

The Health Status of American Indian and Alaska Native Males

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Despite growing awareness that certain pathology disproportionately affects American Indian and Alaska Native (AI/AN) males, there appears to be no systematic analysis of their health and illnesses. A review of MEDLINE citations since 1990 reveals no reports specifically about AI/AN males other than that by Joe for male college students.¹ Analysis of AI/AN males' health status requires comparisons with AI/AN females and with non-AI/AN males. Of these, the comparison that is currently most available is that between AI/AN males and AI/AN females.

The reason for this is that there are practically no comparative data available in the medical literature. By contrast, the Indian Health Service (IHS) has a great deal of data permitting comparisons of AI/AN males with AI/AN females in its *Trends in Indian Health*² (hereafter referred to as *Trends*). Currently, the IHS is almost the only source for data referring to health status and utilization of clinical services; therefore, this article will deal almost exclusively with IHS data and with comparisons between AI/AN males and AI/AN females.

METHODS

The most recent compilation by the IHS² provides information on the approximately 1.5 million AI/AN individuals to whom it has responsibility for the provision of health care. Although this population is a subset of the entire AI/AN population, it is the population for which most of the formal AI/AN health planning is done; therefore, it is reasonable that it be the focus of attention in this article. Available data include number and causes of deaths, number and causes of outpatient visits, and number and causes of hospitalizations by age and sex. The sources and certain weaknesses of the data are discussed in the annual IHS *Trends*.

Objectives. This study summarizes current health status information relating to American Indian and Alaska Native (AI/AN) males compared with that of AI/AN females.

Methods. I analyzed published data from the Indian Health Service for 1994 through 1996 to determine sex differences in morbidity and mortality rates and use of health care facilities.

Results. AI/AN males' death rates exceed those of AI/AN females for every age up to 75 years and for 6 of the 8 leading causes of death. Accidents, suicide, and homicide are epidemic among AI/AN males. Paradoxically, AI/AN males contribute only 37.9% of outpatient visits, versus 62.1% for females, and only 47% of hospitalizations excluding childbirth.

Conclusions. AI/AN males suffer inordinately from a combination of increased burden of illness and lack of utilization of health care services. Programs targeted to anomie, loss of traditional male roles, and violence and alcoholism are among the most urgently needed. (*Am J Public Health.* 2003;93:774-778)

On the basis of these data, I have compared certain diseases and conditions between the sexes. For analysis of relative access to health care, I have summarized the number and types of clinical services utilized by each sex.

RESULTS

Deaths

Table 1 displays the distribution of deaths of AI/AN males by age compared with that of AI/AN females during the years 1994 through 1996. During this period, there were 14 185 male deaths from all causes, compared with 11 119 female deaths. For every age group up to age 75 years, the number of male deaths exceeds the respective number of female deaths, sometimes by more than 2-fold. For example, among AI/AN males aged 0 to 4 years, there were 689 deaths, compared with 586 for females of the same age, a difference of 103 deaths. However, among males, deaths in this age group contribute 4.9% to total male deaths, compared with 5.3% for female deaths within the same age group.

Sex differences in the number and proportion of all deaths among AI/ANs aged 5 to 14 years are not as great, with 216 deaths of

males, compared with 150 deaths of females. However, beginning approximately at age 15 years, the number of deaths of males greatly exceeds that of females for each age group up to age 75 years. Among males aged 25 to 34 years, there were 1368 deaths (9.6% of all male deaths); for females of this age group, the number was 635 (5.7% of all female deaths). These data yield a ratio of male-to-female deaths of 2:2 for this age group.

Nearly one fourth (23.3%) of AI/AN male deaths occur by age 34 years, compared with only 15.9% of AI/AN female deaths. Nearly one half of all AI/AN male deaths occur by age 54 years; the comparable age for AI/AN females is 64 years. Conversely, 33.3% of AI/AN female deaths occur after age 75 years, compared with only 21.4% for AI/AN males. Table 2 shows the number of deaths, and corresponding mortality rates for leading causes of deaths, for AI/AN males compared with females. The leading cause of death for both sexes is heart disease, but the heart disease death rate for males is 158.2 per 100 000, compared with 109.4 per 100 000 for females. However, the order of the remaining leading causes of death is different for males compared with females. The next leading causes of death for males, in descending order, are accidents, cancer, chronic liver

TABLE 1—Distribution of American Indian and Alaska Native Deaths, by Age and Sex: 1994–1996^a

Age, y	Males, n (%)		Females, n (%)	
	n	(%)	n	(%)
0–4	689	(4.9)	586	(5.3)
5–14	216	(1.5)	150	(1.3)
15–24	1029	(7.3)	404	(3.6)
25–34	1368	(9.6)	635	(5.7)
35–44	1597	(11.3)	835	(7.5)
45–54	1683	(11.9)	1115	(10.0)
55–64	2072	(14.6)	1544	(13.9)
65–74	2489	(17.5)	2140	(19.2)
≥ 75	3033	(21.4)	3706	(33.3)
Not known	9	0.06	4	0.04
Total	14 185	100.6 ^b	11 119	99.8 ^b

Source. Adapted from *Trends in Indian Health 1998–99*.^{2(p83)}

^aAdjusted to compensate for miscoding of AI/AN race on death certificates.

^bResults do not equal 100% as a result of rounding.

disease, suicide, diabetes mellitus, cerebrovascular disease, and pneumonia/influenza. For females, the ranking is cancer, accidents, diabetes, cerebrovascular disease, chronic liver disease, pneumonia/influenza, and suicide. Motor vehicle accidents account for 55% of all accidental deaths among AI/AN males, compared with 65% among females.

Other differences in death rates are striking. For example, the death rate from accidents for males is 121.5 per 100 000, compared with only 53.0 per 100 000 for females. Similarly, the death rate from suicide for males is 29.8 per 100 000, compared with 7.2 per 100 000 for females. Suicide was the fifth leading cause of death for males, but only the tenth leading cause of female deaths. Among leading causes, the death rates for females exceeded those for males only for diabetes and cerebrovascular disease.

The male-to-female ratio of mortality rates from all causes is 1.3:1; from heart disease, 1.4:1; from accidents, 2.3:1; from chronic liver disease, 1.3:1; from suicide, 4.1:1; and from pneumonia/influenza, 1.2:1. The number and rates of deaths associated with cancer is almost identical between the sexes, with 1936 male (rate=95.7 per 100 000) and 1943 female (rate=93.2 per 100 000) deaths.

TABLE 2—Leading Causes of American Indian and Alaska Native Death, by Sex: 1994–1996

Cause of death	Male		Female	
	No.	Rate per 100 000	No.	Rate per 100 000
All causes	14 185	700.9	11 119	533.6
Heart disease	3202	158.2	2280	109.4
All accidents	2460	121.5	1105	53.0
Vehicular accidents	1361	67.2	722	34.6
Cancer	1936	95.7	1943	93.2
Chronic liver disease	654	32.3	529	25.4
Suicide	604	29.8	149	7.2
Diabetes mellitus	587	29.0	904	43.4
Cerebrovascular disease	501	24.8	642	30.8
Pneumonia/influenza	500	24.7	412	19.8

Source. Adapted from *Trends in Indian Health 1998–99*.^{2(p74)}

Outpatient Visits and Hospitalizations

Table 3 shows the number of outpatient visits by each sex for the 8 leading causes (1997 data are provisional). Males make 37.9% of all outpatient visits, compared with 62.1% for females. Thus, males make 39% fewer outpatient visits than do females (2 969 025 visits for males vs 4 866 985 visits for females). The number of visits made by females is greater than that made by males for every category except injury/poisoning. The greater number of visits by females for both endocrine (319 313) and genitourinary tract (221 253) disorders is striking.

The 10 leading causes of hospitalization, excluding childbirth and associated conditions, are shown in Table 4. In 1994 through 1996, males accounted for 30 747 hospitalizations (47% of the total), compared with 34 551 for females. Conditions for which hospitalizations were more frequent for females included respiratory, digestive, circulatory, endocrine, and genitourinary conditions and symptoms, and ill-defined conditions. Conditions for which

TABLE 3—Leading Ambulatory Impressions (Outpatient Visits) for American Indians and Alaska Natives, by Sex: 1997

	Male, No.	Female, No.
All	2 969 025	4 866 985
Supplementary ^a	399 166	653 948
Respiratory	339 977	504 873
Nervous system	293 700	387 623
Injury/poisoning	184 578	...
Pregnancy ^b	...	358 277
Endocrine ^c	183 020	319 313
Circulatory	180 046	208 876
Genitourinary	...	221 253

Source. Adapted from *Trends in Indian Health 1998–99*.^{2(p222)} Data are provisional.

^aSupplementary is applied to a variety of kinds of visits, most of which would be classified as well child or other screening examinations.

^bIncludes complications of pregnancy, childbirth, and the puerperium.

^cIncludes endocrine, nutritional, and metabolic disorders.

TABLE 4—Leading Causes of Hospitalization for American Indians and Alaska Natives, by Sex, Excluding Childbirth: 1997

	Males, n (%)	Females, n (%)
All	30 747 (100.0)	34 551 (100.0)
Respiratory	5523 (18.1)	5900 (17.1)
Digestive	4349 (14.1)	5805 (16.8)
Injury/poisoning	4155 (13.5)	3203 (9.3)
Circulatory	2955 (9.6)	3090 (8.9)
Symptoms ^a	2656 (8.6)	3065 (8.9)
Mental	2254 (7.3)	1310 (3.8)
Endocrine	1761 (5.7)	1972 (5.7)
Skin/subcutaneous	1700 (5.5)	1447 (4.2)
Genitourinary	998 (3.2)	3563 (10.3)
Musculoskeletal	989 (3.2)	...
Subtotal	...	(88.7) ... (85.0)

Source. Adapted from *Trends in Indian Health 1998–99*.^{2(p196)}

^aIncludes ill-defined syndromes.

male hospitalizations outnumbered those of females included skin/subcutaneous, mental, and musculoskeletal conditions, and injury/poisoning.

DISCUSSION

The data presented in Tables 1 and 2 provide a stark illustration of mortality differences between AI/AN males and females, not only in crude death rates by age but also in crude death rates by certain disease categories. This discrepancy is striking up to age 75 years; the only age group in which the number of female deaths exceeds that of male deaths is 75 years and older. Among males aged 15 to 45 years, the excess toll is overwhelmingly the result of unintentional injury/poisoning, suicide, and homicide. Among the leading causes of death for both sexes, female deaths exceed those of males only for diabetes and cerebrovascular disease; parity in death rates between the sexes occurs only with cancer (Table 2). Comparisons of disease-specific death rates by age between the sexes would shed additional light on these differences; however, such data do not appear to be available currently.

The distribution of causes for hospitalization is illuminating in regard to the kinds of conditions to which AI/AN males seem especially prone (Table 4). Among the leading causes of hospitalization for males are injury/poisoning and mental, musculoskeletal, and skin conditions. These are also the only categories in which the number of male hospitalizations exceeds that of female hospitalizations. The number of male admissions for mental conditions exceeds that for females by 72%. Further analysis of the types of hospitalization for mental conditions by each sex would be especially informative.

Despite the clearly greater burden of illness and death for males, it is striking that they utilize both outpatient and inpatient services much less often than AI/AN females do. Although pregnancy and parturition are powerful motivators for clinic use, and therefore may condition females to seek health care, females appear to seek health care more than do males regardless of pregnancy and its associated conditions. Even excluding visits for childbirth, utilization of inpatient care by females significantly exceeds that by males (Table 4).

The current data do not explain the cause of less frequent use of the health care system by males. It is important to remember that

there are fewer elderly AI/AN males than females,² and clinic visits and hospitalizations are far more frequent in this life stage. Analysis of age- and sex-specific utilization rates would help elucidate further the relative health care use by the sexes. The current data are consistent with the general understanding that AI/AN males, like other males, tend not to seek health care, but the data do not permit conclusions as to whether this tendency results from active health care avoidance or from institutional barriers to health care access that tend to exclude males compared with females. In keeping with the general emphasis on female rather than male health throughout the country, the IHS has tended to put in place programs for females rather than programs designed specifically for males.¹

In any case, the disparity in health care utilization by sex is great enough that further study is warranted. AI/AN males face a combination of greater health risks and lower use of clinical care. How these might interact also is a topic worthy of further study.

The Epidemiological Transition Theory

Joe² has pointed out that AI/ANs exhibit the stages of epidemiological transition described by Omran⁴ and that this fact has certain implications for health care. This theory proposes 3 stages that characterize evolving changes in the nature of diseases within populations: (1) an era of pestilence and famine, (2) an era of receding pandemics, and (3) an era of degenerative and lifestyle diseases. The devastating pandemics of contagious diseases affecting Central and North American AI/ANs following European contact have been well documented.⁵ Among AI/ANs, the age of receding pandemics has largely, although incompletely, yielded to the subsequent age of degenerative and lifestyle diseases. This is illustrated in particular by a sharp decline in infant mortality, with a shift toward a younger population and a favoring of survival of females compared with males.

Olshansky and Ault⁶ proposed a tripartite fourth stage in which (1) rapidly declining death rates concentrate mostly in advanced ages and this decline occurs at nearly the same pace for males and females; (2) the age pattern of mortality rates by cause remains

largely the same as in the third stage but the age distribution of deaths from degenerative causes shifts progressively toward older ages; and (3) relatively rapid improvements in survival are concentrated among the population in advanced ages. They call this stage the “age of delayed degenerative diseases.” On the basis of the current data, AI/ANs do not appear to be experiencing this fourth stage. For example, although rates of death from heart disease and cancer are declining for the general US population, the same is not true for AI/ANs. On the contrary, deaths from heart disease appear to be increasing among the AI/AN population.⁷ Diabetes is another condition for which AI/ANs have not reached the fourth stage. In fact, diabetes mortality rates are increasing, especially among older AI/ANs,³ and much more rapidly than among the general population. This condition is the focus of enormous attention among AI/AN communities, with research and prevention efforts accelerating. It is likely that solutions for diabetes control will first be discovered among the AI/AN population.

Risk-Taking Behavior

In keeping with the third stage of epidemiological transition into lifestyle diseases and the prominence of violent deaths among AI/AN males, attention has rightly been directed toward risk-taking behaviors among AI/AN populations, and there is a growing body of information on this important topic.⁸ Risk factors most often mentioned include fair to poor general health status, medical cost difficulties, binge drinking, cigarette smoking, poor safety belt use, diabetes, and obesity.^{9,10}

Certain risk-taking behaviors are not always higher among males than females. For example, Stevens, et al.¹¹ reported that among a group of AI/AN drug users, females reported engaging in significantly greater levels of certain drug risk behaviors and sex risk behaviors than did males. Similarly, Nelson et al.¹² reported that among Montana Indians, the prevalence of cigarette smoking among adolescent females (57%) exceeded that among adolescent males (45%). Gruber et al.¹³ also noted that similar risk-taking behavior was found among AI/AN females.

These instances of greater risk taking by females compared with males, especially among

younger age groups, are cause for concern and may herald increasing health problems among AI/AN females. This subject likewise calls for further study that could very well result in a reorientation of ideas related to risk taking by AI/AN females. Furthermore, ill health and risk-taking behavior are not evenly distributed among the AI/AN population. With few exceptions, risk taking is much higher among American Indians of the northern Plains states, especially compared with American Indians of the Southwest.¹⁴

Explanations for Increased Risk-Taking Behavior

Among the explanations for increased risk-taking behavior, especially among younger AI/AN males, are loss of cultural identity,¹⁵ anomie, loss of traditional roles for males, failure of primary socialization,¹⁶ and unresolved grief from historical trauma.¹⁷ However, consensus has not yet developed regarding the underlying causes of risk-taking behavior among AI/AN males.^{18,19} Risk-taking behaviors likely have complex etiologies involving genetic, social, cultural, hormonal, and other interactions. There is growing interest in the influence of acculturation on AI/AN people. In any case, programs specifically designed to deal with ways to ameliorate risk-taking behaviors among AI/AN males are urgently needed.

Programs Designed for AI/AN Males

The rationale for establishing male health as a specific clinical discipline was laid out by Bartlett,²⁰ who made several observations: (1) males are a higher-risk population than females, (2) current research funding allocation favors females by almost 3 to 1, (3) a basis exists to develop male-specific standards for clinical care, (4) there is no clear basis for claims that medical services are systematically biased against females, and (5) males are underutilizers of primary care services. Bartlett listed 12 sex-specific standards for accreditation of health maintenance organizations, none of which pertain to male health. Supporting the call for special male health studies, Courtenay²¹ described US males as experiencing more severe chronic conditions, having higher death rates for all of the 15 leading causes of death, and dying at an aver-

age age that is nearly 7 years younger than that for females. Furthermore, males are more likely to adopt beliefs and behaviors that increase risks, are less likely to use behaviors associated with health and longevity, and are more likely to engage in social practices that undermine health. Courtenay noted that social practices that are detrimental to males are often the ones they utilize in negotiating for power and status. Experience suggests that most of these descriptions are applicable to AI/AN males.

Davies et al.²² characterized a group of male college students as being aware that they had important health needs, taking little action to address these needs, and having concerns about both physical and emotional health conditions, among which alcohol and substance abuse were the most important. The subjects indicated that the greatest barrier to health care, for them, was their need to be independent and to conceal vulnerability. Interestingly, the most frequent suggestions for improvement were to make health classes available, provide a health information call-in service, and develop a men's center. These findings suggest that college males, at least, are more concerned about health status and availability of health services than has been previously noted.

Specific health programs directed toward AI/AN males tend to be rare or limited in scope, primarily consisting of a mix of educational materials and programs that includes leaflets, workshops, and conferences. However, organizations that provide health education materials for AI/ANs often do provide information specific to AI/AN males. The American Indian/Alaska Native Cancer Information Resource Center and Learning Exchange program at the Mayo Clinic (200 First St SW, Rochester, MN 55905, <http://www.mayo.edu/nativecircle>) provides information about cancers of particular interest to AI/AN males. The Native American Women's Health Education Resource Center (PO Box 572, Lake Landes, SD 57356) provides information about testicular cancer. The American Cancer Society (<http://www.cancer.org>) makes available a growing amount of information about cancers of particular interest to AI/ANs and a pamphlet titled *What Men Should Know About Cancer*. It is likely that

many other such programs and activities are in place across the United States. A number of wellness conferences directed specifically toward AI/AN males are held each year.

I suggest that the attention of programs designed for AI/AN males be focused on 3 major issues: (1) violence, especially among young adults; (2) cardiovascular diseases; and (3) cancer. The first of these is important because of its epidemic nature and high mortality, especially in early life, and the last 2 are important because of the many known factors and interventions that, if emphasized more strongly among AI/AN males, would be important factors in raising their health status.

Interventions should be designed with attention to social and cultural attributes.²³ Smith and Robertson²⁴ reported a successful intervention that specifically targeted and took into account male reluctance to wear life preservers while boating and fishing. At the time the intervention was undertaken, drowning was the leading cause of injury deaths in Alaska, and life jackets were seldom used, so the Injury Prevention Program of the Yukon-Kuskokwim Health Corporation initiated a "float coat" program. These coats not only provide warmth but also have built-in buoyancy, although they are unremarkable in appearance. It was reasoned that such coats would be acceptable in situations when the usual life preservers were not and would be worn in the course of work anyway. To promote the use of the float coats, a coalition of local leaders, health professionals, and merchants offered and promoted the coats at discounted prices in various sizes, colors, and styles. Local media cooperated with promotions. Following institution of the program, the number of deaths by drowning decreased by approximately 30%.

Although it might be very difficult to alter traditional male social and cultural attitudes, special efforts to bring males into the health care system should succeed. Such an approach might be more successful in dealing with heart disease and cancer than with young AI/AN male violence. Studies, such as that reported by Brave Heart,²⁵ of sex-specific psychological and emotional responses to both historical and personal stressful events, will undoubtedly prove useful in devising appropriate interventions. Brave Heart has shed

important light on both the subtlety and the complexity that can characterize sex-specific responses and provides an important example for future investigations. In a similar vein, Krech²⁶ summarized several reports relating to the loss of family and community roles traditionally held by AI/AN males and described how restoring such roles would help AI/AN males. Although controlled and comparative data are lacking, there can be little doubt that poverty, lack of available health services (especially in rural locations), and loss of a sense of community are all factors that have had a negative influence on AI/AN males' (and AI/AN females') health. Such considerations must be taken into account in further health interventions, especially those directed toward AI/AN males.

AI/ANs eligible for care through tribal and IHS programs have certain advantages compared with much of the general population. AI/AN communities, as tribes, are more readily defined populations, have existing health programs, and are part of an overall health care system. These conditions may permit greater opportunities for community activities to introduce and promote health interventions. But the pervasive poverty that exists in essentially all AI/AN communities requires other remedies. In addition, advocating for special programs for AI/AN males must take into account the already limited resources available for AI/AN health care. Despite these obstacles, it is clear that success will require further studies of the special circumstances contributing to the excessive morbidity and mortality rates for AI/AN males.

Recommendations

Future investigations should study the excess morbidity and mortality rates of AI/AN males compared with females and their disparities in risk-taking behavior. Attention to the cluster of violence and alcohol use among young AI/AN males and additional clinical attention to heart disease and cancer among men middle-aged and older would be useful. Although interventions specific to given conditions are important, approaches that consider factors such as poverty, loss of self-esteem, loss of traditional roles, and depression experienced by AI/AN males also would be beneficial. Further support for programs

that address and incorporate these various factors, such as male wellness conferences and clinical programs, would benefit AI/AN males' health. Finally, efforts to increase males' use of clinical services, including screening programs, would have an immediate beneficial effect. ■

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