

MICROFILM DIVIDER

OMB/RECORDS MANAGEMENT DIVISION
SFN 2053 (2/85) 5M



ROLL NUMBER

DESCRIPTION

1183

2005 HOUSE HUMAN SERVICES

HB 1183

2005 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. HB 1183

House Human Services Committee

☐ Conference Committee

Hearing Date January 12, 2005

Tape Number	Side A	Side B	Meter #
2		x	4188-6230

Committee Clerk Signature



Minutes:

Chairman Price opened hearing on HB 1183.

Rep. De Krey, Appeared in support of HB 1183.

We are asking your consideration on a Do Pass of this bill. We want to raise the age to 19, to attempt to keep it out of the High School's.

Rep. Potter: What is the reason for age 19?

Rep. DeKrey: 19 yr. old, still may be in High School, the bill does not prohibit possession.

Rep. Kaldor: What did this bring on in the A.G. office?

Rep. DeKrey: The AG's opinion, if they can buy at 18, school are not able enforce anything.

Rep. Devlin: What is the penalty?

Rep. Weisz: Is there a fine attached to the infraction?

Rep. Potter: There is no criminal offense?

Rep. De Krey: An infraction is like a traffic ticket., that individual will not have a record.

Rep. Nelson: If in the hospital, would this bill serve as an infraction? What road does this take us down? I see a real problem with enforcement.

Rep. De Krey: They can still use or possess, just not buy them.

Rep. Kaldor: In Sub Section 1, gives me the impression that a student shouldn't smoke. At Hillsboro, a student was seen smoking off campus, was suspended. The long arm of the school did not come together. It was not on school property.

Chairman Price: There is a possible of \$500.00.

Kathleen Mangskau, Director, Tobacco Prevention and Control, ND Dept. Health.

Appearing in support of HB 1183. Attached Testimony.

Rep. Devlin: Passing this bill will do nothing about enforcement issues.

More discussion was held on enforcement issues.

Janel Schmitz: Appearing Neutral. Testimony attached.

Chairman Price: Anyone else in support or opposing HB 1183?

Chairman Price reopened the hearing on HB 1183.

Rep. Kaldor: Motion to accept the amendments. Rep. Uglem: Second.

Vote: 7-4-1.

Rep. Kaldor: Do pass as Amended. Rep. Uglem Second.

Vote: 7-4-1.

FISCAL NOTE
Requested by Legislative Council
01/07/2005

Bill/Resolution No.: HB 1183

1A. State fiscal effect: *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

2003-2005 Biennium		2005-2007 Biennium		2007-2009 Biennium	
General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues					
Expenditures					
Appropriations					

1B. County, city, and school district fiscal effect: *Identify the fiscal effect on the appropriate political subdivision.*

2003-2005 Biennium			2005-2007 Biennium			2007-2009 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2. Narrative: *Identify the aspects of the measure which cause fiscal impact and include any comments relevant to your analysis.*

If enacted, HB 1183 would prohibit the sale of tobacco to persons under the age of 19. This may result in a small reduction in cigarette and tobacco tax revenues, but the amount of the reduction cannot be determined.

3. State fiscal effect detail: *For information shown under state fiscal effect in 1A, please:*

A. Revenues: *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. Expenditures: *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

C. Appropriations: *Explain the appropriation amounts. Provide detail, when appropriate, of the effect on the biennial appropriation for each agency and fund affected and any amounts included in the executive budget. Indicate the relationship between the amounts shown for expenditures and appropriations.*

Name: Kathryn L. Strombeck
Phone Number: 328-3402

Agency: Office of Tax Commissioner
Date Prepared: 01/07/2005

VK
1/13/05

HOUSE : AMENDMENTS TO HOUSE BILL NO. 1183 HS 1-14-05

Page 1, line 2, remove "the age of", after "nineteen" insert "years of age", and after the third "the" insert "purchase, possession, and"

Page 1, line 3, replace "minors" with "individuals under nineteen years of age"

Page 1, line 8, overstrike "minors" and insert immediately thereafter "Individuals under nineteen years of age"

Page 1, line 9, remove "a It is an infraction for any person to sell to an individual under nineteen years of"

Page 1, remove lines 10 and 11

Page 1, line 12, remove "b.", overstrike "a minor" and insert immediately thereafter "an individual under nineteen years of age", and overstrike the second "a"

Page 1, line 13, overstrike "minor" and insert immediately thereafter "an individual under nineteen years of age"

Page 1, line 17, remove "a It is a noncriminal offense for an individual under nineteen years of age to"

Page 1, remove lines 18 and 19

Page 1, line 20, remove "b." and overstrike "a minor" and insert immediately thereafter "an individual under nineteen years of age"

Page 1, line 23, after "purchase" insert "and possess"

Page 2, line 8, overstrike "minors" and insert immediately thereafter "individuals under nineteen years of age"

Page 2, line 13, remove "subdivision b of"

Page 2, line 15, remove "subdivision a of"

Page 2, line 19, remove "subdivision b of"

Page 2, line 21, remove "subdivision a of"

Page 3, line 23, remove "subdivision a of"

Page 3, line 26, remove "subdivision a of"

Renumber accordingly

Date: 11/12/09

Roll Call Vote #: 1 - Amendments

2005 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. HB 1183

House

Human Services

Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number

Action Taken On Amendments - Do Pass

Motion Made By Rep Kaldor Seconded By Rep Uglem

Representatives	Yes	No	Representatives	Yes	No
Chairman C.S. Price	✓		Rep.L. Kaldor	✓	
V Chrm. G. Kreidt		✓	Rep.L. Potter	✓	
Rep. V. Pietsch		✓	Rep.S. Sandvig	✓	
Rep.J.O. Nelson					
Rep.W.R. Devlin		✓			
Rep.T. Porter		✓			
Rep.G. Uglem	✓				
Rep C. Damschen	✓				
Rep.R. Weisz	✓				

Total (yes) 7

No 4

Absent 1

Floor Assignment

on an amendment, briefly indicate intent:

Date: 1/12/05

Roll Call Vote #: 2

2005 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. HB 1183

House

Human Services

Committee



Check here for Conference Committee

Legislative Council Amendment Number

Action Taken *No Pass as amended*

Motion Made By

Rep Kaldor

Seconded By

Uglen

Representatives	Yes	No	Representatives	Yes	No
Chairman C.S. Price	✓		Rep.L. Kaldor	✓	
V Chrm.G. Kreidt	✓		Rep.L. Potter		✓
Rep. V. Pietsch		✓	Rep.S. Sandvig	✓	
Rep.J.O. Nelson					
Rep.W.R. Devlin		✓			
Rep.T. Porter		✓			
Rep.G. Uglen	✓				
Rep C. Damschen	✓				
Rep.R. Weisz	✓				

Total (yes) 7

No 4

Absent

1

Floor Assignment

Rep Kaldor

on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1183: Human Services Committee (Rep. Price, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (7 YEAS, 4 NAYS, 1 ABSENT AND NOT VOTING). HB 1183 was placed on the Sixth order on the calendar.

Page 1, line 2, remove "the age of", after "nineteen" insert "years of age", and after the third "the" insert "purchase, possession, and"

Page 1, line 3, replace "minors" with "individuals under nineteen years of age"

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Page 3, line 23, remove "subdivision a of"

Page 3, line 26, remove "subdivision a of"

Renumber accordingly

2005 TESTIMONY

HB 1183

Testimony

HB 1183

House Human Services Committee

Monday, January 10, 2005; 2 p.m.

North Dakota Department of Health

Good afternoon, Chairman Price and members of the House Human Services Committee. My name is Kathleen Mangskau, and I am director of the Division of Tobacco Prevention and Control for the North Dakota Department of Health. I am here to provide testimony in support of House Bill 1183 if amended to include raising to 19 the age for possession, distribution and use of tobacco, as well as sale and purchase.

The Department of Health believes no one should use tobacco and supports efforts to reduce tobacco use. As written, House Bill 1183 doesn't prohibit 18-year-olds from smoking; it merely stops them from purchasing tobacco. Without the suggested amendment, this bill may not reduce tobacco use among youth.

According to the 2003 Youth Risk Behavior Survey, North Dakota's youth tobacco use rate is among the highest in the nation. Nearly one in three high school students (30.2%) in North Dakota are current smokers, compared to about one in five nationally (21.9%). Tobacco often is the first drug used by young people who later use alcohol, marijuana and other illegal drugs. Nearly all first-use of tobacco occurs before high school graduation. If adolescents are kept tobacco free, most will remain tobacco free for the rest of their lives.

It is estimated that about one-fifth of high school students in North Dakota reach age 18 before graduating. Increasing the legal age for sale, purchase, possession, distribution and use of tobacco products could help in dealing with enforcement issues related to smoking by high school students who are age 18. Students who can purchase legally are more likely to have cigarettes at school or in their cars and to purchase or provide them for other students. In some cases, depending upon school policy, 18-year-old students can go off school property and smoke legally. Raising the age to 19 and strictly enforcing the law would help take tobacco out of the hands of high school students and has the potential to reduce the number of youth smoking.

This concludes my testimony. I am happy to answer any questions the committee may have.

American Lung Association of North Dakota: Testimony
HB No. 1183
Monday, January 10, 2005

Good afternoon, Chairman Price and members of the House Human Services Committee. My name is Janel Schmitz, and I am the executive director of the American Lung Association of North Dakota. I am here to provide neutral testimony for House Bill 1183, if amended to include the Department of Health recommendations stated previously.

For those of us who dedicate our lives to the promotion of lung health, we look to research as our guide for effective policy and programs. While increasing the legal age of tobacco use is not a well-documented strategy to decreasing smoking rates, one can argue that it is common sense.

Only three states, Alaska, Alabama, and Utah have a minimum smoking age of 19. Of those three, Utah and Alaska have a lower youth smoking rates than the United States average. Utah has a statewide smokefree air law in place and Alaska has a high tobacco tax – now up to \$1.60 per pack.

As a stand-alone strategy, increasing the legal smoking age to nineteen may not decrease youth smoking rates. However, its impact will be greatly strengthened if coupled with other research-based policy that is being proposed in this session – comprehensive smokefree workplace laws and increasing the price of tobacco. In Alabama where neither of these is in place, their youth smoking rates are at 24.7%, comparable to North Dakota at 30.2%. Alaska is just below 20% and Utah is at 7.3%. The large Mormon population in Utah is also a factor in their low smoking rates since smoking is prohibited by the Mormon religion.

I invite you and members of your committee to feel free to consult with the three voluntary health organizations – American Heart Association, American Cancer Society, and the American Lung Association – for any questions you may have regarding research-based policy during the session.

This concludes my testimony. I am happy to answer any questions the committee may have.



NORTH DAKOTA
DEPARTMENT OF HEALTH
600 East Boulevard Avenue, Dept. 301
Bismarck, ND 58505-0200
www.health.state.nd.us

COMMUNITY HEALTH SECTION

Memo

To: Chairman Clara Sue Price, House Human Services Committee
From: Kathleen Mangskau, RDH, MPA
Director, Division of Tobacco Prevention and Control
Date: 01/10/2005
Re: **Studies Linking Tobacco Use to Other Drugs**

Attached are the references linking tobacco use to other drugs as requested at the hearing on HB 1183.

- 1) Preventing Tobacco Use Among Young People: A Report of the Surgeon General
- 2) Summary of 2003 study by the National Center on Drug Addiction and Substance Abuse at Columbia University.

TOBACCO *Facts*

Teen Smoking and Marijuana Use

A 2003 study conducted by the National Center on Addiction and Substance Abuse at Columbia University found that there is an astounding correlation between teens who smoke cigarettes and those who use marijuana.

The study revealed that teens who smoke cigarettes:

- Are 14 times more likely to try marijuana.
- Are six times more likely to be able to buy marijuana in an hour or less.
- Are 18 times more likely to report that most of their friends smoke marijuana.

Among teens who are repeat marijuana users, 60 percent tried cigarettes first. These findings suggest that reducing teen smoking can be an effective way to reduce teen marijuana use.¹

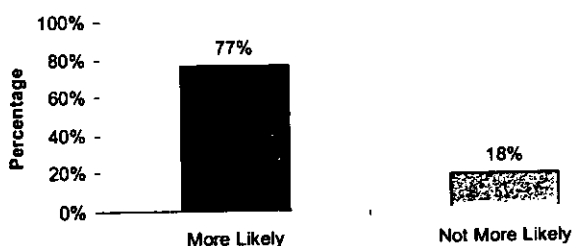
Teen Perceptions About Cigarette Smoking and Marijuana Use

Teens perceive a connection between cigarette smoking and marijuana use. When asked whether they think that a teen who smokes cigarettes is more likely to use marijuana, 77 percent said yes.²

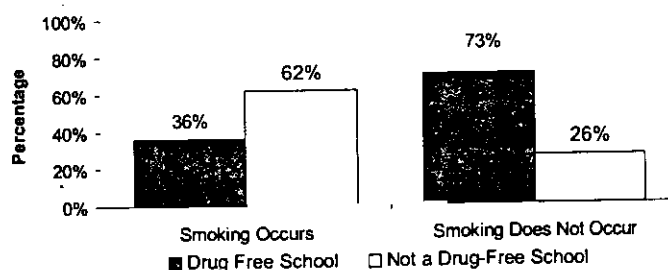
Drugs Are More Likely To Be Used, Kept, Sold at Schools Where Smoking Occurs

In schools where smoking occurs, 36 percent are drug free (i.e., schools where drugs are not used, kept or sold) and 62 percent are not drug free. In schools where smoking cigarettes on school grounds is not tolerated, 73 percent are drug free and 26 percent are not.³

Do You Think a Teen Who Smokes Cigarettes Is More Likely To Use Marijuana?



Drugs Are More Likely To Be Used, Kept, Sold at Schools Where Smoking Occurs



^{1,2,3} Report on Teen Cigarette Smoking and Marijuana Use, September 2003, The National Center on Addiction and Substance Abuse at Columbia University (CASA).



NORTH DAKOTA
DEPARTMENT of HEALTH

For more information, contact:
Division of Tobacco Prevention & Control
North Dakota Department of Health
600 E. Boulevard Ave., Dept. 301
Bismarck, ND 58505-0200

701.328.3138 or 800.280.5512 / www.ndtobaccoprevention.net

DIVISION of TOBACCO
PREVENTION & CONTROL

Preventing Tobacco Use Among Young People

A Report of the Surgeon General



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Office on Smoking and Health

The chronic phase of the addictive process is highly resistant to substantial modification. For example, efforts to reduce tobacco smoke and nicotine exposure by smoking cigarettes with lower ratings of nicotine delivery or to smoke fewer cigarettes are usually partially or completely thwarted by compensatory changes in how the cigarettes are smoked; smokers may compensate for "cutting back" by inhaling more deeply or smoking the cigarette farther down to its more potent and more toxic end (Kozlowski 1981, 1982; Benowitz et al. 1983; Benowitz and Jacob 1984; USDHHS 1988). Abstinence from smoking is generally short-lived; the majority of persons who quit on their own or in minimally supportive interventions appear to relapse within one week of their last cigarette (Kottke et al. 1989). In fact, in testament to the persistence of addiction, nearly one-third of those who have abstained for one year after quitting relapse later (USDHHS 1990; Giovino 1991). These patterns of relapse are similar to those observed with other drug addictions.

Several potential predictive measures of the severity of addiction in a person may forecast the severity of withdrawal and the outcome of an attempt to quit. These measures, which have been discussed in detail in the 1988 report of the Surgeon General (USDHHS 1988), include cotinine level in biological fluid such as saliva, blood, or urine; number of cigarettes smoked per day; score on the Fagerström Tolerance Questionnaire; and number of symptoms attributed from the *Diagnostic and Statistical Manual of Mental Disorders* (APA 1987). These measures tend to predict, although not perfectly, the difficulty of achieving abstinence, the severity of withdrawal symptoms, the rapidity of relapse, and the efficacy of replacement therapy (USDHHS 1988).

One final source of vulnerability to nicotine dependence appears to be genetic predisposition. Research with animals has shown that the amount of up-regulation (increased binding in the brain) of nicotine receptors after

nicotine exposure is related to genetic constitution, as are certain behavioral and physiologic effects (Marks et al. 1989; Collins 1990). Data from studies with human twins have yielded indices of heritability for cigarette smoking similar to those for drinking alcohol (Hughes 1986; Kozlowski 1991; Carmelli et al. 1992).

Nondrug Factors in Nicotine Dependence

Nondrug factors can affect the prevalence of drug addiction in society as well as its severity in individuals. Some of the factors are the same as those that determine the prevalence and severity of other medical disorders resulting from exposure to toxins. Among the most important factors in determining the prevalence of drug addiction is the exposure to the addicting substance (USDHHS 1988). This factor is no less important in the spread of drug addiction than it is in the spread of disorders such as acquired immunodeficiency syndrome, malaria, and influenza infections. Moreover, social factors can determine the type and frequency of exposure to the etiologic agent, as well as the time frame over which exposure continues. Many nondrug factors associated with both abstinence and relapse appear to operate similarly across addictions. These factors include illness induced by drug dependence (which will at least temporarily interrupt drug use), ability to learn to manage cravings, social reinforcements for abstinence, availability of the substance, cost of the substance, and perception of the risk of using the substance (USDHHS 1988).

Persons vary in their vulnerability to nicotine and other drug addiction, just as they vary in their vulnerability to other medical disorders; some people show a high degree of resistance to the disorder despite multiple exposures to the agent, and others very quickly become addicted (USDHHS 1988). Psychosocial factors affecting the vulnerability of the young and the onset of tobacco use are discussed in Chapter 4.

Smoking as a Risk Factor for Other Drug Use

Introduction

The 1988 Surgeon General's report (USDHHS 1988) showed that among adolescents, cigarette smoking is a risk factor in the development of alcohol use and illegal drug use. The nature of the interrelationship between tobacco and other drug use is complex; in several possible ways, tobacco use may heighten the probability that a young person will use other drugs (Slade 1993; see

"Smoking and Other Drug Use" in Chapter 3 and "Behavioral Factors in the Initiation of Smoking" in Chapter 4).

Progression of Drug Use

Kandel (1975) found that studies of the progression of drug use in the 1970s showed that cigarette smoking and alcohol use generally preceded marijuana smoking and other illegal drug use. In fact, Kandel's study

concluded that virtually everyone who used illegal drugs such as marijuana or cocaine had previously used cigarettes, alcohol, or both. These findings, primarily among white youths, have been repeatedly extended and replicated (e.g., Fleming et al. 1989; Kandel and Yamaguchi 1993).

More recent data from the Monitoring the Future Project (MTFP) by NIDA (USDHHS 1988) confirm that illegal drug use is rare among those who have never smoked and that cigarette smoking is likely to precede the use of alcohol or illegal drugs. The 1985-1989 MTFP showed that first use of tobacco had occurred at the same age as first use of alcohol for 33 percent of the sample; cigarettes were used before alcohol by 49 percent of the sample. The same survey showed that among those who had used both cigarettes and marijuana, 23 percent began using both in the same year, and 65 percent smoked cigarettes before marijuana. The latter relationship was more pronounced for cocaine: 98 percent of persons who had used both cocaine and cigarettes smoked cigarettes first (see Tables 24-26 in Chapter 3).

These findings were extended in another longitudinal study that assessed 12-, 15-, and 18-year-olds in New Jersey and reinterviewed them at three-year intervals (USDHHS 1987). This study showed that among 15-year-olds, the use of cigarettes, alcohol, or marijuana was the strongest predictor of cocaine use when these same persons were reinterviewed three years later; at that time, the persons using cocaine were likely to be using cigarettes and alcohol as well.

Cigarette smoking in combination with alcohol use appears to be especially predictive of illegal drug use. A longitudinal study by Yamaguchi and Kandel (1984) examined initial data from students in the tenth and eleventh grades in New York State in 1971. When the authors reevaluated the same students in 1981 (average age, 25 years), the most common sequence of drugs used was alcohol, cigarettes, marijuana, illegally used psychoactive or prescription drugs, and other illegal drugs. The investigators found that for 87 percent of the men, alcohol use preceded marijuana use; alcohol and marijuana use preceded other illegal drug use; and use of alcohol, cigarettes, and marijuana preceded the use of other psychoactive drugs. For 86 percent of the women, a similar, but not identical, pattern emerged: alcohol or cigarettes preceded marijuana; alcohol, cigarettes, and marijuana preceded other illegal drugs; and alcohol and either cigarettes or marijuana preceded other psychoactive drugs. These findings were replicated with 1,108 high school seniors in New York in 1988 (Kandel and Yamaguchi 1993). This study confirmed the importance of cigarette and/or alcohol use in the progression of illegal drug use, with early cigarette

use being of particular importance in the development of other drug use among females. Early onset of cigarette smoking and/or alcohol use was a strong predictor of further drug use.

The relationship between alcohol use and cigarette smoking is more complex than would be suggested by examining any one survey. In some studies, alcohol is more likely to precede than to follow cigarette smoking. This variability might be explained by the differing study criteria for alcohol use. For example, among many adolescents, alcohol consumption is characterized by the occasional light use of beer or wine—a pattern that often neither escalates into patterns of heavy drinking nor predicts other drug use (Kandel, Margulies, Davies 1978; Huba, Wingard, Bentler 1981; O'Donnell and Clayton 1982). This finding is consistent with the observation that approximately 85 percent of people who drink alcoholic beverages do so in patterns that do not meet criteria for abuse (USDHHS 1988). On the other hand, consumption of "hard liquor," sometimes accompanied by heavy drinking patterns, appears to develop either along with or following the development of regular patterns of cigarette smoking (Kozlowski et al. 1993; DiFranza and Guerrera 1990). These observations are consistent with the findings of the 1985 NHSDA, which showed that among 12-through 17-year-old adolescents who had never smoked, only 3 percent had binged (i.e., had five or more drinks in a row) in the past 30 days, whereas nearly 40 percent of daily smokers in this age group had binged in the past 30 days (USDHHS 1988).

The progression from cigarette smoking and occasional consumption of alcoholic beverages to heavier drinking and illegal drug use does not appear limited to any single population group. However, there is some evidence that boys with conduct disorders in school and at home may be at especially high risk of progression from any use of tobacco and alcohol to addictive patterns of multiple-drug use. A recent study of 61 males aged 14 through 18 who had conduct disorders found sequences of acquisition of drug use similar to those found among adolescents in general, but with higher rates of addictive use of the tobacco-alcohol-marijuana cluster and earlier initiation of these substances (Mikulich, Young, Crowley 1993).

Cigarette Smoking and Other Drug Use

Cigarette smoking is neither necessary nor sufficient for other drug abuse or dependence. Not all cigarette smokers subsequently abuse other drugs, and a small percentage of abusers of alcohol and illegal drugs do not use tobacco. However, several studies have revealed that cigarette smoking is a predictor of whether an individual is using other drugs and of what that individual's level of other drug use is. The 1985 NHSDA

(USDHHS 1988; Henningfield, Clayton, Pollin 1990) showed that 12- through 17-year-olds who had smoked cigarettes in the past 30 days were approximately 3 times more likely to have consumed alcohol, 8 times more likely to have smoked marijuana, and 22 times more likely to have used cocaine in the past 30 days than those who had not smoked cigarettes. Data from the 1985-1989 MTFP showed that seniors who had smoked cigarettes in the past 30 days were about 1.6 times more likely to have consumed alcohol, 4 times more likely to have smoked marijuana, and 5 times more likely to have used cocaine in the past 30 days than those who had not smoked cigarettes (see "Smoking and Other Drug Use" and Table 23 in Chapter 3).

The 1985 NHSDA (USDHHS 1988; Henningfield, Clayton, Pollin 1990) examined heavier drug use as a function of cigarette smoking. Having 5 or more drinks in succession in the past 30 days, using marijuana on more than 10 occasions, and using cocaine on more than 10 occasions were considered heavier usage of drugs. A strong association was observed between cigarette smoking and other drug use among all age groups in this study, although the percentage of the increases in drug use from the never-smoker to the daily-smoker levels was strongest in the 12- through 17-year-old group (Figure 1). Among these youngest smokers, those who smoked daily were approximately 14 times more likely to have binged on alcohol, 114 times more likely to have used marijuana at least 11 times, and 32 times more likely to have used cocaine at least 11 times than those who had not smoked.

A similar correlation between frequency of alcohol use and level of cigarette smoking was found in a study of 7th- through 12th-grade students in New York State (Welte and Barnes 1987). In the Welte and Barnes study, as in the NHSDA, not only were smoking any cigarettes and drinking alcohol related, but daily smoking was a predictor of binge drinking. These data are consistent with those from a study of adult multiple-drug abusers, which found that severity of nicotine dependence, as measured either by a scale that assesses the strength of a given habit or by cigarettes smoked per day, was correlated directly with severity of alcohol consumption problems, as measured by scores on the Michigan Alcoholism Screening Test (Kozlowski et al. 1993). These data indicate a strong direct relationship between level of nicotine dependence and alcohol abuse but do not in themselves show the direction of the relationship or rule out the possibility that other factors commonly determine the coincidental occurrence of high levels of tobacco and other drug use.

Data from a longitudinal study in which 4,192 students (grades six through eight) were surveyed three times over four years extended the findings that the

amount of tobacco use is directly related to other drug use (Bailey 1992). Specifically, this study showed that students who during follow-up periods escalated from low-level use of tobacco or alcohol to heavy-level use were more likely to begin using other psychoactive substances or to increase their use of these substances than students who remained low-level users of tobacco or alcohol (Bailey 1992).

Other studies suggest that the age at onset of cigarette smoking determines the probability of subsequent use of marijuana and of heavy alcohol use. For example, Clayton and Ritter (1985) found not only that cigarette smoking, along with alcohol use, was the most powerful predictor of marijuana use, but also that the effect was strongest when smoking was initiated by age 17. Similarly, Keenan (1988) found that the age at onset of cigarette smoking was significantly younger in people with a history of alcoholism than in those who did not use alcohol.

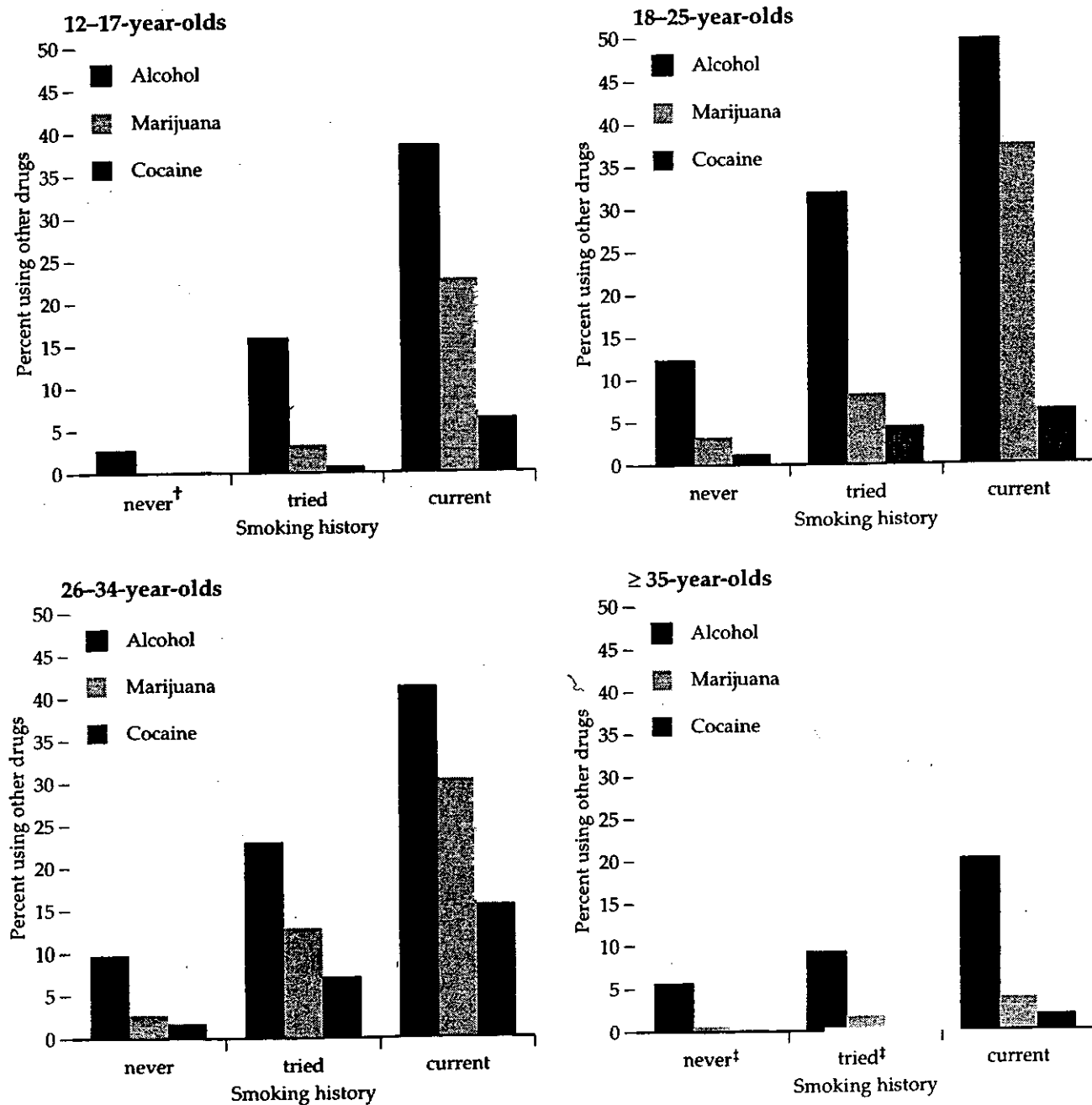
Another study estimated that the relative risk of alcoholism was increased tenfold among cigarette smokers and that people who heavily use alcohol represent approximately one-third of all cigarette smokers (DiFranza and Guerrera 1990). A further analysis of these and additional data led Kozlowski et al. (1993) to conclude that because the association between smoking and drinking is weaker among light smokers, the percentage of heavier smokers who develop problems with alcohol might be greater than 30 percent.

Of all drug users surveyed by the NIDA, cigarette smokers were by far the most likely to report experiencing various features of addiction. Among 12- through 17-year-olds who had used cigarettes, 27 percent were daily users and 20 percent felt dependent; of those who had used alcohol, 6 percent were daily users and 5 percent felt dependent; of those who had used marijuana, 18 percent were daily users and 10 percent felt dependent; of those who had used cocaine, 14 percent were daily users and 6 percent felt dependent (USDHHS 1988; Henningfield, Clayton, Pollin 1990). Cigarette smoking was also, by far, the drug use most commonly associated with withdrawal symptoms. Thus, cigarette smoking not only occurs early in the progression of drug use, it appears to be the first of these drugs to produce features of addiction in young people.

Smoking as a Facilitator for Other Drug Use

A number of mechanisms could explain how cigarette smoking facilitates the use of alcohol and illegal drugs. These mechanisms are not mutually exclusive. Moreover, other variables may operate to nondifferentially increase the use of tobacco and a wide range of other substances. For example, children with conduct disorders are at increased risk of using tobacco, heroin, alcohol,

Figure 1. Use of alcohol, marijuana, and cocaine,* by age group, National Household Survey on Drug Abuse, 1985



Source: USDHHS (1988).

*The criteria for current use are as follows: alcohol = drank five or more drinks in a row at least 1 day in the past 30 days; marijuana = used marijuana more than 10 times; cocaine = used cocaine more than 10 times (N = 8,814).

[†]Values were under 1 for marijuana and cocaine use.

[‡]Values were under 1 for cocaine use.

cocaine, and other drugs (USDHHS 1988). Similarly, a longitudinal study showed that first-grade children who were characterized by their teachers as either shy or aggressive were significantly more likely than their peers to smoke cigarettes, drink alcohol, and use illegal drugs in their teenage years (Kellam, Ensminger, Simon 1980). Evidence of other predictive factors, however, does not rule out the possibility that young people who smoke have an increased risk of using other drugs.

Morphologic changes in brain structure that have been induced by nicotine exposure might predispose persons to the abuse of other drugs; this mechanism, however, has not yet been experimentally investigated. One possibility is that common pathways of drug-produced reinforcement in the brain might be altered so that the reinforcement produced by subsequent drug exposure is intensified. Central nicotinic receptors are known to be critical mediators of the reinforcing effects of nicotine (USDHHS 1988). In turn, activation of these receptors leads to activation of the dopaminergic reward system, which is critical in mediating the reinforcing effects of a wide variety of abused drugs, including cocaine and heroin. Thus, it is a plausible, but unproven, hypothesis that nicotine exposure would lead to a heightened sensitivity to the reinforcing effects of other drugs of abuse. This hypothesis is supported by the finding that the development of tolerance to nicotine is accompanied by the development of tolerance ("cross-tolerance") to alcohol (Burch et al. 1988; Collins et al. 1988). Other research with animals also shows that nicotine exposure, either alone or in combination with other drugs, may alter the behavioral responses to drugs of abuse, including alcohol and cocaine (Signs and Schechter 1986; Horger, Giles, Schenk 1992). These data together suggest a plausible biological basis for a causal role for tobacco use in the development of other substance abuse patterns, even if this role is shared by other risk factors.

Nicotine produces various effects that have been shown to be produced similarly by one or more other abused drugs; all of these findings were discussed in greater detail in the 1988 Surgeon General's report (USDHHS 1988) and elsewhere (Pomerleau and Pomerleau 1984). Nicotine administration produces feelings of pleasure and euphoria that elevate the same scales on the Addiction Research Center Inventory as the effects of heroin, cocaine, alcohol, and other abused drugs (Henningfield, Miyasato, Jasinski 1985; USDHHS 1988).

Human subjects report, and laboratory rats demonstrate that nicotine produces acute effects that are more like a stimulant than a sedative (Henningfield, Miyasato, Jasinski 1985; USDHHS 1988). Nicotine administration causes cortical EEG activation (increase in alpha and beta frequency, decrease in beta power) that is associated with increased vigilance and improved cognitive function (USDHHS 1988; Pickworth, Herning, Henningfield 1989). Conversely, nicotine deprivation leads to EEG deactivation and concomitant decreases in vigilance and cognitive function (USDHHS 1988; Pickworth, Herning, Henningfield 1989). Nicotine administration modulates the various levels of catecholamines, which are important in the regulation of mood and reactions to stressful stimuli (Pomerleau and Pomerleau 1984; USDHHS 1988).

Partly through its effects on serotonergic systems in the brain, nicotine has some of the same effects on appetite as medications prescribed for this purpose. Nicotine can reduce skeletal muscle tension and thereby contribute to the feelings of pleasurable relaxation often attributed to various abused drugs. For all of these drugs, including nicotine, the specific effect produced is related to the dose of the drug administered. Thus, depending on the dose of the drug or drugs taken, the time since the last dose, and other factors, theoretically the user may achieve certain effects with any of several drugs, achieve various maximal effects through drug combinations, or use certain drug combinations in an effort to reduce certain adverse effects (Gardner 1980).

Certain trends in drug abuse that have become prominent over the past decade increase the potential role of cigarette smoking in the development of other forms of drug use. Specifically, there are increasing reports of smokable preparations of various drugs, including cocaine ("crack"), methamphetamine ("ice"), phencyclidine ("PCP"), and heroin, and marijuana continues to be smoked by large numbers of people (USDHHS 1988). Drug administration via smoking requires the user to learn to regulate dose and to become tolerant of the rapid onset and aversive effects of smoke inhalation. These basic skills may be learned through the process of becoming dependent on tobacco, as is discussed in "Developmental Stages of Smoking" in Chapter 4 of this report and in the 1988 report. Once learned, these skills can be transferred to other smoked drugs and can facilitate the process of experimentation with such drugs, as well as increase the potential for addiction.