonal communications. This model of education assumes that the problem lies within the individual--that young people use drugs to compensate for a lack of self-esteem, or because they do not know how to make rational decisions which serve their own best interests. Although the programs vary in content, generally they seek to foster stronger self-image, ability to communicate, and improved skills in problem-solving and understanding social values. The goal is to reduce substance use by promoting self-understanding and responsible decision making. Unfortunately, this approach often ignores the pleasure and/or relief from stress that many young people find in drugs and alcohol. Further, rational understanding of the costs and benefits of substance use is not highy predictive of subsequent use. Nevertheless, variants of these programs have been used in many schools since the mid-1970's.[41]

Most of these programs did not have adequate evaluation components. The few that did found little positive impact on preventing drug taking behavior; nor did these programs appear to influence self-esteem or behavioral adjustment. Researchers concluded that affective education approaches placed too little emphasis on the kind of real-life skills students need to cope

with the various internal and external pressures to use tobacco, alcohol, and drugs.[42]

The most recent approach to prevention, and the st promising, focuses on the psychosocial factors believed to be involved in the initiation of substance use. Based on social learning theory and problem behavior theory, this approach recognizes that individuals create their environment by choosing social situations and friends, and that substance use is a social- learned, functional behavior which is the result of a complex interaction of environmental and personal factors.[43]

The important breakthrough in prevention efforts based on this psychosocial approach came from smoking prevention programs targeted at elementary school children. The emphasis and implementation of the programs vary. Some focus on increasing students' awareness of social and peer pressures to smoke and teaching them specific techniques for resisting these pressures; others emphasize the development of general personal and social competence. Peer leaders, teachers, and/or outside professionals, are used to deliver the prevention program, which emphasizes long term consequences, immediate negative effects of use that children might see as social liabilities, as well as information regarding the actual rate of smoking among their peers, to correct the perception that "everyone" smokes. Students are also taught life coping, decision-making, and resistance skills through role playing and assertiveness training. The aim of the programs is to improve the personal

competence of the students and reduce their motivation to smoke, as well as teach them how to function more competently in a variety of social situations, including those where they feel pressure to use tobacco.[44]

The success of these new prevention strategies appears to be greater than earlier approaches, and may have equally promising application to drug and alcohol prevention. Follow up studies found that programs like the Life Skills Training Program developed at Cornell University Medical College can reduce new cigarette smoking by half over a one year period whether the program is implemented by outside health professionals, older peer leaders, or regular classroom teachers. Students who received additional "booster sessions" in the second year of the study showed an 87% reduction in new smoking when compared to schools not participating in the program. The program also had a positive impact on smoking related health knowledge and attitudes, assertiveness, self esteem, and other factors.[45]

One of the most rigorous tests of the social influences approach to smoking prevention, conducted by the University of Waterloo in Ontario, Canada, found that the program was most effective for students at high risk--those who had social models, parents, friends, siblings, who smoked. Among students classified in this high risk category, 78% of the experimental group remained never smokers, compared to 44% of those in the control group. Further, the prevention results were maintained for several years: 60% of the experimental group who had begun

the program in sixth grade were still non-smokers at the end of the eighth grade, compared to 47% of the control group.[46]

These programs, targeted at sixth and seventh graders in schools in the U.S., Canada, and Australia, seem promising for several reasons. First, they seemed to provide positive, measurable results in primary prevention of smoking at the critical age when experimental smoking begins. The results also seemed to persist for the one or two year follow-up period.[47] Researchers believe that the longer children delay substance use, the less likely they will be to develop serious dependency and drug related problems.[48] The delay of even two or three years in beginning substance use can provide valuable time for intellectual and social development which might strengthen the adolescent's capacity to decide not to use. Ninety percent of those who smoke, for example, begin by age 19.[49] Primary prevention of smoking might also prevent young people from trying other drugs, since tobacco, along with alcohol, is considered a "gateway" drug leading to use of marijuana, and subsequently, for some adolescents, to "harder" drugs like cocaine and heroin.[50]

Before considering whether these programs can be successfully adapted to prevent other substance use, it is important to note some questions that have recently been raised about the broader meaning of the results of the smoking prevention programs. The Institute for the Study of Smoking Behavior and Policy at Harvard University has noted that the smoking prevention studies have focused narrowly on how mar-

non-smokers in very small experimental groups are prevented from smoking in a six month or year period of a specific trial. For example, in the Waterloo study discussed above, the difference of 78% who remained non- smokers versus the 44% in the control group reflects the fact that 14 students in the experimental group versus 8 in the control group remained non-smokers, a difference of 6 students.[51]

A review of the results of the major smoking prevention programs by the Institute found that the relative reductions reported in smoking behavior were accurate. However, attrition within the experimental groups and short follow-up periods at a time when adolescents frequently change their smoking status make the success rates of these studies of limited value in drawing broader conclusions about widespread applicability. Further, because of the costs of teacher training and curriculum time required, widespread dissemination of these programs in the nation's schools may not be feasible or likely. The Institute concluded that although the programs reviewed can have temporary, small effects on smoking behavior, much of the current optimism about their broader potential impact is unwarranted.[52]

The strongest argument for the potential applicability of the smoking prevention programs to drug prevention is that the social influences, personality factors, and environmental pressures which encourage young people to use are similar.[53] Researchers have found that the use of tobacco, alcohol, and marijuana as well as other problem behaviors such as premature

sexual activity and delinquency appear to have the same underlying determinants.[54] The Life Skills Training program, which reported 50% relative reductions in smoking behavior, found that a pilot peer-led program had significant impact in reducing total marijuana use and excessive drinking among seventh graders.[55]

A number of studies with well designed evaluation components are now being conducted to test whether the psychosocial approach will prove effective in preventing drug and alcohol use among broader populations.[56] Some of these studies are directed towards preventing alcohol use in fifth and sixth graders, with subsequent booster sessions a year later; some are testing alcohol prevention through resistance skill and value training among junior high school students.

Project Alert, a major seven-year longitudinal study funded by the Conrad Hilton Foundation, is being conducted by the Rand Corporation to test whether curricula designed to increase resistance skills and awareness of short and long term social consequences of use affect alcohol, tobacco, and marijuana use. The largest, most rigorous study of this approach to date, Project Alert is implementing prevention programs for seventh graders in Oregon and California schools in which teachers lead eight once-a-week sessions. Three booster sessions are provided in the eighth grade. The first outcome data will be written up within a year.[57]

Until very recently, smoking prevention programs have been directed almost exclusively toward white, middle-class school children. Although many adolescents at highest risk for serious substance abuse problems have dropped out of school and cannot be reached by school based programs, efforts are now being made to reach minority school children. Several major studies have begun to evaluate the effectiveness of the Life Skills Training program with urban minority school children--Hispanics in New York City and Blacks in Newark, New Jersey. Although smoking prevention will be the primary focus, data will also be collected on alcohol, which is a particularly significant problem in the Hispanic population.[58]

The Institute for Health Promotion at the University of Southern California is conducting a pilot study to test the effectiveness of the social influences approach in preventing cigarette, marijuana and alcohol use in 51 Kansas City schools and 48 Indianapolis middle and junior high schools. Some of these schools include substantial minority populations; the same curricula are used in both suburban and inner city schools. Preliminary data from the Kansas City schools indicate that to date, the program has had strongest positive effect on smoking and that these effects are not differentiated by race. The data do not show statistically significant impact thus far on alcohol and marijuana use in these schools.[59] Project Alert, described above, will also test the effectiveness of its program on minority school children. Nine

of the thirty schools in the study have minority populations of more than 50%.[60]

Because of serious funding constraints since 1981, during which time Federal assistance for drug education and treatment has been cut by 40%, many states have not been able to allocate sufficient funds for prevention.[61] In Oregon, for example, only 5% of the total drug budget goes for preventiv education, since funds are critically needed for treatment.[62] Given severely limited budgets, some school districts have been reluctant to introduce new drug prevention curricula, which can be difficult to implement using teachers who are often already overburdened. The uncertainty of producing positive reductions in substance use compounds the ambivalence towards these programs. In some areas, incorporating drug prevention concepts into ongoing student health promotion programs has often proved more acceptable to school administrators and teachers.

More important than school based prevention programs in changing adolescent behavior may be the broader social environment which shapes the way we define normative values. The change in public attitudes about cigarette . oking is a dramatic example of the ower of the social environment in affecting behavior. In 1965, the year after the first report of the Surgeon General on the dangers of smoking, 43% of American adults age 18 and over smoked. In 1986, only 30% smoked, a major reduction considering the strong dependency producing potential of tobacco.[63] In the past twenty years,

cigarettes have lost much of their symbolic glamor, and in many areas, smoking has become an increasingly ostracized activity, confined to segregated areas of restaurants, airplanes, and offices. The weight of public opinion, reinforced by medical evidence of the dangers of passive as well as active smoking, has shifted against the smoker. The adoption of anti-smoking regulations in a dozen states, the segregation of smokers in all Federal office buildings, and the outright ban on smoking in the U.S. Department of Health and Human Services reflect this shift in public opinion.

Yet, despite these changes, rates of adolescent smoking have remained essentially level since 1981, after dropping by about one-third in the late 1970's.[64] Researchers do not have immediate explanations for this phenomenon, particularly in light of the fact that the school-based anti-smoking programs were not implemented until after 1980.[65] There may be a lag time in seeing results from these programs and their impact may only be narrowly felt since many schools do not have prevention programs. Further, early experimentation with cigarettes, which is still widespread may lead large numbers of students to tobacco dependency which they are unable to break. Very little effort has been directed at helping adolescents break their smoking habits: the major emphasis has been on primary prevention and early intervention, before dependence is established.

In addition to school based prevention programs, a wide variety of organized parents groups--now estimated to exceed

7,000--have emerged in recent years in response to growing concerns about adolescent drug use.[66] Most of these attempt to change the normative atmosphere which has generally condoned a certain level of adolescent drug and alcohol use as a rite of passage, and to establish instead "zero tolerance" for any substance use. Using public pledges of abstinence and older peers to act as role models, the programs teach younger children to "just say no" to substance use.

Parents Who Care, a California program similar to many other parents groups around the country, works with teenagers in setting up drug-free social activities and in providing older peer orientation to eighth-graders emphasizing that they do not have to drink or use drugs to be socially acceptable. Students have also established a Teens Who Care substructure of the Parents group to become more involved in promoting drug-free activities and behavior among their peers.[67]

PRIDE, the National Parents' Resources Institute for Drug Education, based in Atlanta, Georgia, serves as a resource and information clearinghouse for parent and youth groups around the country.[68] Advocating the use of peer pressure as a positive force in making schools and communities drug free, PRIDE sponsors a widely publicized annual conference, attended by Mrs. Nancy Reagan and other dignitaries, which along with informational presentations, uses video entertainment techniques involving young PRIDE members to present the abstinence message to more than 5,000 participants from all over the world. PRIDE also publishes a widely distributed

newsletter and provides on-going help to parents and other community groups in identifying treatment facilities, workshops, resources and individuals within their own communities who can help them combat drugs.

The rapid growth of local groups in recent years reflects in part the frustration at the lack of government leadership in this area. Many parents have felt helpless to combat the positive images of substance use reflected in the media and the culture, and have responded by actively organizing counter-messages and activities for their children. The major focus of this concern is marijuana and alcohol use among middle class students, in which rates of experimentation are high, but where frequency of serious drug problems leading to dysfunctional behavior is relatively low. The highest risk adolescent population has generally not been reached by these efforts. No controlled evaluations of the success of these programs in preventing adolescent drug and alcohol use have been conducted.

In summary, both the development and the evaluation of promising prevention models are in the earliest stages. More is known about school based prevention programs than other prevention approaches like community based programs and media campaigns. Large scale studies on the applicability of cigarette smoking prevention curricula to other substances will begin to provide data within the next few years.[69] The problem of reaching adolescents who have dropped out of school and who are at highest risk for substance abuse has not yet been adequately addressed. Research is needed on what kind of

prevention efforts might be effective for this group and by what means prevention programs could be successfully delivered outside the school system.

IMPACT OF FEDERAL DRUG POLICY

During the past six years, the Reagan Administration has concentrated on supply control efforts, increasing Federal spending for drug law enforcement by more than $700 million.[70] During the same period, Federal funds for drug abuse education, prevention, and treatment have been reduced by forty percent.[71] Despite the substantial funding increases for law enforcement, supplies of illicit drugs in the U.S. have not decreased. The amount of cocaine coming into this country more than doubled from 1982 to 1986 while marijuana supplies from domestic and foreign sources increased 15% from 1985 to 1986.[72]

One major policy initiative to reduce marijuana and cocaine imports was to improve border interdiction, particularly at key entry points like southern Florida by increasing both resources and interagency cooperation. Vice President Bush personally chaired the South Florida Task Force of the National Narcotic Border Interdiction System, which included hundreds of officials detailed from the U.S. Customs Service, the Coast Guard, the DEA, Justice and Treasury Departments.[73] Although the Task Force received considerable publicity when it was created in 1982, it has not had an appreciable impact on the amount of drugs coming into the U.S.

In the short term, the drug traffic into south Florida was reduced; however, most was diverted to other entry points in Louisiana and Texas. One Customs official involved in the operation concluded that, "the answer is educating the kids, taking the glamor out of drug use. The traffickers will go around us and over us and through us, and if we succeed in South Florida they'll go somewhere else."[74]

In 1983, a major review of drug law enforcement efforts by the U.S. Government Accounting Office found that more drugs were entering the U.S. than five years earlier, and that only 10% of the heroin, cocaine, and marijuana was being intercepted.[75] By 1986, Attorney General Edwin Meese 3d, the Cabinet member charged with coordinating the Federal anti-drug effort, acknowledged that "the gap between the amount of drugs seized and the amount imported and consumed is growing annually."[76] President Reagan went even further in admitting the failure of the law enforcement initiatives to stem the traffic when he said in a major drug speech last August that 'all the confiscation and law enforcement in the world will not cure this plague."[77]

The Administration has now shifted its policy emphasis to demand reduction--prevention and treatment--which in the past six years has suffered both from serious budget cuts and bureaucratic disorganization. Federal support for state and local drug abuse prevention, education, and treatment programs has been reduced by forty percent since 1981. By 1985, the annual appropriation of Federal funds for drug law enforcement

reached $1.65 billion, while all drug prevention and treatment programs received only $400 million in Federal funds.[78]

In 1982, the role of NIDA as lead agency in providing funding to the states through "categorical grants" was eliminated. Through the categorical grant system which provided funds for specific programs which met guidelines set by the Federal government, NIDA had set the direction of prevention and treatment programs and maintained a leadership role. When the "block grant" system was established which provided funds directly to the states to be used for prevention and treatment at their discretion, NIDA became basically a research agency without its previous primary leadership role.[79]

The absence of Federal policy direction was felt by a number of states, which were also hit by the funding cuts. In many areas, treatment services could not be provided and waiting lists for available treatment lengthened. Prevention initiatives suffered because states tended to put their limited resources into treatment.[80] Some states, like Massachusetts, responded to the vacuum in Federal leadership by developing their own strategies. The Massachusetts Governor's Alliance Against Drugs, created in 1984, is a coordinated statewide effort to mobilize communities to implement anti-drug and alcohol abuse education programs.[81] Personally led by Governor Michael Dukakis, the Alliance has obtained private resources to supplement available Federal funds to create a wide variety of substance abuse prevention and treatment activities, including

an ongoing media campaign to maintain public awareness of drug ar alcohol problems.

The widespread unhappiness at the failure of Federal drug policies led the U.S. Congress to pass the Anti-Drug Abuse Act in October 1986 with overwhelming bipartisan support. The most far reaching drug law ever passed by Congress, the Act provides $1.7 billion in new money for drug law enforcement, treatment, prevention, and education, as well as international narcotic control efforts.[82] Combined with previously existing Federal programs, funding for combatting drugs now totals $3.93 billion. Most of the money--$3 billion--is allocated to law enforcement; the remainder goes to treatment, education, and prevention, which represents a 250% increase in prior year funding for these programs. The new Act authorizes funding for the 1988 total program of $4 billion; however, President Reagan has proposed to reduce that level to $3 billion. Although Congress has not yet acted on the 1988 budget, the budget resolution adopted in April includes drug funding at the $4 billion level, a strong indication that the higher level will be retained.

The new Act is an important first step in developing a comprehensive, well funded national response to the drug problem. The Act broke down an important bureaucratic barrier which had previously separated alcohol, tobacco, and drug prevention efforts. The newly created Office of Substance Abuse Prevention within the Alcohol, Drug Abuse, and Mental Health Administration will focus on substances regardless of

their legal status, particularly those which pose the greatest risk for young people--alcohol, tobacco, marijuana, and cocaine. However, the Act failed to address a critical problem of the Federal effort--the lack of central policy direction and effective coordination among the numerous agencies responsible for foreign and domestic drug programs.

IMPACT OF THE MEDIA ON SUBSTANCE USE

The role of the media in influencing adolescent substance use is substantial in that it both creates and reflects the normative values that shape perceptions of acceptable behavior. Television advertising of alcohol and tobacco was believed to have such a powerful impact on behavior that except for beer and wine, these substances can no longer be advertised on television. The significant reduction in adolescent smoking during the late 1970's may have been affected by the corrective television advertising against cigarette smoking which ran one prime time spot for every three to five cigarette ads for several years, until all cigarette advertising was removed from television.[83]

Mass media efforts to reduce drug use have not succeeded to date for a number of reasons.[84] Many of the earlier public service announcements used fear-based messages; failed to reach prime time audiences; were given infrequent, low exposure; and lacked highly sophisticated advertising techniques. Many of the more recent public service announcements use well-known sports, media, and rock figures who have "recovered" from drug

abuse to urge children not to follow their example. However, the message in this approach is ambiguous. The role model is admired because of his success, which seems to have included using drugs and being able to overcome any ill effects. Drugs themselves are not necessarily "deglamorized" in the child's perception.

Acting on the belief that effective advertising can convince the viewing public that drug use is not acceptable at any level, the Media-Advertising Partnership for a Drug-Free America launched a three-year effort last March which involves $1.5 billion in donated advertising and prime media time and space.[85] These ads will be seen by tens of millions of viewers: two spots a night during prime time on TV, radio, and cable networks; a full page a week from newspapers; one page every other week from weekly magazines; and one page a month from monthly magazines. The drugs targeted by the campaign are marijuana and cocaine, which advertising researchers found were viewed positively by 15% of teenagers. They also found that 36% of children age 9 to 12 view drug users as popular, a perception the ads will try to dispel.

This is the largest, most sophisticated national advertising campaign ever undertaken to change public attitudes and behavior towards illegal drugs. A base study measuring public attitudes towards drugs was conducted at the end of February. A follow-up study will be done in October and at least annually thereafter to track changes in attitudes. These tracking studies will provide on-going guidance to the

advertisers in refining the focus of their ads as well as provide invaluable data on public attitudes not previously collected by the NIDA sponsored national surveys.

IMPACT OF LEGAL STATUS OF SUBSTANCE ON ITS USE

The legal status of a substance has only limited impact if it is not accompanied by a strong social consensus regarding its dangers and undesirability. The fact that the two substances targeted by the Drug-Free America advertising campaign are illegal reflects the fragility of legal status by itself as a barrier to substance use and abuse. Although illegal status performs an important supply control function, affecting availability and cost, it is also intended to deter use, by frightening potential users with criminal consequences and by extension, social opprobrium. However, when 62 million Americans admit having used marijuana and another 22 million report cocaine use, the deterrant effect of the illegal status of these substances is clearly marginal.[86]

That margin, however, can be important at the threshhold of first use as children model their behavior on the adults around them--parents, teachers, and other role models.[87] Cocaine and marijuana are generally not used openly, unlike tobacco and alcohol, and because of their illegal status, are more difficult to obtain. It may be the continued illegality of cocaine and marijuana, and the ambiguity about its social use that has kept the numbers of adolescents who have tried

marijuana and cocaine substantially lower than those who have tried alcohol and tobacco.

The legality of alcohol and tobacco for adults (the exact age depending on state law) makes these substances sanctioned credentials of maturity, which adolescents are impatient to attain. It also makes them readily available in the society, even with age restrictions on sale. Their cost is very low compared to illegal drugs. In some states, a six pack of beer costs less than a six pack of cola, and cigarette excise taxes, even though steadily increasing, are still very low.[88]

Even though cocaine and marijuana are both illegal, the laws against marijuana possession and sale of small amounts have generally not been enforced since the mid-1970's.[89] The laws against cocaine have been more strictly enforced. The personal possession of marijuana has been "decriminalized" in ten states and is legal in Alaska.[90] These legal changes reflected the view that marijuana users did not belong in the criminal justice system, although decriminalization also signalled increased social tolerance for marijuana use. Local ballot initiatives to overturn marijuana decriminalization in these states have not succeeded.

The relatively greater acceptance of marijuana in the culture as compared to cocaine is reflected in the substantially higher numbers of teenagers who have used marijuana. In 1985, for example, more than 5 million adolescents aged 12 through 17 of the total 21,640,000 in that age group were estimated to have tried marijuana while only 1.1

million had tried cocaine.[91] Availability and cost are also important factors in determining use. The recent drop in cocaine prices because of massive overproduction in South America combined with the emergence of crack may substantially increase teenage cocaine use.

Heroin, which shares the same prohibited legal status as marijuana and cocaine, is perceived very differently by the public. Its dangers are well known, and more important, it does not enjoy the ambivalent tolerance many people feel towards use of the other two drugs. The social consensus is clearly against heroin. The fact that the numbers of heroin addicts in this country have remained stable at 400,000-500,000 during the past decade reflects both the continuing high cost/low availability of heroin and the strong negative public reaction to heroin use.[92] The numbers of teenagers reporting having tried heroin have remained consistently low (1%-2%) since the national surveys were first conducted. While law enforcement and treatment officials agree that more could be done to reduce heroin availability and addiction, they do not foresee any significant increase in acceptance or use of the drug.

The illegal status of a drug has its greatest impact in preventing first use and in discouraging further use after initial experimentation. Its illegality will generally reduce its availability, increase its cost, impose legal sanctions as well as signal social disapproval of its use. However, these barriers erode as availability and social tolerance for use

increase, as with marijuana. With the legal drugs, tobacco and alcohol, the barriers of unavailability, relatively high cost, and social disapproval/legal sanctions are not present to prevent use or discourage continued use. Other legal barriers are beginning to emerge, like higher drinking age laws, strict orcement of no sale to minor laws, not permitting smoking in schools. However, the most important barriers preventing use, of course, are internal choices about personal behavior, which are affected, but not dicatated by laws.

OPTIONS FOR DISCUSSION

The issues which have been discussed in this paper give rise to a number of suggested areas for further consideration and action. I will present them in two broad categories: possible directions for demand reduction activities and suggestions for supply control policies.

Options for Demand Reduction Activities:

Since 1970, four American Presidents have declared war on drug abuse--wars which have usually been highly visible responses to the pressures of the biannual election cycle, rather than a sustained, long-term effort. For the first time, the Anti-Drug Abuse Act of 1986 lays the groundwork for developing a comprehensive national strategy which addresses both supply control and demand reduction efforts.

The new Act and the momentum in Congress provide a key opportunity for leadership in developing a comprehensive strategy to address substance abuse. Using the funding levels

Congress established in the 1986 Act, the strategy should consider how to allocate funds most effectively, assuming a ten year period of sustained Federal support. The maximum period of funding authorized by the Anti-Drug Abuse Act of 1986 is three years. A national strategy which provides a comprehensive ten year plan of action would establish a basis for continued political support for an integrated, balanced response to substance abuse. The strategy should also consider implementation and coordination of the overall effort. In order to have maximum effect, the strategy should be completed by the end of 1988.

A key part of such a strategy will be to plan effective use of prevention and treatment research funds. Although the new Act continues to place primary emphasis on law enforcement, funding for demand reduction is increased by more than 200%. Given this sudden increase in funding levels, there is a danger that like the defense buildup of the early 1980's, the effort will suffer from waste, inefficiency, and internal rivalries.

Prevention and treatment research efforts have been particularly debilitated by the funding cuts of the past six years. Long term prevention efforts are often less attractive politically than law enforcement programs, which produce immediate, highly visible results. The impact of carefully structured research may not be seen for decades and the outcome of successful prevention programs takes years to be felt.

There is a clear need for national leadership in the research area, both to facilitate sharing of information on

present initiatives and to develop a strategy for the most effective allocation of the substantial resources that are now becoming available through the Anti-Drug Abuse Act. Prevention researchers in the field universally express a need to share information on a regular, nationwide basis. Because of publication lag time, the literature is usually a year or more late in reporting research findings. Findings are also often presented individually, without a systematic overview of related developments in the field.

A national strategy for prevention research should provide support for certain kinds of research that is not presently being done but which might have long-term impact on adolescent substance abuse. For example, very little is known about why young people move from first use of dangerous substances to continuing use and dependence. Although the vast majority of teenagers try alcohol and drugs, only five to fifteen percent of them will become compulsive abusers who put themselves at high health and social risk. Studies have been done on the correlation of factors like socioeconomic status and family structure with compulsive substance abuse, but the underlying mechanisms of adolescent risk taking behavior have not yet been explored systematically.

All adolescents assess risk, make choices, and subject themselves to danger. The outcomes can be positive, like in competitive sports, or lead to destructive patterns of behavior, like drug abuse, violence, pregnancy dropping out of school. Understanding the process by which adolescents decide to adopt

these destructive behaviors could be important in developing more effective prevention and intervention strategies.

Much of the present prevention research is narrowly focused on determining whether certain curricula have an impact on substance use by school children. Although these carefully structured evaluations help in discovering what works in prevention approaches, studies of the impact of broader social policies would also be useful. For example, many schools are now enforcing no smoking rules for students and restricting teacher smoking to teacher lounges. In addition to preventing children from smoking while they are in school, these rules may also signal a reduced social acceptance of smoking which could have an impact on student smoking even when they are not in school. Do they? What impact do higher prices for alcohol and tobacco have on adolescent use? What effect does strict enforcement of school rules against drugs, especially marijuana, have on use within the school and outside of school? Knowing more about the actual effect of social policy changes on adolescent behavior could strengthen the argument for making these changes, even against the opposition of powerful interests, such as the tobacco and liquor industries.

More timely, better data on drug use and availability are needed. The primary source for national information on overall drug use is the National Household Survey which is generally conducted every three years. The annual High School Senior Survey does not reach the drop-out population in which drug abuse is more prevalent. Information which reflects the actual scope

of use within the population and which is generated regularly and rapidly could provide important indications of developing trends.

Drug availability information, collected by non-governmental agencies which do not measure their success by the statistics obtained, is indispensible to understand the parameters of the problem and to monitor the effectiveness of supply control programs. Current use and availability data tend to be several years out of date. The National Narcotics Intelligence Consumers Committee, an interagency committee charged with making annual estimates of drug availability, has not yet been able to agree on 1986 figures for drug availability because of interagency differences. Placing this responsibility with an independent organization could accelerate the process of obtaining data and insulate the numbers from competing government agency pressures.

Supply Control Policy Suggestions:

International efforts to reduce the production and traffic of illicit drugs have had some success, most notably in reducing the amount of heroin coming into this country from Turkey in the early 1970's and from Mexico in the late 1970's. Diplomatic efforts were also successful in reducing the illegal production of methaqualone. However, in order to obtain the active cooperation of other governments, drug control has to be given top priority on the diplomatic agenda. The 1986 Anti-Drug Abuse Act doubles the funding for the State Department's international narcotics control program, which provides assistance to governments in eradicating illicit production and traffic. The Act also provides for cutting off foreign assistance to non-

cooperating countries. However, unless the President, the Secretary of State, and other Cabinet officials make clear that the U.S. is serious about this issue, other governments will not take strong measures, particularly in the face of competing domestic concerns.

Cocaine use continues at peak levels among adolescents and young adults, while other drug use is declining. The recent emergence of crack, a highly addicting form of cocaine, presents a serious threat, particularly to young people. Federal resources should immediately be focused on reducing availability of cocaine and at the same time, initiate a massive public awareness campaign of the dangers of the drug.

The Federal drug control effort is presently fragmented among more than dozen agencies which often have competing program and policy priorities. Consideration should be given to placing central responsibility for all aspects of the Federal drug control program--law enforcement, education, prevention, treatment, and international--in one Cabinet level official. Senator Joseph Biden of Delaware introduced a bill to create such a drug "czar" which Congress passed overwhelmingly in 1983. President Reagan vetoed the legislation because it created another Cabinet-level position; however, the real reason for the veto was the Justice Department did not want to lose its leadership role. Senator Biden has reintroduced his bill and it is pending before the Senate.

Research Methodology and Observations

The research for this project was based on personal and telephone interviews and a review of the relevant literature. The interviews were designed to obtain a comprehensive picture of the current policy and program response to adolescent substance abuse in the United States. I interviewed a number of middle level and senior officials in the Federal agencies responsible for drug law enforcement and interdiction, international cooperation, and prevention, education, and treatment. I purposely did not interview the directors of these agencies on the theory that I would get more candid assessments from career operational personnel on the success of their efforts and the problems they face.

The degree of frustration commonly felt was striking. Both law enforcement officials and prevention/treatment experts expressed dismay at the lack of Federal coordination, policy direction, and careful planning of resource utilization. The lack of communication between and within disciplines was also striking. Law enforcement officials do not generally communicate with prevention/treatment officials except in certain required inter-agency contexts, like the annual preparation of the National Narcotic Intelligence Consumers Committee estimate of drug availability. This year there is no estimate, because of the inability of the Committee to agree.

Interagency rivalries have seriously impeded supply control

efforts, so that effective communication among the key law enforcement agencies--DEA, Customs, Coast Guard--has become difficult. On May 29, 1987, President Reagan named Customs the lead agency in interdiction activities in an attempt to break up the jurisdictional impasse.

Within the prevention/treatment field, the lack of communication does not appear to arise so much from internal rivalries but rather from the absence of organized opportunities to share information. The NIDA, NIAAA, and ADAMHA officials I talked with noted that the forty percent funding cuts for demand reduction since 1981 had had a debilitating effect on research initiatives, including the regular sharing on a nationwide basis of research developments. Prevention researchers in the field also expressed a need to know what others were doing. Because of publication lag time, the literature is usually a year or more late in reporting research findings. Findings are also often presented individually, without a systematic overview of related developments in the field.

In order to obtain a wider perspective on the implementation of drug abuse programs, I talked with state and local officials in Oregon, California, and Massachusetts. I also talked with directors of treatment programs whose work is particularly well known. Because of the importance of the parents group movement, I interviewed the director of PRIDE, which serves as a major resource to groups around the country. Because of time constraints, my interviews had to be highly selective, targeted to

certain issues and types of programs which I wanted to learn about first hand.

The largest single group of people interviewed were prevention researchers, primarily because their work is currently testing new theories of behavior modification which could have enormous impact in preventing substance abuse. Much of the research has been undertaken too recently to be reported in the literature, as noted above. The seminal research on which the present tests are based, of course, is described in the literature; however, much of it is written in highly specialized technical language which is not easily comprehensible to the lay reader. A literature search in this field provides important groundwork for understanding current approaches but does not begin to provide a comprehensive picture of prevention research as it is developing.

With regard to supply control efforts, the literature is almost nonexistent. Congressional hearings and government reports which review the performance of the responsible Federal agencies are the primary source for written information, and they, too, are often a year or more out of date by the time they are printed. Interviews with operating officials are indispensable in obtaining current information on problems and performance.

The material from both interviews and literature search formed the basis for my observations and conclusions. The final section on options for consideration reflect my own thinking; however, they also reflect generally the views of the people I interviewed. Among all disciplines in the substance abuse field,

there is remarkable consensus about the extent of the problem and the need to take more effective measures to prevent abuse. There is some divergence on the relative emphasis to place on supply control as opposed to demand control efforts, but there is general agreement that prevention and education programs should be given greater support than they have in the past.

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March 29, 1991