Department of Health and Human Services

OFFICE OF INSPECTOR GENERAL

SPIT TOBACCO AND YOUTH

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EXECUTIVE SUMMARY

PURPOSE

This study describes the present status of youth use of spit tobacco in six areas: prevalence and patterns of use, health effects, environmental influences on use, product promotion and sales, regulation and enforcement, and educational efforts.

BACKGROUND

This report, requested by the Surgeon General, is the second on spit tobacco (snuff and chewing tobacco) by the Office of Inspector General. The first, in 1986, concluded spit tobacco use by young people was a national problem with serious potential health consequences. The current inspection focused on data developed after 1985 for users under age 19 and found spit tobacco use persists as a national health problem. Information came from four major sources: literature review, national and regional data on prevalence and use patterns, experts in spit tobacco issues, and young users.

FINDINGS

Under-Age Spit Tobacco Use Is High, Wide-Spread And Begun Early.

In 1990 and 1991, nearly one in five high school males used spit tobacco. However, high spit tobacco use is not confined to one region or group; northeasterners, urban dwellers, and Native American children use spit tobacco. Age 11 or 12 is typical for starting use.

Often Addicted To Spit Tobacco, Under-Age Users Are Seriously Endangering Their Health.

Spit tobacco contains cancer-causing and addictive substances. Short term spit tobacco use often causes leukoplakia (white, wrinkled, skin patches inside the mouth) which can, over time, become malignant in a significant percentage of cases. Long term use greatly increases the risk for oral cancer which may become epidemic if young people continue frequent use into their adult years. Use is intense among young people who frequently admit they are addicted to nicotine.

Family, Friends And Other Incentives Strongly Contribute To Under-Age Use.

Perceived social support from fathers, other male relatives and friends is the most influential reason youth first try spit tobacco. The baseball connection, product placement in stores and "look-alike" items further enhance acceptability of use.

Extensive And Successful Promotion Of Spit Tobacco Victimizes Susceptible Youth.

Moist snuff consumption has nearly tripled since 1972, making it a very profitable business. The industry intensively promotes spit tobacco through sponsorship of sporting events, entertainment and distribution of free samples. These activities, and the associated images of athleticism and masculinity, have strong appeal for many males under age 18.

Spit Tobacco Laws And Their Enforcement Are Weak And Ineffective.

While many other countries prohibit spit tobacco, American regulatory policy is inconsistent with other tobacco products. The Comprehensive Smokeless Tobacco Health Education Act of 1986 has not been an effective deterrent to spit tobacco use by young people. State and local tobacco control and access laws have loopholes and lack enforcement.

Under-Age Spit Tobacco Use Is A Community Problem, Requiring Broad Interventions.

Spit tobacco use is often socially acceptable within a community, including schools. Effective measures for change and better enforcement include heightened community consciousness, tobacco-free schools, screening and counseling by health professionals, disassociation of sport from spit tobacco use, and improved spit tobacco curricula.

CONCLUSIONS

The responsibility for addressing the problem of spit tobacco use by young people rests with many groups at the national, State and local levels. We encourage responsible groups to take action in four broad areas:

- Promote community awareness and action.
- Support improved State and local tobacco control.
- Seek the support and involvement of health care providers and organized athletics.
- Re-examine national tobacco control and access policy and coordinate a plan for deterring youth use of spit tobacco.

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INTRODUCTION

PURPOSE

This study describes the present status of youth use of spit tobacco in six areas: prevalence and patterns of use, health effects, environmental influences on use, product promotion and sales, regulation and enforcement, and educational efforts.

BACKGROUND

Spit tobacco includes two main types: snuff and chewing tobacco. Snuff "dippers" place a small amount of shredded or finely ground tobacco (loose or encased in a paper pouch) between their cheek and gum. Tobacco "chewers" place a wad of loose leaf tobacco or a plug of compressed tobacco in their cheek. Both dippers and chewers suck on the tobacco and spit out the tobacco juices and saliva generated. Previously termed "smokeless tobacco", snuff and chewing tobacco are now sometimes called "spit" or "spitting" tobacco to more accurately describe how they are used and to counteract the misconception that they are safe to use. This study, requested by the Surgeon General, uses the newer nomenclature of spit tobacco.

Youth use of spit tobacco is a serious public health concern. In January 1986 the OIG released a national study entitled, "Youth Use of Smokeless Tobacco: More Than a Pinch of Trouble." This report concluded that increasing use of smokeless (spit) tobacco by young people was a national problem with serious potential health consequences. Young users were already experiencing health effects and were unaware of the risk for others. Subsequently, offices within the Public Health Service (PHS), i.e., the Centers for Disease Control (CDC), National Cancer Institute (NCI), National Institute of Dental Research (NIDR), National Institute on Drug Abuse (NIDA), Office of the Surgeon General, and the Indian Health Service, compiled a growing body of completed and developing scientific research information that shows youth use of spit tobacco persists as a national health problem. The American Dental Association and the American Academy of Otolaryngology, among others, promote practices that actively seek to deter youth use.

In 1986, to deter spit tobacco use, Congress enacted the Comprehensive Smokeless Tobacco Health Education Act (CSTHEA) of 1986 (P.L. 99-252). The Act required the Secretary to inform the public of any health dangers of smokeless (spit) tobacco use. Smokeless (spit) tobacco packaging and advertising had to include warning labels with the exception of outdoor billboard advertising. Advertising on radio or television was banned. The Act also encouraged States to establish 18 as the minimum age for the purchase of smokeless (spit) tobacco, currently the standard in all but three States. In July 1992, the Congress further strengthened national law when it passed the ADAMHA Reorganization Act which required all States to ban the sale and distribution of tobacco products to everyone under age 18 by October 1, 1994. It also requires States to enforce their laws

"in a manner that can reasonably be expected to reduce the extent to which tobacco products are available to under-age youths."

METHODOLOGY

This inspection focused on spit tobacco use by people under age 19 with an emphasis on trends and data developed after 1985. Information came from four major sources: research and professional literature, national and regional survey data on prevalence and patterns of use, key informants considered experts in spit tobacco issues, and a purposive sample of current and former young users.

We completed a content analysis of research and professional literature published after 1985 (see Bibliography). This literature analysis and synthesis covers the six areas enumerated in the Purpose. The literature review serves as the basic study framework supplemented by national survey data from the National Center for Health Statistics, NIDA and CDC, and by State and regional survey data collected from a variety of sources (see Appendices B and C). Numbers in parentheses appearing within the report text, e.g. (4), reference the literature or survey data source. Superscript letters, e.g. ([m]) refer to endnotes.

Using in-depth, structured interviews, we collected data from 34 key informants knowledgeable in spit tobacco issues (see Appendix D). We selected these key informants based on their participation in Departmental programs and/or research dealing with spit tobacco issues, their prominence in professional or research literature, their professional affiliations or recommendations by other key informants. Their areas of expertise are preventive medicine, dental health and education, psychology, psychiatry, epidemiology, clinical pharmacology, cancer research and tobacco use control policy. Seventy-five percent have done original research on spit tobacco issues.

We also collected detailed data on use patterns and motivations from 54 spit tobacco users. Using a structured questionnaire, we interviewed users either in person or by telephone. In some cases, dental professionals, using our questionnaire, conducted the interviews on-site in their clinics. The 54 users, selected judgmentally, met four criteria: 1) initiated use before age 18, 2) were age 21 or younger at the time of the interview, 3) had used spit tobacco regularly for two years or more, and 4) had used spit tobacco nearly every day in their last year of use. Beyond the stereotypical white male and athlete users, we also included females and members of other ethnic groups such as Native Americans, and Hispanics. The users come from 15 States, and from urban and rural areas.

The user data, coupled with more in-depth data from our 1986 report on spit tobacco, supplements and complements descriptions of motivations and consequences of spit tobacco use from our literature review. However, we could not make general statements about all young spit tobacco users since the sample is limited. Quotes from these users are scattered through the report text. Profiles of some of the young users are presented in Appendix A.

FINDINGS

Under-Age Spit Tobacco Use Is High, Wide-Spread And Begun Early.

- ***Currently, nearly 1 in 5 high school males uses spit tobacco; some State rates are considerably higher.***

Percent use during preceding 30 days
Grades 9 to 12

	Males		Females	
Year	White	Total	White	Total
1990	23.9%	19.1%	1.5%	1.4%
1991	23.6%	19.2%	1.4%	1.3%

Source: YRBS, 1990 (N = 11,631) & 1991 (N = 12,272)

Table 1

A 1990 and 1991 school-based survey in 22 select States (Youth Risk Behavior Survey - YRBS) shows that nearly 20 percent of males in grades 9 to 12 were current users of spit tobacco (1-3).[a] Among white males, an even higher 1 in 4 currently use spit tobacco (see Table 1). Use among white male 12th graders in 1990 was 26 percent. Rates for Hispanic and Black teens are notably lower, as are female use rates.

Current Use By Grade

Grade	Alabama	Tennessee
9th	36.6%	35.2%
10th	26.7%	37.1%
11th	26.9%	30.7%
12th	31.1%	33.7%

Source: YRBS 1991 (109, 111)

Table 2

In some States, current use by high school males is much higher than the composite YRBS rate. Overall male usage rates in grades 9 to 12 are as high as 34 percent in Tennessee and 33 percent in Montana (3). Other States with high overall prevalence among high school males are Colorado (32%), Alabama (31%) and Wyoming (31%) (2). Further, in States with high use rates, more 9th or 10th grade males than senior males may currently use spit tobacco (see Table 2). For additional States with high spit tobacco use rates, see Appendix B.

- ***Spit tobacco use by young males has increased greatly since 1970 and has stayed high.***

Between 1970 and 1985 spit tobacco use by young males increased dramatically nation wide. The 1970 National Health Interview Survey reported young males age 17 to 19 were the lowest snuff users while men age 50 and over were the highest (4). By 1985, the Current Population Survey showed males age 16 to 19 had a snuff usage rate double that of men age 50 and over.[b,c]

Other studies showed high spit tobacco use among young people. In 1989 the NCAA replicated its 1985 national study of social drug use by college athletes (5). It found use of spit tobacco by college athletes had risen from 20 percent in 1985 to 28 percent in 1989, a 40 percent increase. More importantly, the NCAA found the large majority of college users began dipping or chewing <u>before</u> they went to college, i.e., either in junior high (21%) or senior high (54%) school. Furthermore, spit tobacco was the only social

drug in the NCAA study with a higher reported prevalence in 1989 than in 1985.[d] From 1986 to 1989 the NIDA National High School Senior Survey indicated current monthly use of spit tobacco among males ranged from 22 percent in 1986 to 16 percent in 1989 (6).[e] Female use was relatively low, ranging from 1.6 percent in 1986 to 1.2 percent in 1989, and had stayed low over time (4,6).

▸ ***High spit tobacco use is not confined to one region or population group.***

Use by Northeastern high school males is as high as 10 percent in States where it was presumed to be uncommon. For example, Connecticut's 1989-90 Health Check reported male spit tobacco use in the past 30 days was 7 percent for both 10th and 11th graders (7). Use among that State's male seniors increased 25 percent from 8 percent in 1987 to 10 percent in 1990. According to the Tri-Agency Tobacco Free Project, 6.6 percent of Maine's 9th graders use spit tobacco (8). Maine also experienced a large increase of 23 percent in male use of spit tobacco for seniors since 1987, rising from 8.3 percent to 10.2 percent in 1991 (8-10).

Urban rates of youth use, although lower than rural, range as high as 16 percent. A 1987 Illinois study showed 1 in 6 metropolitan male 11th graders and 1 in 4 non-metropolitan males currently used spit tobacco (see Table 3) (11). In Missouri, 13 percent and 15 percent of urban 8th and 12th grade males respectively used spit tobacco within the last 7 days in 1988 (12). The comparable prevalence rates for rural males were 17 percent for 8th grade and 31 percent for 12th grade (12).

Illinois Males

Grade	Non-metro.	Metro.
11th	28.4%	16.4%
9th	26.7%	14.6%
7th	11.8%	7.2%
5th	4.8%	3.7%

Source: Illinois Survey (44)

Table 3

Native Americans' spit tobacco use rates are the highest for any age group for both males and females. Their rates of use range from 29 percent in Washington to 46 percent in parts of South Dakota and Montana (13). However, three counties in North Dakota, which have predominantly Native American populations, reported even higher spit tobacco use in a 1990 prevalence survey of their young people. Ninety-one percent of Sioux County's male 7th graders and 83.3 percent of 8th graders currently used spit tobacco. Over 50 percent of McKenzie County's male 9th, 10th, and 11th graders and Adams County's male 11th and 12th graders currently use spit tobacco (14). Native Americans are unique in that female use rates sometimes equal, or even exceed the high rates of males (13).

▸ ***Youth use spit tobacco at extremely young ages.***

Research on young users indicates the majority of youth start spit tobacco use before the age of 12, (11,12,15-18) with young rural males starting more than a year earlier (19c,12). In 1986 we reported that average age of first use was 10 years. The average age of initiation for our 1992 users was 9.5 years old, with 67 percent starting at 12 years

old or younger. Twenty-eight percent (15 of 54) of them were five years old or younger when they first tried spit tobacco.

In some regions, regular use also occurs at early ages. For example, 17 percent of West Virginia's 5th and 6th grade boys are regular spit tobacco users (19b). Other States are experiencing a smaller, but significant, proportion of their young children using spit tobacco regularly: 3.7 percent of Illinois's 5th graders (11), 3 percent of Oklahoma's (20) and Missouri's 6th graders (12), and one percent of Maine's (8) and Connecticut's 5th graders (7). In 1986 we reported the average age for regular or daily use was 12.

Often Addicted To Spit Tobacco, Under-Age Users Seriously Endanger Their Health.

- ***Spit tobacco contains cancer-causing and addictive substances.***

Spit tobacco contains tobacco nitrosamines and other proven carcinogens, i.e. cancer-causing substances (21). Spit tobacco nitrosamine levels are hundreds, or in some cases thousands, of times greater than what foods and beverages may legally contain (4,22). For example, spit tobacco has 100 times more nitrosamines than bacon (23). Moist snuff has a much higher nitrosamine level than looseleaf chewing tobacco. While some researchers have suggested setting maximum permissible levels of nitrosamines (21), NCI has said nitrosamines are not safe at any level in tobacco products (24). Pinkerton's Red Man moist snuff has the highest nitrosamine level of any snuff sold in the United States, followed by U.S. Tobacco Company's (UST) Copenhagen (21,25,26). Moist snuff also contains polonium-210, uranium-235 and -238, nickel, cadmium and formaldehyde, also considered carcinogens.

Another harmful ingredient of spit tobacco is nicotine, an addictive drug (27). Nicotine enters the user's bloodstream by being absorbed through the lining of the mouth. In normal use, a snuff dipper places a pinch in his mouth and holds it there for 20 to 30 minutes. The amount of nicotine absorbed is 2 to 3 times the amount delivered by a regular-size cigarette (25). Chewing tobacco has less available nicotine (per gram of tobacco) compared to moist snuff, but chewers use more tobacco per dose. Thus, users who consume 8 to 10 dips or chews a day receive a nicotine dose equal to that taken by a heavy smoker who consumes 30 to 40 cigarettes daily (25). Nicotine is absorbed more slowly from spit tobacco than from cigarette smoke. However, more nicotine per dose is absorbed from spit tobacco and it stays in the bloodstream longer (28). UST's Copenhagen and Pinkerton's Red Man moist snuff have the highest level of available nicotine (21).

Using spit tobacco can lead to nicotine dependence or addiction (4,27). The U.S. Surgeon General, the World Health Organization and the American Psychiatric Association have all recognized chronic tobacco use as drug addiction (27). Further, the Surgeon General has compared nicotine to other addictive drugs such as cocaine or heroin. While nicotine is a legal drug and the others are not, the processes that determine nicotine addiction are similar to those that determine addiction to other drugs.[f]

- ***In the short term, spit tobacco use causes serious, but generally not fatal, health effects.***

Leukoplakia (white, wrinkled, skin patches inside the mouth) and gum recession at the usual site of tobacco placement are the most frequent consequences of short-term spit tobacco use (4, 29-33). These conditions occur in 40 to 60 percent of spit tobacco users. Leukoplakia are a serious concern because, over time, they become malignant in a significant, though unspecified, percentage of cases. A conservative range is from 2 to 6 percent (33). However, leukoplakia appear to regress or resolve completely if the spit tobacco user quits (33). Occurring where the user holds the spit tobacco in his mouth, leukoplakia are significantly associated with duration, frequency, recency, type and brand of spit tobacco used. Fifty-eight percent of key informants agree that the incidence of oral health problems among young users are increasing, with 48 percent perceiving a moderate rate of increase.

Other health effects of short-term spit tobacco use are mentioned, but are less certain in research data. For pregnant women, fetal toxicity is implicated in spit tobacco use (35). A concern is that the nicotine, sodium and carcinogenic substances absorbed from spit tobacco may aggravate human illness in progress (36), or for young male athletes who use any form of tobacco, accelerated coronary artery disease or high-blood pressure will result (28). A limitation of data gathered to describe the short term to intermediate effects of use is that the study populations have been young, physically fit users (36-38).

- ***In the long term, the consequences of spit tobacco use can be deadly.***

The scientific and research community is quite certain of the link between prolonged spit tobacco use and oral cancer (4,39-41). About 75 percent of oral and pharyngeal cancers are attributed to use of smoked and spit tobacco (40). Those who use spit tobacco are at risk for gum and cheek lesions that in particular can lead to cancer (40). Oral cancer accounts for 2 to 4 percent of all cancers diagnosed annually in the United States, but only one-half of those with oral cancer are alive five years after diagnosis (40). Further, most oral cancers are advanced at diagnosis, so those who survive the oral cancer have an exceptionally high risk of developing subsequent cancers (23).

> "Dad got gum cancer and died. He had used about 40 years. They cut part of his mouth out, but it got into his throat."

Young spit tobacco users who continue their habit are at risk for oral cancer. If they continue frequent spit tobacco use into their adult years, 94 percent of key informants predict an increased incidence of mouth and throat cancers for them.[g] The majority (64%) say "absolutely" this will happen. NCI has also expressed its serious concern about "an impending oral cancer epidemic" in the young male group (23).

Besides oral cancer, other adverse health effects are associated with long-term spit tobacco use. Oral effects suggested are dental decay, tooth abrasion, and tooth loss (32).[h]

Suggested health problems under study are high cholesterol levels (37,42), accelerated coronary heart disease (28,35), upper digestive tract cancers (35,41), high blood pressure (28,35,43), and cancers of the throat, pancreas, prostate in males (44) and urinary tract (35).

- ***Nicotine addiction plays a role in long-term health consequences.***

Addiction to spit tobacco combined with the serious health effects of long-term tobacco use assure that many young users face an unhealthy future. Researchers agree a relationship between spit tobacco and cigarette use exists, although the dynamics and sequence are not clear (45,46). One researcher explains it this way, "It appears that the use of one nicotine product is associated with the initiation of another nicotine product. The use of [spit tobacco] is far more likely to precede cigarette smoking than the other way around." (46) The majority of key informants say many young people start their tobacco use with spit tobacco. Additionally, they say many also smoke or will switch to cigarettes in the future. The First International Conference on Smokeless Tobacco, in recognizing the addictive nature of nicotine, concluded "...there is a clear potential for [spit tobacco] to serve as a gateway substance for cigarette smoking and the use of other addictive substances, [i.e. alcohol, illicit drugs]." (47)

Therefore, the probable course of events is: 1) nicotine addiction leads to continuous tobacco use, either as spit tobacco, cigarettes or both, which leads to 2) continuous intake of carcinogenic or other harmful substances, that, in time, may lead to 3) cancers and a whole host of other disease processes.

- ***Daily, sustained use is often the pattern for young people; many admit to nicotine addiction.***

Young spit tobacco users follow a frequent and intense use pattern. One national study found that daily use rates among current users were 55 percent for young people between 11 and 15 years old, and 70 percent for those between 16 and 18 years old (48). Further, regional and State data show young male spit tobacco users consume, on average, between one to three or more cans of snuff per week and one to three or more pouches of chewing tobacco (11,13,49). Our 1992 users averaged 3.5 cans of snuff or almost 1 pouch of chewing tobacco a week. They averaged use of over six times per day, with over one-fourth using ten or more times a day -- a nicotine intake equivalent to 1.5 to 2 packs of cigarettes. Young users also keep each tobacco dose in their mouths anywhere from 10 minutes to one hour, with more than twenty minutes not uncommon (17,49-51). Our 1986 and 1992 users typically held their dip or chaw 25 to 30 minutes, with most keeping it in over 30 minutes, and often up to an hour.

Addiction continues to be a problem for young users. The 1986 OIG report on spit tobacco found 37 percent of young users continued spit tobacco use because they were addicted. Many wanted to quit and had tried

> "I've quit 4 or 5 times, but only for a week. Then I think, using hasn't done any damage, so I go back to it."

many times only to fail due to the strong hold their habit had on them. The majority used spit tobacco every day, and believed it would be very hard for them to quit. Since 1986, other studies of young users have reported similar findings (12,48,52). In 1992, 85 percent of our key informants say more young users are addicted to spit tobacco, and all agree that quitting spit tobacco use is difficult for them. Sometimes, a young user may not know (s)he is addicted. One key informant observed, "Many haven't tried to quit. But when we tell them the health consequences, and then they try to quit, they can't." Nearly 75 percent of our 1992 current users admit they are addicted. Forty-two percent have tried to quit, many two or more times.

Family, Friends And Other Incentives Strongly Contribute To Under-Age Use.

- ***Male relatives and peers greatly influence young people's spit tobacco use.***

Perceived social support from fathers, other male relatives and peers is the most influential reason youth first try spit tobacco.[i] In fact, most beginning tobacco users are given their first spit tobacco by these same people (17,18,19b,53). Several studies have found one-quarter to one-third of young users have someone in their family who uses spit tobacco (49,54,55). Family use is as high as 62 percent for Native American populations 55). According to key informants, use of spit tobacco by friends and family members strongly motivates young people to start using. Nearly two-thirds rate friends as the most powerful influence.

> "Grandfather got me hooked on it."
>
> "It keeps the kids off hard drugs, and they don't use a lot of candy."
> -- A user's father

OIG user studies show the same influences. In 1986 and 1992 users said the most influential reason for trying spit tobacco was peer pressure and other family members' use. In fact, at the time when the 1992 users started their spit tobacco use, 37 percent had a father using, and 33 percent had a brother or other male relative using. In both studies, most users believed their fathers, brothers and best male friends either approved or accepted their spit tobacco use. In 1986, parental approval, or at least acceptance, of spit tobacco use was exemplified by the 93 percent of users who said their parents knew they used and the 87 percent who listed their homes as a regular setting for use. The majority of our 1992 users felt their parents would agree that using spit tobacco is better than smoking or using drugs.

- ***The baseball connection, product placement in stores and "look-alikes" further enhance acceptability of use.***

Some experts say the connection between baseball and spit tobacco use is a powerful influence on shaping youthful behavior (26). That is, many baseball players use spit tobacco, and young people are aware they do. Researchers studied 1109

> "Famous athletes use dip. One of the things that goes along with playing ball is taking a dip."

members of major and minor league professional baseball during spring training of 1988. Thirty-eight percent of the players currently used spit tobacco. Most used moist snuff, Copenhagen and Skoal being the most preferred brands (37). By 1991, current use by baseball players reached 45 percent -- "unprecedented in the history of baseball and the nation."(26)

Product placement in stores and spit tobacco imitations also influence young people. Local studies have found distributors locate moist snuff in stores that youth visit frequently, and they often place it next to cigarettes, candy and snacks (26,56-58). Chewing gum manufacturers have a shredded gum called "Big League Chew" and a tape-shaped bubble gum rolled to fit into a flat, round metal container, similar to a snuff tin (59). Sunflower seeds are marketed as "Dugout Chew" and other products resembling snuff, such as beef jerky, have been marketed to youth. The National Dental Tobacco Free Steering Committee took exception to this marketing technique and has resolved to "condemn the manufacturing and marketing of candy and gum packaged to look like tobacco products." (60)

Extensive And Successful Promotion Of Spit Tobacco Victimizes Susceptible Youth.

- ***Moist snuff consumption has nearly tripled since 1972, making it a very profitable business.***

Moist snuff and looseleaf chewing tobacco are the two most popular forms of spit tobacco, but their growth patterns have been quite different (61). Since 1972, pounds of moist snuff consumed has grown steadily until, in 1991, it was nearly 3 times the 1972 level. Consumption has increased by 24 percent since 1986. On the other hand, pounds of looseleaf tobacco consumed grew until 1980, when it peaked, and then declined 12 percent by 1991. The U.S. Department of Agriculture predicts that moist snuff production in 1992 will increase from the 1991 level (62). As mentioned earlier, in 1970 men over the age of 55 were the heaviest users of snuff; by 1985, males under the age of 19 had replaced them. Seventy-eight percent of our 1992 users prefer moist snuff, particularly once they became regular users.

One company, U.S. Tobacco Company (UST), dominates the spit tobacco industry with its moist snuff products, the most popular being Copenhagen and Skoal (61). In fact, key informants and our 1992 users named Copenhagen and Skoal as top choices among spit tobacco options. In 1991, UST produced 87 percent of the moist snuff consumed and held the largest market share of all spit tobacco produced. In a 1991 Annual Report, UST said net sales for the tobacco segment rose 18 percent to $773.2 million; net earnings reached $265.9 million, a 19 percent increase from the prior year due primarily to the tobacco segment (63). A July 1992 Kidder Advisory on stock market investments characterized UST as "very well positioned in a high-growth, highly profitable industry."

The growth in moist snuff sales is remarkable considering the publicity surrounding the death of Sean Marsee eight years ago (64). Marsee started using Copenhagen at age 13

when he received a free sample at a rodeo. Six years later he died of oral cancer, and his family filed a $147 million product liability suit against UST in 1986. The company won the Marsee case in 1989 after an appeals court upheld the lower court verdict. Despite the negative press, UST's profits increased steadily. Further, in 1990 Pinkerton introduced Red Man moist snuff to compete against UST (26).

▸ ***Spit tobacco companies actively market products in selective venues.***

Most of the industry's intense and well-funded marketing efforts take place outside media centers. Radio and television advertising ended by law in August 1986 while advertising expenditures for newspapers, magazines and billboards declined in both 1988 and 1989. Entertainment and distribution of free samples have been the largest expenditure categories in recent years. Public entertainment has been the largest single advertising and promotion spending category every year from 1986 to 1989. In 1989 it accounted for 24 percent of the total spending on advertising and promotion, and equalled nearly $20 million (65). Expenditures on distribution of free samples exceeded $15 million in 1989 and were the second largest category of promotion and advertising that year (65). Under the categories of public entertainment and endorsements, the five major spit tobacco companies spent a total of $17.6 million on sports and sporting events in 1988, and $19.6 million in 1989 (65).

▸ ***Intentional or not, spit tobacco promotions do appeal to people under age 18.***

The activities and images portrayed in spit tobacco promotions are attractive to young people. Researchers and key informants point, for example, to the industry's sponsorship of sporting and entertainment events -- auto racing, rodeos, monster truck shows, tractor pulls and country/western concerts. Typical of the industry, UST and others spent millions to sponsor such events; Pinkerton has acted as a promoter to organize country western concerts (64). Experts also reference young-appearing or "macho" models in magazine or bill board advertisements, free samples, advertising in magazines that young people read, and give-aways of caps, clothing or other items that bear the brand logo. The "spit tobacco image" strongly appeals to young males. Typical descriptions used by researchers and key informants are a macho, masculine or "grown-up" image; a context of vitality, popularity or excitement; a strong association with sports, hunting or the outdoors, or with sport or entertainment heroes; and themes of rebellion and independence.

> "Walt Garrison talked about Skoal. I wanted to be like him. He's a hero. I wanted to be one also."

The intended audience of spit tobacco promotions is a controversial issue. Some researchers (25,26,58,66-68) and 97 percent of key informants said spit tobacco promotions definitely target young people, including those under age 18. In addition to the activities and image already mentioned, they cite print ads that provide instructions on how to use spit tobacco (67) and moist snuff products with added flavorings and sweeteners. UST has admitted to the intended "graduation process for consumers using its products."(67) Critics assert the "graduation" is in terms of nicotine content so that a

young user can build up a nicotine tolerance (12,25,26,67). Another example comes from a key informant who, at a spit tobacco sponsored event, saw imprinted hats and jackets in small sizes that would not fit adults. The industry has repeatedly disavowed the charge that they intend to sell their products to minors (69-71). They also remind their critics that the use of tobacco products for people age 18 or older is legal and that manufacturers have a right to promote them at events designed for adult audiences.

Even if the spit tobacco companies are successful in portraying spit tobacco use as an adult behavior, their promotions may still influence many under-age youth to use their products (45). Emulating adult behavior or adopting an image of masculinity, athleticism or toughness are very attractive to young people, especially boys (45). Whether they are the intended consumers or not, large numbers of young people from many backgrounds do obtain and use spit tobacco. Many become nicotine addicts before they finish school, and many are seriously endangering their future health.

Spit Tobacco Laws And Their Enforcement Are Weak And Ineffective.

- ***American public policy on spit tobacco control is inconsistent with other tobacco products.***

Unlike the United States, many other developed countries totally ban spit tobacco sale and use. In 1987 the Study Group on spit tobacco of the World Health Organization recommended that countries with no history of spit tobacco use should ban it (26). By 1990 New Zealand, Australia, Hong Kong, Ireland and Belgium had banned spit tobacco. By 1992 the European Economic Community had given preliminary approval to a ban on these products in its 13 member nations (26). The Secretary of Health and Human Services, has openly criticized American policies that permit the promotion of spit tobacco, a product which is so harmful to good health (72).

American policy for the regulation and taxation of substances intended for adult use only, such as spit tobacco, cigarettes and alcohol, is internally inconsistent. Twenty-one is the national legal age for purchasing alcohol; 18 is the age for tobacco. As late as 1990, 16 States had no excise tax on spit tobacco while all States had excise taxes on cigarettes (73). In 1989 Federal excise tax on cigarettes was 16 cents per pack, but only 1.8 cents on a tin of snuff and 1 cent on a pouch of chewing tobacco (74). The Federal excise tax on spit tobacco was only recently restored in 1985 (26). Finally, all States require retail alcohol vendors to be licensed; only 22 States require the same for tobacco (75).

- ***The Comprehensive Smokeless Tobacco Health Education Act of 1986 has not worked as intended.***

The 1986 Act placed advertising and packaging restrictions on spit tobacco products. Three-fourths of key informants agree the Act has not been an effective deterrent to spit tobacco use by young people. Criticisms from the key informants and some research/policy data are: 1) young people don't read or don't heed the warning labels on

spit tobacco containers, the labels are too small or the wording isn't strong enough (27,35,76); 2) the Act had no effect on State or local laws or their enforcement, and youth still have easy access to spit tobacco (18,35,56-58,68,77,78); 3) the Act has not been enforced and some provisions are weak, thus allowing the industry to circumvent restrictions on advertising via electronic media (26,34,69,75,79); 4) no funds were appropriated to support the educational provisions of the Act; and 5) the powerful appeal of industry advertising is difficult to overcome (24,35,43,72).

A recent exception has been the Federal Trade Commission's (FTC) enforcement of some provisions. The FTC has given final approval to a consent agreement with Pinkerton (Red Man spit tobacco products), settling charges that the company violated the 1986 Act, by among other things, advertising its tobacco products at live truck and tractor pulling events and allowing those ads to be filmed for television broadcast (80). In 1991 the FTC announced it had adopted final amendments to its regulations under the 1986 Act. Utilitarian items, such as golf balls, cuspidors and tee-shirts, are no longer exempt from the health warning requirement.

- ***A particular point of contention is the promotional practice of distributing free samples of spit tobacco***

Industry critics are concerned that many under-age youth can readily obtain spit tobacco through distribution of free spit tobacco samples. This activity is not addressed in the 1986 Act. Industry codes and standards regarding distribution of samples say, in part: 1) mail-in requests for spit tobacco products may be honored if it can be reasonably ascertained that the intended recipient is 18 years of age or older, and 2) whenever samples are distributed, persons who appear to be under 18 years of age shall be required to furnish proof of age (116). Critics say spit tobacco companies and their representatives do not adhere to these codes and standards. For example, on the coupon for mail-in offers of free samples, the requester must merely say that (s)he is 18 years of age or older. In reality, a spit tobacco company, using this procedure, cannot verify age. A Doctors Ought to Care (DOC)[j] member alleges, based on extensive personal observation, that young people's age is rarely verified before they receive a free sample. Key informants strongly recommended banning the distribution of samples through the mail or in other situations where age cannot be verified or banning free samples altogether. NCI agrees, saying "the offer of free tobacco products is reminiscent of the drug pusher who gives the first free sample to get his customer hooked." (68)

> "I got free samples at fairs and rodeos." -- User, age 16, started at age 9.

- ***State and local tobacco laws and enforcement are weak.***

Loopholes exist in State and local tobacco control and access laws. By 1990 only three States met the standards for "basic" coverage based on the criteria established by the Office of Smoking and Health (OSH of CDC), which in addition to a minimum age for sale, recommend penalties for merchants selling tobacco to minors (68). No State law is considered "comprehensive" by OSH standards, i.e., in addition to the above, there

should be a requirement for warning signs at the point of purchase, provision to revoke merchant licenses for violation and a ban on the distribution of free tobacco products (68). Only 22 States prohibit distribution of tobacco product samples to minors (75).

States and localities do not enforce existing tobacco control and access laws. In 1992 the OIG surveyed the States about tobacco control and access, and found virtually none enforce their laws prohibiting the sale of tobacco to minors (81). Eighty-five percent of key informants believe enforcement of spit tobacco sales laws is ineffective. Most favor stronger enforcement including stiffer penalties and license revocations for selling spit tobacco to minors. Smaller, community-based studies show that minors can generally purchase tobacco products at will, and vendors rarely suffer the legal consequences (56,57,77,81). In fact, in studies across the country, it has been shown that, on average, 75 percent of retail stores sell tobacco to minors as young as age 12 (68). Fifty-seven percent of our 1992 spit tobacco users reported it was easy to purchase spit tobacco as a minor. Fifty-three percent stated they were "never" or "hardly ever asked" for proof of age when they purchased their spit tobacco.

- ***Experts favor revisions to spit tobacco control policies.***

Revisions to policies on product promotion and legal restrictions would improve attempts to discourage spit tobacco use by young people. For both areas, key informants strongly support requiring warning labels on billboards and raising the legal age for purchasing to 21. They also see higher Federal and State excise taxes on spit tobacco as beneficial. Research has shown higher prices will effectively discourage purchase by young people (35,74). In fact, other than developing serious health problems from use, higher price was the only strong reason to quit for many of our 1992 users. Finally, key informants support further promotional restrictions: banning giveaway items imprinted with brand logos, or appearance of brand logos in televised events; elimination of advertising messages implying spit tobacco is a healthier choice than cigarettes; and limiting the number or type of events a spit tobacco company can sponsor.

Under-Age Spit Tobacco Use Is A Community Problem, Requiring Broad Interventions.

- ***Spit tobacco use is often socially acceptable within a community.***

Communities sometimes do not understand the social and legal issues of tobacco use until their consciousness is raised. Several local studies have shown that adherence to laws restricting tobacco sales to minors greatly improved after educating the community in general, and the tobacco vendors in particular, on the tobacco access laws (77,81). A community physician suggested local education requires demonstrating how easy it is for youth to obtain tobacco, generating concern over the health problems of tobacco use, and subsequently developing local and school policies on tobacco control (83). All key informants agree parents need to be better informed of the adverse effects of spit tobacco use. Community education may even have to extend to legislators or the judiciary who

write and enforce laws (77,84). For example, Davis County, Utah demonstrated an apparent decrease of spit tobacco use among county male athletes, by using these and other methods that alerted the entire community to the problem and the proposed solution (18).

▸ ***Schools do not control spit tobacco use.***

Schools, whose students are predominantly under age 18, do not uniformly ban spit tobacco use. In 1990, 11 States did not have laws restricting tobacco use in schools and only 16 State departments of education had a policy on tobacco use in schools (75). The 1986 OIG report found that schools frequently do not prohibit spit tobacco use or do not enforce the rules. In the 1992 study, while users said their school rules did not permit spit tobacco use on the school property (83%) or at school-sponsored events (67%), 26 percent also said enforcement of the school rules ranged from "sometimes" to "never". Of the 1992 users, 76 percent have seen a coach or teacher at their school use spit tobacco. A young user related, that on one occasion, he was sent to the school office for using spit tobacco in class. When he arrived, the dean of boys called him in, closed the door and offered him a dip of snuff. Two-thirds of our 1992 users reported taking a dip or chaw before class.

> "My wrestling coach wrestles with Copenhagen in his mouth."
>
> "If you're not spitting on the floor, teachers usually don't bother you."

Experts favor tobacco-free schools as a goal. NCI (68), PHS' Healthy People 2000 (75), the World Health Organization (35) and the First International Conference on Smokeless Tobacco (47) all strongly support this policy. Prohibiting all spit tobacco use on school grounds or at school-sponsored events, and prohibiting teachers and coaches from using in a student's presence are policies the key informants overwhelmingly endorsed as well. In addition, 97 percent of key informants believe school programs need to provide cessation guides or counseling for young users who wish to quit.

▸ ***Spit tobacco curricula for young people are inadequate.***

Young users are still ignorant about addiction and other health effects associated with spit tobacco use. In 1986, 81 percent of OIG users interviewed saw spit tobacco as much safer to use than cigarettes. Youthful users continue to believe this according to 91 percent of key informants. Among our 1992 users, 63 percent saw spit tobacco as safer to use than cigarettes and 15 percent didn't know. The 1986 OIG study found many youth were unaware of the potential health risks of spit tobacco use, including addiction. In 1992 over half of key informants still rate elementary, junior high and senior high students as unaware of the health risks of spit tobacco use. Eighty percent of our 1992 users could name oral cancer,

> "Cigarettes can ruin your lungs. Can't get new lungs. Spit tobacco doesn't affect your stamina."
>
> "Dad has been using for 26 years, and it hasn't done anything to him."

but their knowledge was weak for gum recession (24%), throat cancer (20%), addiction (13%) and leukoplakia (7%). Even if young users are intellectually aware of the effects, they don't really believe that spit tobacco endangers their health -- "It can't happen to me" syndrome.

Experts see a need to improve the frequency and content of school curricula addressing spit tobacco. School education about the health consequences of tobacco use was mandated by law in only 20 States in 1989 (68). Two-thirds of key informants recommend the annual inclusion of the health effects of spit tobacco use in school curricula for elementary, junior high and senior high schools. Eighty-two percent say spit tobacco education should start in the third grade or earlier, even in kindergarten; others agree (18,68,85-87). Thus, tailoring curricula to the students' age level is necessary (55,86-89). One analysis of 28 examples of spit tobacco educational materials (1976 to 1986) found the focus was correct (young white males), but social and reading levels tended to be aimed at 7th grade or older (89). Just providing information on the hazards of tobacco use, which many schools do, has been found largely ineffective (68). Simply teaching youth to say "no" does little to combat peer pressure to adopt peer group opinions and values and to gain group acceptance (90,91). So, linking the course content to what motivates young people to use is another improvement (55,68,90,92).

- ***Educated, proactive health professionals are important to community intervention.***

Health professionals have a unique opportunity to discourage spit tobacco use. The dental profession treats 62 percent of the American population within any one year interval, including 75 percent of persons age 5 to 17 (60). Given this large amount of contact, the NCI calls the profession a resource to combat tobacco use by completing better oral examinations, influencing patients' avoidance or discontinuance of tobacco use, and promoting the adoption of comprehensive tobacco control policies (60). In addition, physicians are seen as a credible source of cessation advice. At the time of consultation, patients are sensitized to their health, thus creating the "teachable moment." (68) Key informants unanimously favored strong, proactive education, intervention, counseling and advocacy roles for health professionals.

Many health professionals, however, are not doing as well as they could. Despite the fact that most physicians believe it is their responsibility to encourage their patient to abstain from using tobacco, many fail to do so routinely with all patients (68). Some are ambivalent about the economic value of interventions, and they have a fear of losing patients (93). Key informants strongly believed that health professionals, particularly dentists, dental hygienists, school nurses and family physicians, are not sufficiently trained to prevent or intervene in spit tobacco use. Basic skills needed are the ability to recognize spit tobacco use and its adverse effects, and the signs and effects of addiction. One key informant and his colleagues wrote, "The full extent of tobacco's contributions to oral disease often remains unrecognized by oral health professionals." (33) Counseling techniques, and available educational and cessation materials are also appropriate training topics, either in the professional schools or as part of continuing education afterwards.

- ***Divorcing baseball from spit tobacco use is another educational strategy.***

In some cases, sport and spit tobacco use are so closely intertwined that it is as much a part of some sports as uniforms and officials (43). Major League Baseball (MLB) was displeased with the tendency of the spit tobacco industry to presume and trade on the link between spit tobacco and baseball (94). They were also concerned with evidence that young spit tobacco users were emulating baseball players. MLB, therefore, began a major initiative to break their link with spit tobacco use that included a spit tobacco "white paper" for the Commissioner's office, the creation of an MLB fund to support player health and safety vis-a-vis spit tobacco use, and an attempt to convince two major networks' cameramen not to focus on spit tobacco use. Other steps under consideration are a media campaign featuring MLB players who have quit, setting a date when spit tobacco use would not be allowed in the ballpark, and assisting currently addicted players to quit. Individual MLB teams have instituted additional policies of their own.[k]

Breaking the association between spit tobacco use and sport has also been a goal of other professional and amateur sport associations. In 1992 all players in the Class A minor league were prohibited from using spit tobacco. Little League,[l] Babe Ruth League, American League (ages 16 to 18) and US Olympic baseball have all banned tobacco use. Some have also begun educational campaigns (95). The NCAA banned tobacco use during tournament play, followed by a Southeastern Conference baseball ban for all league games (96).

CONCLUSIONS

The responsibility for addressing the problem of spit tobacco use by young people rests with many groups at the national, State and local levels. At the Federal level, besides the Department of Health and Human Services (primarily the Public Health Service), several other Departments or agencies are involved -- the Federal Trade Commission, the Department of Agriculture, and the Department of the Treasury. Below, we lay out four broad areas for action by all responsible groups. We strongly encourage the Department of Health and Human Services to take the lead in coordinating efforts to deal with the problem of spit tobacco use. We believe these efforts should have four major goals:

- To convince the general public, including young people, that spit tobacco is a dangerous and addictive drug, not a safe alternative to smoking.
- Based on this awareness, to encourage States and communities to take actions that effectively combat young people's spit tobacco use.
- To solicit support from health care providers and organized athletics which have a unique and important role in deterring spit tobacco use.
- To provide leadership for the re-examination of legislation and regulatory provisions governing spit tobacco and for assuring a coordinated plan for deterring spit tobacco use.

Promote Community Awareness And Action.

Responsible groups should lead a public information campaign to raise community awareness and concern about the problem of youth use of spit tobacco. To support community efforts to curtail use, these groups should actively promote tobacco control policies for schools in cooperation with the Federal and State Education departments.

Support Improved State And Local Tobacco Control.

Responsible groups should support State and local laws that strongly restrict tobacco sales to minors and the sustained enforcement of these laws.

Seek The Support And Involvement Of Health Care Providers And Organized Athletics.

Medical and dental professionals have a unique opportunity to positively impact the problem of spit tobacco use by young people. Responsible groups should make every effort to equip, encourage and involve these professionals. These groups should also actively promote collaborative efforts to deter spit tobacco use by athletes at all levels.

Re-examine National Tobacco Control Policy And Coordinate A Plan For Deterring Youth Use Of Spit Tobacco.

Responsible groups should re-examine national tobacco control policy for areas that need strengthening, e.g., legal age of purchase, higher excise taxes indexed for inflation, and amendments to the 1986 Act. These groups should also develop a coordinated plan for research and information dissemination on spit tobacco issues among the various groups responsible for spit tobacco issues.

ENDNOTES

a. While current, national data is not available, data from these select States indicate a potentially serious problem with spit tobacco use exists in all States.

b. "Despite varying methodologies among the national surveys, sufficient commonalities permit meaningful comparisons....[Comparisons] between the 1970 NHIS and 1985 CPS for the purpose of examining trends are appropriate." (4)

c. In addition, the 1985 NIDA Household Survey showed past year spit tobacco use by males age 12 to 17 had risen to only one percent behind 18 to 24 year olds, and was more than double the rate of all other adult male age groups (144). In fact, 12-17 year old males had the highest past year use of all male age groups in the Western (25 percent), North Central (22 percent) and Southern (24 percent) regions of the nation.

d. NCAA comparative data from 1985 and 1989 on spit tobacco use. Spit tobacco use increased across both genders, all racial/ethnic groups, all sports, all NCAA divisions and in most geographical regions of the country.

Percent use of spit tobacco in last 12 months by student-athletes by sport					
Male	**1985**	**1989**	**Female**	**1985**	**1989**
Baseball	45%	57%	Softball	8%	9%
Basketball	8%	15%	Basketball	2%	4%
Football	30%	40%	Swimming	3%	3%
Track	9%	20%	Track	3%	5%
Tennis	12%	29%	Tennis	-	-
Percent use by student-athletes by region and college division					
East	15%	25%	**Division I**	19%	27%
Midwest	19%	33%	**Division II**	23%	29%
South	25%	23%	**Division III**	19%	27%
West	24%	24%	Source: NCAA (5), 1989 '85 (N = 2,039), '89 (N = 2,282)		

e. N = 3,159 in 1986 and N = 2,852 in 1989. Unfortunately, spit tobacco questions were omitted from the Senior Survey in 1990 and 1991.

f. For example, nicotine (or another addictive drug) causes dose-related changes in mood or feeling, and users often compulsively use tobacco despite the damage it does to their health. Effects of the drug, desirable for the user, reinforce him/her to use it again. Over time the user will develop a tolerance for the drug so that a dose produces less effect. Physical dependence can also occur accompanied by withdrawal symptoms such as craving, difficulty sleeping or concentrating, restlessness and excessive hunger, if the user stops.

g. Ninety-five percent of oral cancers occur in persons over the age of 40 (40).

h. These effects are sometimes suggested, but not proven, for short-term use.

i. Curiosity also encourages young people to use (49). In the 1986 and 1992 studies users placed curiosity among the top reasons for trying spit tobacco.

j. A public health advocacy group comprised of medical professionals.

k. The Rangers have stopped supplying spit tobacco in the clubhouse (146), the Dodgers have banned all players from carrying spit tobacco while in uniform and the Athletics recently banned tobacco advertising in their program.(95)

l. Little League banned the use of tobacco 35 years ago.

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APPENDIX A

PROFILES OF 1992 SPIT TOBACCO USERS

These are brief profiles of some young users we interviewed for the study.

1. **Jack** from Arkansas, 17 years old, white.

   Jack has used spit tobacco regularly since the sixth grade. His father was a professional bass fisherman who had received free spit tobacco samples. His father died of oral cancer after using for 40 years. Jack has health problems from using -- receding, sore gums, peeling skin inside his cheek, sores on his tongue and frequent sore throats. In fact, he admits he is addicted, but he hasn't tried to quit. His special interest is high school rodeo; using spit tobacco is a "thing all real cowboys should do." He says his school coaches borrow spit tobacco from him "all the time."

2. **Carlos** from Texas, 16 years old, Hispanic.

   Carlos has been a regular user since the ninth grade. Baseball is his sport -- he plays on his school team, and he watches it on television. He started using spit tobacco because the older baseball players used; it was just something everyone else did. Now he's hooked and says he can't play ball without it due to cravings. Carlos has tried to quit three times with no success. He thinks spit tobacco probably isn't good for him, but he and his parents think it's better than smoking or taking drugs.

3. **Cal, 7, Lee, 10, and Scooter, 11** are three brothers from Florida

   All three boys started using spit tobacco very young -- Cal has used chewing tobacco regularly since Kindergarten, Lee since he was 3 years old and Skooter since second grade. Cal and Lee say they now use all day long and sometimes go to sleep with spit tobacco in their mouths. Their father, who buys spit tobacco for them, has used chewing tobacco for over 25 years and says he has no bad health effects. The boys do agree, though, that regular use can cause mouth or throat cancer. The town they live in has a drug problem. Dad feels that spit tobacco is a better alternative to hard drugs ...and candy.

4. **Susan** from Oregon, 16 years old, Native American.

   Susan started regular spit tobacco use when she was 12. Her friends gave it to her; she really enjoyed the taste and "buzz" it gave her. After that, she still didn't buy her own because an older sister or her boyfriend got it for her. Susan enjoys doing "Indian dances" and sews Copenhagen can lids on her dress for decoration. Before using spit tobacco, she used alcohol, marijuana and LSD. After she started using spit tobacco, she began smoking cigarettes. These days, Susan just smokes. It took her five quit attempts before she succeeded with the help of a residential drug treatment program that she entered due to her alcohol and other drug use.

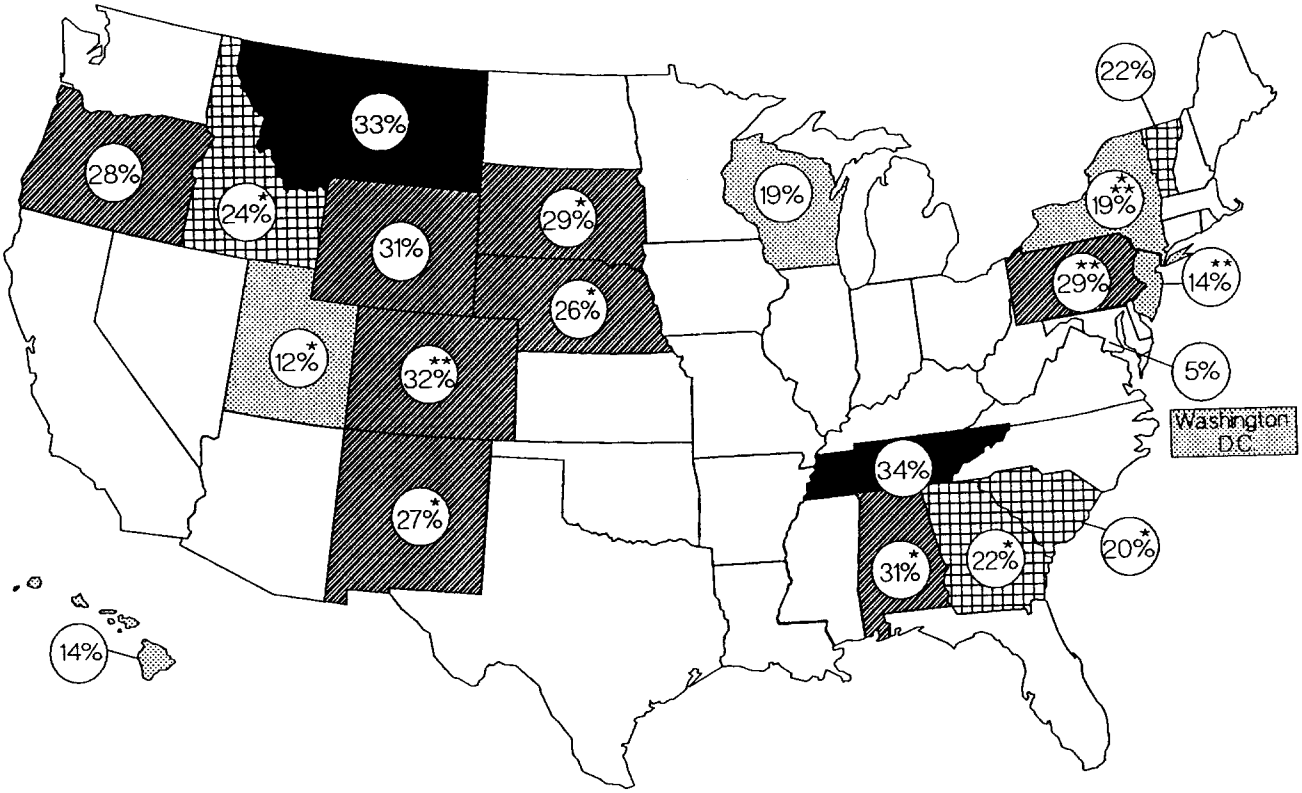
5. **Randy** from Pennsylvania, 17 years old, white.

   Randy is a college freshman who has been a regular spit tobacco user since grade eleven; he started when he was fourteen. He plays golf and tennis, although he is also a football and baseball fan. His friends encouraged him to use, but no one in his family has the habit. Randy dips moist snuff about five times a day, going through about three cans a week. He believes that spit tobacco is safer than cigarettes and that gum and mouth problems are very rare among users. Besides, he likes the taste. In high school, his health teacher, who dips snuff, showed them a five-minute tape about the dangers of spit tobacco use. Randy thought it was just a scare attempt.

APPENDIX B

Males Currently+ Use Spit Tobacco At High Rates In Twenty States.[1]

(Source: YRBS 1991, Grades 9–12)



19% or less | 20–24% (over 1 in 5 males) | 25–32% (over 1 in 4 males) | 33% or more (over 1 in 3 males)

* Weighted data ** Surveys did not include students from the largest city. + Preceding 30 days

[1] Includes Washington, D.C.

APPENDIX C

SUMMARY OF NATIONAL AND REGIONAL PREVALENCE STUDIES

Regional Studies - Spit Tobacco

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
13	Schlife (1987) 8 rural regions in Alaska	K-12th grades	4,965	Native American Study	33.7% [1]	27.5% [1]
	Schinke (1986) 3 reservations & 1 urban area, WA	Mean Age = 13.8	254	Native American Study	20.2% [1]	27.4% [1]
	Schinke (1987) Washington, Alaska	Mean Age = 12.3	144	Native American Study	42.6% [1]	34.0% [1]
	Wolfe and Carlos (1987) Navajo Boarding School, NM	9-10th grades	226	Native American Study	55.9% [1]	
	Jewett (1988) Rosebud Reservation, SD	K-6th grades 7-12th grades	1,010 571	Native Amercian Study	39.2% [1]	35.1% [1]
	Hall and Dexter (1989) 3 tribes, 15 schools, WA	6,9,11th grades	257	Native American Study	34.0% [1]	24.0% [1]
	Jewett (1988) 4 reservations & urban non-Indians, South Dakota and Montana	7-12th grades	1056	Native American Study	36.2% [1]	32.4% [1]
	Batliner (1988) South Dakota & Montana	4-8th grades	623	Native American Study	47.0% [1]	45.0% [1]
	Foster (1988) Boarding School, SD	7-12th grades	114	Native American Study	38.0% [1]	37.0% [1]
13	Foster (1988) South Dakota	K-12th grades	195	Non-Native Americans (Comparative group to Native Americans)	18.4% [1]	8.7% [1]
	Hall & Dexter (1988) Washington	6,8,11th grades	853	Non-Native Americans (Comparative group to Native Americans)	20.0% [1]	4.0% [1]
	Jewett (1988) Metropolitan Minneapolis	7-12th grades	23,693	Non-Native Americans (Comparative group to Native Americans)	7.8% [1]	0.0% [1]
	Jewett (1988) Greater Minneapolis	7-12th grades	12,590	Non-Native Americans (Comparative group to Native Americans)	6.8% [1]	0.0% [1]

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
13	Batliner (1988) South Dakota, Montana & Nebraska	4-8th grades	527	Non-Native Americans (Comparative group to Native Americans)	14.6% [1]	1.6% [1]
52	Marty, et al. (1986) Rural community, NW Arkansas	10-12th grades Mean age = 15.9	179	Predominantly Caucasian, blue collar, rural population	31.8%	2.3%
19a	University of Kentucky 1 Metro. & 1 non-Metro. county	7-12th grades	1,067	Phase 1: Saliva sample collected (471 sent for biochemical testing) Phase 2: 85 metro 8th graders were exposed to 3-sessions of education intervention.	Use in Past 6 Days: 42% of those in households involved in tobacco	
19b	West Virginia University WV Public Schools	5-12th grades	4,230	Stratified random sample	17% 5-6th 29% 7-9th 39% 10-12th	3% 5-6th 1% 7-9th 1% 10-12th
12	Brownson, et al. (1990) 78 Missouri Schools	5,8,12th grades	5,431	Representative sample, rural counties were oversampled	Use in Previous 7 Days Urban: 5th 1% 8th 13% 12th 15%	Rural: 5% 17% 31%
51	Jones & Pyper (1986) Dane County, Wisconsin	7-12th grades	2,181	Stratified random sample	Male Only: ≥ 1/wk: 7th 9% 8th 12% 9th 12% 10th 16% 11th 14% 12th 22%	Daily Use: 3% 6% 3% 8% 11% 15%
102	Kegeles, et. al. (1989) 59 Connecticut towns & 106 schools	7-12th grades	7,457		Daily Use: 7th 2.0% 8th 5.3% 9th 7.1% 10th 5.5% 11th 7.1% 12th 8.0%	Daily Use: 7th .4% 8th .4% 9th .5% 10th .0% 11th .3% 12th .2%

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
18	Leopardi, et. al. (1989) Davis County, Utah All 11 Junior highs & 7 Senior highs	7-12th grades	8,902	Survey I - 16-item prevalence survey Survey II - 473 males in sports classes had survey & oral exam.	Weekly Use: 12.1% Total 10.2% JH 15.0% SH	Weekly Use: 1.1% Total 1.1% JH 1.0% SH
14	North Dakota State Department of Health and Consolidated Laboratories (1991), 212 ND School Districts	7-12th grades	36,693		7-12th 20.4% Sioux county 62.9%	
20	State Department of Education (89-90) Oklahoma	6,8,10,12th grades		1989-90 Drug & Alcohol Use Among Oklahoma Students.	Daily Use: 6th 3% 8th 6% 10th 8% 12th 11%	
103	Bauman, et. al. (1989) 10 SMSA's, Southeastern U.S.	12-14 yrs	21,203	Probability samples of households.	Ages White: 0-4 .2% 5-9 .3% 10-14 3.5% 15-19 11.4% 20-24 10.6%	Ages White: 0-4 .1% 5-9 .0% 10-14 .1% 15-19 .2% 20-24 .5%
104	Peterson, Marek, & Mann (1989) Schools in Washington state.	10th grade	1,631	14 rural and suburban school districts.	10th Graders Last Month 25.3% Last Week 17.7%	10th Graders Last Month 2.8% Last Week 1.4%
8	Tri-Agency Tobacco Free Project (1991), Maine	5,7,9,12th grade	26,911	Maine Youth Tobacco Use Survey	Last Week 5th 1.4% 7th 2.7% 9th 6.6% 12th 10.2%	
9	Tri-Agency Tobacco Free Project (1989), Maine	5,7,9 & 12th grade	22,147	Maine Youth Tobacco Use Survey	Last Week 5th 1.5% 7th 4.0% 9th 6.0% 12th 8.7%	

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
10	Tri-Agency Tobacco Free Project (1987), Maine	5,7,9 & 12th grade	28,000	Maine Youth Tobacco Use Survey	Last Week 5th 1.8% 7th 3.5% 9th 7.8% 12th 8.3%	
49	Simon, Stotts & Pollard (1992) West Virginia	5th - 12th grade	4,230	Stratified random sample by student achievement & socialeconomic status. Includes no racial and ethnic categories.	Almost Daily Use 6th 6.3% 7th 9.6% 8th 11.0% 9th 22.6% 10th 19.5% 11th 21.9% 12th 20.8%	
11	Illinois Department of Public Health (1987), Illinois (excluding Chicago)	5,7,9, & 11th grades 9-19 years	7,118	Random sampling of 65 schools in Illinois.	Metro. Non-Metro. 5th 3.7% 4.8% 7th 7.2% 11.8% 9th 14.6% 26.7% 11th 16.4% 28.4%	
85	Center for Health Statistics & Bureau of Community Health & Prevention, (1988), Wisconsin	18-24 years	2,400	Randomly selected adult households.	7%	
85a	Murray, D., (1986) Wisconsin Public Schools	9th grade	3,500 +	Randomly selected 9th graders in public schools.	Last Week 5.0%	Previous Day 3.0%
105	University of Minnesota 50 different Native American tribes	7-12th grades	14,000	Adolescent Health Survey of Native American adolescents.	Daily 7th 10.7% 8th 11.5% 9th 14.9% 10th 16.0% 11th 18.8% 12th 20.3%	Daily 7th 6.4% 8th 7.1% 9th 10.4% 10th 8.9% 11th 7.9% 12th 6.4%
106	Pomrehn, et. al. Three communities in Eastern Iowa	10,11 & 12th grades	1245	Adolescent Tobacco Use Prevention Study	10th 12.5% 11th 15.9% 12th 13.6%	

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
107	Edumson, et. al. (1987) East Carolina University	College Freshman-Senior	289	Random sample of undergraduate male students at East Carolina University. Looked at personality characteristics.	Dipping 17-18 yrs 18.3% 19-20 yrs 14.8% Chewing 17-18 yrs 12.2% 19-20 yrs 10.2%	
7	Connecticut Department of Health Services, (89-90)	4th-12th grades	6981 (7-12th grades)	Connecticut Health Check	4th 1.0% 5th 1.0% 7th 4.0% 8th 1.0% 9th 3.0% 10th 7.0% 11th 7.0% 12th 10.0%	
108	Youth Risk Behavior Survey (1991) Nebraska	9-12th grades	2450	School based survey (YRBS) Weighted data	Total 26.1% ≤ 15 19.6% 16,17 26.6% ≥ 18 36.1% White 27.8% Black 3.0% Hispanic 18.5% Other 24.2%	Total 2.4% ≤ 15 2.7% 16,17 2.5% ≥ 18 1.6%
109	Youth Risk Behavior Survey (1991) Alabama	9-12th grades	2455	School based survey (YRBS) Weighted data	Total 30.7% ≤ 15 31.3% 16,17 31.0% ≥ 18 28.6% White 39.2% Black 6.8% Hispanic ---- Other 16.9%	Total 2.0%

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
110	Youth Risk Behavior Survey (1990) Tennessee	9-12th grades	1889	School based survey (YRBS) Unweighted data	≤ 15 20.2% 16,17 24.3% ≥ 18 27.5% White 28.6% Black 2.8% Hispanic ---- Other ----	≤ 15 1.7% 16,17 1.4% ≥ 18 .9%
111	Youth Risk Behavior Survey (1991) Tennessee	9-12th grades	2457	School based survey (YRBS) Unweighted data	Total 34.4% ≤ 15 30.6% 16,17 35.8% ≥ 18 36.6% White 35.8% Black 22.1% Other 29.0%	Total 1.2% ≤ 15 .7% 16,17 1.5% ≥ 18 1.6%
112	Youth Risk Behavior Survey (1991) Pennsylvania	9-12th grades	2192	School based survey (YRBS) Unweighted data	Total 29.0% ≤ 15 28.0% 16,17 29.0% ≥ 18 30.8% White 30.4% Black 17.3% Hispanic 5.9% Other 30.0%	Total 1.8% ≤ 15 1.0% 16,17 2.3% ≥ 18 1.6% White 1.7% Black --- Hispanic --- Other 3.1%
113	Youth Risk Behavior Survey (1990) North Carolina	9-12th grades		School based survey (YRBS)	9th, White 23.0% 12th,White 18.0% 9th,Black 7.0% 12th,Black 2.0 %	
114	Youth Risk Behavior Survey (1990) Mississippi	9-12th grades		School based survey (YRBS)	19%	3.0%
3	Youth Risk Behavior Survey (1991) Georgia	9-12th grades		School based survey (YRBS) Weighted data	22%	2.0%

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
3	Youth Risk Behavior Survey (1991) Idaho	9-12th grades		School based survey (YRBS) Weighted data	24%	3.0%
3	Youth Risk Behavior Survey (1991) New Mexico	9-12th grades		School based survey (YRBS) Weighted data	27%	4.0%
3	Youth Risk Behavior Survey (1991) New York	9-12th grades		School based survey (YRBS) Weighted data excludes students from the largest city.	19%	2.0%
3	Youth Risk Behavior Survey (1991) South Carolina	9-12th grades		School based survey (YRBS) Weighted data	20%	2.0%
3	Youth Risk Behavior Survey (1991) South Dakota	9-12th grades		School based survey (YRBS) Weighted data	29%	10.0%
3	Youth Risk Behavior Survey (1991) Utah	9-12th grades		School based survey (YRBS) Weighted data	12%	2.0%
3	Youth Risk Behavior Survey (1991) Colorado	9-12th grades		School based survey (YRBS) Unweighted data	32%	6.0%
3	Youth Risk Behavior Survey (1991) Washington D.C.	9-12th grades		School based survey (YRBS) Unweighted data	5.0%	2.0%
3	Youth Risk Behavior Survey (1991) Hawaii	9-12th grades		School based survey (YRBS) Unweighted data	14%	2.0%
3	Youth Risk Behavior Survey (1991) Montana	9-12th grades		School based survey (YRBS) Unweighted data	33%	7.0%
3	Youth Risk Behavior Survey (1991) New Hampshire	9-12th grades		School based survey (YRBS) Unweighted data	22%	4.0%
3	Youth Risk Behavior Survey (1991) New Jersey	9-12th grades		School based survey (YRBS) Unweighted data excludes students from the largest city.	14%	2.0%
3	Youth Risk Behavior Survey (1991) Oregon	9-12th grades		School based survey (YRBS) Unweighted data	28%	5.0%

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
3	Youth Risk Behavior Survey (1991) Pennsylvania	9-12th grades		School based survey (YRBS) Unweighted data excludes students from the largest city.	29%	2.0%
3	Youth Risk Behavior Survey (1991) Wisconsin	9-12th grades		School based survey (YRBS) Unweighted data	19%	3.0%
3	Youth Risk Behavior Survey (1991) Wyoming	9-12th grades		School based survey (YRBS) Unweighted data	31%	5.0%
68	Youth Risk Behavior Survey (1991-92)	9-12th grades		School based survey (YRBS)	White NA 9-12th 29% 39% 9th 24% 38% 10th 31% 34% 11th 30% 47% 12th 32% 35%	White NA 9-12th 4% 13% 9th 3% 11% 10th 5% 13% 11th 4% 16% 12th 4% 14%

National Studies - Spit Tobacco

Bib	Investigators/Location	Age/Grade	Sample N	Miscellaneous Study Information	Current Use (Last 30 days) of Spit Tobacco [1] Used Regularly	
					Males	Females
97	U.S. Department of Health and Human Services (1991) High School students in U.S.	9-12th grades	11,631	National School Based Youth Risk Behavior Survey (YRBS) 1990 Data	Total 19.1% White 23.9% Black 3.1% Hispanic 10.9% Seniors 21.1% Sr./White 26.0%	Total 1.4% White 1.5% Black .8% Hispanic 1.0%
1	U.S. Department of Health and Human Services (1992) High School students in U.S.	9-12th grades	12,272	National School Based Youth Risk Behavior Survey (YRBS) 1991 Data	Total 19.2% White 23.6% Black 3.6% Hispanic 10.7%	Total 1.3% White 1.4% Black .7% Hispanic .6%
98	Glover, Laflin, & Edwards (1989) College students across eight regions	Mean age=20.8 yrs 1/3 were freshman	5,894	Stratified, random, multi-cluster sample of physical activity classes among 72 colleges and universities throughout the U.S. 1986 Data	12% of all college age	
99	National Institute on Drug Abuse (1988)	Ages 12-17 & 18-25		NIDA Household Survey on drug abuse 1988 Data	Ages 12-17 6.6% Ages 18-25 12.3%	Ages 12-17 ---- Ages 18-25 ----
100	National Institute on Drug Abuse (1990)	Ages 12-17 & 18-25		NIDA Household Survey on drug abuse 1990 Data	Ages 12-17 7.4% Ages 18-25 12.1%	Ages 12-17 ---- Ages 18-25 ----
101	National Institute on Drug Abuse (1991)	Ages 12-17 & 18-25		NIDA Household Survey on drug abuse 1991 Data	Ages 12-17 5.3% Ages 18-25 11.6%	Ages 12-17 .5% Ages 18-25 .4%
6	National Institute on Drug Abuse (1986)	12th grade	3159	NIDA Senior Survey 1986 Data	Seniors 22.2% Sr./White 25.7%	Seniors 1.6%
6	National Institute on Drug Abuse (1987)	12th grade	3357	NIDA Senior Survey 1987 Data	Seniors 22.8% Sr./White 25.4%	Seniors .6%
6	National Institute on Drug Abuse (1988)	12th grade	3378	NIDA Senior Survey 1988 Data	Seniors 19.9% Sr./White 21.9%	Seniors 1.7%
6	National Institute on Drug Abuse (1989)	12th grade	2852	NIDA Senior Survey 1989 Data	Seniors 16% Sr./White 19%	Seniors 1.2%

APPENDIX D

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