

## **Some Thoughts About the Epidemiology of Alcohol and Drug Use Among American Indian/Alaska Native Populations**

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*Researchers have established that rates of alcohol and illicit drug use among American Indians/Alaska Natives vary by tribe, gender, and age group, making it difficult to get an accurate estimate of the actual extent of the problem of substance abuse within this population group. Although percentage rates of alcohol consumption are higher in non-Hispanic Whites, American Indians/Alaska Natives nevertheless have the highest alcohol-related mortality rates and rates of substance use and dependence of all ethnic groups. Alcohol-related motor vehicle accidents are especially high for American Indian/Alaska Natives. Similarly, illicit drug use is higher among American Indians/Alaska Natives across all age groups compared to non-Indians. Data indicate that American Indians/Alaska Natives have the highest rates of use for marijuana, cocaine, inhalants, hallucinogens, and non-medical use of psychotherapeutics compared to other ethnic groups. Anecdotally, use of amphetamine appears to be high within some American Indian/Alaska Native tribes and has become a serious concern for most American Indian/Alaska Native communities. The percentage of American Indian/Alaska Native women using illicit drugs is lower than that found in men, except in younger age groups, in which percentage rates of illicit drug use by women in some tribes are comparable to rates for men.*

**KEYWORDS** *Alaska Native, alcoholism, American Indian, epidemiology, substance abuse*

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## INTRODUCTION

According to the 2000 census, 4.3 million (1.5%) people of the U.S. population claim some American Indian/Alaska Native (AI/AN) ancestry, and a subpopulation of 2.4 million people claim exclusively AI/AN ancestry, (U.S. Census 2000, 2006). This subpopulation comprises a younger population (i.e., 33% are younger than 18 years compared to 26% of the general population). Although approximately 1.8 million AI/ANs live on or near federal reservations, the majority live in off-reservation or urban communities.

There are more than 560 federally recognized tribes in 35 states. Federal recognition means that the tribe has a special trust relationship with the federal government in which tribal self-governance is recognized. For many tribes, this trust relationship is historically rooted in treaties signed with the U.S. government, which were negotiated in exchange for lands ceded to the United States. Just as the current United States-Indian relationship is rooted in history, so are some of the contemporary problems facing AI/ANs, including that of substance abuse, especially alcohol. With the encouragement of tribal leaders, the federal government established a policy prohibiting the sale, possession, and use of alcohol by AIs through the Indian Intercourse Act of 1832 (May, 1977). This policy was not repealed until 1953. Despite the prohibition, alcohol abuse and alcoholism rates increased through the generations, and when motor vehicles became the most popular mode of transportation, alcohol-related motor vehicle accidents caused drastic increases in alcohol-related mortality and morbidity. As a result of the high rates of alcohol-related mortality and morbidity, the federal government has initiated several resources to prevent and treat substance abuse in tribal communities, including the 1986 Indian Alcohol and Substance Abuse Prevention and Treatment Act, PL 99-570, which authorized a comprehensive and coordinated attack on illegal drug trafficking in Indian country and on alcohol and illicit substance use in tribal communities. How successful these government efforts have been is unknown.

Currently, more than half of all AI/AN reservations and communities are "dry" (i.e., sale and consumption of alcohol on these reservations are forbidden) and sale and use of illicit drugs are felonies on all reservations. Nevertheless, alcohol and drug abuse continue to be among the most serious health and social problems facing AI/AN communities and tribes. For example, according to Bureau of Justice statistics, 62% of crimes (1992–2001) in Indian country were alcohol related compared to 42% for the U.S. resident population (Perry, 2004). In violent crimes where substance use was known to the victim, 48% were under the influence of alcohol, 9% were under the influence of drugs, and 14% were under the influence of both alcohol and drugs. Forty percent of domestic violence cases among Indians involved alcohol use. Liquor law violation arrest rates among Indians during

1992–2001 were 2.8 times higher than the U.S. resident population (Perry, 2004).

Alcohol is the major drug of abuse in most reservation communities and accounts for a significant percentage of AI/AN mortality. May (1995) found between 17% and 19% of all AI/AN deaths were alcohol related compared with 4.7% for all races in the United States. May (1995) calculated that alcohol-related mortality accounted for 22% of all male AI/AN deaths and 10.4% of all AI/AN female deaths.

Substance abuse is clearly a major social and health issue for AI/ANs. Considerable research has been conducted during the past several decades to determine the extent of substance abuse and its causes within this population. Although much has been learned about this problem and some of its causes, many questions still remain. In this presentation, we will review some of this research in an effort to determine what we really know about the extent of alcohol consumption and illicit drug use among AI/ANs. Specifically, we will look at how mortality rates associated with AI/AN use of alcohol and illicit drugs compare with alcohol and drug related mortality rates among non-Indians, how rates of substance abuse vary by tribe and region and how these rates compare with rates in non-Indian groups, and how rates of substance abuse among AI/ANs vary by age groups and gender in comparison with rates in other U.S. groups of the same ages. We will present this data in two sections: the first section will review some of the epidemiological data on alcoholism, and the second section will discuss some of the recent epidemiological literature on the use of illicit drugs by AI/ANs.

Epidemiological data often tell us what is happening, but the data rarely tell us why. As we look at the data, we hope to tease out a few of the research questions that need to be addressed if we are to truly begin to understand the extent of the problem of substance abuse among AI/ANs.

## TRENDS IN ALCOHOL-RELATED USE AND MORTALITY

One approach to gauging the extent of alcohol use in AI/AN communities is to examine alcohol-related mortality statistics and then compare these statistics with rates of alcohol use. The most recent available alcohol-related mortality data from the Indian Health Service (IHS) was published in 2004 (*Trends in Indian Health 2000–2001*, 2004) and provides alcohol-related mortality data up to 1998. The data include alcohol-related mortality associated with ICD-9 codes for alcohol dependence syndrome, alcohol psychoses, alcoholic liver disease, alcohol overdose, alcoholic cardiomyopathy, alcoholic gastritis, elevated blood alcohol level, accidental poisoning by alcohol, and alcoholic polyneuropathy (*Trends in Indian Health 2000–2001*, 2004).

Based on statistics published by the IHS, AIs die from alcohol-related causes at much higher rates than other demographic groups. For example, the most recent IHS data report an alcohol-related mortality rate of 46.5 per 100,000 AI/ANs between 1996 and 1998, which is 7.4 times greater than the rate for U.S. Whites of 6.3 (*Trends in Indian Health 2000–2001*, 2004).

Mortality rates from drinking among AI/ANs also vary considerably by IHS service region (Table 1). The highest rates of alcohol-related mortality occur in the Aberdeen (Northern Plains states region), Albuquerque (New Mexico and Colorado), and Tucson (southern Arizona) regions, and the lowest rates of alcohol-related mortality occur in the California (state of California), Oklahoma, and Nashville regions (covering tribes in the eastern and southeast regions).<sup>1</sup>

Mortality rates of AI/ANs from drinking also vary by gender. According to IHS data, the ratio of alcohol-related mortality rates (1996–1998) for AI/AN men from alcoholism compared to AI/AN women ranges from 1.3 for the 25 to 34 year old age group to 4.3 for the 65 to 74 year old age group. In general, mortality rates for AI/AN men from alcohol are roughly twice the mortality rates from alcohol for AI/AN women (*Trends in Indian Health 2000–2001*, 2004).

The ratio of rates of alcohol-related mortality per 100,000 among AI men compared with White men in the United States of all races varies from 12.7 for the youngest age group (15 to 24 years) to 3.5 for the oldest group (75 years and older) (*Trends in Indian Health 2000–2001*, 2004). These data show that compared to the U.S. all races rate, mortality from drinking among AI/AN men, particularly younger men, is a serious problem.

**TABLE 1** Alcohol-Related Mortality, 1996–1998, by Indian Health Service Region<sup>a</sup>

Indian health service region	Adjusted death rate per 100,000 people	Death ratio of AI/ANs to the all races in the United States (6.3/100,000)	Death ratio of AI/ANs to Whites in the United States (6.0/100,000)
Aberdeen	87.4	13.9	14.5
Albuquerque	69.1	11.0	11.5
Tucson	68.2	10.8	11.3
Phoenix	63.8	10.1	10.6
Alaska	61.2	9.7	10.2
Billings	61.0	9.7	10.2
Portland	51.3	8.1	8.6
Navajo	50.9	8.1	8.5
Bemidji	45.1	7.2	7.5
California	30.1	4.8	5.0
Oklahoma	25.0	4.0	4.2
Nashville	24.1	3.8	4.0

AI/AN = American Indian/Alaska Native.

<sup>a</sup>Adapted from Table 4.23, *Regional Differences in Indian Health 2000–2001* (2003).

**TABLE 2** Age Adjusted Rates of Alcohol-Related Mortality Rates Per 100,000 for AI/AN Women Compared to U.S. Women, All Races 1996–1998

Age group	AI/AN women (adjusted rates)	Women of all races in the United States	Ratio of AI/AN women to all races in the United States rate	White women in the United States	Ratio of AI/AN women to white women in the United States
15–24	2.1	0.1	21.0	–	21.0
25–34	23.4	1.2	19.5	1.0	23.4
35–44	63.9	4.9	13.0	4.5	14.2
45–54	97.6	7.3	13.3	6.6	14.8
55–64	64.9	9.0	7.2	8.6	7.5
65–74	39.0	7.9	4.9	7.9	4.9
75–84	27.5	4.8	5.7	4.8	5.7
85+	–	2.2	–	2.2	–

AI/AN = American Indian/Alaska Native.

Adapted from Table 4.30, *Trends in Indian Health 2000–2001* (2004).

An even greater disparity in alcohol-related mortality can be found by comparing rates among AI/AN women with rates of alcohol-related mortality for White women. As illustrated in Table 2, rates are much higher for AI/AN women compared to rates for U.S. White women, particularly among the younger age groups (25–34 years) of AI/AN women, in whom mortality rates are 23.4 times the rates for non-Hispanic White women of the same age group and are higher across all age groups compared to U.S. women of all races.

Are the alcohol-related mortality rates for AI/AN men and women increasing or decreasing over time? As shown in Table 3, although mortality rates for AI/AN men from drinking are increasing across most age groups, it is significant that mortality rates have declined somewhat for the younger male age groups (15 to 34 years). However, as Table 3 indicates, the rates of alcohol-related mortality increased across all age groups of AI/AN women between 1989 and 1998 (*Trends in Indian Health 2000–2001*, 2004). Tables 2 and 3 indicate that the increased rates of alcohol-related mortality for AI/ANs compared to non-Indian groups may be in part due to the high rates of alcohol-related mortality among AI/AN women, particularly those in the 35 to 64 year age groups.

Further research is needed to confirm this trend in alcohol-related mortality among AI/AN women. Studies are also needed that look at protective factors for AI/AN women and men against drinking.

### Rates of Alcohol Consumption

Now, let's look at national data examining alcohol use from the *National Survey on Drug Use and Health* (NSDUH) (Substance Abuse and Mental Health Services Administration [SAMHSA], 2005). Based on the IHS alcohol-related mortality data presented Table 1, we would expect rates of

**TABLE 3** Comparison of Age Adjusted Rates of Mortality from Drinking by Gender and by Age Group, 1989–1991 and 1996–1998

Age group	AI/AN women (adjusted rates, 1991–1993)	AI/AN women (adjusted rates, 1996–1998)	Percent change	AI/AN men (adjusted rates, 1991–1993)	AI/AN men (adjusted rates, 1996–1998)	Percent change
15–24	1.8	2.1	+17%	8.4	5.1	–39%
25–34	20.3	23.4	+15%	34.9	30.9	–11%
35–44	49.7	63.9	+29%	92.2	97.8	+6%
45–54	69.4	97.6	+41%	137.0	169.7	+24%
55–64	49.5	64.9	+31%	142.2	172.0	+21%
65–74	37.2	39.0	+5%	103.8	171.5	+65%
75–84	20.6	27.5	+33%	49.5	64.6	+31%
85+	–	–	–	59.8	40.1	–33%

AI/AN = American Indian/Alaska Native.

Adapted from *Trends in Indian Health 1996: The Indian Health Service* (1997) and *Trends in Indian Health 2000–2001* (2004).

alcohol use among AI/ANs to far exceed rates for other groups. However, data from the 2003 NSDUH survey (SAMHSA, 2005) survey paints a different picture. According to Table 4, which is based on percentage of drinkers, fewer AI/ANs have consumed alcohol in their lifetime, the past year, or the past month (current usage) compared to Whites. NSDUH data indicates that this is also true across age groups when comparing drinking behavior among Whites and AI/ANs. If more Whites drink than AI/ANs, then the question arises: how do we account for the higher rates of alcohol-related mortality among AI/ANs in comparison to Whites?

A clue to this disparity may be found in the data from the National Epidemiological Survey on Alcohol and Related Conditions (NESARC) (Grant et al., 2004), which presents percentages of Whites and AI/ANs by age with alcohol dependence and alcohol abuse based on criteria from the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychological Association, 2000). The NESARC data indicate that more than twice as many AI/AN men are alcohol dependent as White men between 30 and 64 years old (Table 5). Significantly, Table 5 also indicates that twice as many AI/AN

**TABLE 4** Percentage Lifetime, Within the Last Year, and Within the Past Month Use of Alcohol by Demographic Group, 2003

Time	White (%)	AI/ANs (%)	African American (%)	Asian (%)	Latino (%)
Lifetime	86.7	78.6	76.4	68.0	74.7
Past Year	68.9	62.3	53.8	52.9	58.0
Past Month	54.4	42.0	37.9	39.8	41.5

AI/AN = American Indian/Alaska Native.

Adapted from Table 247.B, Substance Abuse and Mental Health Services Administration, 2005.

**TABLE 5** NESARC Data: 2001–2002, 12-Month Prevalence (%) of DSM-IV Alcohol Dependence and Alcohol Abuse Group by Age for White and AI/AN Men and Women

Ages	Percent alcohol dependence by age for White and AI/AN men					Percent alcohol abuse by age for White and AI/AN men						
	AI/AN men (%)	White men (%)	Ratio AI/ANs to White men	Ratio of AI/AN women to White women		AI/AN men (%)	White men (%)	Ratio AI/AN to White men	Ratio of AI/AN women to White women			
				AI/AN women (%)	White women (%)				AI/AN women (%)	White women (%)		
18–29	15.96	15.10	1.06	8.73	6.38	1.37	15.25	10.19	1.41	6.68	5.56	1.2
30–44	10.94	5.13	2.13	5.77	2.81	2.03	7.67	10.10	0.76	6.52	4.13	1.58
45–64	5.11	2.56	1.99	2.53	1.15	2.2	4.85	5.97	0.81	–	2.02	–

AI/AN = American Indian/Alaska Native.

DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition.

NESARC data adapted from tables in Grant et al., 2004.

**TABLE 6** Percentage Binge and Heavy Drinking in the Past Month by Age Group (2003)

Age (y)	Binge drinking (Whites)	Heavy drinking (Whites)	Ratio: Binge to heavy drinking (White)	Binge drinking (AI/ANs)	Heavy drinking (AI/ANs)	Ratio: Binge to heavy drinking (AI/ANs)
12–17	12.8	3.5	3.66:1	12.4	1.7	7.3:1
18–25	47.8	19.0	2.5:1	41.6	13	3.2:1
26+	20.6	6.1	3.37:1	30.5	11	2.8:1

AI/AN = American Indian/Alaska Native.

Adapted from Tables 2.53B, 2.54B, 2.55B, Substance Abuse and Mental Health Services Administration, 2005.

woman as White women between 30 and 64 years old are alcohol dependent. Furthermore, more AI/AN men at younger ages (18 to 29 years old) suffer from alcohol abuse than Whites at the same ages, although this is not true at older (older than 30 years) age groups. Among women, ages 18 to 44 years, more AI/AN than White women are diagnosed with alcohol abuse (Table 5).

The type of drinking behavior is also important in trying to understand this disparity. According to May (1995), AI/ANs are primarily binge drinkers, and AI/ANs binge drinkers outnumber chronic drinkers by 3:1.<sup>2</sup> Data from NSDUH indicates that AI/ANs 12 to 25 years old have a greater tendency to binge drink compared to their White peers (Table 6). Although AI/ANs have lower rates of heavy drinking than Whites in the younger age groups (12 to 25 years old), they have much higher rates of both binge and heavy drinking in the older age group (26 years and older) (see Table 6). These high rates of both binge and heavy drinking in the 26 years and older age group may be a factor in the high rates of alcohol abuse, dependence, and alcohol-related mortality among AI/ANs.

May (1995) has estimated that “recreational” or “binge” drinking (predominantly occurring in men between 15 and 35 years old) is a factor in 65% of motor vehicle accidents, 75% of suicides, and 80% of homicides among AI/ANs. Most of these alcoholic-related deaths, however, are not counted in the IHS mortality rates for alcohol-related mortality. May (1995) has also suggested that this younger age group represents a population of men willing to take risks, which may account for the high rates of alcohol-related mortality among young AI/AN men.

### Studies Among Tribes

Several studies of alcohol dependence and drinking behavior have been conducted in the past four decades among individual tribes. Only a few of these studies, however, have been longitudinal: Whittaker’s work (1963; 1982) with the Standing Rock Sioux; Kunitz and Levy (1974, 2000); and

**TABLE 7** Recent Studies of Drinking Behavior Among Specific Tribes

Authors	Tribe or population	Total population drinking (%)	Male drinkers (%)	Female drinkers (%)
Dawson et al., 1995	U.S. reference population (NLAES) <sup>a</sup>		60	39.1
Robin et al., 1998	Southwest tribe		85	51
Kunitz and Levy, 2000	Navajo community		70 (lifetime prevalence)	30 (lifetime prevalence)
Saremi et al., 2001	American Indian population.		85	53
May and Gossage, 2001	Plains tribes; plateau cultures	65 (past 12 months)	70.7 (past 12 months)	60.4 (past 12 months)
Hermann-Stahl and Chong, 2002 <sup>b</sup>	Three Arizona tribes (A, B, C)		(A) 44.1 (B) 53.3 (C) 27.3	(A) 23.9 (B) 23.5 (C) 9.0
Spicer et al., 2003	Northern Plains tribe (NP); Southwest tribe (SW)		N.P. 61.6 (SW) 47.9	N.P. 48.4 (SW) 21.7
Ehlers et al., 2004	California Mission Indians		70	50

<sup>a</sup>National Longitudinal Alcohol Epidemiological Survey (NIAAA, 1991–1992).

<sup>b</sup>Includes polysubstance abusers.

May and Smith's studies (1994) among the rural and urban Navajo; and the follow-up study of Leung, Kinzie, Boehnlein, and Shore (1993) in one Northwest Coast tribal village. Two of these studies (Standing Rock Sioux and the Northwest Coast Village) show that drinking behavior decreased over time. Levy and Kunitz (1974; see also Quintero, 2000) also found that many Navajo drinkers over 50 quit drinking without assistance. Table 7 summarizes some of the more recent studies (since the mid-1990s) and the populations examined.

The studies of drinking behavior among tribes are interesting but methodological differences and problems make comparisons between studies difficult. For example, many of these studies are based on small samples, raising questions about how representative the samples and how generalizable the findings are. The studies indicate that drinking behavior for all groups is influenced by several factors, including whether the community studied is a "dry" reservation (permits drinking on the reservation), is close to an urban area (or if the tribal community is urban-based), and has social norms about drinking (Weibel-Orlando, 1989).

These studies also confirm that there are regional, tribal, gender, and age differences in the use of alcohol. For example, studies by Hermann-Stahl and Chong (2002), Kunitz and Levy (2000), and Spicer et al. (2003) indicate that the Southwestern tribes they studied had rates of alcohol use that were lower than rates among the U.S. reference population, especially for women.

However, among the Northern Plains tribes and the Rocky Mountain tribes studied by Spicer et al. (2003) and May and Gossage (2001), rates of drinking among AI/AN women approached the rates for AI/AN men and exceeded the rates for the U.S. reference population. Mitchell et al. (2003) report lifetime polysubstance abuse (excluding alcohol) rates of 37.6% for women and 65.1% for men from a southwestern tribe, and rates of 65.5% for women and 73.4% for men from a northern plains tribe. Kunitz (2006) reports that the Navajo men he studied engaged in heavy drinking in response to peer pressure, but heavy drinking among Navajo women was associated with co-morbid mental health issues or domestic abuse.

Lifetime abstinence rates also vary by tribe. Beals et al. (2003) have found that rates of abstinence for both sexes and all age groups in the Southwest tribe they studied were higher than abstinence rates of women in the U.S. reference population. However, rates of drinking for women from the Northern Plains tribe were much higher than rates for women in the U.S. reference population as well as for women from the southwestern tribe.

### Some Perspectives About the Data on Alcohol Use Among AI/ANs

So what does all this data on alcohol use tell us? We know from studies of specific tribes that rates of alcohol and substance abuse vary by tribe (Denny, Holtzman, & Cobb, 2003; O'Connell et al., 2005; Spicer et al., 2003), gender (May, 1995), and age group. The data also indicate that drinking among young AI/AN women appears to be increasing (Table 3). Spear, Longshore, McCaffrey, and Ellickson (2005) found that rates of alcohol and drug use in AI girls, ages 12–13, from a Northern Plains tribe, exceeded rates of use among both AI and White boys. Oetting and Beauvais (1989) reported in an earlier study that up to 96% of AI/AN boys and 92% of AI/AN girls in 12th grade report that they have used alcohol.

Additional studies are needed to confirm whether rates of alcohol use among AI/AN youth, ages 12 to 18 years, of both genders are increasing or decreasing. These studies are critical because Dawson (2000), Ehlers, Wall, Betancourt, and Gilder (2004), and McGue, Iacono, Legrand, and Elkins (2001) reported that drinking before 15 years of age increases the likelihood of alcohol dependence. For example, Ehlers, Slutske, Gilder, Lau, and Wilhelmsen (2006) reported that 92% of their sample of California Mission Indians who first experienced intoxication at 12 years or younger were alcohol dependent as adults compared to 12% whose first experience with intoxication occurred at 21 years or older.

Research indicates that AI/ANs have the highest rates of binge drinking and heavy drinking compared to other groups for those 26 years and older (Table 6). Although AI/AN women generally drink at lower rates than AI/AN men, rates of drinking among AI/AN women from some tribes are increasing and are approaching the rates among AI/AN men (Spicer et al.,

2003). Based on NESARC data, we have seen that although fewer AI/ANs drink than Whites, the percentages of AI/ANs who are alcohol abusers or who are alcohol dependent are higher than percentages found among Whites. Although a greater percentage of Whites drink alcohol than AI/ANs, the higher alcohol-related mortality rates among AI/ANs may in part correlate with the higher rates of AI/AN female drinking in some tribes, with higher rates of alcohol abuse and dependence among both AI/AN women and men, and with the higher rates of both binge and heavy drinking among AI/ANs older than 26 years of age.

### Illicit Drug Use

Although the number of studies of illicit drug use among AI/ANs is increasing, most available information about illicit drug use and mortality is focused on the non-Indian population. Much of the information about drug use among AI/ANs is anecdotal (e.g., stories that appear in newspaper articles). The following information is presented in three sections: IHS mortality rates for illicit drug use, NSDUH survey data on drug use, and studies of polysubstance abuse.

*Mortality Rates from Illicit Drug Use.* Using the same ICD-9 codes for drug abuse as those used by the National Center for Health Statistics, the IHS reports that age adjusted rates of AI/AN mortality associated with illicit drug use for the period of 1997 to 1999 were 1.8 times greater than the U.S. all races rate (*Trends in Indian Health 2000–2001*, 2004). Mortality rates from drug use by AI/ANs and non-Indians were relatively comparable during the 1980s and early 1990s, but beginning in 1994–1995, the rates of drug-related mortality began to increase among AI/ANs compared to mortality rates among non-Indians (Table 8). Rates of drug related mortality per 100,000 increased from 3.4 in 1979 to 10.3 in 1996–1998, which represents a three-fold increase in mortality from illicit drug use in 19 years (*Trends in Indian Health 2000–2001*, 2004).

**TABLE 8** Indian Health Service Recorded Mortality Rates per 100,000 Associated with Drug Abuse

Years	American Indians	All races in the United States	Ratio of American Indians to All races in the United State
1979–1981 (1980)	3.4	3.0	1.3
1986–1988 (1987)	4.7	4.0	1.2
1996–1998 (1997)	10.3	5.6	1.8

Adapted from Table 6.1, *Trends in Indian Health 2000–2001*, 2004.

The IHS reports that AI/AN mortality rates from illicit drug use for both sexes are consistently higher across all age groups compared to non-Indians and are especially higher in the 25 to 54 year age groups. Moreover, rates of drug-related mortality for AI/AN men and women are consistently higher than drug-related mortality rates for non-Indian men and women in the United States, reaching almost twice the mortality rate of non-Indians in the 35 to 54 year age groups (Table 9).

Rates of drug abuse mortality for AI/AN men are twice that of AI/AN women with the exception of the 15 to 24 year age group, where mortality rates from drug use are similar for both genders, and the oldest age group (65–74), where rates of mortality from drug use by AI/AN women are higher than rates among AI/AN men (Table 9). Mortality rates from drug use among AI/AN women, ages 15 to 24 years, are 2.5 times the mortality rates of U.S. women of all races in the same age group (Table 9).

*Rates of Illicit Drug Use.* The NSDUH (SAMHSA, 2005) survey data on illicit drug use by various ethnic groups indicates that AI/ANs have the highest percentage rates of lifetime, past year, and past month use of illicit drugs compared to other ethnic groups (Table 10).

Lifetime use of illicit drugs is higher among AI/ANs compared to other racial groups at all age groups (Table 10). Drug use in the past month is particularly high among AI/ANs 12 to 17 years old (26%) compared to Whites (11.1%) and all races in the United States (10.6%) (SAMHSA, 2005). These statistics raise two questions: which drugs are being used, and is the use of each of these specific drugs higher for AI/ANs than for all other racial groups?

Most reports indicate that marijuana is the illicit drug most frequently used by all AI/AN age groups. The percentage of current marijuana use is

**TABLE 9** Age Adjusted Drug-Related Deaths Rates per 100,000: 1996–1998

Ages (y)	AI/Ans of both sexes	All races in the United States, both sexes	Ratio, AI/ANs to all races in the United States, both sexes		Ratio, AI/AN men to U.S. men		Ratio, AI/AN women to U.S. women		Ratio, AI/AN men to AI/AN women	
			AI/AN men	U.S. men	AI/AN men	U.S. men	AI/AN women	U.S. women	AI/AN men to AI/AN women	
15–24	4.3	2.8	4.9	4.0	1.25	3.8	1.5	2.5	1.3	
25–34	15.0	8.5	21.1	12.3	1.71	9.2	4.6	2.0	2.3	
35–44	29.0	14.4	39.8	20.9	1.85	18.8	7.9	2.4	2.1	
45–54	19.7	10.0	28.9	13.9	2.1	11.3	6.2	1.8	2.6	
55–64	6.0	4.1	6.4	4.9	1.3	5.6	3.4	1.6	1.14	
65–74	3.3	2.3	3.0	2.4	1.2	3.5	–	–	0.86	

AI/AN = American Indian/Alaska Native.

Adapted from Table 6.2, *Trends in Indian Health 2000–2001* (2004).

**TABLE 10** Percent of Ethnic Populations Using Illicit Drugs, Ages 12 and older, 2004

Time frame	AI/ANs (%)	Whites (%)	African Americans (%)	Hispanics (%)	Asians (%)	All races in the United States (%)
Lifetime	58.4	49.1	43.3	35.4	24.3	49.1
Past year	26.2	14.5	14.6	12.9	6.9	15.0
Past month	12.3	7.9	8.7	7.2	3.1	8.8

AI/AN = American Indian/Alaska Native.

Adapted from Table 1.28B, Substance Abuse and Mental Health Services Administration, 2005.

higher in AI/ANs compared to percentage of use among Whites and all races in the United States (Table 11). The percentage of current marijuana usage among AI/ANs is also more than double that calculated for all races in the United States. In a study comparing substance use and dependence among a Southwestern tribe and a Northern Plains tribe, Mitchell et al. (2003) found

**TABLE 11** Percent of Population, Ages 12 and Older: Lifetime, Past Year, and Past Month Use of Illicit Drugs, 2004

Drug use	AI/ANs (%)	Whites (%)	All races in the United States (%)
Illicit drug use other than marijuana			
Lifetime	42	32.4	29.4
Past year	16	8.6	8.2
Past month	5.4	3.5	3.4
Marijuana			
Lifetime	48.7	44.1	40.2
Past year	17.7	11.1	10.6
Past month	9.1	6.2	6.1
Cocaine			
Lifetime	19.1	15.9	14.2
Past year	3.3	2.4	2.4
Past month	1.6	0.8	0.8
Inhalant			
Lifetime	19.6	11.2	9.5
Past year	2.2	0.9	0.9
Past month	0.5	0.2	0.3
Hallucinogen			
Lifetime	22.5	17.1	14.3
Past year	4.7	1.8	1.6
Past month	1.1	0.4	0.4
Non-medical use of prescription-type psychotherapeutics			
Lifetime	25.7	22.6	20.0
Past year	9.6	6.8	6.1
Past month	3.0	2.7	2.5

AI/AN = American Indian/Alaska Native.

Adapted from Tables 1.68B, 1.33B, 1.38B, 1.53B, and 1.48B, Substance Abuse and Mental Health Services Administration, 2005.

that percentages of marijuana use were comparable among the men from the Northern Plains tribe (15.4%) and the Southwestern tribe (14.0%), but were almost double the rate among the Northern Plains tribe women compared to the Southwestern tribe women (9.8% vs. 4.5%). Not surprisingly, marijuana abuse and dependence was the most commonly diagnosed drug disorder for both tribes (Mitchell et al., 2003).

Data on the use of more addictive drugs also indicate high usage rates among AI/ANs compared to other groups. For example, according to NSDUH data for 2004 (SAMHSA, 2005), cocaine use by American Indians exceeds use by Whites, Hispanics, and the all races rate in the United States for lifetime, past year, and current usage. Although not shown in Table 11, the percentage of cocaine users among 12 to 17 year olds (5.1%) is more than twice the percentage for all races in the United States (2.4%) (SAMHSA, 2005). The percentage of AI/ANs using hallucinogens is also higher than that found in other groups, particularly among the 12 to 17 year age group, whose use of hallucinogens is 2.7 times that found among all races in the United States (Table 11).

As shown in Table 11, the percentages of lifetime use of inhalants (19.6%) among AI/ANs is more than twice the percentage for all races in the United States. Non-medical use of prescription psychotherapeutics (e.g. OxyContin) is also a problem among AI/ANs, who report higher lifetime, past year, and past month use compared to non-Indians (Table 11).

*Methamphetamine Use.* Actual numbers of AI/ANs who are using or have used methamphetamine are difficult to establish. Published statistics on methamphetamine use indicate that 1.7% of AI/ANs have used methamphetamine compared to 2.2% Hawaiians, 0.7% Whites, 0.2% Asians, and 0.1% Blacks (McSwain, 2006). Breakdown by gender indicates approximately equal use by both AI/AN men and AI/AN women (McSwain, 2006). However, these numbers belie the seriousness of the problem. Methamphetamine not only is more readily accessible, but is also cheaper than most other forms of illicit drugs. Chaney (2006) states that methamphetamine is the number one public safety problem on reservations because of the resulting social problems, including increases in rapes, homicides, suicides, child abuse, assaults, and domestic violence. In a survey of 96 reservation-based law enforcement agencies, Evans (2006) found that 74% (71/96) reported methamphetamines to be the greatest threat to their communities and 47% (45/96 agencies) reported that methamphetamine use constituted 20% or more of their arrests. Holt (2006) reports that no state in the United States in 1992 had more than 10% treatment admissions for methamphetamine addiction, but by 2003, 35% of the states had 10% or higher rates of admissions for methamphetamine addiction, and eight states reported 20% or more admissions.

According to the IHS, 30% of AI/AN youth have experimented with methamphetamine (Joe Garcia, president of the National Congress of

American Indians, as cited by Lewin, 2006). The chairman of the San Carlos Apache tribe recently reported that 63 of 256 newborns in 2005 were addicted to methamphetamine, and 25% of patients admitted to the emergency room tested positive for methamphetamine (Lindblom, 2007). The Navajo Nation has reported a 100% increase in use of methamphetamine over a 5-year period (Garcia, as cited by Lewin, 2006).

Conducting research on the extent of methamphetamine usage in reservation communities is difficult. Most existing data is based on crime statistics and emergency room treatment, which underestimates the actual extent of methamphetamine use in the community. Presumably future surveys conducted by the IHS, SAMHSA, and the National Institute of Drug Abuse as well as tribal specific studies by researchers will provide more specific data on the extent of methamphetamine use among AI/ANs and whether methamphetamine use or its complications are increasing.

*Illicit Drug Use Among Youth.* In 2004, 58.4% of AI/ANs older than 12 years reported lifetime use of illicit drugs (marijuana, inhalants, prescription drugs, methamphetamine, and/or cocaine) compared to rates of use among other ethnic groups, which range from 24.3% (Asians) to 49% (Whites) (SAMHSA, 2005). Among AI/AN youth, ages 12 to 17 years, past month illicit drug use was 26.0% compared to 10.6% for non-AI/ANs. The NSDUH data indicates that AI/AN youth have higher rates than non-Indians for past month marijuana use (16.7% vs. 7.6%) and have higher lifetime rates of use for hallucinogens (12.5% vs. 4.6%), cocaine (19.1% vs. 14.2%), and inhalants (13.6% vs. 11.0%) compared to non-Indians (SAMHSA, 2005). Clearly use of illicit drugs is a major problem among youth in AI/AN communities today but the extent of the use or patterns of addictions have not been carefully examined, especially in data that relies on self-report. For example, it is unclear whether statements from youth who say they have experimented with drugs represent true disclosures.

*Polysubstance Abuse.* An NSDUH report (SAMHSA, 2005) summarizing rates of both alcohol and illicit drug use among women older than 18 years found that AI/AN women had the highest percentage of polysubstance use (19.3%). The NSDUH reports that the percentage of AI/AN women using both alcohol and illicit drugs increased from 10.2% in 2002 to 19.9% in 2003, which is more than three times the percentage rate for Whites (6.3%) and almost six times the rate for Asians (3.4%).

Hermann-Stahl and Chong (2002) have looked at polysubstance abuse with alcohol in a sample of three southwestern tribes. The authors found that most illicit drug users also used alcohol. Only in one of the three tribes did they find illicit drug use without use of alcohol, and then only at rates of 1.2% and 1.0% for men and women, respectively. Rates of polysubstance abuse varied across the three tribes, ranging from a low of 1.8% for women in one tribe to a high of 15.9% for men in another tribe. Within the three tribes, the ratios of AI/AN men to AI/AN women based on percentages

of respondents engaging in polysubstance abuse was 4.5, 2.5, and 2.8, respectively.

Mitchell et al. (2003) found rates of polydrug abuse (excluding alcohol) in a Southwestern tribe and a Northern Plains tribe ranging from 10.9% among Southwestern women and 20.2% among Southwestern men to 35.5% for men and 26.7% for women from the Northern Plains tribe.

## CONCLUSION

Historically, the use of alcoholic or fermented substances and hallucinogenics was not unknown to tribes throughout the Americas. Ingestion of such substances, however, was usually within the context of ceremonial or healing activities. The prohibition against the abuses of these substances was strictly observed. The introduction of alcohol and subsequent abuse and addiction happened rapidly because it was encouraged by White explorers, traders, and hunters. Unfortunately, there were no tribal sanctions against these substances as they were non-Indian.

Currently, alcohol continues to be the drug of choice among AI/ANs. Although the data indicates that a greater percentage of Whites drink alcohol compared to AI/ANs, AI/ANs have higher rates of alcohol-related mortality, alcohol abuse, and alcohol dependence than Whites and all races in the United States. Furthermore, a greater percentage of AI/AN women drink than non-Indian women, although rates vary by tribe, with some tribes having very low rates of alcohol consumption by AI/AN women.

Illicit drug use is higher among AI/ANs across all age groups compared to non-Indians. Research indicates that marijuana is the illicit drug of choice, but NSDUH (SAMHSA, 2005) data also indicate that AI/ANs have the highest rates of use of marijuana, cocaine, inhalants, hallucinogens, and non-medical use of psychotherapeutics compared to other ethnic groups. However, the percentage of AI/AN women using illicit drugs tends to be lower than that of AI/AN men, except in younger age groups where rates of illicit drug use by women from some tribes are comparable to rates among men. Anecdotally, use of methamphetamine appears to be high in some AI/AN tribes and is becoming a serious concern for most AI/AN communities.

## NOTES

1. These data are deceptive, however, because there are problems with how the data are reported. Because Oklahoma and California have the highest AI/AN populations in the United States, one would expect these two states proportionally to have the highest mortality rates from drinking. Problems with coding of race on death and birth certificates are certainly an issue, but the situation is more complex than just racial misclassification. In California, most AI/AN reside in cities without IHS facilities; in Oklahoma, only 25% to 30% of tribes utilize IHS-sponsored services. Thus for AI/AN living in these two states,

substance-abuse related deaths would not be recorded in the RPMS data system. These same problems are also true for a number of other IHS service regions.

2. Based on SAMHSA criteria, binge drinking is the consumption of 5 or more drinks on 1 to 4 occasions during the past 30 days, and heavy drinking is essentially binge drinking (5 or more drinks on a single occasion) on each of 5 or more days in the past month (SAMHSA, 2003).

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