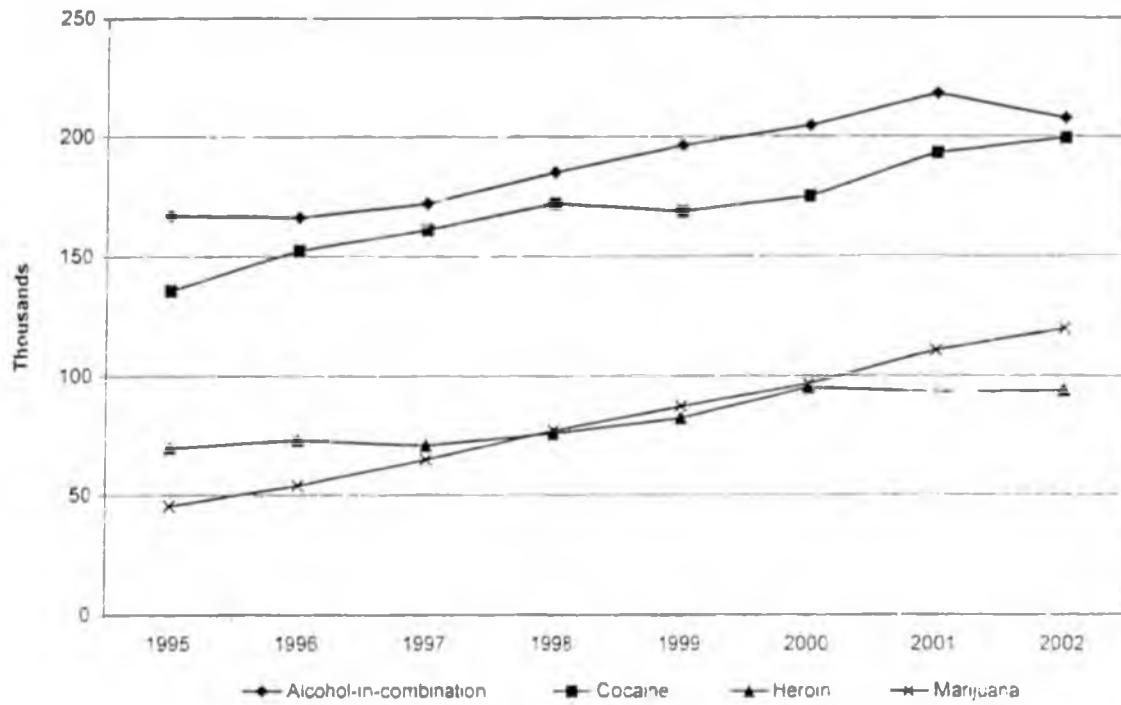
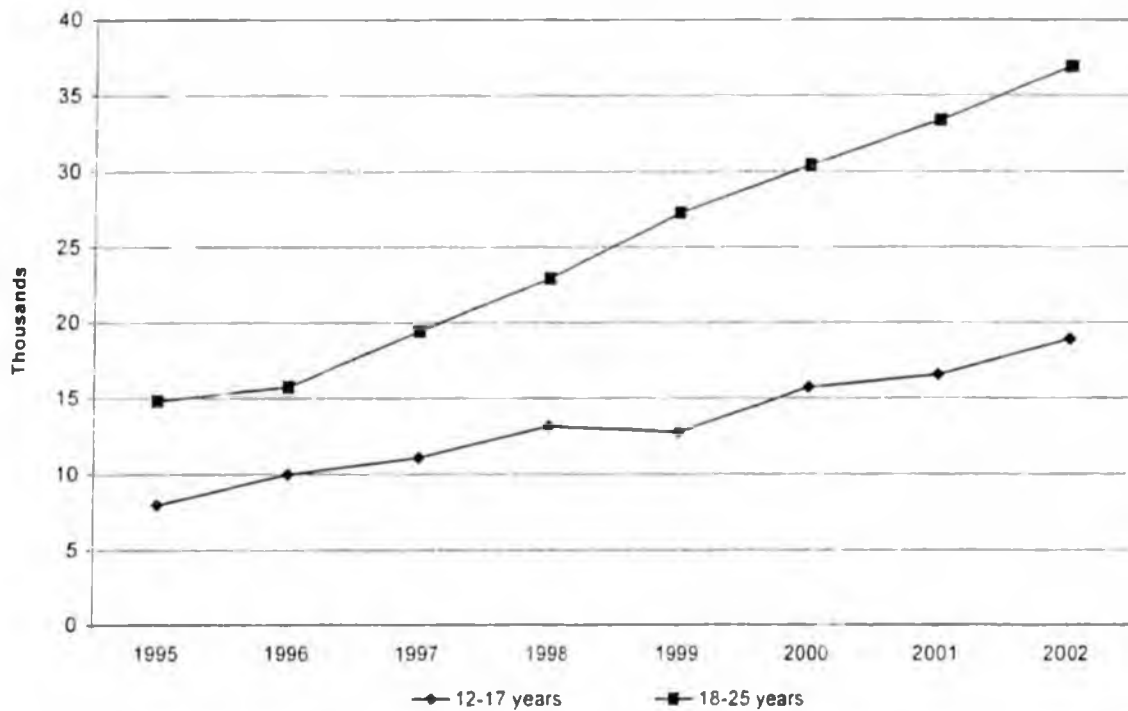


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**Figure 13**  
ED mentions of alcohol-in-combination, cocaine, heroin, and marijuana:  
1995 through 2002



**Figure 14**  
ED mentions of marijuana among patients age 12 to 17 and age 18 to 25:  
1995 through 2002





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## Acute cardiovascular fatalities following cannabis use

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### Abstract

We report six cases of possible acute cardiovascular death in young adults, where very recent cannabis ingestion was documented by the presence of tetrahydrocannabinol (THC) in postmortem blood samples. A broad toxicological blood analysis could not reveal other drugs. Similar cases have been reported in the literature, but the toxicological analysis has been absent or limited to urine samples, which represent a much broader time window for cannabis intake. This paper presents six case reports, where cannabis alone was detected in blood. Further, an overview over previously published cases, clinical trials and possible patho-physiological mechanisms are presented. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

**Keywords:** Cannabis; Toxicity; Tetrahydrocannabinol; Cardiovascular

### 1. Introduction

Different preparations of the plant *Cannabis sativa* are widely used around the world for their euphoric effects, making cannabis the most frequent drug of abuse, second only to alcohol in the western world. The most commonly used preparations are marijuana and hashish, which in this paper will be referred to as cannabis. Cannabis toxicity is regarded to be low [1]. By extrapolation from animal experiments, the ratio of lethal to effective (intoxicating) dose is estimated to be in the order of thousands to one [2]. Acute cannabis toxicity is, briefly, if at all, mentioned in comprehensive textbooks about drug abuse. However, several case reports of both coronary and cerebral ischaemia related to cannabis intake have been published, since the seventies [3–8]. Many studies reported in the literature lack the determinations of tetrahydrocannabinol (THC) or THC metabolites in blood, actually demonstrating the recent intake of cannabis.

After smoking a "regular" dose of cannabis (usually containing about 20 mg THC), blood concentration of THC rises quickly and reaches peak levels before the end of the smoking period. The immediate distribution from blood to tissues is also fast and blood THC levels quickly drop to <10% within 2 h. As a consequence, THC can only be

detected in blood by standard methods, depending on dose and analytical cut-off, for 4–12 h after intake. Subjective feeling of euphoria is associated with whole blood levels from 2 µg/l and higher. Whole blood levels 1 h after smoking 20–25 mg THC will typically be in the range 5–10 µg/l [9].

### 2. Case reports

#### 2.1. Case 1

A 39-year-old male was found dead sitting in his living room with the TV-set on. He did not have any previous record of heart disease, but had a recent sick leave from his job as a fisherman because of shoulder pain. On the day of his death, a co-worker had driven him home from work because of worsening of his shoulder pain. The autopsy revealed findings compatible with an older and a recent heart infarction as well as hypertrophied heart. There was widespread atheromatosis in the coronary arteries and aorta. No information about use of drugs of abuse was available. Toxicological analysis revealed 22 µg/l THC in whole blood and the presence of THC acid in urine. No other drugs or alcohol were found.

#### 2.2. Case 2

A 40-year-old male was found dead after the car he drove slid off the road. There was no record of any illness and he

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was not taking any medication. A witness perceived him as normal shortly before the time of death. The autopsy revealed sparse signs of atheromatosis in the coronary arteries and insinuated narrowing in the left coronary artery next to the aorta. Toxicological analysis revealed 4 µg/l THC in whole blood. THC acid was not detected in urine. There were no other toxicological findings.

### 2.3. Case 3

A 43-year-old male with a previous coronary heart condition was found dead in his home. He had a myocardial infarction at age 38. He was currently using several drugs for his heart condition (metoprolol (a β-blocker), doxazosine (an α-blocker) and diltiazem (a calcium antagonist)), but there was no record of use of illicit drugs. The autopsy showed widespread atheromatosis enlarged heart and signs of an earlier infarction. Toxicological analysis revealed 2 µg/l THC in whole blood. Urine was not available. There were no other toxicological findings.

### 2.4. Case 4

A 37-year-old male was found dead at a friend's home. There was no record of use of illicit drugs and no information of previous heart conditions. The autopsy revealed widespread atheromatosis, narrowing of coronary arteries and signs of emphysema. Toxicological analysis revealed 5 µg/l THC in whole blood and 0.04% ethanol. There were no other toxicological findings, except THC acid in urine.

### 2.5. Case 5

A 17-year-old male was found dead on his bed in the morning at his parent's house. He had a record of illicit drug use, without further details about type or types of drugs consumed. There was no record of any illness other than pollen allergy or any record of family heart conditions. The autopsy revealed a slightly enlarged heart. No signs of atheromatosis were found. Toxicological analysis revealed 3 µg/l THC in whole blood. Urine was not available for analysis. There were no other toxicological findings.

### 2.6. Case 6

A 42-year-old male died suddenly in a hotel. Cardiac resuscitation was started immediately, but was unsuccessful. He had a record of illicit drug use. Needle marks in both arms were ascribed to medical treatment. The autopsy revealed slight atheromatosis in the coronary blood vessels and also narrowing of a coronary artery. The autopsy conclusion was an acute coronary event. Toxicological analysis revealed 7 µg/l THC in whole blood. Urine was not available for analysis. There were no other toxicological findings.

Table 1

Classification of death cause in cases having cannabis as the major toxicological finding

| Cause of death                | Cases |
|-------------------------------|-------|
| Suicide (excluding poisoning) | 9     |
| Accident                      | 9     |
| Somatic illness (any type)    | 7     |
| Unknown cause (sudden death)  | 6     |
| Murder                        | 3     |
| Missing data                  | 1     |
| Total                         | 35    |

## 3. Materials and methods

The National Institute for Forensic Toxicology (NIFT) is the national laboratory for forensic pharmacological and toxicological analyses in Norway. Blood, urine and other biological samples from almost every medicolegal autopsies performed in Norway, are sent to NIFT together with the preliminary results from the autopsies. Illegal drugs, including cannabis, are part of the standard analytical program for all autopsy samples. Postmortem blood is screened for amphetamines, benzodiazepines, cannabis, cocaine and opiates with immunological methods (EMIT II) and further with GC-headspace for alcohol and with GC and/or HPLC for a broad spectrum of drugs. Confirmatory analysis of THC and THC acid are performed by GC-MS [10,11].

## 4. Results

In the period from 1995 to 1999, cannabis was detected in a total of 180 blood samples out of almost 10,000 autopsy cases analysed. In 145 cases, there were also other toxicological findings (prescribed medication or illicit drugs) that could have contributed to the death. The remaining samples (35) contained THC as the major toxicological finding, although low alcohol concentrations (below 0.05%) or benzodiazepines in the therapeutic concentration range were present in some cases. These 35 samples were classified according to the information from the pathologist (Table 1). Six cases were classified as sudden death of unknown cause and are described in our case reports.

## 5. Discussion

Cardiovascular effects are the most consistent physiological findings after acute cannabis administration. Significant tachycardia, conjunctival injection and increased limb blood flow with postural hypotension have been reported. These effects are likely to be mediated via β-adrenergic stimulation and possibly also a parasympathetic nervous system blockade [12–15]. A catecholamine increase will

lead to an increased oxygen demand in the myocardium, constituting a potential threat to patients with an ischaemic heart condition [1,12,16].

One controlled cross-over study has compared effects of smoking tobacco and cannabis on angina pectoris [17] and demonstrated that smoking one marijuana cigarette significantly decreased the exercise time until angina more than smoking of one high-nicotine cigarette. Exercise time until angina showed a reduction of 50% after smoking a marijuana cigarette versus 23% reduction after smoking one high-nicotine cigarette, indicating that smoking of cannabis might have a more pronounced effect on triggering angina than nicotine in coronary patients.

Several cases of acute coronary ischaemia related to cannabis smoking have been published. One case report described a previously fit 25-year-old man that presented a sudden onset of pulmonary oedema 30 min after smoking marijuana [3]. Enzymatic, X-ray and electrocardiographical alterations indicated an acute myocardial infarction. Cardiac catheterisation and angiography 3 months after admission were normal. Another case report presented a 32-year-old male with a sudden onset of chest pain after cannabis smoking [5]. He died before the ambulance arrived. The autopsy revealed widespread coronary atheromatosis, focal stenosis and thrombosis in the left coronary artery. Also, one case report presented a previously fit 33-year-old woman with an acute myocardial infarction while smoking marijuana [4]. Shortly after admission to hospital, she developed ventricular fibrillation, which responded to electroconversion. Toxicological analyses of urine showed the presence of cannabinoids. She recovered completely and 3 months later a treadmill test was normal.

With respect to cerebral ischaemia, there are published cases of stroke or transient ischaemic attacks while smoking cannabis in young, previous fit individuals [6,8,18–21]. Two

of the individuals had records of alcohol or amphetamine abuse, but had not been using these drugs at the time those episodes occurred.

Interference with the integrity of the peripheral vascular reflex responses is considered to be an important patho-physiological mechanism for the cardiac events during cannabis smoking [15,22,23]. This reflex normally provides a compensatory vasoconstriction in hypotension and can be of capital importance in a myocardial hypoxic situation, where an increase of the pre-load can be essential to preserve adequate perfusion. Vasospasm is another patho-physiological mechanism that has been suggested, especially to explain those cases of coronary or cerebral ischaemia where blood vessels have shown normal conditions in the affected areas after the episode [20].

Several studies have investigated electrocardiographic effects that follow cannabis intake [16,17,24,25]. A common finding mentioned in these studies is different types of arrhythmia, notably ventricular extrasystoles [17,24,26]. In contrast, others have reported lower incidence of arrhythmia when cannabis, compared to diazepam, was used as a pre-medication before surgery. Other electrocardiographic effects reported include changes in ST-segment and T-wave as in epicardial lesion and flattening of P-wave. Possible mechanisms for cannabis-induced cardiovascular events are summarised in Fig. 1.

The use of cannabis in the western world became popular among youngsters in the sixties. Many individuals have continued their drug-using patterns and the age range among cannabis users today is probably broader than it was some years ago. Due to this age-shift, a higher incidence of atheromatosis and coronary heart disease is expected among cannabis users today. The older individuals would presumably have a higher frequency of cardiovascular side effects than younger and healthier cannabis users.

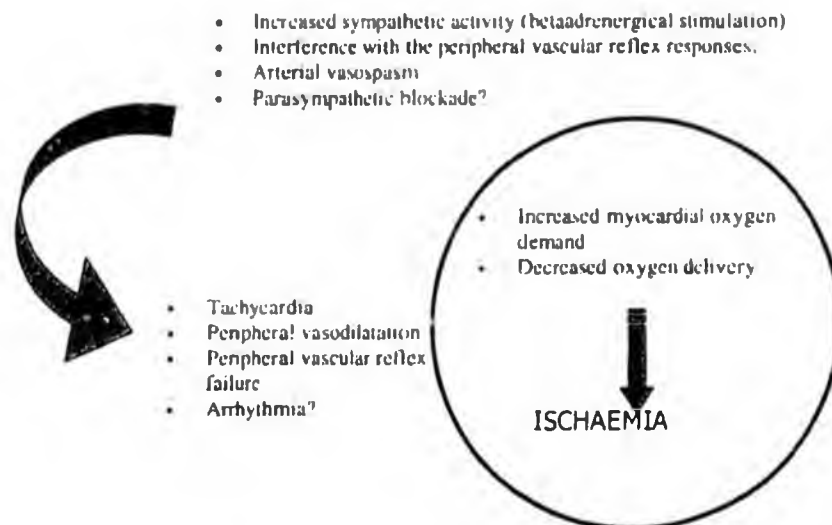


Fig. 1. Cardiovascular mechanisms of cannabis.

## 6. Conclusions

Several reports of acute cardiovascular episodes associated to cannabis use have been published in the last 20 years and underlying patho-physiological mechanisms have been discussed. Cannabis is generally considered to be a drug with very low toxicity. In this paper, we report six cases where recent cannabis intake was associated with sudden and unexpected death. An acute cardiovascular event was the probable cause of death. In all cases, cannabis intake was documented by blood analyses. To our information there were no heavy drug addicts in our material and the deceased individuals seemed to be occasional cannabis users. Coronary pathology was revealed by the autopsies in some cases. Further investigations of clinical, toxicological and epidemiological aspects are needed to enlighten causality between cannabis intake and acute cardiovascular events.

## Acknowledgement

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March 29, 2002

### Marijuana and Cardiovascular death in young adults

An Associated Press story in March of 2000, reported on the findings of Dr. Murray Mittleman of the Harvard School of Public Health and Boston's Beth Israel Deaconess Medical Center that smoking "Marijuana Raises Heart Risks." The study on which this was based was also published in July of 2001 in the medical journal Circulation Magazine and reported by ABCNews.com as "Pot Boosts Heart Attack Risk." The proponents of pot smoking and medical excuse marijuana were not happy. They demanded to know who asked for the study, who funded the study, and insisted that the methodology was flawed and that the researcher was biased

Now, a report in Forensic Science International, by researchers Bachs & Mørland, of the National Institute of Forensic Toxicology in Oslo, Norway, report on six cases of "cardiovascular death in young adults" where THC and no other drugs, were reported in postmortem blood samples. Although only these six cases are detailed in the report, the authors reference several other cases of cardiovascular incidents related to cannabis use.

None of the research done on cannabis to date has shown it to be benign. It should be noted that autopsies are not always done following death, and that because of patient confidentiality laws deaths caused by illicit substances are typically not made public. Therefore, it is likely that there have been far more cardiovascular deaths caused by marijuana than have been reported to date. With these data, acute cardiac deaths from marijuana can not longer be denied.

Previous Top

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# The Curse of Cancer

Diana Campbell

## Story in .rtf

Kevin Webster couldn't go outside to play in the snow, his favorite thing to do. A fever and lung congestion kept the active two-year old inside.

Cathy Webster, who admits she is overprotective, thought it was just a routine January cold as her eight-year old daughter Chloe was sick, too.

But when Kevin didn't get any better after Cathy gave him children's cold medicine and pain reliever, she took him to the health clinic.

The doctors said asthma, and while prescribed medicine eased his breathing, he still didn't seem right.

"My sister and I were noticing his hands were really white," she said of the little boy. "He kept running a fever."

Cathy Webster pressed the doctors for answers and within days, Kevin, his parents, grandmother and sister were at Childrens Hospital and Regional Center in Seattle, about 1,200 miles away the family's hometown of Fairbanks, Alaska.

Leukemia, the doctors said this time, and immediately they put the cooperative little boy on an aggressive regimen of powerful drugs and tests. He will survive, doctors predict, but must endure three and a half years of treatment.

The Websters are Athabascan Indian, and their ordeal is not new to the Athabascan community of Fairbanks. Friends and family hosted a February fundraiser to help the Webster family with expenses. In the past year fundraisers for for seven other Alaska Native cancer patients, including relatives of Kevin's, have been held.

Cancer is now the leading cause of death for Alaska Natives, a rate that has doubled in the last 30 years, according to the latest reports from the Alaska Native Tumor Registry, a National Cancer Institute-sanctioned monitoring of cancer. Alaska Natives, of which there are just under 100,000 Eskimos, Indians and Aleuts, now face a 30 percent higher risk than U.S. whites of dying from cancer, the registry data shows.

Kevin Webster, a two-year old



Athabascan boy, looks at a suction dart stuck to his grandmother's living room window. Kevin had just come back home to Fairbanks, Alaska after undergoing his first round of chemotherapy at Childrens Hospital and Regional Center in Seattle.

Photo by Eric Engman, Fairbanks Daily News-Miner.

The number of Alaska Natives with cancer is now seven percent higher than U.S. whites and past trends show that number has climbed.

The statistics have changed dramatically over the last 40 years, said Dr. Anne Lanier, a founder of the registry, and director of Alaska Native Health Research with the Alaska Native Tribal Health Consortium. The consortium operates an Indian Health Service funded hospital in Anchorage.

In 1950, cancer was rare and tuberculosis was the leading cause of death for Alaska Natives, she said.

But by the mid-1970's, Lanier and others began studying cancer rates by reviewing Alaska Native death certificates on the advice of doctors who noticed an increase of cancer among their patients, she said.

"Experienced clinicians working in the Alaska Native health system have often reported unusual patterns of disease which were later confirmed by special studies," Lanier said.

At first the studies showed Alaska Natives had a lower overall cancer death rate from U.S. whites, but not significantly different, she said. But what the studies did show was that rates for specific types of cancer were higher than U.S. whites.

Now about 250 Alaska Natives are diagnosed yearly with cancer, a rate that has tripled from those early days, according to registry data.

Lanier is the principal investigator for the registry. National Cancer Institute officials, who funded the initial Alaska Native cancer studies in the 1970's, have since sanctioned grants to further more cancer study and data collection, Lanier said.

"Early on the National Cancer Institute was also interested in what was going on in this population," she said. The registry is now part of NCI's Surveillance, Epidemiology and End Result program, a

nationwide system that uses standard methodology for collecting and reporting cancer data.

Those subsequent NCI-funded studies have yielded alarming trends.

Lung cancer in Alaska Natives now exceeds the national average by 48 percent and according to the study *Cancer Mortality Among Alaska Natives, 1994-1998*, lung cancer is 30 percent of all Alaska Native cancer deaths, making it the leading cause of cancer deaths.

It's tobacco, Lanier has said repeatedly over the years.

According to the a 1997 study by the Behavioral Risk Factor Surveillance System, a statewide telephone health survey, at least 47 percent of Alaska Native men smoked compared to 39 percent of Alaska Native women. The U.S. tobacco use average is 26 percent for males and 21 percent for females.

Smoking among Alaska Natives has shown no signs of slowing down, according to the behavior surveys, which lead Lanier and others at the tribal health consortium to believe that lung cancer rates will likely exceed U.S. whites for years to come.

Tobacco isn't the only factor contributing to the high rates of Alaska Native cancer.

According to the Alaska Native Tumor Registry 30-year report, Alaska Native men had thirty times the death rate risk of U.S. whites from a particular type of nasopharyngeal cancer, a disease that occurs in the back of the throat and nose. This type of cancer is so rare that little is known about the disease except that it is also found among Chinese, Filipino and Vietnamese populations and may be associated with Epstein Barr Virus, the virus that can cause mononucleosis, the National Cancer Institute reports.

Alaska Natives are five times more likely to die from stomach cancer than U.S. whites; twice as likely from esophagus cancer; and one and half times from liver cancer, according to the 30-year report. The reason for the high number is also unknown, but low fruit and vegetable consumption along with alcohol and tobacco use are suspect causes for those types of cancer, according to the American Cancer Society.

A recent study by the Centers for Disease Control suggested that *Helicobacter pylori*, an infectious agent, may be a source in stomach cancers. Hepatitis B has been linked to liver cancer.

On the flip side, some cancers rates are still low. Data has shown that prostate cancer rates in Alaska Native men, uterine cancer in women, leukemia, and lymphoma are lower than U.S. whites. The reasons are unclear, the 30-year report said.

Both the mortality study and the 30-report suggest a plan of action.

Alaska Natives are a young population, said Gretchen Ehram, an epidemiologist with the Alaska Native Tribal Health Consortium and an author of the mortality study .

The median age of Alaska Natives is 23, while the U.S. median age is 36, she said. Since chances of getting cancer increase as people age and Alaska Natives are living longer, it is likely a greater number of Alaska Natives will get cancer as they get older, placing a greater burden on families, health care and society, she said.

"Cancer is an old person's disease," Ehram said. "We need to do something now."

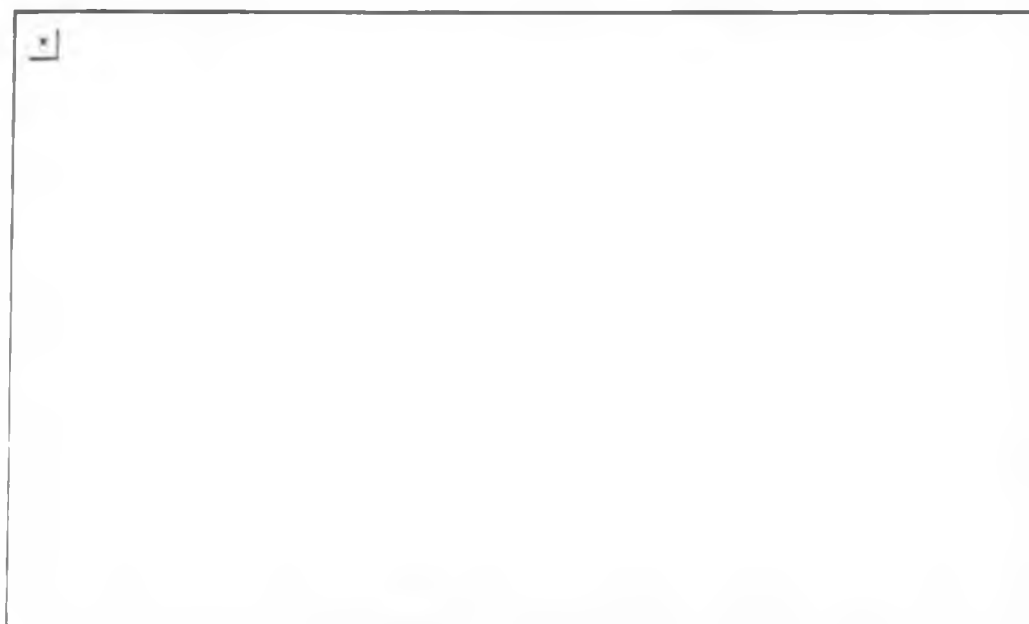


Table 1. Average Annual Age-Adjusted† Cancer Mortality Rates per 100,000 for Alaska Natives and U.S. Whites. Males and Females combined, 1994-1998.

|                            | # of cases | AK Rate | US Rate | Odds Ratio | Lower C.I. | Upper C.I. |
|----------------------------|------------|---------|---------|------------|------------|------------|
| All Sites                  | 597        | 224.5   | 166.7   | 1.3 *      | 1.2        | 1.4        |
| Oral Cavity and Pharynx    | 20         | 7.8     | 2.4     | 2.9 *      | 1.9        | 4.6        |
| Salivary Gland             | 0          | -       | 0.2     | -          | -          | -          |
| Gum and Other Mouth        | 2          | -       | 0.4     | -          | -          | -          |
| Nasopharynx                | 12         | 4.8     | 0.2     | 20.4 *     | 11.5       | 36.2       |
| Digestive System           | 209        | 77.6    | 37.5    | 2.2 *      | 1.7        | 2.3        |
| Esophagus                  | 18         | 7.2     | 3.4     | 1.9 *      | 1.2        | 3.1        |
| Stomach                    | 51         | 17.1    | 3.6     | 4.9 *      | 3.7        | 6.4        |
| Colon and Rectum           | 84         | 31.9    | 17      | 1.7 *      | 1.4        | 2.2        |
| Colon                      | 66         | 25.5    | 14.5    | 1.6 *      | 1.3        | 2.1        |
| Rectum & Rectosigmoid Jxn. | 18         | 6.4     | 2.5     | 2.5 *      | 1.6        | 4          |
| Liver                      | 17         | 6.4     | 3.4     | 1.8 *      | 1.1        | 2.9        |
| Gallbladder                | 4          | -       | 0.6     | -          | -          | -          |
| Other Biliary              | 1          | -       | 0.5     | -          | -          | -          |
| Pancreas                   | 34         | 12.7    | 8.2     | 1.5 *      | 1.1        | 2.1        |

|                                |     |      |      |       |     |     |
|--------------------------------|-----|------|------|-------|-----|-----|
| Respiratory System             | 184 | 73.9 | 50.2 | 1.4 * | 1.2 | 1.6 |
| Larynx                         | 5   | 1.9  | 1.2  | 1.6   | 0.7 | 3.8 |
| Lung and Bronchus              | 179 | 72   | 48.6 | 1.4 * | 1.2 | 1.6 |
| Bones and Joints               | 1   | -    | 0.4  | -     | -   | -   |
| Soft Tissue                    | 0   | -    | 1.3  | -     | -   | -   |
| Skin                           | 3   | -    | 3.3  | -     | -   | -   |
| Melanomas of the Skin          | 3   | -    | 2.6  | -     | -   | -   |
| Other Non-Epithelial Skin      | 0   | -    | 0.7  | -     | -   | -   |
| Breast                         | 35  | 11.2 | 13.6 | 0.9   | 0.6 | 1.2 |
| Female Genital System          | 17  | 11.1 | 14   | 0.8   | 0.5 | 1.2 |
| Cervix                         | 3   | 1.8  | 2.4  | -     | -   | -   |
| Corpus and Uterus, NOS         | 0   | -    | 3.2  | -     | -   | -   |
| Ovary                          | 14  | 9.2  | 7.7  | 1.2   | 0.7 | 2   |
| Male Genital System            | 13  | 12   | 22.5 | 0.5 * | 0.3 | 0.8 |
| Prostate                       | 13  | 12   | 22.1 | 0.5   | 0.3 | 0.8 |
| Testis                         | 0   | -    | 0.3  | -     | -   | -   |
| Urinary System                 | 25  | 10.2 | 7.2  | 1.2   | 0.8 | 1.8 |
| Urinary Bladder                | 4   | -    | 3.5  | -     | -   | -   |
| Kidney and Renal Pelvis        | 21  | 8.4  | 3.6  | 2 *   | 1.3 | 3.1 |
| Eye and Orbit                  | 0   | -    | 0.1  | -     | -   | -   |
| Brain and Other Nervous System | 5   | 1.4  | 4.5  | 0.3 * | 0.1 | 0.8 |
| Brain                          | 4   | -    | 4.4  | -     | -   | -   |
| Endocrine System               | 0   | -    | 0.7  | -     | -   | -   |
| Thyroid                        | 0   | -    | 0.4  | -     | -   | -   |
| Lymphoma                       | 11  | 4    | 7.8  | 0.5 * | 0.3 | 0.8 |
| Hodgkin's Disease              | 0   | -    | 0.5  | -     | -   | -   |
| Non-Hodgkin's                  | 11  | 4    | 7.4  | 0.5   | 0.1 | 1.9 |
| Multiple Myeloma               | 6   | 2.2  | 2.9  | 0.7   | 0.3 | 1.7 |
| Leukemia                       | 13  | 3.7  | 6.5  | 0.6   | 0.4 | 1.1 |
| Ill Defined                    | 53  | 19.2 | 11.5 | 1.6 * | 1.2 | 2.1 |

†All rates age-adjusted 1970 U.S. population;

\* 95% confidence intervals for odds ratios do not include 1.

Table 2. Average Annual Age-Adjusted<sup>†</sup> Cancer Mortality Rates per 100,000 for Alaska Natives and U.S. White Males 1994-1998.

|                            | # of cases | AK Rate | US Rate | Odds Ratio | Lower C.I. | Upper C.I. |
|----------------------------|------------|---------|---------|------------|------------|------------|
| All Sites                  | 323        | 261.8   | 201.8   | 1.3 *      | 1.1        | 1.4        |
| Oral Cavity and Pharynx    | 16         | 12.7    | 3.5     | 3.4 *      | 2.1        | 5.5        |
| Salivary Gland             | 0          | -       | 0.3     | -          | -          | -          |
| Gum and Other Mouth        | 1          | -       | 0.6     | -          | -          | -          |
| Nasopharynx                | 11         | 9       | 0.3     | 27.1 *     | 14.8       | 49.4       |
| Digestive System           | 108        | 85.2    | 47      | 1.8 *      | 1.5        | 2.2        |
| Esophagus                  | 11         | 9.2     | 5.9     | 1.4        | 0.8        | 2.6        |
| Stomach                    | 35         | 25.3    | 5.1     | 5.2 *      | 3.8        | 7.3        |
| Colon and Rectum           | 34         | 27.7    | 20.1    | 1.4 *      | 1          | 2          |
| Colon                      | 26         | 22      | 16.9    | 1.2        | 0.8        | 1.8        |
| Rectum & Rectosigmoid Jxn. | 8          | 5.7     | 3.2     | 3.3 *      | 2          | 5.6        |
| Liver                      | 10         | 8.1     | 4.8     | 1.6        | 0.9        | 3          |
| Gallbladder                | 3          | -       | 0.4     | -          | -          | -          |
| Other Biliary              | 1          | -       | 0.6     | -          | -          | -          |
| Pancreas                   | 14         | 11.1    | 9.4     | 1.4        | 0.9        | 2.3        |
| Respiratory System         | 124        | 104.4   | 69.6    | 1.4 *      | 1.2        | 1.7        |
| Larynx                     | 5          | 3.8     | 2.1     | 1.9        | 0.8        | 4.5        |
| Lung and Bronchus          | 119        | 100.6   | 66.9    | 1.4 *      | 1.2        | 1.7        |
| Bones and Joints           | 0          | -       | 0.5     | -          | -          | -          |
| Soft Tissue                | 0          | -       | 1.4     | -          | -          | -          |
| Skin                       | 1          | -       | 4.7     | -          | -          | -          |
| Melanomas of the Skin      | 1          | -       | 3.6     | -          | -          | -          |

|                                |    |      |      |       |     |     |
|--------------------------------|----|------|------|-------|-----|-----|
| Other Non-Epithelial Skin      | 0  | -    | 1    | -     | -   | -   |
| Breast                         | 0  |      | 0.2  | -     | -   | -   |
| Male Genital System            | 13 | 12   | 22.5 | 0.5 * | 0.3 | 0.8 |
| Prostate                       | 13 | 12   | 22.1 | 0.5 * | 0.3 | 0.8 |
| Testis                         | 0  | -    | 0.3  | -     | -   | -   |
| Urinary System                 | 11 | 10.2 | 11.1 | 0.8   | 0.4 | 1.4 |
| Urinary Bladder                | 2  | -    | 5.7  | -     | -   | -   |
| Kidney and Renal Pelvis        | 9  | 8.1  | 5.1  | 1.3   | 0.7 | 2.5 |
| Eye and Orbit                  | 0  | -    | 0.1  | -     | -   | -   |
| Brain and Other Nervous System | 3  | -    | 5.4  | -     | -   | -   |
| Brain                          | 3  | -    | 5.3  | -     | -   | -   |
| Endocrine System               | 0  | -    | 0.7  | -     | -   | -   |
| Thyroid                        | 0  | -    | 0.3  | -     | -   | -   |
| Lymphoma                       | 7  | 5.2  | 9.5  | 0.5   | 0.1 | 2.7 |
| Hodgkin's Disease              | 0  | -    | 0.5  | -     | -   | -   |
| Non-Hodgkin's                  | 7  | 5.2  | 8.9  | 0.6   | 0.3 | 1.2 |
| Multiple Myeloma               | 2  | -    | 3.5  | -     | -   | -   |
| Leukemia                       | 7  | 4.8  | 8.4  | 0.6   | 0.3 | 1.2 |
| Ill Defined                    | 31 | 23.8 | 13.8 | 1.7 * | 1.2 | 2.4 |

†All rates age-adjusted 1970 U.S. population;

\* 95% confidence intervals for odds ratios do not include 1.

Table 3. Average Annual Age-Adjusted† Cancer Mortality Rates per 100,000 for Alaska Natives and U.S. White Females 1994-1998.

|                         | # of cases | AK Rate | US Rate | Odds Ratio | Lower C.I. | Upper C.I. |
|-------------------------|------------|---------|---------|------------|------------|------------|
| All Sites               | 274        | 187.2   | 141.6   | 1.3 *      | 1.1        | 1.4        |
| Oral Cavity and Pharynx | 4          | -       | 1.4     | -          | -          | -          |

|                                |     |      |      |       |     |     |
|--------------------------------|-----|------|------|-------|-----|-----|
| Salivary Gland                 | 0   | -    | 0.1  | -     | -   | -   |
| Gum and Other Mouth            | 1   | -    | 0.3  | -     | -   | -   |
| Nasopharynx                    | 1   | -    | 1.4  | -     | -   | -   |
| Digestive System               | 101 | 70   | 29.9 | 2.2 * | 1.8 | 2.7 |
| Esophagus                      | 7   | 5.3  | 1.4  | 3.4 * | 1.6 | 7.2 |
| Stomach                        | 16  | 8.8  | 2.5  | 4 *   | 2.5 | 6.6 |
| Colon and Rectum               | 50  | 36.2 | 13.6 | 2.2 * | 1.7 | 2.9 |
| Colon                          | 40  | 29.1 | 14.6 | 2.1 * | 1.5 | 2.8 |
| Rectum and Rectosigmoid Can.   | 10  | 7.1  | 2    | 3.2 * | 1.7 | 6   |
| Liver                          | 7   | 4.7  | 2.3  | 2 *   | 1   | 4.2 |
| Gallbladder                    | 1   | -    | 0.8  | -     | -   | -   |
| Other Biliary                  | 0   | -    | 0.4  | -     | -   | -   |
| Pancreas                       | 20  | 14.2 | 7.2  | 1.8 * | 1.2 | 2.8 |
| Respiratory System             | 60  | 43.3 | 35.6 | 1.2   | 0.9 | 1.5 |
| Larynx                         | 0   | -    | 0.5  | -     | -   | -   |
| Lung and Bronchu               | 60  | 43.3 | 34.9 | 1.2   | 0.9 | 1.5 |
| Bones and Joints               | 1   | -    | 0.3  | -     | -   | -   |
| Soft Tissue                    | 0   | -    | 1.2  | -     | -   | -   |
| Skin                           | 2   | -    | 2.2  | -     | -   | -   |
| Melanomas of the Skin          | 2   | -    | 1.8  | -     | -   | -   |
| Other Non-Epithelial Skin      | 0   | -    | 0.4  | -     | -   | -   |
| Breast                         | 35  | 22.4 | 24.4 | 0.9   | 0.7 | 1.3 |
| Female Genital System          | 17  | 11.1 | 14   | 0.8   | 0.5 | 1.2 |
| Cervix                         | 3   | 1.8  | 2.4  | -     | -   | -   |
| Corpus and Uterus, NOS         | 0   | -    | 3.2  | -     | -   | -   |
| Ovary                          | 14  | 9.2  | 7.7  | 1.2   | 0.7 | 2   |
| Urinary System                 | 14  | 10.2 | 4.4  | 2.1 * | 1.2 | 3.5 |
| Urinary Bladder                | 2   | -    | 1.8  | -     | -   | -   |
| Kidney and Renal Pelvis        | 12  | 8.6  | 2.4  | 3.3 * | 1.9 | 5.8 |
| Eye and Orbit                  | 0   | -    | 0.1  | -     | -   | -   |
| Brain and Other Nervous System | 2   | -    | 3.7  | -     | -   | -   |

|                   |    |      |     |       |     |     |
|-------------------|----|------|-----|-------|-----|-----|
| Brain             | 1  | -    | 3.6 | -     | -   | -   |
| Endocrine System  | 0  | -    | 0.7 | -     | -   | -   |
| Thyroid           | 0  | -    | 0.4 | -     | -   | -   |
| Lymphoma          | 4  | -    | 6.5 | -     | -   | -   |
| Hodgkin's Disease | 0  | -    | 0.4 | -     | -   | -   |
| Non-Hodgkin's     | 4  | -    | 6.1 | -     | -   | -   |
| Multiple Myeloma  | 4  | -    | 2.4 | -     | -   | -   |
| Leukemia          | 6  | 2.6  | 5.1 | 0.7   | 0.3 | 1.5 |
| Ill Defined       | 22 | 14.6 | 9.7 | 1.6 * | 1.1 | 2.5 |

†All rates age-adjusted 1970 U.S. population:

\* 95% confidence intervals for odds ratios do not include 1.

## Web Resources include:

Military biological and chemical weapons testing:

[www.deploymentink.osd.mil/current\\_issues/snad/shad.html](http://www.deploymentink.osd.mil/current_issues/snad/shad.html)

Alaska Native Tribal Health Consortium

[www.anthc.org](http://www.anthc.org)

Native Village of Tanacross

[www.nativevillageoftanacross.com](http://www.nativevillageoftanacross.com)

St. Lawrence Island

[www.stlawrenceisland.net](http://www.stlawrenceisland.net)

©2003Diana Campbell. A business reporter for the *Fairbanks Daily News-Miner*, Diana Campbell is looking at the incidence of cancer among Alaska natives.

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## DEMOGRAPHICS OF MARIJUANA USE IN ALASKA

### I. Marijuana Use In Alaska.

- A national study estimated that Alaska led the nation in 1999 and 2000 in average annual rates of first use of marijuana by persons 12 and older. *Gfroerer, J., et.al., Initiation of Marijuana Use: Trends, Patterns, and Implications, Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2002.*
- The same study estimated that 4,000 of the 5-7,000 new initiates in Alaska were aged 12-17. *Gfroerer, J., et.al.*
- One in eight Alaska high school students reports using marijuana before age 13. *2003 Alaska Youth Risk Behavior Survey.*
- In 1995 and again in 1999, 29% of middle school students reported having smoked marijuana. *Health Risks, 1995 Youth Risk Behavior Survey Summary, 1999 Youth Risk Behavior Survey Results.*
- In a regional survey, over 10% of middle school students reported using marijuana even before the age of 11. *2003 Youth Risk Behavior Results for the Northwest Arctic Borough School District, Middle School Survey.*

- Alaska native students were significantly more likely (69.7%) to have used marijuana than non-Natives (41.2%). *2003 Alaska Youth Risk Behavior Survey.*
- Alaska native students were significantly more likely to be current users (use within past 30 days) (35.5%) than non-natives (20.6%) in 2003. *2003 Alaska Youth Risk Behavior Survey.*
- In a survey of Alaska Native preschool parents, the use of marijuana by the preschool parents in the preceding 30 days was self-reported to be 3 times higher than the national estimates. (19% vs, 6.7%) *Stillner, V, et.al., Drug Use in Very Rural Alaska Villages, Substance Use and Misuse, 1999.*

**Initiation of Marijuana Use:  
Trends, Patterns, and Implications**

Joseph C. Gfroerer  
Li-Tzy Wu  
Michael A. Penne

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Substance Abuse and Mental Health Services Administration  
Office of Applied Studies

**Table 4.1 Estimated Numbers (in Thousands) of Average Annual Marijuana Initiates, by Age Group and State: 1999 and 2000**

| State                | Age Group (Years) |                     |          |                     |          |                     |             |                     |
|----------------------|-------------------|---------------------|----------|---------------------|----------|---------------------|-------------|---------------------|
|                      | Total             |                     | 12-17    |                     | 18-25    |                     | 26 or Older |                     |
|                      | Estimate          | Prediction Interval | Estimate | Prediction Interval | Estimate | Prediction Interval | Estimate    | Prediction Interval |
| Total                | 2,268             |                     | 1,230    |                     | 898      |                     | 139         |                     |
| Alabama              | 34                | (29 - 39)           | 17       | (13 - 21)           | 15       | (12 - 19)           | 2           | (1 - 4)             |
| Alaska               | 6                 | (5 - 7)             | 4        | (3 - 4)             | 2        | (2 - 3)             | 0           | (0 - 1)             |
| Arizona              | 45                | (39 - 52)           | 29       | (24 - 35)           | 13       | (10 - 17)           | 2           | (1 - 4)             |
| Arkansas             | 21                | (18 - 24)           | 11       | (9 - 14)            | 8        | (6 - 10)            | 1           | (1 - 2)             |
| California           | 246               | (226 - 267)         | 135      | (123 - 148)         | 93       | (79 - 109)          | 17          | (11 - 26)           |
| Colorado             | 38                | (32 - 44)           | 22       | (18 - 27)           | 14       | (10 - 18)           | 2           | (1 - 4)             |
| Connecticut          | 26                | (22 - 30)           | 15       | (12 - 18)           | 10       | (7 - 12)            | 2           | (1 - 3)             |
| Delaware             | 7                 | (6 - 8)             | 4        | (4 - 5)             | 3        | (2 - 3)             | 0           | (0 - 1)             |
| District of Columbia | 4                 | (4 - 5)             | 2        | (2 - 3)             | 2        | (1 - 2)             | 0           | (0 - 1)             |
| Florida              | 105               | (95 - 115)          | 59       | (53 - 67)           | 38       | (32 - 44)           | 7           | (4 - 12)            |
| Georgia              | 65                | (56 - 74)           | 33       | (28 - 39)           | 28       | (22 - 35)           | 4           | (2 - 7)             |
| Hawaii               | 10                | (8 - 11)            | 6        | (5 - 7)             | 3        | (2 - 4)             | 0           | (0 - 1)             |
| Idaho                | 11                | (10 - 13)           | 6        | (5 - 7)             | 5        | (4 - 7)             | 1           | (0 - 1)             |
| Illinois             | 99                | (90 - 108)          | 53       | (47 - 60)           | 40       | (34 - 46)           | 6           | (4 - 9)             |
| Indiana              | 49                | (42 - 56)           | 26       | (22 - 32)           | 19       | (15 - 24)           | 3           | (2 - 5)             |
| Iowa                 | 26                | (22 - 29)           | 14       | (11 - 17)           | 10       | (8 - 13)            | 1           | (1 - 3)             |
| Kansas               | 25                | (22 - 29)           | 13       | (11 - 16)           | 11       | (9 - 14)            | 1           | (1 - 2)             |
| Kentucky             | 37                | (32 - 42)           | 19       | (16 - 23)           | 16       | (13 - 19)           | 2           | (1 - 4)             |
| Louisiana            | 36                | (31 - 42)           | 20       | (17 - 25)           | 13       | (10 - 17)           | 2           | (1 - 4)             |
| Maine                | 11                | (10 - 13)           | 6        | (5 - 7)             | 4        | (3 - 6)             | 1           | (0 - 1)             |
| Maryland             | 42                | (36 - 48)           | 21       | (17 - 26)           | 18       | (14 - 22)           | 3           | (1 - 4)             |
| Massachusetts        | 60                | (51 - 68)           | 36       | (30 - 43)           | 20       | (15 - 26)           | 3           | (2 - 6)             |
| Michigan             | 92                | (84 - 101)          | 51       | (46 - 57)           | 36       | (31 - 42)           | 5           | (3 - 8)             |
| Minnesota            | 48                | (42 - 55)           | 24       | (20 - 28)           | 22       | (18 - 27)           | 2           | (1 - 4)             |
| Mississippi          | 25                | (21 - 29)           | 12       | (10 - 15)           | 11       | (9 - 14)            | 1           | (1 - 3)             |
| Missouri             | 46                | (40 - 53)           | 25       | (20 - 30)           | 19       | (15 - 24)           | 3           | (1 - 4)             |
| Montana              | 9                 | (8 - 10)            | 5        | (4 - 6)             | 3        | (3 - 4)             | 0           | (0 - 1)             |

**Table 4.2 Average Annual Rates of First Use of Marijuana, by Age Group and State: 1999 and 2000**

| State                | Age Group (Years) |                     |          |                     |          |                     |             |                     |
|----------------------|-------------------|---------------------|----------|---------------------|----------|---------------------|-------------|---------------------|
|                      | Total             |                     | 12-17    |                     | 18-25    |                     | 26 or Older |                     |
|                      | Estimate          | Prediction Interval | Estimate | Prediction Interval | Estimate | Prediction Interval | Estimate    | Prediction Interval |
| Total                | 1.52              |                     | 6.08     |                     | 5.47     |                     | 0.12        |                     |
| Alabama              | 1.28              | (1.08 - 1.51)       | 5.19     | (4.09 - 6.56)       | 5.35     | (4.18 - 6.81)       | 0.10        | (0.06 - 0.20)       |
| Alaska               | 2.32              | (1.96 - 2.74)       | 7.29     | (5.96 - 8.89)       | 6.48     | (4.95 - 8.46)       | 0.17        | (0.09 - 0.32)       |
| Arizona              | 1.82              | (1.54 - 2.15)       | 8.16     | (6.69 - 9.92)       | 4.69     | (3.53 - 6.19)       | 0.13        | (0.07 - 0.25)       |
| Arkansas             | 1.32              | (1.12 - 1.55)       | 5.75     | (4.65 - 7.09)       | 4.58     | (3.58 - 5.84)       | 0.10        | (0.06 - 0.19)       |
| California           | 1.46              | (1.33 - 1.61)       | 5.57     | (5.05 - 6.15)       | 4.50     | (3.83 - 5.29)       | 0.14        | (0.09 - 0.22)       |
| Colorado             | 2.01              | (1.69 - 2.40)       | 7.68     | (6.19 - 9.47)       | 7.03     | (5.34 - 9.20)       | 0.15        | (0.08 - 0.29)       |
| Connecticut          | 1.59              | (1.32 - 1.92)       | 6.83     | (5.45 - 8.53)       | 6.47     | (4.84 - 8.60)       | 0.13        | (0.07 - 0.25)       |
| Delaware             | 1.90              | (1.61 - 2.24)       | 8.32     | (6.83 - 10.10)      | 7.01     | (5.33 - 9.17)       | 0.13        | (0.07 - 0.25)       |
| District of Columbia | 1.48              | (1.24 - 1.77)       | 5.54     | (4.34 - 7.05)       | 5.28     | (4.06 - 6.83)       | 0.13        | (0.07 - 0.26)       |
| Florida              | 1.21              | (1.09 - 1.34)       | 5.76     | (5.06 - 6.55)       | 4.67     | (3.96 - 5.50)       | 0.11        | (0.06 - 0.18)       |
| Georgia              | 1.50              | (1.28 - 1.76)       | 5.61     | (4.67 - 6.71)       | 5.47     | (4.25 - 7.00)       | 0.13        | (0.07 - 0.23)       |
| Hawaii               | 1.65              | (1.38 - 1.97)       | 7.63     | (6.16 - 9.41)       | 5.50     | (4.01 - 7.50)       | 0.11        | (0.04 - 0.26)       |
| Idaho                | 1.58              | (1.33 - 1.87)       | 4.91     | (3.93 - 6.11)       | 5.39     | (4.20 - 6.88)       | 0.13        | (0.07 - 0.24)       |
| Illinois             | 1.56              | (1.41 - 1.73)       | 6.17     | (5.45 - 6.97)       | 5.61     | (4.80 - 6.55)       | 0.12        | (0.08 - 0.20)       |
| Indiana              | 1.44              | (1.23 - 1.69)       | 5.88     | (4.82 - 7.15)       | 5.27     | (4.11 - 6.74)       | 0.12        | (0.07 - 0.23)       |
| Iowa                 | 1.47              | (1.26 - 1.73)       | 6.17     | (5.03 - 7.56)       | 5.24     | (4.11 - 6.66)       | 0.11        | (0.06 - 0.22)       |
| Kansas               | 1.68              | (1.42 - 1.98)       | 6.17     | (4.96 - 7.64)       | 6.54     | (5.12 - 8.32)       | 0.12        | (0.06 - 0.22)       |
| Kentucky             | 1.62              | (1.39 - 1.89)       | 6.74     | (5.52 - 8.21)       | 6.46     | (5.15 - 8.06)       | 0.12        | (0.06 - 0.23)       |
| Louisiana            | 1.39              | (1.18 - 1.65)       | 5.51     | (4.49 - 6.75)       | 4.26     | (3.25 - 5.55)       | 0.12        | (0.07 - 0.22)       |
| Maine                | 1.74              | (1.47 - 2.05)       | 7.12     | (5.81 - 8.70)       | 8.07     | (6.17 - 10.48)      | 0.11        | (0.06 - 0.22)       |
| Maryland             | 1.52              | (1.28 - 1.81)       | 5.92     | (4.77 - 7.32)       | 6.14     | (4.80 - 7.84)       | 0.12        | (0.07 - 0.23)       |
| Massachusetts        | 2.03              | (1.71 - 2.41)       | 8.75     | (7.17 - 10.65)      | 7.55     | (5.73 - 9.88)       | 0.15        | (0.08 - 0.29)       |
| Michigan             | 1.83              | (1.66 - 2.03)       | 7.10     | (6.31 - 7.98)       | 6.90     | (5.88 - 8.07)       | 0.13        | (0.08 - 0.21)       |
| Minnesota            | 1.91              | (1.63 - 2.24)       | 6.42     | (5.24 - 7.84)       | 7.63     | (6.05 - 9.59)       | 0.13        | (0.07 - 0.25)       |
| Mississippi          | 1.49              | (1.27 - 1.76)       | 5.26     | (4.22 - 6.54)       | 5.32     | (4.22 - 6.69)       | 0.12        | (0.06 - 0.22)       |
| Missouri             | 1.51              | (1.28 - 1.79)       | 5.85     | (4.76 - 7.17)       | 5.91     | (4.60 - 7.56)       | 0.11        | (0.06 - 0.21)       |
| Montana              | 1.73              | (1.48 - 2.03)       | 7.33     | (5.98 - 8.96)       | 6.58     | (5.17 - 8.34)       | 0.11        | (0.06 - 0.24)       |

Table 4.2 (continued)

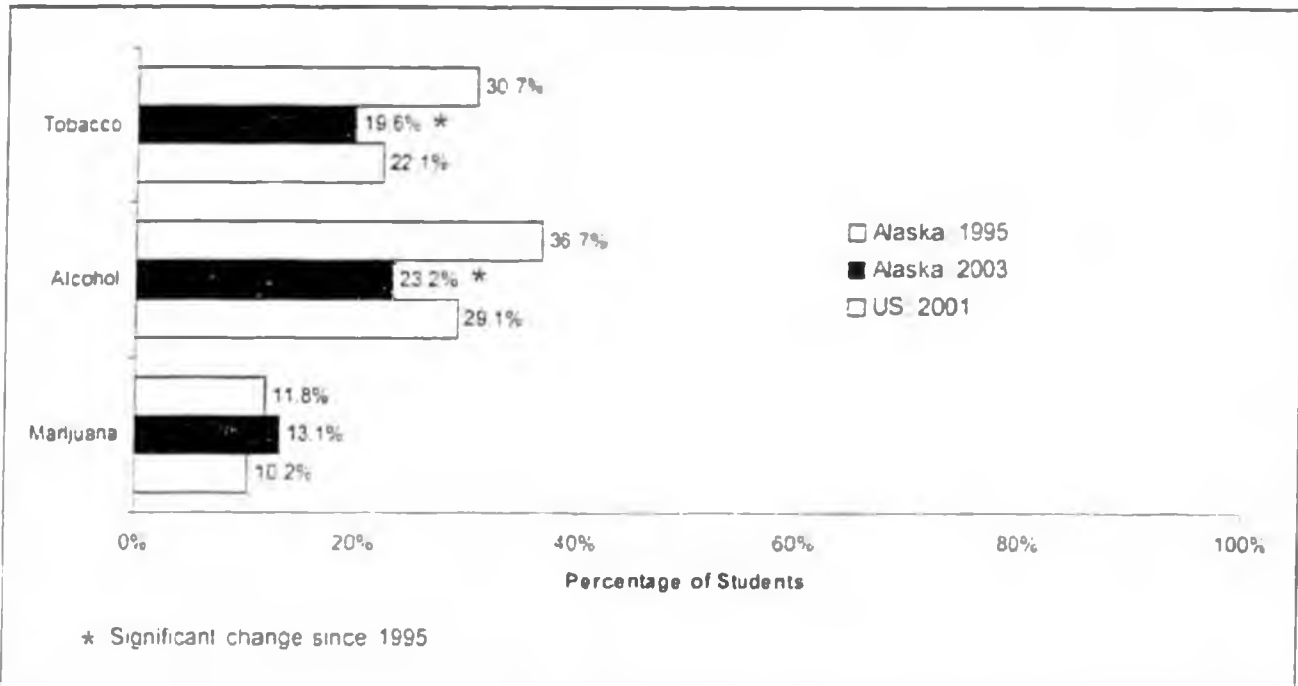
| State          | Age Group (Years) |                     |          |                     |          |                     |             |                     |
|----------------|-------------------|---------------------|----------|---------------------|----------|---------------------|-------------|---------------------|
|                | Total             |                     | 12-17    |                     | 18-25    |                     | 26 or Older |                     |
|                | Estimate          | Prediction Interval | Estimate | Prediction Interval | Estimate | Prediction Interval | Estimate    | Prediction Interval |
| Nebraska       | 1.51              | (1.29 - 1.77)       | 5.71     | (4.63 - 7.03)       | 5.48     | (4.29 - 6.98)       | 0.11        | (0.06 - 0.20)       |
| Nevada         | 1.66              | (1.39 - 1.98)       | 7.63     | (6.18 - 9.37)       | 5.47     | (4.07 - 7.32)       | 0.13        | (0.07 - 0.26)       |
| New Hampshire  | 1.92              | (1.62 - 2.27)       | 7.52     | (6.16 - 9.15)       | 7.49     | (5.65 - 9.88)       | 0.13        | (0.07 - 0.24)       |
| New Jersey     | 1.39              | (1.18 - 1.64)       | 5.50     | (4.53 - 6.67)       | 6.45     | (4.96 - 8.33)       | 0.13        | (0.07 - 0.24)       |
| New Mexico     | 1.99              | (1.68 - 2.35)       | 7.66     | (6.24 - 9.37)       | 5.99     | (4.54 - 7.86)       | 0.14        | (0.07 - 0.27)       |
| New York       | 1.43              | (1.28 - 1.59)       | 5.64     | (4.94 - 6.44)       | 5.93     | (5.01 - 7.00)       | 0.12        | (0.07 - 0.19)       |
| North Carolina | 1.50              | (1.28 - 1.75)       | 6.67     | (5.59 - 7.94)       | 5.35     | (4.16 - 6.86)       | 0.12        | (0.07 - 0.22)       |
| North Dakota   | 1.89              | (1.64 - 2.19)       | 7.31     | (6.04 - 8.81)       | 6.53     | (5.21 - 8.17)       | 0.10        | (0.05 - 0.20)       |
| Ohio           | 1.49              | (1.35 - 1.65)       | 5.94     | (5.25 - 6.72)       | 5.91     | (5.09 - 6.86)       | 0.10        | (0.06 - 0.17)       |
| Oklahoma       | 1.47              | (1.24 - 1.76)       | 6.58     | (5.26 - 8.20)       | 4.14     | (3.16 - 5.41)       | 0.12        | (0.06 - 0.23)       |
| Oregon         | 1.70              | (1.42 - 2.03)       | 6.50     | (5.27 - 7.99)       | 7.10     | (5.48 - 9.11)       | 0.15        | (0.07 - 0.29)       |
| Pennsylvania   | 1.32              | (1.19 - 1.46)       | 5.32     | (4.71 - 5.99)       | 5.85     | (5.03 - 6.79)       | 0.10        | (0.06 - 0.18)       |
| Rhode Island   | 1.69              | (1.43 - 1.99)       | 7.34     | (5.95 - 9.03)       | 6.57     | (5.01 - 8.56)       | 0.13        | (0.07 - 0.26)       |
| South Carolina | 1.47              | (1.25 - 1.74)       | 6.43     | (5.24 - 7.87)       | 4.95     | (3.82 - 6.39)       | 0.12        | (0.06 - 0.24)       |
| South Dakota   | 1.60              | (1.37 - 1.88)       | 6.16     | (5.02 - 7.53)       | 5.43     | (4.22 - 6.96)       | 0.10        | (0.05 - 0.19)       |
| Tennessee      | 1.49              | (1.26 - 1.76)       | 6.34     | (5.17 - 7.76)       | 5.46     | (4.22 - 7.03)       | 0.12        | (0.06 - 0.24)       |
| Texas          | 1.47              | (1.33 - 1.63)       | 5.49     | (4.88 - 6.18)       | 4.55     | (3.89 - 5.30)       | 0.13        | (0.08 - 0.20)       |
| Utah           | 1.60              | (1.34 - 1.91)       | 4.67     | (3.71 - 5.87)       | 3.88     | (3.00 - 5.02)       | 0.14        | (0.07 - 0.27)       |
| Vermont        | 2.25              | (1.91 - 2.66)       | 8.30     | (6.89 - 9.98)       | 8.22     | (6.33 - 10.61)      | 0.15        | (0.07 - 0.29)       |
| Virginia       | 1.40              | (1.17 - 1.66)       | 5.09     | (4.15 - 6.23)       | 5.68     | (4.35 - 7.39)       | 0.13        | (0.07 - 0.25)       |
| Washington     | 1.61              | (1.37 - 1.90)       | 6.78     | (5.58 - 8.21)       | 5.17     | (3.99 - 6.66)       | 0.13        | (0.07 - 0.24)       |
| West Virginia  | 1.28              | (1.09 - 1.50)       | 6.27     | (5.10 - 7.70)       | 4.98     | (3.86 - 6.41)       | 0.10        | (0.05 - 0.19)       |
| Wisconsin      | 1.88              | (1.61 - 2.19)       | 7.34     | (6.15 - 8.74)       | 6.46     | (5.03 - 8.28)       | 0.15        | (0.06 - 0.37)       |
| Wyoming        | 1.83              | (1.56 - 2.14)       | 6.51     | (5.33 - 7.94)       | 6.18     | (4.84 - 7.86)       | 0.12        | (0.07 - 0.23)       |

Note: Estimates are based on a survey-weighted hierarchical Bayes estimation approach, and the 95 percent prediction (credible) intervals are generated by Markov Chain Monte Carlo techniques.

Source: SAMHSA, Office of Applied Studies, National Household Survey on Drug Abuse, 1999 and 2000.

### Use of Tobacco, Alcohol or Marijuana Before the Age of 13

Among Alaska high school students, 23.2% report having had a first drink of alcohol before age 13, a decrease from 36.7% in 1995. Alaska students reporting use of marijuana before age 13 has risen from 11.8% in 1995 to 13.1% in 2003. Alaska boys are more likely than Alaska girls to report use alcohol, tobacco or marijuana before age 13.



#### Healthy Alaskans 2010 Objective:

- ▶ Increase the average age of first use of marijuana among adolescents grades 9-12 to 17.4 years of age (mean age in years, based on students using marijuana at least once in lifetime).
- ▶ Reduce to 4% the proportion of adolescents who have used illegal steroids (percentage of students grades 9-12 who have ever used steroids pills or shots).
- ▶ Reduce to 2% inhalant use among high school students (percentage of students grades 9-12 who sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high 1 or more times in past month).
- ▶ Increase to 60% the proportion of adolescents not using alcohol or illicit drugs during the past 30 days (percentage of students grades 9-12 who have not used alcohol, marijuana or cocaine in the past 30 days).
- ▶ Increase the average age of first use of alcohol among adolescents grades 9-12 to 16.1 years (mean age in years, based on students reporting having at least one drink of alcohol in life)

Computed Marijuana Use: "How Many Times Have You Used Marijuana?" and "In the Past 30 Days, How Many Times Did You Use Marijuana?"

| 1995<br>Compared Race Category  | Total<br>Respondents | Current Marijuana Users (Within past 30 days) |                |                |        | Former Marijuana Users (More than 30 days ago) |                |                |        | Never Used Marijuana |                |                |        |
|---------------------------------|----------------------|---|----------------|----------------|--------|--|----------------|----------------|--------|----------------------|----------------|----------------|--------|
|                                 |                      | Estimated Percentage                          | Lower 95% C.I. | Upper 95% C.I. |        | Estimated Percentage                           | Lower 95% C.I. | Upper 95% C.I. |        | Estimated Percentage | Lower 95% C.I. | Upper 95% C.I. |        |
| American Indian / Alaska Native | 178                  | 1,253.52                                      | 29.72%         | 22.49%         | 38.13% | 1,369.67                                       | 32.46%         | 27.87%         | 37.45% | 1,594.28             | 37.80%         | 31.35%         | 44.71% |
| Asian / Pacific Islander        | 74                   | 396.14  | 37.65%         | 31.01%         | 45.32% | 139.87   | 17.28%         | 5.74%          | 20.86% | 703.62               | 56.77%         | 45.73%         | 67.17% |
| Black                           | 83                   | 307.00  | 21.17%         | 13.11%         | 32.33% | 157.22   | 10.84%         | 5.44%          | 20.43% | 986.17               | 67.99%         | 55.95%         | 79.04% |
| Hispanic (include multi-racial) | 51                   | 81.63   | 2.91%          | 3.73%          | 19.87% | 269.18   | 29.39%         | 16.70%         | 48.39% | 884.86               | 61.70%         | 44.39%         | 76.48% |
| White                           | 1,132                | 5,851.50                                      | 29.71%         | 26.88%         | 32.70% | 3,445.74                                       | 17.50%         | 15.28%         | 19.87% | 10,398.19            | 52.79%         | 48.51%         | 56.08% |
| Multi-Racial                    | 89                   | 280.70  | 35.84%         | 30.95%         | 53.63% | 182.14   | 17.05%         | 9.85%          | 27.85% | 505.41               | 47.31%         | 27.77%         | 67.71% |
| Total                           | 1,578                | 8,270.52                                      | 28.93%         | 26.32%         | 31.89% | 5,563.84                                       | 19.46%         | 17.16%         | 21.99% | 14,752.83            | 51.61%         | 42.59%         | 54.81% |

| 2003<br>Compared Race Category  | Total<br>Respondents | Current Marijuana Users (Within past 30 days) |                |                |        | Former Marijuana Users (More than 30 days ago) |                |                |        | Never Used Marijuana |                |                |        |
|---------------------------------|----------------------|---|----------------|----------------|--------|--|----------------|----------------|--------|----------------------|----------------|----------------|--------|
|                                 |                      | Estimated Percentage                          | Lower 95% C.I. | Upper 95% C.I. |        | Estimated Percentage                           | Lower 95% C.I. | Upper 95% C.I. |        | Estimated Percentage | Lower 95% C.I. | Upper 95% C.I. |        |
| American Indian / Alaska Native | 289                  | 2,620.44                                      | 35.78%         | 29.62%         | 42.46% | 2,423.46                                       | 33.09%         | 28.60%         | 41.54% | 2,280.43             | 31.13%         | 25.14%         | 37.83% |
| Asian / Pacific Islander        | 100                  | 404.10  | 14.85%         | 9.10%          | 23.13% | 494.94   | 18.19%         | 11.63%         | 27.30% | 1,822.23             | 66.96%         | 54.81%         | 77.35% |
| Black                           | 41                   | 130.87  | 18.80%         | 9.83%          | 32.96% | 187.50   | 28.24%         | 15.36%         | 46.03% | 340.43               | 52.07%         | 35.78%         | 66.49% |
| Hispanic (include multi-racial) | 61                   | 253.37  | 25.70%         | 15.88%         | 39.15% | 130.30   | 13.22%         | 6.57%          | 24.81% | 602.28               | 61.06%         | 47.61%         | 73.06% |
| White                           | 882                  | 4,430.84                                      | 21.29%         | 18.31%         | 24.61% | 4,293.35                                       | 20.63%         | 17.10%         | 24.89% | 12,082.76            | 58.07%         | 53.82%         | 62.21% |
| Multi-Racial                    | 62                   | 159.35  | 17.09%         | 9.47%          | 28.89% | 263.78   | 28.29%         | 15.89%         | 45.54% | 509.30               | 54.62%         | 37.10%         | 71.07% |
| Total                           | 1,415                | 7,988.96                                      | 23.91%         | 21.34%         | 26.88% | 7,787.33                                       | 23.31%         | 19.99%         | 26.96% | 17,637.44            | 52.78%         | 49.12%         | 56.42% |

Notes - Results based upon less than 100 respondents.

SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 1995 and 2003

Computed Marijuana Use: "How Many Times Have You Used Marijuana?" and "In the Past 30 Days, How Many Times Did You Use Marijuana?"  
2001

| American Indian / Alaska Native | Total<br>Responses | Current Marijuana Users (Within past 30 days) |                |                |                         | Former Marijuana Users (More than 30 days ago) |                |                         |                | Never Used Marijuana |               |               |               |
|---------------------------------|--------------------|---|----------------|----------------|-------------------------|--|----------------|-------------------------|----------------|----------------------|---------------|---------------|---------------|
|                                 |                    | Estimated<br>Percentage                       | Lower 95% C.I. | Upper 95% C.I. | Estimated<br>Percentage | Lower 95% C.I.                                 | Upper 95% C.I. | Estimated<br>Percentage | Lower 95% C.I. | Upper 95% C.I.       |               |               |               |
| 8th Grade                       | 77                 | 640.65  | 37.47%         | 25.43%         | 51.30%                  | 286.51   | 16.78%         | 7.91%                   | 32.08%         | 782.30               | 45.77%        | 33.11%        | 59.00%        |
| 10th Grade                      | 82                 | 1,078.48                                      | 41.28%         | 30.77%         | 52.64%                  | 867.12   | 33.28%         | 23.86%                  | 44.13%         | 862.78               | 25.44%        | 17.77%        | 35.00%        |
| 11th Grade                      | 57                 | 41.83   | 28.25%         | 16.70%         | 43.80%                  | 677.28   | 46.45%         | 33.80%                  | 59.58%         | 368.89               | 25.30%        | 16.48%        | 36.77%        |
| 12th Grade                      | 40                 | 385.53  | 29.73%         | 16.45%         | 48.48%                  | 61.12  | 36.41%         | 19.47%                  | 63.84%         | 400.19               | 30.88%        | 19.14%        | 45.70%        |
| <b>Total</b>                    | <b>284</b>         | <b>2,581.38</b>                               | <b>35.48%</b>  | <b>29.31%</b>  | <b>42.20%</b>           | <b>2,383.88</b>                                | <b>33.17%</b>  | <b>25.61%</b>           | <b>41.71%</b>  | <b>2,282.16</b>      | <b>31.34%</b> | <b>25.30%</b> | <b>38.10%</b> |

| White        | Total<br>Responses | Current Marijuana Users (Within past 30 days) |                |                |                         | Former Marijuana Users (More than 30 days ago) |                |                         |                | Never Used Marijuana |               |               |               |
|--------------|--------------------|---|----------------|----------------|-------------------------|--|----------------|-------------------------|----------------|----------------------|---------------|---------------|---------------|
|              |                    | Estimated<br>Percentage                       | Lower 95% C.I. | Upper 95% C.I. | Estimated<br>Percentage | Lower 95% C.I.                                 | Upper 95% C.I. | Estimated<br>Percentage | Lower 95% C.I. | Upper 95% C.I.       |               |               |               |
| 8th Grade    | 311                | 850.98  | 13.54%         | 10.42%         | 17.40%                  | 785.84   | 12.50%         | 9.82%                   | 16.09%         | 4,849.98             | 73.96%        | 68.43%        | 78.63%        |
| 10th Grade   | 174                | 1,133.80                                      | 22.89%         | 17.05%         | 30.25%                  | 989.89   | 20.07%         | 12.13%                  | 31.37%         | 2,807.45             | 66.83%        | 48.82%        | 88.50%        |
| 11th Grade   | 215                | 1,357.17                                      | 28.68%         | 20.45%         | 38.56%                  | 1,126.45                                       | 23.78%         | 17.36%                  | 31.85%         | 2,282.63             | 47.56%        | 36.46%        | 56.80%        |
| 12th Grade   | 182                | 1,089.90                                      | 22.44%         | 17.32%         | 28.55%                  | 1,381.17                                       | 28.67%         | 21.57%                  | 37.00%         | 2,372.81             | 48.88%        | 40.81%        | 57.04%        |
| <b>Total</b> | <b>882</b>         | <b>4,430.84</b>                               | <b>21.29%</b>  | <b>16.31%</b>  | <b>24.81%</b>           | <b>4,283.35</b>                                | <b>20.63%</b>  | <b>17.10%</b>           | <b>24.88%</b>  | <b>12,082.76</b>     | <b>58.07%</b> | <b>53.82%</b> | <b>62.21%</b> |

Notes - Results based upon less than 100 respondents  
SOURCE: Alaska Youth Risk Behavior Survey, High Schools, 2001

Composed Marijuana Use: "How Many Times Have You Used Marijuana?" and "In the Past 30 Days, How Many Times Did You Use Marijuana?"

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| Grade      | Total Respondents | Current Marijuana Users (Within past 30 days) |                |                | Former Marijuana Users (More than 30 days ago) |                |                | Never Used Marijuana |                |                |
|------------|-------------------|---|----------------|----------------|--|----------------|----------------|----------------------|----------------|----------------|
|            |                   | Estimated Percentage                          | Lower 95% C.I. | Upper 95% C.I. | Estimated Percentage                           | Lower 95% C.I. | Upper 95% C.I. | Estimated Percentage | Lower 95% C.I. | Upper 95% C.I. |
| 9th Grade  | 77                | 64C.66  | 37.47%         | 51.30%         | 268.91   | 16.75%         | 32.00%         | 762.30               | 45.77%         | 33.11%         |
| 10th Grade | 82                | 1,079.48                                      | 41.39%         | 52.64%         | 867.12   | 33.39%         | 23.80%         | 44.13%               | 652.72         | 25.44%         |
| 11th Grade | 57                | 41.83   | 24.25%         | 16.70%         | 677.26   | 46.45%         | 33.80%         | 89.98%               | 368.86         | 25.30%         |
| 12th Grade | 40                | 385.52  | 25.73%         | 49.46%         | 51.12  | 26.41%         | 19.47%         | 83.84%               | 400.12         | 30.86%         |
| Total      | 264               | 2,981.96                                      | 31.46%         | 29.31%         | 2,393.88                                       | 33.17%         | 25.61%         | 41.71%               | 2,252.18       | 31.34%         |

| Grade      | Total Respondents | Current Marijuana Users (Within past 30 days) |                |                | Former Marijuana Users (More than 30 days ago) |                |                | Never Used Marijuana |                |                |
|------------|-------------------|---|----------------|----------------|--|----------------|----------------|----------------------|----------------|----------------|
|            |                   | Estimated Percentage                          | Lower 95% C.I. | Upper 95% C.I. | Estimated Percentage                           | Lower 95% C.I. | Upper 95% C.I. | Estimated Percentage | Lower 95% C.I. | Upper 95% C.I. |
| 9th Grade  | 413               | 1,116.50                                      | 15.46%         | 10.66%         | 678.22   | 11.70%         | 6.38%          | 14.75%               | 2,202.21       | 74.75%         |
| 10th Grade | 217               | 1,264.33                                      | 21.89%         | 16.31%         | 1,286.17                                       | 21.77%         | 14.60%         | 31.16%               | 3,347.07       | 56.53%         |
| 11th Grade | 289               | 1,564.25                                      | 28.50%         | 20.12%         | 1,421.47                                       | 23.82%         | 18.16%         | 30.56%               | 2,862.46       | 49.64%         |
| 12th Grade | 226               | 1,305.36                                      | 23.47%         | 18.16%         | 1,643.18                                       | 28.25%         | 21.36%         | 36.33%               | 2,808.51       | 48.78%         |
| Total      | 1,144             | 5,308.95                                      | 20.61%         | 17.89%         | 5,348.05                                       | 20.53%         | 17.29%         | 24.16%               | 15,333.30      | 56.86%         |

Notes - Results based upon less than 100 respondents.  
 Native = American Indian / Alaska Native, Non-Native = Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, White, Multiple-Hispanic, Multiple-Non-Hispanic.  
 SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 2003.

Ever Used Marijuana: "How Many Times Have You Used Marijuana?"

| 1995<br>Combined Race Category    | Total<br>Respondents | Used Marijuana |            |              |              | Never Used Marijuana |            |              |              |
|-----------------------------------|----------------------|----------------|------------|--------------|--------------|----------------------|------------|--------------|--------------|
|                                   |                      | Estimated      | Percentage | Lower 95% CL | Upper 95% CL | Estimated            | Percentage | Lower 95% CL | Upper 95% CL |
| American Indian / Alaska Native   | 180                  | 2,679.70       | 62.70%     | 58.15%       | 68.81%       | 1,594.26             | 37.30%     | 31.19%       | 43.85%       |
| Asian / Pacific Islander          | 74                   | 538.05         | 43.23%     | 32.83%       | 54.27%       | 703.82               | 56.77%     | 45.73%       | 67.17%       |
| Hispanic (include multi-hispanic) | 83                   | 464.26         | 32.01%     | 21.96%       | 44.05%       | 986.17               | 67.99%     | 55.95%       | 78.04%       |
| White                             | 51                   | 350.78         | 38.30%     | 23.52%       | 55.62%       | 564.99               | 61.70%     | 44.38%       | 76.48%       |
| Multi-Non-Hispanic                | 1,137                | 6,397.38       | 47.47%     | 44.15%       | 50.81%       | 10,398.18            | 52.53%     | 49.19%       | 55.85%       |
| Total                             | 59                   | 579.57         | 55.42%     | 33.21%       | 72.56%       | 505.41               | 46.58%     | 27.44%       | 66.79%       |
| Total                             | 1,584                | 14,007.73      | 48.70%     | 45.67%       | 51.75%       | 14,752.83            | 51.30%     | 48.25%       | 54.33%       |

| 2003<br>Combined Race Category    | Total<br>Respondents | Used Marijuana |            |              |              | Never Used Marijuana |            |              |              |
|-----------------------------------|----------------------|----------------|------------|--------------|--------------|----------------------|------------|--------------|--------------|
|                                   |                      | Estimated      | Percentage | Lower 95% CL | Upper 95% CL | Estimated            | Percentage | Lower 95% CL | Upper 95% CL |
| American Indian / Alaska Native   | 280                  | 5,332.20       | 69.90%     | 63.45%       | 75.65%       | 2,295.76             | 30.10%     | 24.35%       | 36.55%       |
| Asian / Pacific Islander          | 101                  | 924.19         | 33.65%     | 23.25%       | 45.92%       | 1,822.23             | 66.35%     | 54.08%       | 76.75%       |
| Black                             | 41                   | 302.31         | 47.03%     | 30.51%       | 64.24%       | 340.43               | 52.97%     | 35.76%       | 69.49%       |
| Hispanic (include multi-hispanic) | 61                   | 383.67         | 38.91%     | 26.94%       | 52.39%       | 602.28               | 61.09%     | 47.61%       | 73.06%       |
| White                             | 886                  | 8,774.10       | 41.95%     | 37.83%       | 46.19%       | 12,140.24            | 58.05%     | 53.81%       | 62.17%       |
| Multi-Non-Hispanic                | 62                   | 423.12         | 45.38%     | 28.93%       | 62.90%       | 509.30               | 54.62%     | 37.10%       | 71.07%       |
| Total                             | 1,433                | 16,139.59      | 47.68%     | 44.12%       | 51.27%       | 17,710.24            | 52.32%     | 48.73%       | 55.88%       |

*Italics - Results based upon less than 100 respondents.*

SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 1995 and 2003.

Ever Used Marijuana: "How Many Times Have You Used Marijuana?"  
2003

| American Indian / Alaska Native | Total Respondents | Used Marijuana       |              |              |                      | Never Used Marijuana |              |        |        |
|---------------------------------|-------------------|----------------------|--------------|--------------|----------------------|----------------------|--------------|--------|--------|
|                                 |                   | Estimated Percentage | Lower 95% CL | Upper 95% CL | Estimated Percentage | Lower 95% CL         | Upper 95% CL |        |        |
| 9th Grade                       | 80                | 969.19               | 54.86%       | 42.13%       | 66.98%               | 797.63               | 45.14%       | 33.02% | 57.87% |
| 10th Grade                      | 86                | 2,063.14             | 75.69%       | 66.60%       | 82.93%               | 662.78               | 24.31%       | 17.07% | 33.40% |
| 11th Grade                      | 60                | 176.99               | 78.14%       | 65.53%       | 84.20%               | 368.89               | 23.86%       | 15.80% | 34.37% |
| 12th Grade                      | 41                | 934.37               | 70.01%       | 55.54%       | 81.36%               | 400.19               | 29.99%       | 18.64% | 44.46% |
| Total                           | 275               | 5,243.56             | 69.72%       | 63.22%       | 75.52%               | 2,277.51             | 30.28%       | 24.48% | 36.78% |

| White      | Total Respondents | Used Marijuana       |              |              |                      | Never Used Marijuana |              |        |        |
|------------|-------------------|----------------------|--------------|--------------|----------------------|----------------------|--------------|--------|--------|
|            |                   | Estimated Percentage | Lower 95% CL | Upper 95% CL | Estimated Percentage | Lower 95% CL         | Upper 95% CL |        |        |
| 9th Grade  | 315               | 1,668.96             | 26.28%       | 21.32%       | 31.92%               | 4,682.15             | 73.72%       | 68.08% | 78.68% |
| 10th Grade | 174               | 2,123.69             | 43.07%       | 33.50%       | 53.18%               | 2,807.45             | 56.93%       | 46.82% | 66.50% |
| 11th Grade | 217               | 2,501.38             | 52.34%       | 44.06%       | 60.50%               | 2,277.83             | 47.65%       | 39.50% | 55.94% |
| 12th Grade | 182               | 2,480.07             | 51.11%       | 42.96%       | 59.19%               | 2,372.81             | 48.89%       | 40.81% | 57.04% |
| Total      | 888               | 8,774.10             | 41.95%       | 37.83%       | 46.19%               | 12,140.24            | 58.05%       | 53.81% | 62.17% |

Italics - Results based upon less than 100 respondents

SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 2003

Ever Used Marijuana: "How Many Times Have You Used Marijuana?"  
2003

| Native     | Total Respondents | Used Marijuana       |              |              |                      | Never Used Marijuana |              |        |        |
|------------|-------------------|----------------------|--------------|--------------|----------------------|----------------------|--------------|--------|--------|
|            |                   | Estimated Percentage | Lower 95% CL | Upper 95% CL | Estimated Percentage | Lower 95% CL         | Upper 95% CL |        |        |
| 9th Grade  | 80                | 969.19               | 54.86%       | 42.13%       | 66.08%               | 797.63               | 45.14%       | 33.02% | 57.87% |
| 10th Grade | 86                | 2,063.14             | 75.69%       | 66.80%       | 82.93%               | 662.78               | 24.31%       | 17.07% | 33.40% |
| 11th Grade | 60                | 176.99               | 76.14%       | 65.63%       | 84.20%               | 368.89               | 23.86%       | 15.80% | 34.37% |
| 12th Grade | 41                | 934.37               | 70.01%       | 55.54%       | 81.38%               | 400.19               | 29.99%       | 18.64% | 44.46% |
| Total      | 275               | 5,243.56             | 69.72%       | 63.22%       | 75.52%               | 2,277.51             | 30.28%       | 24.48% | 36.78% |

| Non-Native | Total Respondents | Used Marijuana       |              |              |                      | Never Used Marijuana |              |        |        |
|------------|-------------------|----------------------|--------------|--------------|----------------------|----------------------|--------------|--------|--------|
|            |                   | Estimated Percentage | Lower 95% CL | Upper 95% CL | Estimated Percentage | Lower 95% CL         | Upper 95% CL |        |        |
| 9th Grade  | 416               | 2,126.97             | 25.44%       | 21.13%       | 30.28%               | 6,234.39             | 74.56%       | 69.72% | 78.87% |
| 10th Grade | 217               | 2,573.49             | 43.47%       | 34.90%       | 52.45%               | 3,347.07             | 56.53%       | 47.55% | 65.10% |
| 11th Grade | 288               | 3,023.51             | 50.30%       | 43.28%       | 57.31%               | 2,987.78             | 49.70%       | 42.69% | 56.72% |
| 12th Grade | 227               | 3,033.60             | 51.93%       | 44.38%       | 59.39%               | 2,808.51             | 46.07%       | 40.61% | 55.62% |
| Total      | 1,151             | 10,791.57            | 41.21%       | 37.43%       | 45.10%               | 15,392.78            | 58.79%       | 54.90% | 62.57% |

*Italics - Results based upon less than 100 respondents.*

Native = American Indian / Alaska Native; Non-Native = Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, White, Multiple-Race  
SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 2003.

Current Marijuana User: "In the Past 30 Days, How Many Times Did You Use Marijuana?"

| 1995<br>Combined Race Category    | Total<br>Respondents | Current Marijuana Users (Within past 30 days) |            |              |              | No Marijuana Use in Past 30 Days |            |              |              |
|-----------------------------------|----------------------|---|------------|--------------|--------------|----------------------------------|------------|--------------|--------------|
|                                   |                      | Estimated                                     | Percentage | Lower 95% CL | Upper 95% CL | Estimated                        | Percentage | Lower 95% CL | Upper 95% CL |
| American Indian / Alaska Native   | 180                  | 1,253.52                                      | 29.35%     | 22.34%       | 37.50%       | 3,017.01                         | 70.65%     | 62.50%       | 77.66%       |
| Asian / Pacific Islander          | 74                   | 396.14  | 31.95%     | 21.01%       | 45.32%       | 843.73                           | 68.05%     | 54.68%       | 78.99%       |
| Hispanic (include multi-hispanic) | 84                   | 307.03  | 20.95%     | 12.94%       | 32.09%       | 1,158.49                         | 79.05%     | 67.91%       | 87.06%       |
| White                             | 51                   | 81.63   | 8.91%      | 5.73%        | 19.81%       | 834.14                           | 91.09%     | 80.19%       | 96.27%       |
| Multi-Non-Hispanic                | 1,135                | 5,864.72                                      | 29.71%     | 26.87%       | 32.72%       | 13,874.71                        | 70.29%     | 67.28%       | 73.13%       |
| Total                             | 58                   | 380.70  | 35.64%     | 20.95%       | 53.63%       | 687.55                           | 64.36%     | 46.37%       | 78.05%       |
|                                   | 1,582                | 8,283.74                                      | 28.86%     | 26.24%       | 31.63%       | 20,415.64                        | 71.14%     | 68.37%       | 73.76%       |

| 2003<br>Combined Race Category    | Total<br>Respondents | Current Marijuana Users (Within past 30 days) |            |              |              | No Marijuana Use in Past 30 Days |            |              |              |
|-----------------------------------|----------------------|---|------------|--------------|--------------|----------------------------------|------------|--------------|--------------|
|                                   |                      | Estimated                                     | Percentage | Lower 95% CL | Upper 95% CL | Estimated                        | Percentage | Lower 95% CL | Upper 95% CL |
| American Indian / Alaska Native   | 276                  | 2,681.57                                      | 35.73%     | 30.19%       | 41.67%       | 4,824.31                         | 64.27%     | 58.33%       | 69.81%       |
| Asian / Pacific Islander          | 101                  | 404.19  | 14.77%     | 9.13%        | 23.00%       | 2,333.28                         | 85.23%     | 77.00%       | 90.87%       |
| Black                             | 42                   | 120.81  | 18.39%     | 9.66%        | 32.19%       | 536.06                           | 81.61%     | 67.81%       | 90.34%       |
| Hispanic (include multi-hispanic) | 61                   | 253.37  | 25.70%     | 15.68%       | 39.15%       | 732.58                           | 74.30%     | 60.85%       | 84.32%       |
| White                             | 886                  | 4,445.69                                      | 21.30%     | 18.31%       | 24.62%       | 16,429.86                        | 78.70%     | 75.38%       | 81.69%       |
| Multi-Non-Hispanic                | 62                   | 159.35  | 17.09%     | 9.47%        | 28.89%       | 773.08                           | 82.91%     | 71.11%       | 90.53%       |
| Total                             | 1,428                | 8,064.98                                      | 23.94%     | 21.42%       | 26.65%       | 25,629.17                        | 76.06%     | 73.35%       | 78.58%       |

*Italics - Results based upon less than 100 respondents*

SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 1995 and 2003.

**Current Marijuana User: "In the Past 30 Days, How Many Times Did You Use Marijuana?"**  
2003

| American Indian / Alaska Native | Total Respondents | Current Marijuana Users (Within past 30 days) |               |               |               | No Marijuana Use in Past 30 Days |               |               |               |
|---------------------------------|-------------------|---|---------------|---------------|---------------|----------------------------------|---------------|---------------|---------------|
|                                 |                   | Estimated                                     | Percentage    | Lower 95% CL  | Upper 95% CL  | Estimated                        | Percentage    | Lower 95% CL  | Upper 95% CL  |
| 9th Grade                       | 78                | 640.55  | 36.96%        | 25.12%        | 50.82%        | 1,092.35                         | 63.04%        | 49.38%        | 74.88%        |
| 10th Grade                      | 84                | 112.45  | 41.77%        | 31.92%        | 52.31%        | 1,551.06                         | 58.23%        | 47.69%        | 68.08%        |
| 11th Grade                      | 60                | 435.98  | 28.36%        | 16.83%        | 43.63%        | 1,101.38                         | 71.64%        | 56.37%        | 83.17%        |
| 12th Grade                      | 40                | 385.52  | 26.73%        | 15.45%        | 49.48%        | 911.31                           | 70.27%        | 50.52%        | 84.55%        |
| <b>Total</b>                    | <b>270</b>        | <b>2,622.53</b>                               | <b>35.54%</b> | <b>29.97%</b> | <b>41.54%</b> | <b>4,755.97</b>                  | <b>64.46%</b> | <b>58.46%</b> | <b>70.03%</b> |

| White        | Total Respondents | Current Marijuana Users (Within past 30 days) |               |               |               | No Marijuana Use in Past 30 Days |               |               |               |
|--------------|-------------------|---|---------------|---------------|---------------|----------------------------------|---------------|---------------|---------------|
|              |                   | Estimated                                     | Percentage    | Lower 95% CL  | Upper 95% CL  | Estimated                        | Percentage    | Lower 95% CL  | Upper 95% CL  |
| 9th Grade    | 314               | 865.81  | 13.66%        | 10.48%        | 17.62%        | 5,470.93                         | 86.34%        | 82.38%        | 89.52%        |
| 10th Grade   | 174               | 1,133.80                                      | 22.99%        | 17.05%        | 30.25%        | 3,797.34                         | 77.01%        | 69.75%        | 82.95%        |
| 11th Grade   | 216               | 1,357.17                                      | 28.54%        | 20.38%        | 38.40%        | 3,397.61                         | 71.46%        | 61.60%        | 79.62%        |
| 12th Grade   | 182               | 1,088.90                                      | 22.44%        | 17.32%        | 28.55%        | 3,763.97                         | 77.56%        | 71.45%        | 82.68%        |
| <b>Total</b> | <b>866</b>        | <b>4,445.69</b>                               | <b>21.30%</b> | <b>18.31%</b> | <b>24.62%</b> | <b>16,429.86</b>                 | <b>78.70%</b> | <b>75.38%</b> | <b>81.69%</b> |

*Italics - Results based upon less than 100 respondents*

SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 2003

Current Marijuana User: "In the Past 30 Days, How Many Times Did You Use Marijuana?"  
2003

| Native     | Total Respondents | Current Marijuana Users (Within past 30 days) |            |              |              | No Marijuana Use in Past 30 Days |            |              |              |
|------------|-------------------|---|------------|--------------|--------------|----------------------------------|------------|--------------|--------------|
|            |                   | Estimated                                     | Percentage | Lower 95% CL | Upper 95% CL | Estimated                        | Percentage | Lower 95% CL | Upper 95% CL |
| 9th Grade  | 78                | 640.55  | 35.96%     | 25.12%       | 50.02%       | 1,092.35                         | 63.04%     | 49.38%       | 74.88%       |
| 10th Grade | 84                | 112.45  | 41.77%     | 31.92%       | 52.31%       | 1,551.06                         | 58.23%     | 47.69%       | 68.08%       |
| 11th Grade | 60                | 435.98  | 28.36%     | 16.83%       | 43.63%       | 1,101.38                         | 71.64%     | 56.37%       | 83.17%       |
| 12th Grade | 40                | 385.52  | 29.73%     | 15.45%       | 49.48%       | 911.31                           | 70.27%     | 50.52%       | 84.55%       |
| Total      | 270               | 2,622.53                                      | 35.54%     | 29.97%       | 41.54%       | 4,755.97                         | 64.46%     | 58.46%       | 70.03%       |

| Non-Native | Total Respondents | Current Marijuana Users (Within past 30 days) |            |              |              | No Marijuana Use in Past 30 Days |            |              |              |
|------------|-------------------|---|------------|--------------|--------------|----------------------------------|------------|--------------|--------------|
|            |                   | Estimated                                     | Percentage | Lower 95% CL | Upper 95% CL | Estimated                        | Percentage | Lower 95% CL | Upper 95% CL |
| 9th Grade  | 415               | 1,131.44                                      | 13.58%     | 10.73%       | 16.98%       | 7,215.54                         | 86.44%     | 83.02%       | 89.27%       |
| 10th Grade | 217               | 1,284.33                                      | 21.69%     | 16.31%       | 28.25%       | 4,636.24                         | 78.31%     | 71.75%       | 83.69%       |
| 11th Grade | 287               | 1,584.29                                      | 26.46%     | 20.06%       | 34.03%       | 4,402.58                         | 73.54%     | 65.97%       | 79.94%       |
| 12th Grade | 228               | 1,365.36                                      | 23.35%     | 18.09%       | 29.59%       | 4,481.93                         | 76.65%     | 70.41%       | 81.91%       |
| Total      | 1,150             | 5,383.41                                      | 20.59%     | 17.97%       | 23.48%       | 20,767.33                        | 79.41%     | 76.52%       | 82.03%       |

*Italics - Results based upon less than 100 respondents.*

Native = American Indian / Alaska Native; Non-Native = Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, White, Multiple-Hisp.  
SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 2003.

30-Day Prevalence of Use of Various Drugs by Grade

Percentage of students who smoke cigarettes on one or more of the past thirty day: Yes

| Grades     | 1995              |                      |              |              |                   | 2003                 |              |              |        |        |
|------------|-------------------|----------------------|--------------|--------------|-------------------|----------------------|--------------|--------------|--------|--------|
|            | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL |        |        |
| 9th Grade  | 482               | 3,018.80             | 35.36%       | 28.60%       | 42.76%            | 488                  | 1,252.15     | 12.54%       | 9.25%  | 16.78% |
| 10th Grade | 379               | 2,512.77             | 33.24%       | 26.59%       | 40.64%            | 301                  | 2,025.47     | 23.61%       | 19.05% | 28.89% |
| 11th Grade | 468               | 2,654.26             | 39.68%       | 35.71%       | 43.80%            | 342                  | 1,422.01     | 19.21%       | 13.74% | 26.21% |
| 12th Grade | 265               | 2,373.01             | 38.68%       | 32.41%       | 45.35%            | 261                  | 1,609.94     | 23.23%       | 17.32% | 30.42% |
| Total      | 1,600             | 10,599.88            | 36.49%       | 32.59%       | 40.59%            | 1,403                | 6,373.60     | 19.26%       | 16.70% | 22.11% |

Percentage of students who chewing tobacco or snuff on one or more of the past thirty day: Yes

| Grades     | 1995              |                      |              |              |                   | 2003                 |              |              |       |        |
|------------|-------------------|----------------------|--------------|--------------|-------------------|----------------------|--------------|--------------|-------|--------|
|            | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL |       |        |
| 9th Grade  | 492               | 1,255.36             | 14.40%       | 10.39%       | 19.62%            | 502                  | 881.22       | 6.59%        | 6.27% | 11.65% |
| 10th Grade | 361               | 1,127.15             | 14.83%       | 10.73%       | 20.14%            | 308                  | 1,305.96     | 14.89%       | 9.20% | 23.18% |
| 11th Grade | 474               | 1,112.42             | 16.41%       | 12.15%       | 21.80%            | 358                  | 1,079.69     | 13.92%       | 9.45% | 20.03% |
| 12th Grade | 267               | 1,065.20             | 17.24%       | 12.39%       | 23.47%            | 267                  | 464.05       | 6.54%        | 3.81% | 11.01% |
| Total      | 1,620             | 4,572.53             | 15.55%       | 12.72%       | 16.88%            | 1,447                | 3,786.72     | 11.10%       | 8.64% | 14.16% |

Percentage of students who had at least one drink of alcohol on one or more of the past thirty day: Yes

| Grades     | 1995              |                      |              |              |                   | 2003                 |              |              |        |        |
|------------|-------------------|----------------------|--------------|--------------|-------------------|----------------------|--------------|--------------|--------|--------|
|            | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL |        |        |
| 9th Grade  | 477               | 3,857.70             | 45.73%       | 38.03%       | 53.64%            | 485                  | 2,605.43     | 26.29%       | 21.99% | 31.10% |
| 10th Grade | 366               | 3,077.65             | 42.64%       | 37.73%       | 47.70%            | 302                  | 3,120.69     | 36.13%       | 29.78% | 43.00% |
| 11th Grade | 465               | 3,271.09             | 49.19%       | 44.57%       | 53.83%            | 345                  | 3,386.90     | 45.40%       | 39.22% | 51.73% |
| 12th Grade | 256               | 3,256.05             | 54.68%       | 46.78%       | 62.34%            | 257                  | 3,627.31     | 52.91%       | 45.46% | 60.23% |
| Total      | 1,570             | 13,490.15            | 47.53%       | 43.61%       | 51.47%            | 1,398                | 12,756.34    | 38.63%       | 34.59% | 42.82% |

Percentage of students who used marijuana one or more times during the past thirty day: Yes

| Grades     | 1995              |                      |              |              |                   | 2003                 |              |              |        |        |
|------------|-------------------|----------------------|--------------|--------------|-------------------|----------------------|--------------|--------------|--------|--------|
|            | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL |        |        |
| 9th Grade  | 488               | 2,402.08             | 27.76%       | 23.70%       | 32.22%            | 495                  | 1,772.00     | 17.48%       | 13.95% | 21.68% |
| 10th Grade | 375               | 1,916.24             | 25.68%       | 20.59%       | 31.53%            | 303                  | 2,396.77     | 27.73%       | 22.58% | 33.56% |
| 11th Grade | 473               | 2,142.57             | 31.75%       | 26.85%       | 37.09%            | 353                  | 2,046.50     | 26.84%       | 21.22% | 33.33% |
| 12th Grade | 284               | 1,886.88             | 30.85%       | 25.39%       | 36.91%            | 269                  | 1,750.88     | 24.35%       | 19.07% | 30.54% |
| Total      | 1,606             | 8,360.16             | 28.72%       | 26.14%       | 31.45%            | 1,431                | 6,034.16     | 23.77%       | 21.29% | 26.45% |

Percentage of students who used any form of cocaine, including powder, crack, or freebase one or more times during the past thirty day: Yes

| Grades     | 1995              |                      |              |              |                   | 2003                 |              |              |       |       |
|------------|-------------------|----------------------|--------------|--------------|-------------------|----------------------|--------------|--------------|-------|-------|
|            | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL |       |       |
| 9th Grade  | 494               | 186.64               | 2.13%        | 1.25%        | 3.62%             | 502                  | 209.10       | 2.04%        | 1.16% | 3.57% |
| 10th Grade | 381               | 141.75               | 1.87%        | 0.86%        | 4.02%             | 310                  | 166.57       | 1.88%        | 0.83% | 4.24% |
| 11th Grade | 475               | 142.77               | 2.10%        | 0.84%        | 5.13%             | 360                  | 274.03       | 3.52%        | 1.99% | 6.14% |
| 12th Grade | 266               | 301.17               | 4.90%        | 2.70%        | 8.72%             | 268                  | 220.36       | 3.08%        | 1.20% | 7.65% |
| Total      | 1,622             | 772.34               | 2.62%        | 1.75%        | 3.93%             | 1,452                | 870.66       | 2.54%        | 1.69% | 3.81% |

Percentage of students who sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paint or spray one or more times during the past thirty day: Yes

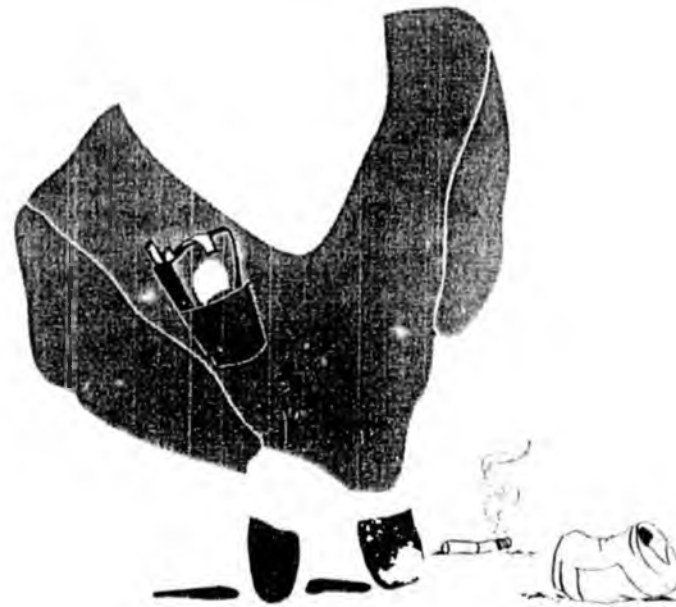
| Grades     | 1995              |                      |              |              |                   | 2003                 |              |              |       |       |
|------------|-------------------|----------------------|--------------|--------------|-------------------|----------------------|--------------|--------------|-------|-------|
|            | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL | Total Respondents | Estimated Percentage | Lower 95% CL | Upper 95% CL |       |       |
| 9th Grade  | 0                 |                      |              |              |                   | 501                  | 193.01       | 1.88%        | 0.96% | 3.64% |
| 10th Grade | 0                 |                      |              |              |                   | 310                  | 176.30       | 2.00%        | 0.92% | 4.28% |
| 11th Grade | 0                 |                      |              |              |                   | 360                  | 200.07       | 2.50%        | 1.48% | 4.42% |
| 12th Grade | 0                 |                      |              |              |                   | 269                  | 261.44       | 3.63%        | 1.71% | 7.57% |
| Total      | 0                 |                      |              |              |                   | 1,451                | 830.82       | 2.42%        | 1.70% | 3.44% |

*Italics - Results based upon less than 100 respondents.*

SOURCE: Alaska Youth Risk Behavioral Survey, High Schools, 2003.

# Health Risks

Youth Risk Behavior Survey





*Children have never been very good at listening to their elders,  
but they have never failed to imitate them.*

*James Baldwin,  
American writer*

# Youth Risk Behavior Survey in Alaska

Since 1990, the federal Center for Disease Control and Prevention has sponsored several Youth Risk Behavior Surveys. These are national and state surveys of high school and middle school students, asking them how much they smoke, drink, carry weapons, and do other things that endanger their health and even their lives.

The first time Alaska schools took part in the survey was in 1995. The Alaska departments of Health and Social Services and Education and Early Development administered the survey to 1,634 students at 31 high schools and 1,265 students at 32 middle schools statewide. The adjacent table shows characteristics of the students surveyed and response rates.

The survey was conducted again in 1999, with 23 Alaska school districts taking part. Results of that survey are not yet available. But the Anchorage school district (Alaska's largest district, with more than a third of the state's high school students) did not take part in 1999. Parents objected to some of the questions, feeling that they infringed on students' and families' rights to privacy. So unlike the 1995 survey, the 1999 survey will not be a statewide sample.

*Data from 1995 Youth Risk Behavior Survey in Alaska, a joint project of the departments of Health and Social Services and Education and Early Development*

## Youth Risk Behavior Survey in Alaska, 1995

|                                      | High Schools  |     | Middle Schools                     |
|--------------------------------------|---------------|-----|------------------------------------|
| Number of Participating Schools      | 31            |     | 32                                 |
| Response Rate from Sample of Schools | 82%           |     | 80%                                |
| <b>Total Respondents</b>             | <b>1,634*</b> |     | <b>1,265*</b>                      |
| Boys                                 | 821           |     | 651                                |
| Girls                                | 807           |     | 608                                |
| Grade                                |               |     |                                    |
|                                      | 9             | 497 | 7 636                              |
|                                      | 10            | 383 | 8 606                              |
|                                      | 11            | 477 |                                    |
|                                      | 12            | 269 |                                    |
|                                      | Unknown       | 8   |                                    |
| Race/Ethnicity                       |               |     | (No question about race/ethnicity) |
| White                                | 1,147         |     |                                    |
| Black                                | 87            |     |                                    |
| Hispanic or Latino                   | 53            |     |                                    |
| Alaska Native                        | 184           |     |                                    |
| Asian/Pacific Isl.                   | 75            |     |                                    |
| Other                                | 62            |     |                                    |

\* Numbers may differ slightly because not all respondents answered every question.

Source: Alaska Departments of Health and Social Services and Education and Early Development

Although information from the 1995 survey is now several years old, it is the best information available, as reported by the teenagers themselves. Many of the survey findings are worrisome—but on the brighter side, the survey also shows that most of Alaska's teenagers don't bring guns to school or drive drunk or do other things that make the headlines.

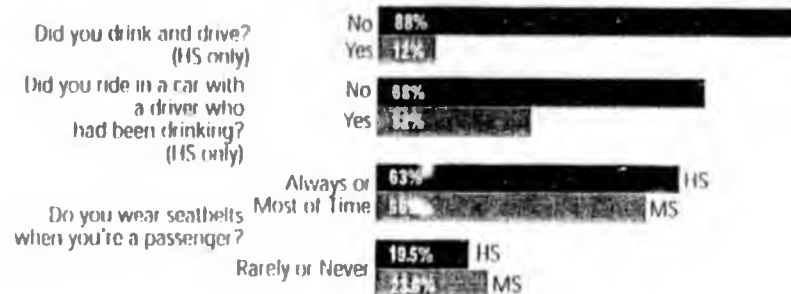
On the next few pages we provide a snapshot of some of the findings from the 1995 survey in Alaska. The published report of survey findings includes many more details.<sup>1</sup> Here we just provide a broad picture of survey findings, to help readers see the levels of health risks among Alaska's teenagers in the 1990s.

# Young Risk Behavior in Alaska (continued)

Car and other motor vehicle crashes cause 30 percent of the deaths among Alaska's young people every year—and we know many crashes involve drivers who have been drinking. Yet 20 percent of high school students and nearly 25 percent of middle school students say they seldom or never use seatbelts when riding in cars. And nearly one third of high school students report riding in cars with drivers who have been drinking.

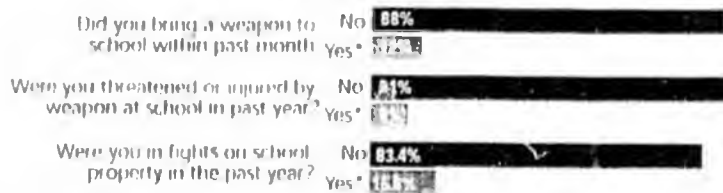
## Drinking, Driving, and Seatbelts in Month Before Survey

(Middle and High School Students)



## Weapons and Fighting at School

(High School Only)



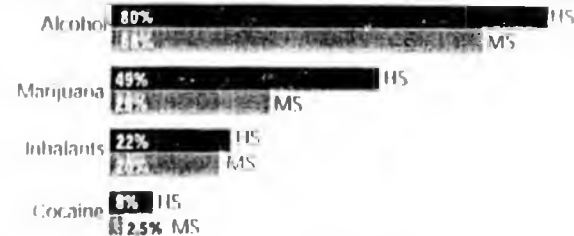
\* At least once

Several times in the U.S. over the past few years—including once in Alaska—students have brought guns to school and murdered or wounded other students or teachers. But while we must stop this horrifying violence, it's useful to remember that the overwhelming majority of schools report no violence, and the overwhelming majority of students don't bring weapons to school. Still, more than one in ten of Alaska's high-school students reported bringing weapons (including guns, knives, or clubs) to school at least once in the month before the 1995 survey. Nearly one

in ten reported being threatened or hurt by other students with weapons at school during the previous year. Close to one in five reported getting into one or more fights at school in the previous year.

## Alcohol or Drugs

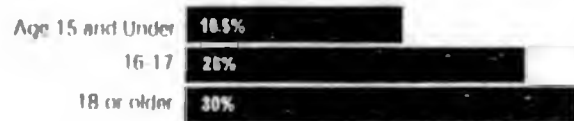
(Middle and High School students who have used at least once)



Research has shown that teenagers who regularly use alcohol or drugs are more likely to fight, to smoke, to have sex, and even to consider suicide. We also know that alcohol and drugs not only impair judgement but can damage brain cells and even cause death. Most of Alaska's high school and even middle school students have at least tried alcohol. Nearly half of high school students and a third of middle school students have smoked marijuana. And one in five students—including those in middle school—have sniffed glue or used other inhalants that can kill.

# Youth Risk Behavior Survey in Alaska (continued)

## Share of Alaska Boys (15 and Older) Chewing Tobacco in Month Before Survey

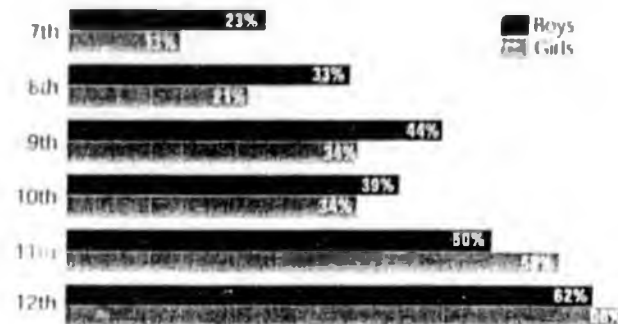


We know that smoking cigarettes can cause lung cancer, emphysema, and heart disease, among other things. A growing body of evidence also shows that chewing tobacco and snuff can cause mouth and other cancers. One quarter of Alaska's high school students and nearly 10 percent of middle school students reported smoking cigarettes regularly—on at least 10 of the 30 days before the 1995 survey. And among boys—who are much more likely than girls to chew tobacco—chewing grows more common as they get older. About 16 percent of boys 15 or under reported chewing tobacco at the time of the survey, but nearly twice as many boys 18 and older chewed.

### Higher Tobacco Taxes and Teenage Smoking

In 1997, Alaska tripled cigarette taxes, raising the tax on a pack of cigarettes from 29 cents to \$1.00. Many health experts believe higher taxes reduce smoking by making cigarettes too expensive for some people—especially teenage smokers—to buy. Others, however, disagree about whether higher taxes actually cause people to quit smoking. The Alaska Department of Health and Social Services has commissioned a study of the effects of higher taxes on teenagers who smoke. The department also hopes the results of the 1999 Youth Risk Behavior Survey in Alaska will provide some information on the effects of the tax increase on teenage smoking. But since the survey was not conducted in the Anchorage school district, it will not provide a statewide sample.

## Percentage of Alaska Students (Grades 7-12) Who Have Had Sexual Intercourse



Source: State of Alaska Epidemiology Bulletin #23, 1997. Based on 1995 YRBS.

Teenagers who have sexual intercourse not only risk becoming pregnant (or fathering children), they risk being infected with sexually transmitted diseases, including AIDS, which can kill them. And research has found that many younger teenage girls who have sex don't really want to but do so anyway because they feel pressured.<sup>2</sup>

In Alaska, nearly one quarter of boys and more than one in ten girls in the seventh grade—boys and girls who are most likely 12 years old—report having had sex. That share climbs steadily through the rest of middle and high school. The 1995 survey found that the younger teenagers are when they start having sex, the more likely they are to smoke, drink, and do other things that can hurt them. By the time they are

seniors in high school, nearly two thirds of both boys and girls in Alaska have had sex. Fewer than half the sexually active Alaska teenagers reported using condoms regularly in 1995, and only 18 percent of sexually active girls said they were using birth control pills.

# Notes for Health Risks Section

<sup>1</sup> Alaska Departments of Health and Social Services and Education, *Youth Risk Behavior Survey: Alaska Report 1995*. February 1996

<sup>2</sup> K. A. Moore, A. K. Driscoll, and L. D. Lindburg, *A Statistical Portrait of Adolescent Sex, Contraception, and Childbearing*. The National Campaign to Prevent Teen Pregnancy



*Alaska Youth Risk  
Behavior Survey 1999*



*Alaska School Health  
Education Profile 1998*

## **Methodology**

The 1999 YRBS was intended to be an exact replica of the 1995 Alaska statewide survey so that data could be compared across several years. However, the Anchorage school district chose not to participate in the 1999 statewide survey. As a result, the 1999 statewide survey results for Alaska are not comparable to 1995. However, the 1999 YRBS survey results do provide representative prevalence data for the state's student population excluding Anchorage.

The samples were scientifically selected with each eligible student in the school population having an equal probability of being selected. This sampling process is most often referred to as probability sampling. The size of a sample is related directly to the size of the eligible population, the estimated student response rate, and the desired precision of the results. The eligible student population was determined from the official 1998 October enrollment counts reported by the Alaska State Department of Education & Early Development. The enrollment count was edited to include only students in grades 7 through 12. The school list was edited to remove correspondence, home study, alternative, and correctional schools. A sufficient number of students were selected to give a plus or minus five percent margin of error for each question.

A two-stage sample design was used to select the actual students for participation. The first stage consisted of selecting schools. Schools were selected with probability proportional to the size of their enrollment. Alaska has a large number of small schools, which means that more schools were needed to obtain the number of students required for the desired level of precision. Once a school was selected, classes were selected as the second stage. Eligible classes were those where a student would be enrolled in one, and only one, class at a time. (For example, second period, or required English). This gave each student an equal opportunity of being selected. At any time a school district, an individual school, a student's parents, or a specific student had the opportunity to decline to participate in the survey.

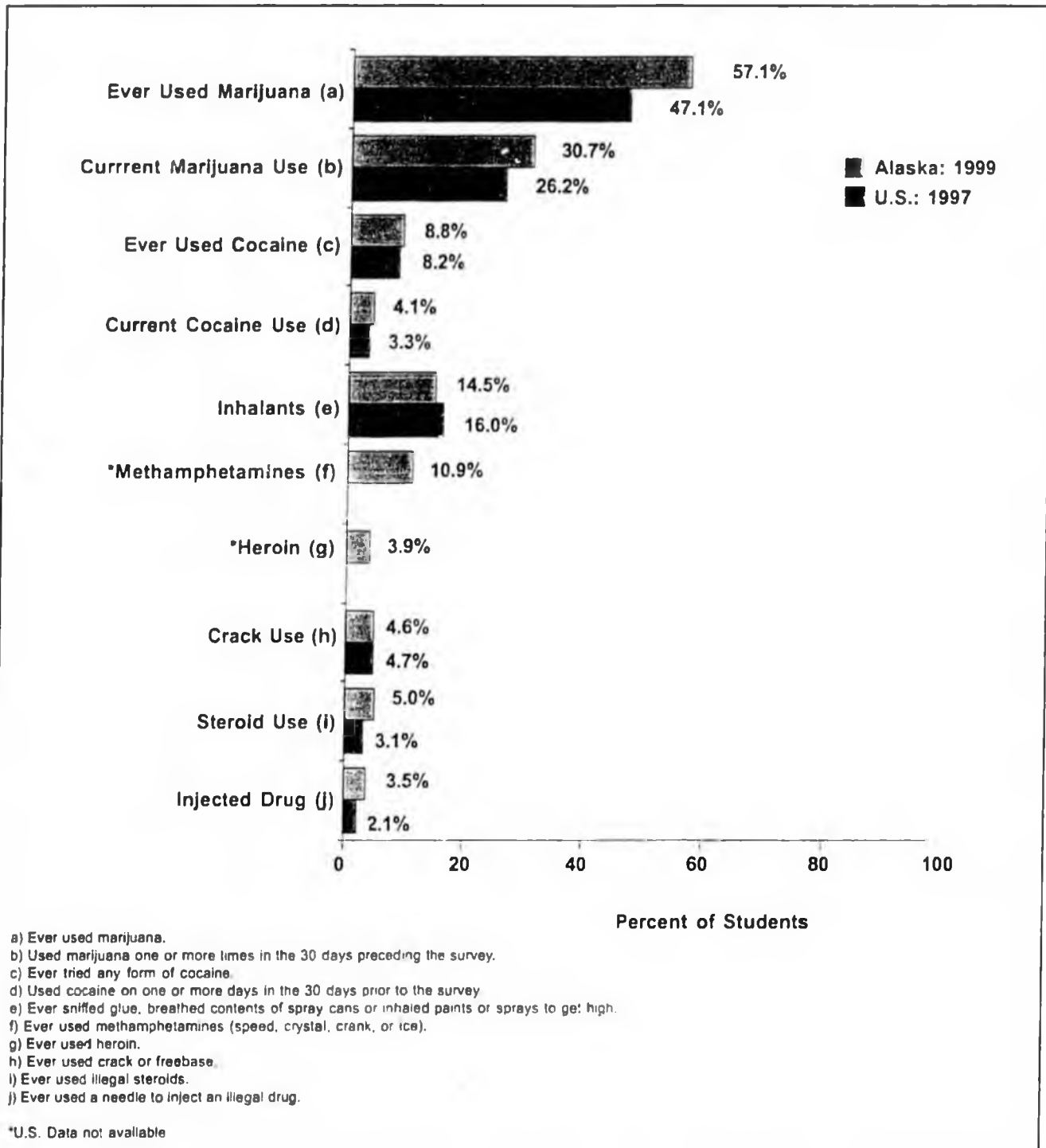
The numbers sampled in each stage were adjusted upward in anticipation that some schools and students would fail to participate. To ensure that sample results can be generalized to the total population, the overall participation rate (school participation rate multiplied by the student participation rate) must be equal to or greater than 60 percent.

At the classroom level, teachers were given a script to read to students that established guidelines for student privacy and anonymity, and the importance of the survey. Each student was given an unmarked envelope in which to seal his or her survey before turning it in. These survey envelopes remained sealed until received at a central state collection site.

The Centers for Disease Control and Prevention (CDC) and Westat, Inc., a CDC contractor, analyzed the state survey data. Analysis included the scanning of the surveys and performance of extensive edit checks to identify survey inconsistencies. When inconsistencies were found, responses were excluded from the analysis. For example, if a student reported in one question having never been in a physical fight, but then reported in another question being hurt in a physical fight, the data on that student was excluded for the two questions related to physical fighting.

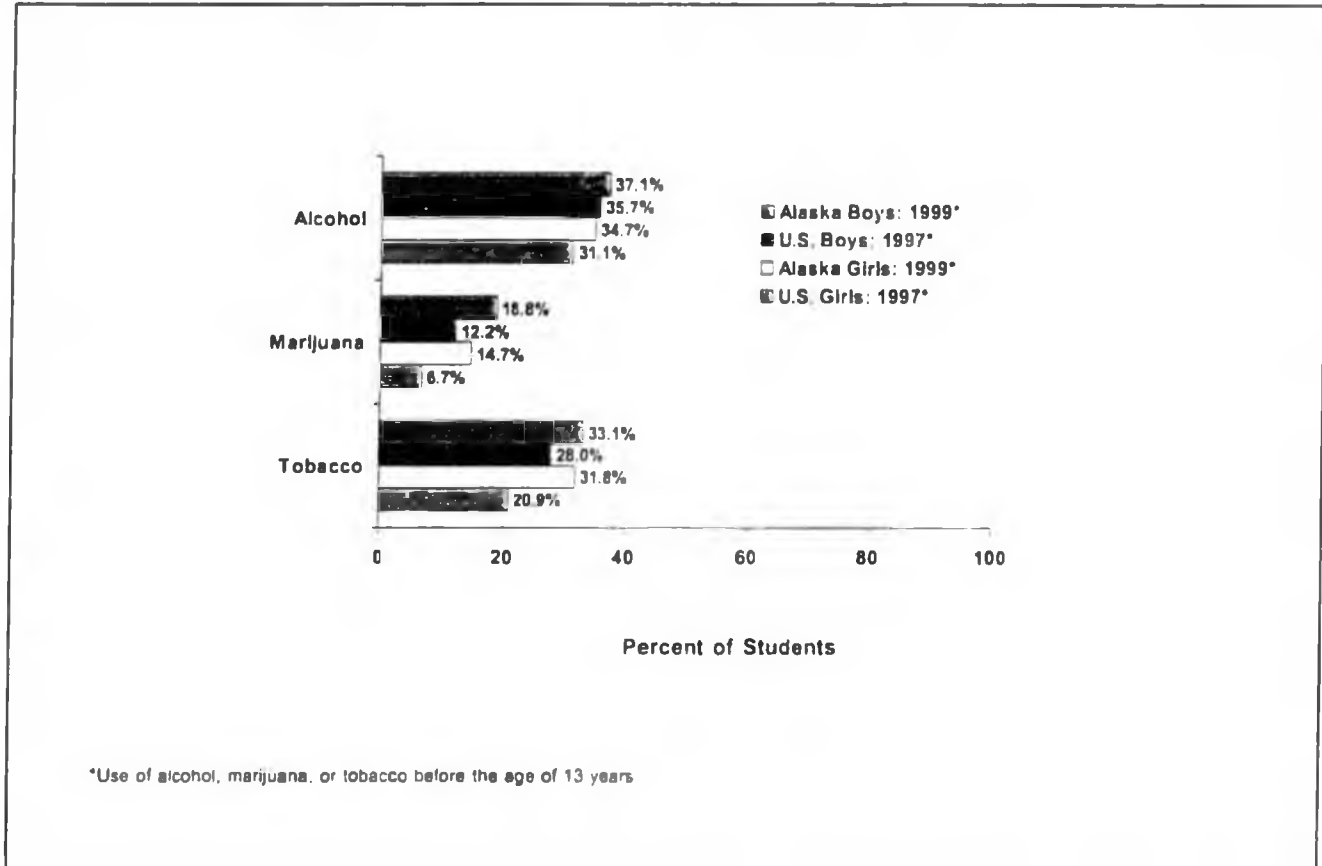
### Use of Drugs by High School Students

The most common drugs used by high school students in Alaska are marijuana, inhalants (glues, paints, and sprays), and methamphetamines (speed, crystal, crank, or ice). The prevalence of drug use is similar among Alaska students and U.S. students, with the exception of marijuana use, Alaska students are more likely to report marijuana use.



### Use of Alcohol, Marijuana, or Tobacco Before the Age of 13 Years

Almost 40% of Alaska high school boys report having had a first drink of alcohol before age 13 years. Also by age 13 years, 18.8% of boys and 14.7% of girls report having tried marijuana for the first time, accounting for about a quarter of those who have ever used marijuana. Percentages of age at first use are higher for Alaska boys and girls than U.S. boys and girls in use of alcohol, tobacco, and marijuana.



**Year 2000 Objectives:**

- Increase by at least 1 year the average age of first use of cigarettes, alcohol, and marijuana by adolescents aged 12-17.

## Section III: Drug and Alcohol Use

### Background

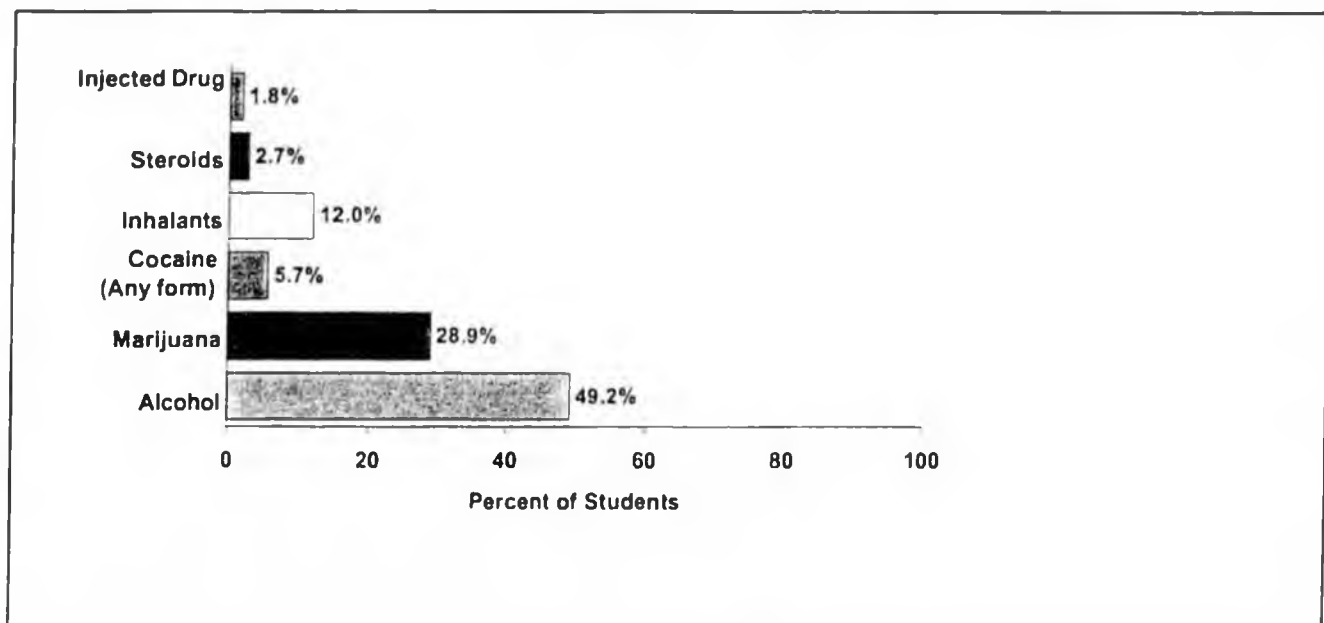
Alcohol and drug abuse are major contributing factors in homicides, suicides, and motor vehicle crashes, which are the leading causes of death and disability among young people in the U.S. and in Alaska. Heavy drinking and drug abuse among youth are linked to physical fights, destroyed property, job problems, school failure, delinquency, unwanted pregnancies, and transmission of sexually transmitted diseases.<sup>8</sup>

An estimated 19.2% of Alaska adults report binge drinking (having five or more drinks on an occasion, one or more time in the past month). Alaska's rate of adult binge drinking is among the highest in the U.S.<sup>9</sup>

### YRBS Results

#### Alcohol and Drug Use (Ever Used)

Over 49% of middle school students report ever having had a drink of alcohol. The alcohol question excluded drinking wine for religious reasons. The next most common drugs are marijuana and inhalants (glue, paints, and sprays). Nearly 12% of students report ever having used inhalants and 28.9% report ever having used marijuana.



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# Health Risks

Youth Risk Behavior Survey

I broke out into the willows that grew around the edges of the cottonwoods. . . . A huge brown bear was coming head on, bounding through the willow clumps not fifty feet away! . . . I threw up my arms and yelled. That was all I could think to do. On he came . . . I tripped and fell on my back. And then as he loomed over me, a strange thing happened. The air swooshed out of him as he switched ends. Off he went . . . Never once did he look back. I was shouting, encouraging him in his flight.

Sam Keith, from the journals of Richard Proenneke  
*One Man's Wilderness*  
Published 1973; Reissued 1999  
Anchorage: Alaska Northwest Books

## DEFINITION AND SIGNIFICANCE

Since 1990, the U.S. Centers for Disease Control and Prevention have sponsored the Youth Risk Behavior Survey (YRBS) at both the national and state levels. The survey asks middle- and high-school students questions about a broad range of health issues: use of tobacco, alcohol, and drugs; sexual behavior; diet and physical activity; and behaviors (like fighting and carrying weapons) that could cause serious injury.

The survey is an excellent source of data on health risks among adolescents, allowing comparisons among states and with national averages and tracking changes over time.

In Alaska, the survey is a joint project of the state departments of Health and Social Services and Education and Early Development. Alaska has conducted the survey only twice—in 1995 and 1999. However, in 1999 the Anchorage School District (by far the largest district in the state) decided not to take part in the survey.

Anchorage's decision not to take part means that we can't compare Alaska's 1995 and 1999 survey findings. The data reported here are from a sample of 1,427 high-school students throughout Alaska, except in Anchorage. Also, since the response from middle schools was below what is considered a reliable level, we report only the high-school results. When reading these results, keep in mind that Anchorage (with roughly 40 percent of the state's high-school students) did not take part in the survey.

The entire report is available online at: [www.epi.hss.state.ak.us/publications.shtml](http://www.epi.hss.state.ak.us/publications.shtml)

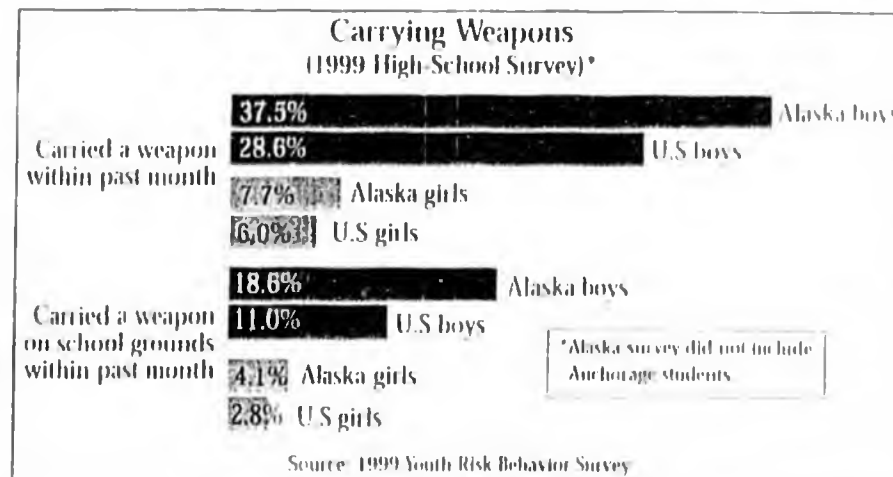
## Carrying Weapons

- High-school boys surveyed in Alaska were more likely to report carrying weapons in general and on school grounds in particular during the previous month. Nearly 38 percent of Alaska high-school boys said they had carried weapons and 18 percent said they had carried weapons on school grounds. That compares with 29 percent of boys nationwide carrying weapons in general and 11 percent on school grounds.
- High-school girls in Alaska were slightly more likely than girls nationwide to carry weapons in the previous month. About 8 percent of Alaska girls and 6 percent of girls nationwide reported carrying weapons; about 4 percent of Alaska girls and 3 percent of girls nationwide carried weapons to school.

## Sexual Intercourse and Violence

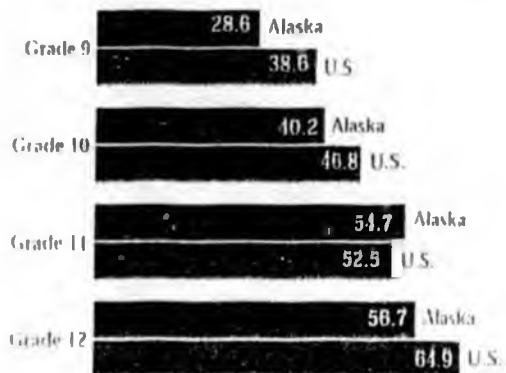
- By ninth grade, nearly 30 percent of Alaska high-school students report having sexual intercourse, and that share climbs to nearly 60 percent by twelfth grade. High-school students nationwide—especially younger students—are somewhat more likely to report having intercourse.
- A staggering number of high-school girls in both Alaska and the entire U.S. report being forced to have sexual intercourse at some time. Nearly one in 10 Alaska girls in ninth grade and one in five girls in eleventh grade report being forced to have sex.
- A significant but much smaller share of high-school boys in Alaska and nationwide also report having been forced to have sex—between 5 and 8 percent at different grade levels.

- About 10 percent of the girls and 12 percent of the boys surveyed in Alaskan high schools reported being hit, slapped, or otherwise hurt in the previous year by people they were dating. A figure that particularly stands



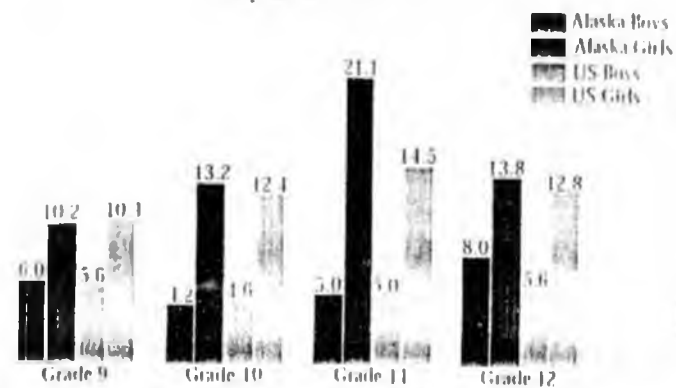
out is that in twelfth grade, one in five Alaska boys surveyed said their girlfriends had purposefully hit them.

High-School Students Who Have Had Sexual Intercourse



Source: 1999 Youth Risk Behavior Survey

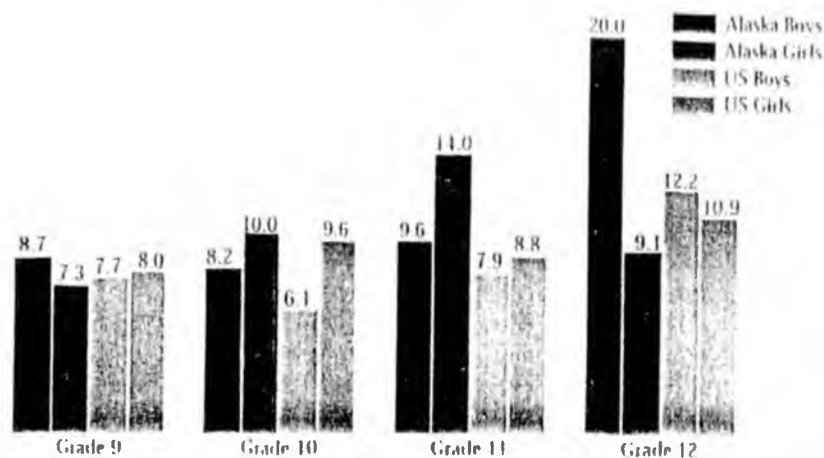
Percent of Students Reporting They've Ever Been Forced to Have Sexual Intercourse They Did Not Want



Source: 1999 Youth Risk Behavior Survey

Alaska survey did not include Anchorage high-school students.

Percent of Students Reporting They've Ever Been Hit, Slapped, or Physically Hurt On Purpose by Their Boyfriend or Girlfriend During the past 12 Months



Source: 1999 Youth Risk Behavior Survey

## YOUTH BEHAVIOR SURVEY IN ALASKA (CONTINUE)

### Tobacco Use

- Smoking is about equally common among Alaskan and U.S. high-school students, with roughly a third reporting they smoked at least once in the month before the survey.

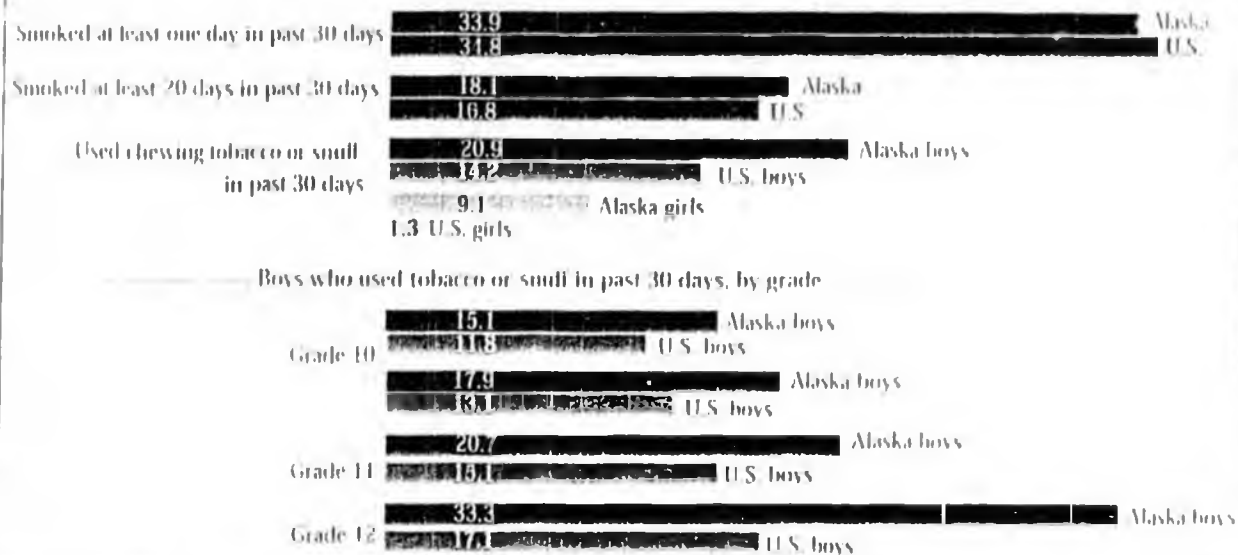
- Alaska's high school students are far more likely than other U.S. students to chew tobacco or use snuff. Alaskan girls in particular are more likely than other girls to chew tobacco. About 21 percent of Alaskan boys said they had used chewing tobacco in the month before the survey, compared with about 14 percent nationwide. But nearly 10 percent of Alaskan high-school girls—almost 1 in 10—said they chewed tobacco, compared with just 1 percent—1 in 100—girls nationwide.

- The share of high-school boys nationwide and in Alaska who chew tobacco increases as they get older. But among Alaskan high-school boys surveyed, use increases much more—so that by the twelfth grade, a third of Alaska boys report chewing tobacco. That's nearly twice the rate among senior boys nationwide.

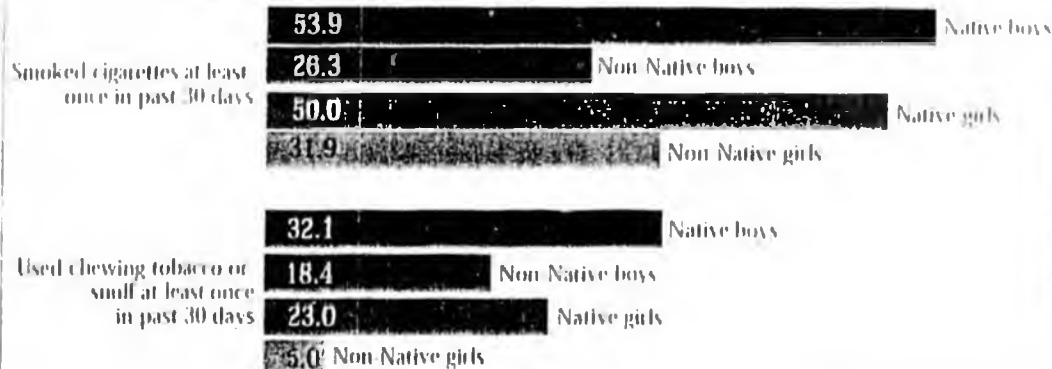
- Alaska Native students—both boys and girls—are far more likely to smoke or chew tobacco than are non-Natives. More than half of Native boys and girls reported that they currently smoked, compared with 26 percent of non-Native boys and 32 percent of non-Native girls. Nearly

double the share of Native boys (32 percent) as non-Native boys (18 percent) chew tobacco. And the share of Native girls who chew (24 percent) is nearly five times the rate among non-Native girls (5 percent).

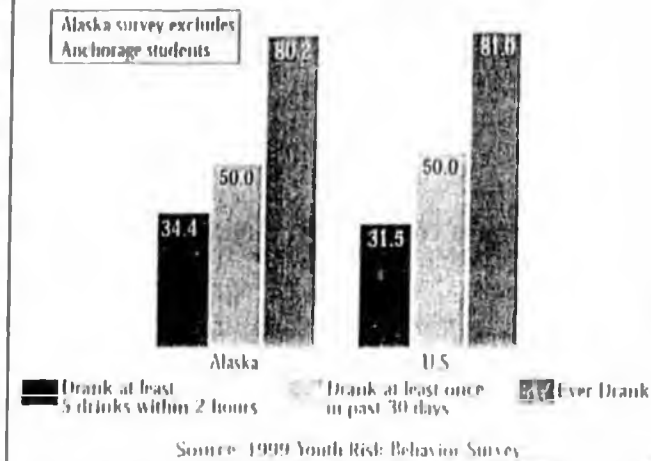
### Tobacco Use Among Alaska and U.S. High School Students



### Tobacco Use Among Alaska Native and Non-Native Students



**Alcohol Use Among Alaska and U.S. High School Students**



**Drug and Alcohol Use**

- About the same percentages of Alaskan and U.S. high school students drink alcohol. Eight out of 10 high school students surveyed in Alaska and the U.S. reported that they have tried alcohol at least once, and about half said they had drunk at least once in the month before the survey. A third reported binge drinking in the month before the survey.
- Marijuana is the most commonly used illegal drug among high school students in both Alaska and the U.S. — but a bigger share of Alaskan teenagers use marijuana. About 57 percent of Alaskan teens and 47 percent of U.S. teens report using marijuana at least once; 31 percent of Alaska students and 27 percent of U.S. teens reported using marijuana in the month before the survey.

- Close to one in six high school students in both Alaska and the U.S. report sniffing glue or other inhalants at least once.
- After marijuana, methamphetamines and cocaine are the most widely used illegal drugs among high school students, with nearly 1 in 10 reporting at least one use.

- A bigger share of Alaskan high school students than other U.S. students report trying heroin — almost 4 in 100 Alaskan students, compared with just over 2 in 100 nationwide.
- Five in 100 Alaskan high school students have used steroids, compared with fewer than 4 in 100 nationwide.
- More than 3 in 100 Alaskan students surveyed report using needles to inject drugs at least once — a share twice as large as among U.S. students in general.

**Percentage of Alaskan and U.S. High School Students Using Illegal Drugs**

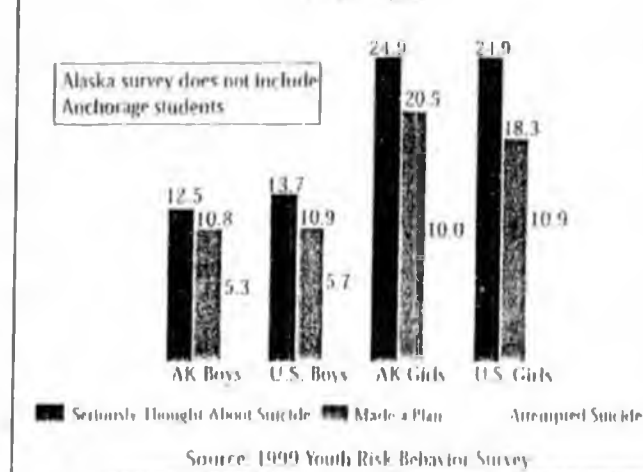


## Suicide Thoughts and Attempts

As we saw in the section on injuries to children (pages 50-52), rates of suicide and attempted suicide are disconcertingly high among Alaska's teenagers, especially in northern and southwest Alaska. The Youth Risk Behavior Survey asked high-school students in Alaska and nationwide whether they had thought about or attempted suicide. The adjacent figure shows that:

- The shares of high-school students who have thought about, planned, or attempted suicide are remarkably similar in Alaska and across the country.
- High-school girls are far more likely than boys to report thinking about or attempting suicide. (However, Alaska statistics tell us that teenage boys—especially Alaska Native boys—are far more likely than girls to actually commit suicide.<sup>1</sup>)
- A surprising one in four high school girls surveyed in both Alaska and the U.S. said they had thought seriously about committing suicide. Approximately one in five said they had made plans to kill themselves, and roughly one in ten had actually attempted suicide.
- Among Alaska boys, 12.5 percent said they had thought seriously about committing suicide, 11 percent said they had made plans, and 5 percent had attempted suicide. Rates are similar among U.S. boys, although slightly more (13.7 percent) reported having suicidal thoughts.

**Alaska and U.S. Students Reporting Suicide Thoughts, Plans, and Attempts**  
(In Percentages)



## DISCUSSION ABOUT SURVEY RESULTS

The 1999 Youth Risk Behavior Survey in Alaska found that many high-school students are doing just fine, not putting their health or their lives at risk. But a significant number are doing dangerous things. And some report that fellow students have hurt them, scared them, or forced them to do things against their will.

A staggering one in five girls in the eleventh grade report being forced to have sexual intercourse they did not want. More than half of all Alaska Native students surveyed reported regularly smoking cigarettes. Nearly one in five high-school boys reported carrying weapons on school grounds. More than three in one hundred students surveyed said they had injected drugs with needles.

Parents, schools, and communities need to find better ways to keep teenagers safe. Alaska has taken steps to curb teenage smoking by

sharply increasing cigarette taxes and better enforcing laws against selling cigarettes to minors. Preliminary research shows that these changes may be helping.<sup>2</sup>

In recent years Alaska schools have been more vigilant about trying to keep weapons out and to show that they won't tolerate fighting. Students who don't fight or carry weapons or intimidate other students need to be better protected from those who do. And violent students should not only be disciplined, but helped to change their behavior.

We need to find better ways of protecting teenagers—especially girls but boys as well—from being pressured or physically forced to have sexual relations they don't want. We need active efforts to prevent assaults and so-called "date rape."

The good news from the survey is that most high-school students are on their way to being responsible, productive adults. We need to find more ways to help all students make the most of their lives.

## NOTES FOR HEALTH RISKS SECTION

<sup>1</sup>See Matthew Berman and Linda Leask, "Violent Death in Alaska," in *Alaska Review of Social and Economic Conditions*, University of Alaska Anchorage, Institute of Social and Economic Research, February 1994.

<sup>2</sup>See Alaska Department of Revenue and Health and Social Services, *Impact of the 1997 Tobacco Tax Rate Increase in Alaska*, June 2000. Available online at: [www.hss.state.ak.us](http://www.hss.state.ak.us)

## 2003 Youth Risk Behavior Survey Results

### Northwest Arctic Borough School District Middle School Survey: Unweighted

V030D Percentage of students who tried marijuana for the first time before age 11

|                               | Total      |                                |     | Males      |                                |    | Females    |                                |    |
|-------------------------------|------------|--------------------------------|-----|------------|--------------------------------|----|------------|--------------------------------|----|
|                               | Percentage | 95%<br>Confidence<br>Interval* | n   | Percentage | 95%<br>Confidence<br>Interval* | n  | Percentage | 95%<br>Confidence<br>Interval* | n  |
| <b>Total</b>                  | 10.2%      | ( 9.8% - 10.5% )               | 128 | ( - )      | ( - )                          | 62 | ( - )      | ( - )                          | 66 |
| <b>Age</b>                    |            |                                |     |            |                                |    |            |                                |    |
| 11 or younger                 | ( - )      | ( - )                          | 3   | ( - )      | ( - )                          | 3  | ( - )      | ( - )                          | 0  |
| 12                            | ( - )      | ( - )                          | 20  | ( - )      | ( - )                          | 14 | ( - )      | ( - )                          | 6  |
| 13                            | ( - )      | ( - )                          | 60  | ( - )      | ( - )                          | 22 | ( - )      | ( - )                          | 37 |
| 14 or older                   | ( - )      | ( - )                          | 45  | ( - )      | ( - )                          | 23 | ( - )      | ( - )                          | 22 |
| <b>Grade</b>                  |            |                                |     |            |                                |    |            |                                |    |
| 6th                           | ( - )      | ( - )                          | 6   | ( - )      | ( - )                          | 6  | ( - )      | ( - )                          | 0  |
| 7th                           | ( - )      | ( - )                          | 75  | ( - )      | ( - )                          | 34 | ( - )      | ( - )                          | 41 |
| 8th                           | ( - )      | ( - )                          | 47  | ( - )      | ( - )                          | 22 | ( - )      | ( - )                          | 24 |
| <b>Race/Ethnicity**</b>       |            |                                |     |            |                                |    |            |                                |    |
| American Indian/Alaska Native | 10.7%      | ( 10.3% - 11.2% )              | 121 | ( - )      | ( - )                          | 60 | ( - )      | ( - )                          | 60 |
| Asian                         | ( - )      | ( - )                          | 2   | ( - )      | ( - )                          | 1  | ( - )      | ( - )                          | 1  |
| Black                         | ( - )      | ( - )                          | 1   | ( - )      | ( - )                          | 0  | ( - )      | ( - )                          | 1  |
| Pacific Islander              | ( - )      | ( - )                          | 0   | ( - )      | ( - )                          | 0  | ( - )      | ( - )                          | 0  |
| Hispanic                      | ( - )      | ( - )                          | 1   | ( - )      | ( - )                          | 0  | ( - )      | ( - )                          | 1  |
| White                         | ( - )      | ( - )                          | 8   | ( - )      | ( - )                          | 1  | ( - )      | ( - )                          | 7  |

*Note: There were 4 students who were excluded from this analysis or who did not provide usable data for Q30. Unweighted means that a 60% response rate was not obtained in selected classes. Data may not be representative of all district students.*

*n = Number of unweighted observations.*

*Blank = Fewer than 100 observations.*

*\* A 95% confidence interval will contain the true mean 95 times out of 100 if additional samples of size n are drawn from this student population.*

*\*\* An individual can be of more than one race/ethnicity.*

## Drug Use in Very Rural Alaska Villages

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<sup>1</sup>Department of Psychiatry and Center on Drug and Alcohol Research, University of Kentucky, Lexington, Kentucky, USA

<sup>2</sup>RurAL CAP, Anchorage, Alaska, USA

### ABSTRACT

The Alaska Native Preschool Project was centered in the Head Start Programs of two typical Alaska native villages near the Bering Sea. Data were collected over 5 years, 1990 to 1995, from preschool parents ( $N = 342$ ) with surveys, a panel of villagers ( $N = 25$  to 30) using qualitative interviews; villagers using participant observation; and a limited review of public records. The villages typify the changing life of Alaskan villagers who live in the Bering Straits area. Qualitative data indicated that a number of problems were associated with drug and alcohol use in the villages. The level of smokeless tobacco use from surveys in the previous month among preschool parents (41%) was self-reported to be almost 10 times greater than the national level reported in the 1995 National Household Survey. The use of marijuana reported by preschool parents in the previous month was almost 3 times higher than the 1995 National Household Survey estimates (19 vs 6.7%). Tobacco use in the previous month was reported at over 56%, a level that was over 1½ times the level of use at 34.7% estimated from the 1995 National Household Survey. For 26-34 year olds, previous month alcohol use was lower for the village parents than estimated from the 1995 National Household Survey (38 vs 63%). The self-reported levels of other drug use among preschool parents were very low compared with overall United States

rates. [Translations are provided in the International Abstracts Section of this issue.]

*Key words.* Alaska; Native Alaskans; Substance abuse

## INTRODUCTION

Alcohol and drug use are social and public health concerns in circumpolar areas like Alaska. In fact, Alaska Native leaders have characterized the alcohol problem among Alaskan Natives as a "plague" and as an "epidemic" (Alaska Federation of Natives, 1989). State officials also recognize this concern. However, like many other states and particularly rural states, there is a minimal systematic and statewide capability for collecting and reporting alcohol and drug data.

The purpose of this article is to describe the levels of self-reported drug use and related behaviors of Native Alaskans in two very rural Alaskan villages. Available data, qualitative data, and survey data are presented from a panel of key informants and a purposive sample of preschool parents of Head Start students. The data were collected as part of the Alaska Native Preschool Project. This educational approach to alcohol and drug use was funded by the Center for Substance Abuse Prevention (CSAP) and was concentrated in the Head Start Programs of two native villages in the Bering Strait area of Alaska which are typical of life in the Alaska bush.

According to the National Institute on Alcohol Abuse and Alcoholism (1994), the rates of alcohol use and "abuse" as well as related problems were highest among Native Americans. Brems (1996) recently reviewed selected substance use, mental health, and health data for Alaska and concluded that the high incidence of substance "abuse" appeared to be a reality across all of Alaska. More specifically, drug- and alcohol-use associated problems were found in significant proportions in the Alaska population as a whole with specific drug and alcohol rates several times higher than the national average. For example, per capita alcohol consumption in Alaska, as measured in gallons per person per year, was the fourth highest in the United States—12% of Alaskan adults have alcohol-use-associated problems compared to 5.9% in the United States overall population (Brems, 1996). This population of Alaska was estimated by the Census Bureau to be only 599,200 in 1993 with 500,061 (83%) nonnative and 99,139 (17%) Native Alaskans.

The alcohol-related death rate among Alaska natives was 33.7 per 100,000 as compared to the overall United States rate of 14.0 per 100,000. Of particular concern were the high rates of alcohol use among Alaska Native women with rates up to twice as high as the United States general population and a lower age

of onset at 10 years of age compared with 15 to 19 years of age in the general United States population (Asbury et al., 1992).

In addition, Alaska Natives who comprise 17% of the Alaska population accounted for 47% of patients seen in state-funded alcohol and drug-user treatment centers (Brems, 1996). It should be noted that these data were limited since only publicly funded treatment centers were included. The drug of choice for Alaska Natives admitted to these treatment centers was alcohol at 92%. The second drug of choice for Alaskans was marijuana at 35%. Injection drug use was not limited to urban areas in Alaska, with one study reporting that almost three in ten rural drug users reported injecting (Fisher and Booker, 1990).

Data presented by the Alaska Native Commission (1994) and others pointed out that the alcohol mortality rate for natives during the 1980–1989 period was 3.5 times higher than the corresponding rate for Alaska non-Natives. Overwhelmingly, Native deaths occurred among young men and women, which is a reversal of the overall United States pattern. In addition, the homicide death rate among Alaska Natives was four times the United States rate for all race-ethnic groups, with the majority of these deaths related to alcohol. Accidental deaths and injuries, the majority alcohol related, were also a major problem among Natives. These included snow machine accidents, gunshots, and freezings.

## PARENT SURVEY DATA COLLECTION

Data were collected twice a year when the villages were visited from 1990 to 1995. The status of alcohol/drug use and related behaviors were assessed. The approach involved collecting survey data from Head Start parents, interviews with a panel of villagers, participant observation in public and private settings, and a limited records review. During the project's five years, there were changes in the prevention project staff. The Project Director changed three times. The two full-time project staff positions were filled by five different persons and the part-time position was filled by two different individuals.

After the study was described and explained, subjects were told that the study could provide culturally specific information that would be helpful in preventing substance misuse. In addition, subjects were informed that the information could be useful in their village in developing other prevention programs. Twenty-one percent refused to participate in the study.

Head Start parents filled out questionnaires on their own drug use at the Head Start Program before or after school. Respondents were given incentives for completing questionnaires which ranged from tee shirts to life preservers at each data collection time. Respondents were informed that their responses were confidential, that their names and answers to specific questions were separated—which respondents did after completing each questionnaire—and that their names or

specific identifying information would not be linked or identified with the study. Data were also collected from 25 to 30 key informants in each village. Selected key informants comprised an ongoing panel of villagers who were interviewed at each data collection time. Key informants were selected for their village leadership roles. Key informants included magistrates, school teachers, village police, clergy, village mayors, council members, village health aides, parents, store clerks, city managers, native corporation leaders, public officials in village offices, and village elders.

## THE VILLAGES

At the start of the study, the villages were selected because of their similarities which included being almost the same size, their location near a major river, their close proximity to each other, being surrounded by tundra, and ordinances which prohibited alcohol in villages. However, one village grew about one-fourth faster than the other and the overall growth rate of Alaska. The large majority of inhabitants of both villages were natives who spoke one Eskimo dialect. There was continuous daylight in the summer and continuous darkness in midwinter. A major river was a central venue in the villagers' lives for it was a highway for boats in the summer and snowmobiles in the winter. The river regularly took the lives of natives in all seasons of the year from drownings and boating accidents.

Both villages were governed by a city council, and the Native Alaskan population was represented by a five member Alaska Native Council. A state public health nurse and physician visited both villages periodically to provide medical services. According to the 1990 Census, the populations of the villages were 642 and 674, and had grown from 567 and 583, respectively, in the 1980 Census. The population was young with median ages of 21.9 and 20.1 years. Eighty-seven percent and 92% of the villages' populations were Alaska Natives.

There was seasonal cash employment, mostly associated with commercial fishing. Traditional subsistence activities helped provide additional income. These subsistence activities included hunting, fishing, gathering, and trapping. There were a small number of year-round wage positions in each village. Public jobs, mostly in the school system, were the main source of employment. A small number of year-round positions were also available in city government, law enforcement, health care, and the few local stores. Both villages had a seasonal fishing economy. Although the fish industry was cash based, the number of "openings" for the fishing decreased after the United States signed treaties with Canada. Over half the population was employed. It was estimated by a key informant that over 80% of the population received public assistance. The per capita income fell below the federal poverty level. Many of the village housing units were constructed within the past decade using Housing and Urban Development (HUD)

funds. The water and sewer systems were associated with marked decreases in illnesses.

Based on interviews with school officials, the villages school dropout rates were high, with a little over one-fourth graduating from high school. School officials also indicated that drinking and tobacco use were common among children and adolescents, and children from alcoholic families contributed to many school behavior and disciplinary problems. A treatment center, about an hour away by air, provided residential treatment for drug and alcohol users. The treatment philosophy was founded on Native Eskimo traditions, and telephone follow-up treatment was provided to residents after they returned to the village.

The prevention program included two overall areas of interventions to enhance resiliency factors and to reduce risk factors. The first approaches targeted individuals and families with parent training classes, the Spirit of the Family Program, and the Healing Circle which were designed to strengthen the community and family unit culturally. The second approach focused on education and information which was village specific, including a newsletter and drug and alcohol information broadcast on village media.

It was extremely difficult to obtain official village-specific criminal activity and arrest data. Local Village Public Safety Officers indicated that the data were maintained in Anchorage by the State Police. These data were reported by region rather than by village due to the small numbers. Information from the Village Public Safety Officers, who do not retain copies of local arrest data, indicated that there were 1,100 to 1,200 police contacts per year per village. It was estimated that about one-fifth of these contacts were directly related to alcohol, or about 14 per month. It was also estimated that there were about two to eight suicide attempts per month, with the majority related to alcohol and drug misuse. Among adolescent suicide attempts, a majority were described as being associated with alcohol and drugs. Although substance misuse was described as being associated with suicide among youth, no other information was available. Violent deaths in the form of accidents, suicides, homicides, and others were directly attributable to alcohol as the leading cause of mortality in the villages. Major accidents were also frequently alcohol related.

Village Health Aides, who were part of the Native Health Service, estimated that there were over 300 contacts made by villagers each month. Major health problems were treated away from the village at the Regional Hospital and the Alaska Native Medical Center. Health Aides reported that many accidents, about 2 per month per village, were alcohol related. In addition, accidents associated with abuse and violence frequently involved alcohol. The Women's Shelter in one of the villages was used sporadically by women and their children. The Women's Shelter was established to provide a place for women and their children to reside

and obtain counseling related to physical and emotional abuse. Key informants indicated that much of the abuse was related to alcohol use.

### VILLAGE SOCIAL CONTEXT

To understand the village context, a panel of interviewees which ranged from 20 to 30 villagers, depending on their availability, were followed over the five years. These "key informant" panel members were mostly natives, and interviews were conducted twice a year. Based on interviews and observations it was estimated that the majority of nonnatives were employed by the educational system, tended to live within their own social enclaves, and were disinterested in, and at times had distorted and even hostile views of, the native community. Over time it was possible to establish rapport with middle-aged and older Native women and men called elders who had a historical, generational view of their village and its strengths as well as its problems. The general status of alcohol/drug use and "abuse" was assessed through these panel interviews. Repeated inquiries were made concerning certain behaviors held to be indicators of alcohol and drug-use-associated problems. Among these were suicides and suicide attempts, accidental deaths and injuries, homicides and related behaviors such as assaults, crime, family dysfunction, domestic violence, spouse and child abuse, and school or academic problems.

Several senior education officials and one clergyman with decades of experience in various Alaska Native communities suggested that, in terms of the severity of the alcohol and drug-use-associated problem, the villages selected for the study were somewhere in the midrange when compared to other villages in Alaska. A number of people did not drink and many drank only moderately. In the course of this study it was observed that respondents were keenly aware of the difficulty caused by alcohol in their village and were sincerely and constructively dedicated to its resolution. The discussion of drinking and drug-using behaviors in this article should be evaluated within the overall positive and constructive context of committed efforts to address these issues which includes the Alaska State-Wide Native Sobriety Movement.

### PRACTICES AND ATTITUDES ABOUT ALCOHOL AND DRUG USE

The following practices and attitudes toward alcohol use and "abuse" were based on interview data from village key informants.

It is important to keep in mind that the formal structure of village governments with a mayor, city manager, village council, and budget was a template which was superimposed from the dominant Western culture. These roles and

names have no analog in the traditional native culture which is still active and which constitutes the informal level of governance. Traditionally, consensus was laboriously achieved through discussion among the elders of large, extended families. This continued to be the rule; however, the traditional values of cooperation, communalism, and prohibitions against aggression were attenuated. Based upon interviews, it was found that relationships between powerful extended families were very competitive and involved rivalries, particularly where scarce economic resources and competition for employment was concerned.

The role of the native leader in the formal structure was a complex and stressful one. Control was tenuous, power was limited, and the designated leader often found him/herself in the position of having to pass judgment on family members. Commitment was much stronger and more pressing to family than commitment to the governmental role. Added to this was the native attitudes toward a person who acted as though he/she were "the boss," since "boss" is a pejorative term in the Eskimo culture. The Eskimo concept of leadership related more to leadership by consensus and by example as opposed to the Western model of the leader who gets out front and gives directions. When one considers this, it was easier to see the multiple stresses that impinge on village leaders, and it helps explain, in part, the high rates of leadership attrition. This was also reflected in attitudes toward drinking and bootlegging. The village leader may himself or herself drink, and villagers involved in drinking or bootlegging may have been relatives to those he or she owed support and allegiance.

Within the context of village prohibition, attitudes toward alcohol and the enforcement of the law differed between the villages. One village had a history, dating back to the decade before the study, of active opposition to bootlegging under the leadership of a senior male. At that time, according to reports, bootleggers would come down the river in boats, land on the beach, and unload whole boatloads of illegal alcohol. The leader spearheaded resistance to this, and promoted a vigorous enforcement of the village's dry laws. This action involved some dramatic, and probably dangerous, physical confrontations between the bootleggers and villagers. The result was that bootlegging in that village was undesirable, against the law, and would be prosecuted. Thus, the attitude in that village tended to be one of outrage and active opposition to bootlegging. In that village, although bootlegging continued to occur, it was viewed negatively and arrests were made.

The other village did not have the tradition of active community opposition to bootlegging and indiscriminant drinking. Informants from the second village stated repeatedly that drinking and bootlegging had permeated the culture of the village and "the bootleggers were in control." Since bootlegging and alcohol appeared to permeate all levels of the government, there was an attitude of cynicism, powerlessness, and fatalism concerning the alcohol and drug problem.

The school system was a major institution in both villages. Its significance and impact upon the villages goes far beyond the provision of educational services. In both villages, schools were a major source of cash from salaries and investments. Through lunch programs, the schools made a major contribution to the nutrition of the young people. Schools also contained the only libraries. The athletic facilities were a major source of recreation for both boys and girls. It was a key area for meeting and socialization in both villages. School tended to be seen as the "safe" place to go and to socialize. Nonnative teachers' knowledge of the native culture, perception of it, and willingness and ability to work within it varied widely. A minority of natives were teachers. The majority of school staff were natives who tended to be viewed with mixed feelings by other villagers because of their cash employment.

It was difficult to gather specific, systematic data on substance use in the general school population. The nonnative faculty had a wide range of opinions which ranged from outrage and shock to minimization and bland denial. There was a consensus of concern about the use of snuff, tobacco, inhalants, marijuana, and alcohol by students. Teachers reported the use of these substances was related to absences, tardiness, appearing at school smelling of alcohol, and appearing at school hung over. In addition, teachers expressed concern that these behaviors were appearing in younger children. For instance, third and fourth graders were described as using snuff and tobacco. Alcohol "abuse" was reported in eleven and twelve year olds.

In both villages there was concern about children and adolescents roaming the village at all hours of the night. The most common explanation for this behavior was that parents were drinking. A recurrent theme in discussions with city officials was the need for recreational facilities for teenagers and the need for more efficient measures to control their behavior. In one village a sense of fatalism and helplessness was noted when discussing child and adolescent behaviors. A subjective impression was that alcohol-use-related behavior was far more frequent. School officials and citizens had some rather unpleasant tales about sexual and aggressive acting out on the part of children and adolescents associated with alcohol. "The kids take over the town every night and nobody does anything about it." Both schools reported behavioral problems, acting out, and "disrespect" for teachers and those in authority. In one village this appeared to be a set of behaviors that was not tolerated and was in fairly good control. In the other village, as verified by direct observation, the lack of behavioral control appeared to be more frequent and more extreme, which often leads to physical violence and injury in the schools and in the village.

Reports from police and law officials in both villages had a theme which was repeated over and over and which might be summarized by the statement, "If it wasn't for alcohol, I wouldn't have a job." Patterns of consumption varied with

the economy. During fishing season, drinking tended to decrease because people were busy. When the cash economy was more robust, people tended to drink distilled liquor. When the economy was down and cash was scarce, people drank home-brewed alcohol. A minority of families, in which parents and children all drank, constituted the majority of village problems. A prototypical "dangerous" drinker was a young male in his late teens or early 20s who "holds it all in for a long time, drinks, and goes wild." There were accounts of these situations and the dangers involved. "Don't believe that stuff about those little Eskimo guys. They're tougher than hell. Sometimes it takes five guys to get them under control and restrain them." The police regularly patrolled, especially in the winter, looking for intoxicated individuals who had fallen in the snow and ice. These individuals were placed in "protective custody." The pursuit of bootleggers and manufacturers of home brew was an ongoing police activity. Several police officers familiar with the situation in both villages stated that the "drinking problem" in terms of amount and frequency of drinking, public drunkenness, and alcohol-use-related offenses was worse in the more permissive village. In both villages there was concern expressed each year about drinking. "We used to worry about the high school kids. Now it seems as if high school is too late."

Health care in both villages was provided by a village health clinic, staffed by native health aides who varied in number from three to five. These aides, who were all women, were responsible for primary health care, tended to be highly respected, and were seen as valued members of the village. In all interviews, these women were tactful, circumspect, and guarded in their communication. On several occasions, always in an interview with a single aide and while strict confidentiality was maintained, insights were obtained into the stresses under which these women worked and the associated problems. The aides were all aware of alcohol problems in the community. However, villagers seldom went to the clinic seeking help for alcoholism. Rather, they saw associated problems like battered women from time-to-time and a variety of medical and psychological problems related to neglect by drinking parents.

### PRESCHOOL PARENTS

Data were collected from 342 preschool Head Start parents over the project's five years. Parents with more than one child in the Head Start Program were included only once. When these data were examined, several things were apparent. An important consideration to keep in mind when looking at these data is that about two-thirds (64%) of respondents were female and over 9 of 10 were Alaska Natives (see Table 1). It should be noted that, although comparisons with United States data may not be as realistic for these native villages as they are for other

Table 1.

*Selected Demographics of Head Start Parents (N = 342)*

|   | %   |
|---|-----|
| Female  | 64  |
| Race/ethnicity:                                       |     |
| Alaska Native   | 93  |
| Education:  |     |
| Less than Grade 8                                     | 34  |
| Completed Grade 8                                     | 3   |
| High school   | 53  |
| Some college  | 10  |
| Employed  | 42  |
| Religion:   |     |
| Catholic  | 69  |
| Protestant  | 11  |
| Other   | 5   |
| Leisure time activities:                              |     |
| Watch TV and videos                                   | 96  |
| Play bingo  | 38  |
| Play basketball                                       | 31  |
| Snow machine racing                                   | 11  |
| Attitudes and problems associated with substance use: |     |
| Attitudes:  |     |
| Wrong to take drugs                                   | 86  |
| Wrong to drink a lot                                  | 86  |
| Wrong for someone to force you to drink               | 86  |
| Wrong to take something                               | 89  |
| Wrong to lie  | 88  |
| Ever encountered problems related to drinking         |     |
| Boating accidents                                     | 2   |
| Snow machine accidents                                | 11  |
| Four wheeler accidents                                | 6   |
| Got arrested for drinking                             | 14  |
| Had money problems                                    | 16  |
| Passed out  | 29  |
| Memory loss   | 32  |
| Parent self-reported alcohol and drug use:            |     |
| Substance use in previous month:                      |     |
| Any alcohol   | 38  |
| Gotten drunk  | 15  |
| Marijuana   | 19  |
| Inhalants   | 0.2 |
| Tobacco   | 56  |
| Snuff   | 41  |

*(continued)*Table 1. *Continued*

|  | %   |
|--|-----|
| Alcohol use in the previous year:            |     |
| Any alcohol                                  | 63  |
| Gotten drunk                                 | 41  |
| Weekend parties                              | 31  |
| At night with friends                        | 32  |
| At home                                      | 36  |
| Away from village                            | 25  |
| At fish camp                                 | 7   |
| Other drug use in the previous year:         |     |
| Marijuana                                    | 29  |
| Inhalants                                    | 0.2 |
| Tobacco                                      | 57  |
| Snuff  | 45  |
| Drug use ten times or more in previous year: |     |
| Alcohol                                      | 14  |
| Marijuana                                    | 11  |
| Tobacco                                      | 28  |
| Snuff  | 19  |

areas of the United States, comparisons are made to provide at least one frame-of-reference.

Over half (53%) of the Head Start parents involved in the study completed high school and 42% reported they were employed. Almost nine out of ten parents said they were religious, with 69% saying they were Catholic. Almost everyone (96%) reported they watched TV or videos. Other leisure time activities included playing bingo (38%) and playing basketball (31%).

There was a strong sense that using drugs and alcohol was wrong. Almost nine out of ten parents (86%) reported it was wrong to take drugs, to drink a lot, or for someone to force another person to drink. Stealing and lying were also reported as being wrong, at 89 and 88% respectively. There were a number of individual problems which were related to drinking. Specific problems reported by about one-third of the parents and related to their own drinking were memory loss (32%) and passing out (29%). Other drinking-related problems included money problems for 16% of parents and being arrested for their own drinking for 14% of parents. Alcohol and drug use were also reported to be dangerous. This included accidents on snow machines for 11%, four wheeler accidents for 6%, and boating accidents for 2% of these parents.

Alcohol use in the previous month, reported at 38%, was less than estimated for the 26-34 year olds in the National Household Survey at 63%, or about two-

thirds less use. Fifteen percent reported that they had gotten drunk in the previous month. Almost two-thirds (63%) reported that they had used alcohol in the previous year, with almost one-third reporting that they had used at weekend parties (31%), 32% at home with friends, 36% at home, 7% at fish camps, and one-fourth away from the village. Forty-one percent indicated that they had gotten drunk in the past year.

The level of smokeless tobacco use, reported as snuff use, in the past month was over 41%. When compared with the 4.4% estimated current users of smokeless tobacco in the 1995 National Household Survey for 26–34 year olds, this was almost 10 times more use by these Head Start parents. Tobacco use in the previous month was also more (56%) or at a level that was over one and one half times greater than the level of use (34.7%) estimated from the 1995 National Household Survey. The use of marijuana reported in the previous month at 19% was higher than estimates from the 1995 National Household Survey for 26–34 year olds at 6.7%—a level almost three times more than national estimates. The reported levels of other drug use, such as inhalants at 0.2%, was so small that comparisons with household data were not meaningful.

These data confirm an impression from key informants that there was more overall substance use by the preschool parent respondents than estimated in the 1995 National Household respondents except for alcohol. In other words, these data confirm the notion that the level of substance use was higher by villagers than self-reported use in other United States households. Most notably were the high levels of snuff use, marijuana use, and tobacco use.

## DISCUSSION

It must be noted that there are limitations to the data presented in this article. The data were collected from a purposive sample of villagers and parents who do not represent all parents or adults in the two villages or other Alaskan native villages. However, using 1990 Census data, 342 (26%) of 1,316 villagers participated in the preschool survey. The villagers included in the key informant panel were purposively selected because they agreed to provide information and because of their status and role. In addition, the villages were purposively selected. However, there are similarities between the two villages and other villages in Alaska including their isolation, the economic conditions, the anecdotically reported number of issues related to alcohol and drug use, and the identified needs.

The findings suggest that, according to observations and the panel of key informants, along with modern technology and other changes has come movement away from traditions which bound many villagers to their culture. There was a consensus of concerns about the use of snuff, tobacco, inhalants, marijuana, and alcohol by students. Key informants indicated that the use of substances was ob-

servable for lower aged children with absences, tardiness, appearing at school smelling of alcohol, appearing at school hung over, and students accounts of their own behavior. Key informants described the use of alcohol and drugs as being related to a number of accidents and other "problem behaviors."

Findings from preschool parents indicated that the level of smokeless tobacco self-reported use in the previous month was over 41%. When compared with 4.4% estimated current users of smokeless tobacco in the 1995 National Household Survey for 26–34 year olds, use was almost 10 times greater for these Head Start parents. The use of marijuana reported in the past month by preschool parents was higher at 19% when compared with 6.7% from the 1995 National Household Survey estimates for 26–34 year olds. This level was almost three times greater than national estimates. Tobacco use in the past month was reported at over 56% or at a level that was over one and one-half times the level of use at 34.7% estimated from the 1995 National Household Survey. Alcohol use in the past month, reported at 38%, was lower than that estimated for the 26–34 year olds from the 1995 National Household Survey at 63.0% or about two-thirds less use. In addition, the reported levels of other drug use were so low that comparisons with national household data are not meaningful.

These data suggest that the levels of drug use among preschool parents in these two very remote Alaska villages were at substantial levels. These data were complimented by key informant information which indicated that alcohol and drug use in these "dry" villages were associated with problem behaviors. In addition, drug and alcohol use and associated behaviors should be targeted with culturally specific prevention interventions. Developing targeted prevention interventions should be a policy priority.

There is a lack of consistent policy focused on prevention and interventions for Native Alaskans. There is a need for funding intervention programs and a need for staff training to implement prevention programs. In addition, there is a need to sensitize policymakers about the requirements of people who live in very rural areas. For example, very rural and rural populations need resources to develop tailored prevention interventions. Likewise, criteria should be developed to examine both process and outcome measures in order to implement successful prevention programs which are culturally relevant. Thus, policies should be developed for planning, implementing, and examining interventions. There is also a need for targeted and formative research to develop culturally bound prevention interventions in addition to examining the effectiveness of interventions. Clearly, an implication for policymakers is the need to sustain ongoing interventions in remote places.

In closing we would like to stress that there were thoughtful, responsible, and dedicated Native Alaskans in both villages who were keenly aware of the problems created by alcohol and drugs and who were committed to their resolution.

This commitment was evident in the indigenous native initiatives which have arisen to support sobriety for Alaska Natives.

### ACKNOWLEDGMENTS

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F

## THE IMPACT OF MARIJUANA ON PARENTS AND CHILDREN

### I. Marijuana is the primary substance abused in a significant number of homes generating reports of harm and CINA cases due to illegal drug abuse.

- A 1998 national survey found that children whose parents abuse drugs or alcohol were almost three times (2.7) likelier to be physically or sexually assaulted and more than four times (4.2) likelier to be neglected than children of parents who are not substance abusers. *Children of Substance-Abusing Parents, (1999) citing, Sedlak, A.J., & Broadhurst, D.D. (1996). Third National Incidence Study of Child Abuse and Neglect: Final Report. U.S. Dept. of Health and Human Services, Administration for Children; and, National Center on Child Abuse and Neglect, (1998). Living Arrangements of Children Under 18 Years Old: 1960 to the Present; U.S. Advisory Board on Child Abuse and Neglect. (1993) Neighbors helping Neighbors.*
- 20.5% of the 915 social workers and family court professionals surveyed cited marijuana as the leading substance of abuse in child abuse or neglect cases involving illegal drugs.

# Major drug bust rids Quinhagak of dope hub

by K.J. Lincoln

After a couple months of investigation and cooperation with villagers, Alaska State Troopers were successful in seizing a pound and a half of marijuana and \$17,020 in cash from a residence in the village of Quinhagak, and closing down a central hub for marijuana.

"Each vacuum-sealed bag had 2 ounces of marijuana," said Western Alaska Alcohol and Narcotics Team Investigator Joe Hazelaar. "1 1/2 pounds of marijuana at \$50 a gram equals a \$28,000.00 street value. This amount is not uncommon in villages."

The success of the drug bust can be attributed to the citizens of Quinhagak who worked with the local village police, calling in tips and complaints. The overwhelming calls about the house were enough grounds to issue a search warrant.

"It was done in reference to the support we've gotten from the citizens and the Chief of police," said Trooper Sgt. Anthony April. "The tips from the local villagers led to the execution of the search warrant."

Community members had stepped forward and asked to help with the investigation, including going undercover and making drug purchases.

"They helped rid the village of a pretty prominent problem of the drug dealers," Hazelaar said.

Four adults have charges pending against them as a result of the bust, said Hazelaar.

"They were very uncooperative during the raid," he said. Their case is being forwarded to the District Attorney and it will be handled federally, instead of through the state.

The four adults were not the only ones in the house.

"There were three small children at the time of the search warrant," said Hazelaar. "An 18-month old baby was sleeping less than a foot away from a pound of marijuana."

The children, who have been taken into protective custody, had also been present during the transactions when the undercover informants purchased marijuana.

The house, which was also seized, will be donated back to the City of Quinhagak. "We're hoping the village will currently find a family that is need of a house," said Hazelaar. "I can't say thanks enough for the community involvement."

"If a community would just ban together and drive the dealers out - think about what that money could do for that community. The only one getting rich off the deal is the dealers," he added.

driving with a revoked license.

Wasilla / Drunken driving

At 1:40 a.m. Sunday, Alaska State Troopers **arrested** Alfred A. Shelden, age 44, of Wasilla on suspicion of drunken driving and leaving the scene of an accident. Troopers contacted Shelden at his Glacier Drive home after receiving a report that he was driving impaired in his 1990 Ford Tempo and, after a disturbance at a Serrano Drive residence sideswiped a 2000 Ford Ranger parked there. Shelden was held at the Mat-Su Pre-Trial Facility in lieu of \$2,000 bail. Damage to the Ford Ranger was estimated at \$200, and there was no damage to the Ford Tempo. No injuries were reported.

Wasilla / Drunken driving

At 3:47 a.m. Thursday, Alaska State Troopers stopped a vehicle for drifting over the centerline and speeding. The driver, Sovala Raylene Tapley, 44, of Wasilla was **arrested** on suspicion of felony drunken driving and driving with a revoked license. Tapley was held at the Mat-Su Pre-Trial Facility in lieu of \$15,000 cash-only bail.

Wasilla / Drunken driving

At 4:59 a.m. Friday, Alaska State Troopers **arrested** Lofia T. Satini, 25, of Anchorage on suspicion of drunken driving and driving without a valid license. Satini was stopped in a 1998 Chevrolet Malibu near the intersection of the Parks Highway and South Seward Meridian Road for erratic driving. He was held at the Mat-Su Pre-Trial Facility in lieu of \$1,500 cash-only bail.

Wasilla / Drunken driving

At 12:45 a.m. Friday, Alaska State Troopers **arrested** Angela M. Moehring, 28, of Wasilla on suspicion of drunken driving. Moehring was stopped for erratic driving, drifting from the fog line to the centerline of the roadway. Moehring was held at the Mat-Su Pre-Trial Facility until sober.

Houston / Drunken driving

At 12:37 a.m. Saturday, Alaska State Troopers stopped a vehicle at Johnsons Road and the Parks Highway in Houston for speeding. The driver, Neal Scott Bridgewater, 42, of Houston was **arrested** on suspicion of drunken driving and held at the Mat-Su Pre-Trial Facility in lieu of \$2,500 bail.

Wasilla / Drunken driving

At 3:25 a.m. Sunday, Alaska State Troopers **arrested** Vaughn Nogle, 29, of Wasilla on suspicion of drunken driving. Nogle was stopped for failing to stop at a steady red light at Crusey Street and Bogard Road and for drifting from the fog line to the centerline. Nogle was held at the Mat-Su Pre-Trial Facility until sober.

Wasilla / Drunken driving

At 1:11 a.m. Friday, Alaska State Troopers **arrested** Giles Jackson, 26, of Wasilla on suspicion of drunken driving. Troopers stopped Jackson near the intersection of the Parks Highway and Church Road for crossing the centerline. Jackson was held at the Mat-Su Pre-Trial Facility until he was released to a sober adult.

Wasilla / Growing marijuana

At 8 p.m. Thursday, Alaska State Troopers **arrested** Jim A. Gardner, 47, of Wasilla for growing **marijuana** and reckless endangerment. Troopers contacted Gardner at his home near Beverly Lakes Road in Wasilla after receiving a tip about a person with an arrest warrant possibly located there. Troopers found Gardner had approximately 173

live **marijuana** plants at his home, where his young child lived with him. The Mat-Su Narcotics Team was called to the residence, eradicated the **marijuana** and seized the related equipment. Charges are being forwarded to the district attorney's office for review.

#### Wasilla / Domestic assault

At 12:42 a.m. Jan. 26, Alaska State Troopers responded to a domestic disturbance near Twilight Drive and Horizon Drive in Wasilla. They **arrested** Richard M. Cassler, 40, and his ex-wife, Diane M. Juel, 43, on charges of assault on one another. Juel was taken to shelter for the night. Charges for each will be forwarded to the district attorney.

#### Wasilla / Stolen property

At approximately 8:24 p.m. Friday, Alaska State Troopers received a report of stolen property from a residence on Machen Drive in Wasilla. Joshua Morris, 26, of Wasilla reported a snowmachine motor stolen out of his 1999 Polaris 700 RMK. The estimated value of the stolen property is \$2,000. Investigation is continuing.

#### Wasilla / Collision with moose

At 10:38 p.m. Saturday, Alaska State Troopers in Palmer responded to a motor-vehicle collision with a moose near the intersection of Wasilla Fishhook Road and Lake View Drive in Wasilla. The moose stepped into the lane and struck the driver's side of a 1997 Chevrolet pickup driven by Phillip A. Irrer, 41, of Wasilla. The moose died of its injuries. Irrer was wearing his seat belt and was not injured. Total damage to the vehicle is estimated at \$2,000. The moose was salvaged by a local charity.

#### Wasilla / Assault

At 11:34 p.m. Friday, Alaska State Troopers in Palmer **arrested** Joseph H. Bussard Jr., 63, of Wasilla on suspicion of assault and criminal mischief. Troopers responded to a home on Country Fair Drive, where Bussard was reported to have assaulted a family member and caused damage to the residence. Total damage was estimated at approximately \$200. Bussard was **arrested** for fourth-degree assault and criminal mischief. He was held at the Mat-Su Pre-Trial Facility without bail. \${ILLUSTRATION: +

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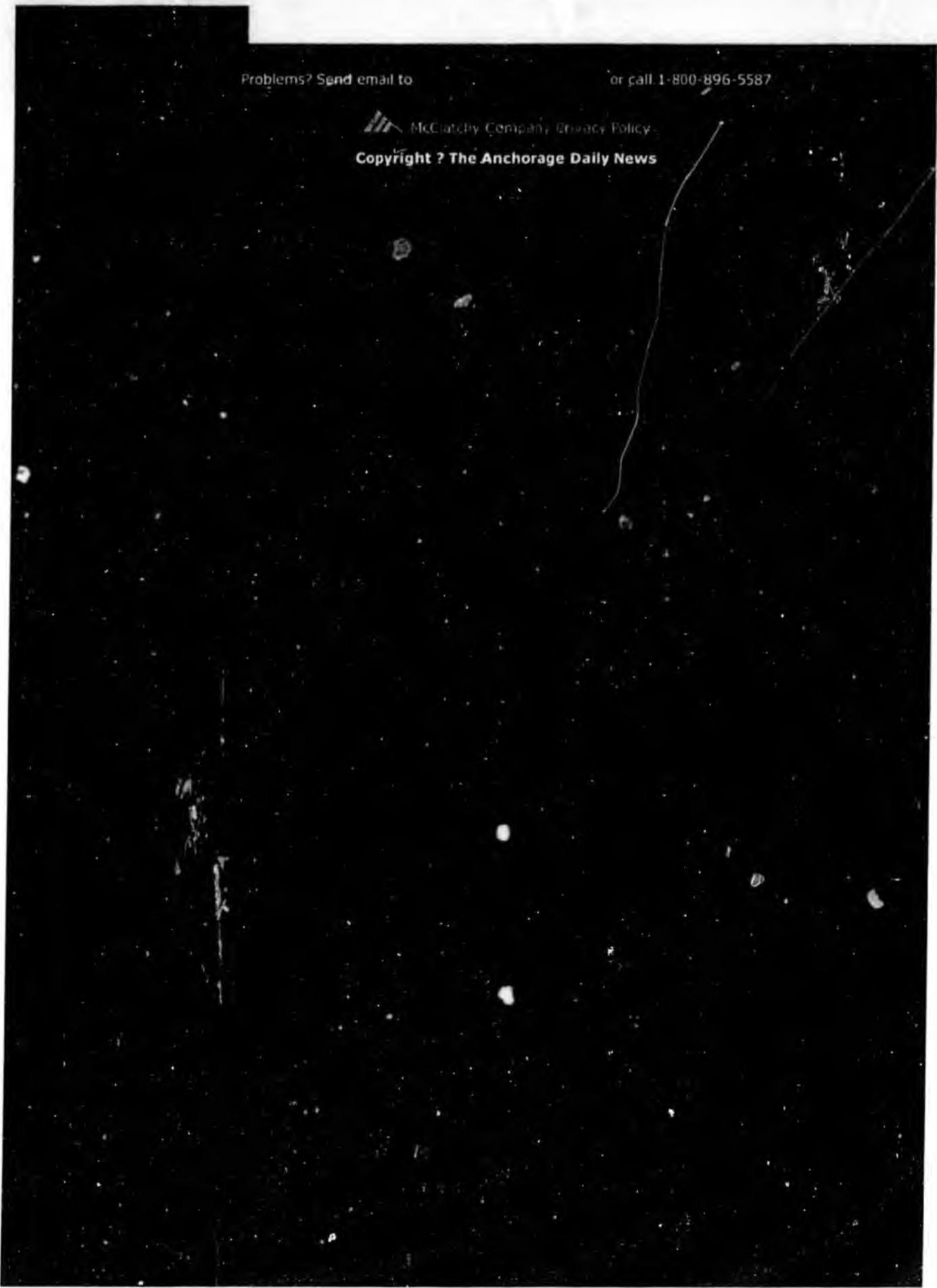
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# **Children of Substance-Abusing Parents**

**January 1999**

**Funded by:**

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James E. Burke (1992-1997)

welfare of the nation's children. I remember discussing this project with Mrs. Helene Soref in Florida in 1996 and I regret that she did not live to see this product of her generosity and concern for children.

Jeanne Reid, M.P.A., a distinguished CASA senior research associate, was the principal investigator for this effort and she has done a typically brilliant and thoughtful job. Throughout the effort, she was most ably assisted by Peggy Macchetto, J.D. David Man, Ph.D., CASA's librarian, and library assistant Amy Milligan were a big help. Marcia Lee, M.P.P., my Special Assistant, edited the manuscript. Herbert Kleber, M.D., Executive Vice President and Medical Director, William Foster, Ph.D., Senior Vice President and Chief Operating Officer, Susan Foster, M.S.W., Vice President and Director of Policy Research and Analysis, Patrick Johnson, Ph.D., Deputy Director of Medical Research and Practice Policy, Lawrence Murray, M.S.W., Senior Program Associate, and I reviewed the report. Jane Carlson, as usual, handled the administrative chores with efficiency and good spirit.

The Advisory Board, a distinguished group of experts, were invaluable in guiding this effort and reviewed a draft of this report. But responsibility for the analysis and findings sits with CASA.

## **I. Introduction and Executive Summary**

The number of children in America who are abused or neglected has more than doubled from

1.4 million in 1986 to about 3.0 million in 1997.<sup>1</sup> As child welfare officials have responded by focusing on investigating a flood of new cases, chronic child abuse and neglect has surged and the number of children dying while under the watch of the nation's child welfare system has risen. Without a concerted effort to assess and treat substance abuse, the tragic consequences for the nation's children will continue to accumulate.

This report is a comprehensive analysis of the deep and complex connection between substance abuse and child maltreatment.<sup>2</sup> It exposes how child welfare agencies and family court<sup>3</sup> systems struggle to handle the critical decision of child custody when a parent is a drug or alcohol abuser, and it recommends substantial changes in practice to safeguard our nation's children. The most significant findings of our two-year analysis are:

- Substance abuse and addiction severely compromise or destroy the ability of parents to provide a safe and nurturing home for a child.
- Substance abuse and addiction confound the child welfare system's ability to protect children.
- Timely and comprehensive treatment can work for substance-abusing parents, and such treatment is cost effective.

- Only a major overhaul of the child welfare system and dramatic changes in child welfare practice can make real progress against this formidable problem.

\* In this report, "maltreatment" means abuse and/or neglect of a child. Abuse includes both physical and sexual abuse unless otherwise stated. Neglect includes abandonment, expulsion, delay or refusal of healthcare, inadequate supervision, inadequate nutrition (starvation), emotional neglect (such as witness to chronic/extreme spouse abuse) and other omissions of proper care.

† In this report, "family court" includes any court that hears cases involving child abuse and/or neglect. In some states or counties, these courts are referred to as juvenile courts or dependency courts.

*"It's scary. It's scary to not have your mom there, to have to worry where you're gonna get your next meal and who's gonna change your diaper, who's gonna feed you and who's gonna put you to bed at night. Dad tried to stab himself when he was drinking and high on drugs. It was right in front of me. I was scared."*<sup>2</sup>

-- Melissa, age 14

As part of this two-year analysis, CASA conducted a targeted, national survey of professionals who work in child welfare agencies or family courts to learn their perceptions of the extent of the substance abuse problem, how they decide who will care for the children in cases involving substance abuse and the changes that they believe would benefit the nation's children. The key findings:

- Three of four (71.6 percent) cite substance abuse as one of the top three causes for the dramatic rise in child maltreatment since 1986, followed by better reporting of child maltreatment (35.4 percent) and poverty (31.8 percent).
- Most survey respondents (79.6 percent) report that substance abuse causes or contributes to at least half of all cases of child maltreatment; 39.7 percent say it is a factor in over 75 percent of the cases.
- Almost all survey respondents (81.6 percent) say that parents who abuse or neglect their children most commonly abuse a combination of alcohol and drugs; 7.7 percent cite alcohol alone.
- Overall, 89.3 percent of all respondents recognize alcohol as a leading substance of abuse among parents.
- 45.8 percent of all respondents say that cases of illegal drugs involve crack. One in five (20.5 percent) respondents say that cases of illegal drugs involve marijuana.
- Three of four survey respondents (75.7 percent) say that children of substance-abusing parents are likelier to enter foster care, and 73.0 percent say that children of substance-abusing parents stay longer in foster care than do other children.
- Almost half (42 percent) of all case workers say either they are not required to record the presence of substance abuse when investigating child maltreatment or do not know whether they are required to do so.
- 61.3 percent of respondents say that what treatment is "available" determines what treatment is "appropriate" for the parent.

- Only 5.8 percent of survey respondents say that there is no wait for parents who need residential substance abuse treatment. Only 26.0 percent say that there is no wait for outpatient treatment.
- Respondents overwhelmingly (85.8 percent) name lack of motivation as the number one barrier to getting parents into substance abuse treatment, followed by lack of residential treatment (53.0 percent), lack of insurance coverage for treatment (50.7 percent), lack of outpatient treatment (35.4 percent) and lack of child care (28.5 percent). It is not possible to determine from the survey how much the perceived lack of motivation is influenced by these other barriers.

\* A copy of the questionnaire and a description of the survey methodology appear in Appendices A and B. A total of 3,486 surveys were distributed; 915 responses were recorded. The overall response rate is 26.4 percent.

In addition to the survey, CASA reviewed more than 800 technical articles, books and reports covering medical, social science, legal and substance abuse literature relevant to child maltreatment when parents are abusing alcohol and drugs. We interviewed numerous caseworkers, judges and other professionals. We conducted six case studies to identify promising innovations in the field to address substance abuse among parents who abuse or neglect their children and reviewed numerous other innovations.<sup>6</sup> Together, the CASA survey, literature review and case studies provide the foundation for the following key findings.

*It's awful in the long run... When you grow up you have to deal with a lot more problems, 'cause when you're little you don't realize everything that's happening, and you try to understand and you don't. And then when you get older, it's so hard to think that your mom would do that to you. I mean she'll tell you that she loves you and that she'll help you in any way she can -- but she doesn't. She tries, but she can't; the drugs just take over. And, I don't know, it's just hard. It's really hard.<sup>3</sup>*

-- Brandy, age 16

**Substance abuse and addiction are the primary causes of the dramatic rise in child abuse and neglect and an immeasurable increase in the complexity of cases since the mid-1980s.** In both CASA's survey and other research, child welfare and family court officials report that substance abuse--alcohol, crack cocaine and other drug use--is responsible for the dramatic rise in cases. Children whose parents abuse drugs and alcohol are almost three times (2.7) likelier to be abused and more than four times (4.2) likelier to be neglected than children of parents who are not substance abusers.<sup>4</sup> Substance abuse and addiction is almost guaranteed to lead to neglect of children.<sup>5</sup> Further fueling the number of cases, the rate of repeated abuse or neglect appears to be increasingly driven by alcohol and drug addiction.<sup>6</sup>

\* A description of the case study methodology appears in Appendix C.

Crack cocaine was responsible for at least the initial spike in the caseload. While new crack use appears to have subsided nationally in the 1990s, the child welfare caseload has held steady. In some areas, child welfare officials report no decline in crack use by parents.<sup>7</sup> A judge in Washington, D.C. reported that, "The crack

# ADDENDUM

## SB 74 – Findings and Authority

- (1). marijuana has been for many years and continues to be the most commonly used illegal controlled substance in the United States.
  - Tab “C”: *LEGALIZATION OF MARIJUANA: POTENTIAL IMPACT ON YOUTH, AMERICAN ACADEMY OF PEDIATRICS*, “Marijuana is the illicit substance most commonly abused by adolescents”
  - Tab “D”: *RESPIRATORY EFFECTS OF MARIJUANA AND TOBACCO USE IN A US SAMPLE*, “Marijuana smoking remains the second most widely smoked substance in the US with conservative estimates indicating that more than 11 million people smoked marijuana during the last month and approximately 20% of these smoke almost daily.”
- (2). marijuana has many adverse health and social effects, and there is evidence that it has addictive properties similar to heroin and other simile illegal controlled substances.
  - Tab “C” (Behaviorial Health) and Tab “D” (Public Health)
  - Tab “C” *LEGALIZATION OF MARIJUANA: POTENTIAL IMPACT ON YOUTH, AMERICAN ACADEMY OF PEDIATRICS, TECHNICAL REPORT, 2004* “Scientists have demonstrated that the emotional stress caused by withdrawal from marijuana is linked to corticotropin-releasing factor, the same brain chemical that has been linked to anxiety and stress during opiate, alcohol, and cocaine withdrawal”. Others report that tetrahydrocannabinol, the active ingredient in marijuana, stimulates release of dopamine in the mesolimbic area of the brain, the same neurochemical process that reinforces dependence on other addictive drugs.”
  - Tab “C” *ALASKA STATE PLAN FOR DRUG ABUSE PREVENTION, FY 77 (57 marijuana treatment admissions in FY 75) compared to an average of about 420 a year now) SAMHSA Treatment admissions data set. On average in 2000, 2001, 2002, 2003 there were about 20 heroin admissions a year.*

(3). in addition to concerns about marijuana use generally, the legislature is particularly concerned with rates of use by young people and Alaska Natives which exceed national averages.

- Tab "E" 2003 ALASKA YOUTH RISK BEHAVIOR SURVEY RESULTS, (13.1% of Alaska students reporting use before age 13 vs. national figures of 9.9%); (Alaska native students 69.7% ever tried marijuana, 35.5% current users; All Alaska students 47.5% ever tried marijuana, 24% current users vs. 41% and 22.4% nationally); (In a survey of pre-school parents in two rural Alaska villages, rates of use were three times as high as the national average).
- **Addendum.** In another survey of rural Alaskans admitted to treatment facilities, 17.9% of male Alaska Natives were found to have a marijuana disorder; Average age of first use for American Indian / Alaska Native population group has slipped down to 14 years old. (vs. 16 for Alaska as a state)

(4). early exposure of children to marijuana increases the likelihood of lifelong health and social problems, and makes it more likely that the person will go on to use more potent illegal controlled substances.

- Tabs "C" and "D"
- Tab "C", Table 5.1b, marijuana treatment admissions for youth aged 12-17 made up 63% of all treatment admissions in 2003.
- Tab "C" INITIATION OF MARIJUANA USE: TRENDS, PATTERNS, AND IMPLICATIONS, 2002, Joe Gfroerer, SAMHSA, (Early initiation of marijuana use was associated with a greater risk of other drug use behaviors at age 26 or older, such as heroin use, cocaine use, etc., and with a greater risk of illicit drug dependence or abuse at age 26 or older) (6.3% percent of those initiating marijuana use at age 14 or younger were recent heavy users of other illicit drugs in comparison with the less than 1 percent of adults who had never used marijuana that reported heavy use of other illicit drugs).

(5). a high percentage of adults arrested in this state for domestic violence test positive for marijuana at the time of arrest.

- Tab "A", *OFFICE OF NATIONAL DRUG CONTROL POLICY, ANCHORAGE, ALASKA, PROFILE OF DRUG INDICATORS, 69.2%*

(6). marijuana use by children is associated with an increased risk of attempting suicide.

- Tab "C", *ADOLESCENT DEPRESSION AND SUICIDE RISK, ASSOCIATION WITH SEX AND DRUG BEHAVIOR, (Youth engaging in risk behaviors such as marijuana use are at increased odds for depression, suicidal ideation, and suicide attempts)*

(7). marijuana consists of over four hundred different chemicals and can affect almost every organ and system in the body, including the lymph system, the heart, and the lungs; marijuana can disrupt memory, attention, judgment, and other cognitive functions and can impair motor coordination, time perception, and balance, especially in children.

- Tab "A", Tab "C", and Tab "D"

- *LEGALIZATION OF MARIJUANA: POTENTIAL IMPACT ON YOUTH, AMERICAN ACADEMY OF PEDIATRICS, TECHNICAL REPORT, 2004, "Some of the significant neuropharmacologic, cognitive, behavioral, and somatic consequences of acute and long-term marijuana use are well known and include negative effects on short-term memory, concentration, attention span, motivation, and problem solving, which clearly interfere with learning, adverse effects on coordination, judgment, reaction time, and tracking ability which contribute substantially to unintentional deaths and injuries among adolescents, and negative health effects with repeated use similar to effects seen with smoking tobacco.*