

Welfare (DHEW) in 1978. The fourth reference by Berger and Kitzes is specific to injuries in an Indian community in New Mexico and, I feel, should not be extrapolated to "all Native Americans." For all US children after infancy, injuries and accidents are the leading cause of death. However, the proportions and rates are different geographically and when one is controlling for socioeconomic factors.

Hsu and Williams may have used a computer search in compiling their first four references. This is risky because abstracts are often either incomplete or in error, like the 1987 Honigfeld and Kaplan abstract. A review of Honigfeld and Kaplan's 1987 tables shows that Sudden Infant Death Syndrome, not injuries or infections, is the leading categorical cause of Native American infant death. A continuing problem with national data sets (including the old DHEW data) is that investigators using them often assume that what is the situation for one minority group is the same for all others. Now, with more complete analyses, we are seeing that there are significant differences not only between Blacks, Hispanics, Indians, and Asians but also within those racial and ethnic categories. □

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Williams Responds

During the process of condensing my and my coauthors' paper into a public health brief, the wrong set of references was deleted.¹ We apologize for the confusion this editorial oversight may have caused. We appreciate Fleshman's careful review of our paper and wish to clarify our background data.

We intentionally deleted a sentence in the first paragraph describing higher rates of childhood mortality and morbidity among American Indian children in general. The references Fleshman mentions were intended to support that statement and should have been deleted as well. Instead, we inadvertently deleted a reference to the government publication *Indian Health Care*.² Table 4-11 of this document presents a mortality rate due to accidents

of 88.0/100 000, for children between the ages of 1 and 4 years who lived in Indian Health Service areas between 1980 and 1982. This rate is 3.7 times greater than the accident-related mortality rate of 23.6/100 000 for US children of all races in the same age group in 1981. More recent data from the Indian Health Service indicates that this trend continued through 1985.³

While interesting, the unpublished data to which Fleshman refers focuses on infant deaths and therefore is not directly related to the issue of mortality rates among children in the 1- to 4-year age group.

Finally, we share Fleshman's concern about inappropriate extrapolation of data about minority groups. Of equal importance is the problem of overstratification, which introduces the risk of obtaining imprecise calculated rates based on fluctuating numerators of relatively rare events and small population denominators. □

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Head and Neck Injuries from 1990 Illinois Tornado

Tornadoes continue to be a major public health problem in the United States. From 1980 to 1990, US tornadoes killed 575 persons.¹ To identify strategies for preventing adverse health consequences of tornadoes and to improve post-impact health care delivery, the Centers for Disease Control (CDC) conducted several investigations to assess risk of death or injury from tornadoes.²⁻⁶ As a result of these studies, the preventive guidelines issued to citizens living in tornado-prone areas have been changed.

On August 28, 1990, a tornado struck Will County, Illinois, causing 29 deaths and more than \$200 million worth of property damage.⁷ Warning sirens did not sound until after the tornado had touched ground. Epidemiologists from CDC ab-

stracted coroner and hospital records to obtain information about the types of injuries sustained by persons who died immediately or who were admitted to hospitals for tornado-related injuries. An impact-related injury or death was defined as one that occurred during the tornado as a result of the tornado's direct mechanical effects. Postimpact injuries were defined as injuries that occurred within 48 hours following the tornado (e.g., while walking through debris or during clean-up activities) and, with no tornado, would not have occurred at all. This study focused on impact-related injuries.

Of those who were killed immediately or who sought medical attention at hospitals within 48 hours of the disaster, 193 (64%) were treated and released, 80 (27%) were admitted to a hospital and survived, and 28 (9%) died. Of the 28 who died, 23 (82%) died before reaching a hospital, 1 died soon after reaching the hospital, and 4 died 2 to 8 weeks after the tornado. The case fatality rate was 23% for the 92 persons who sustained head or neck injuries, compared with a case fatality rate of 3% for the 209 persons who sustained injuries to other parts of the body ($P < 0.05$). Age, sex, and sheltering did not differ significantly between persons who survived head injuries and those who did not. Of the 21 people with head or neck injuries who died, 17 (81%) of those persons had skull or cervical spine fractures. No survivors sustained such fractures.

In a previous study, Mandelbaum et al.⁸ found that 82% of tornado-related deaths were due to head injuries and recommended that, in addition to seeking shelter, people should wear helmets for head protection. Other studies show that basements are the best locations for seeking shelter to avoid death or injury; wrapping oneself in heavy blankets and crouching or lying on the ground may also be protective.²⁻⁸ If not enough time is available to seek shelter or to take evasive action, it is imperative that the head and neck be protected; nearly one out of four persons in our study with head or neck injuries died. We recommend that, when a tornado warning is given, people seek appropriate shelter. Once there, they should wrap themselves with heavy blankets. If protective head gear is available (e.g., bicycle, motorcycle, or football helmets, hard hats), it should be donned immediately. □

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Subpopulation Differentials in STD Transmission

The exact impact of individuals' sexual behavior on their risk of acquiring sexually transmitted diseases (STDs) and, in particular, on population STD rates are not known. In the context of high STD prevalence, a high rate of partner change among a subset of men or women can fuel disproportionate transmission.¹ Such conditions may in fact exist among subpopulations at highest risk in the United States and may help explain consistently high rates of STD in these populations.

The incidence of bacterial STD such as gonorrhea and syphilis is greater among Blacks than among Whites in the United States; viral STD prevalence is substantially greater among blacks.² However, Black women do not report having greater numbers of current partners than do White women.³ Nevertheless, a Black woman's probability of exposure to a sexually transmitted pathogen per sexual encounter is higher than that of a White woman. For example, Black women who have two to three lifetime partners have a

100% increased likelihood of developing acute pelvic inflammatory disease compared with Black women with one lifetime partner; the increased risk is only 50% among White women.⁴ This suggests that, for many Black women, an especially important risk factor for STD may be the risky sexual behavior among their partners, Black men.

Recent data supporting the hypothesis that some Black men play a disproportionate role in STD transmission come from a nationally representative survey of adults, the General Social Survey (GSS).⁵ A survey on social issues, the GSS uses a probability sample of the US population over 18 years of age. Respondents are asked to complete a one-page, self-administered questionnaire about sexual behaviors. For the period 1988 to 1990, the GSS response rate was about 80% for the general survey and over 90% for the sexual behavior questionnaire (n = 4390). Respondents were asked, "How many sex partners have you had in the last 12 months?" The proportion of White and Black women with four or more partners in the preceding 12 months was very low (see Table 1). However, among White men, one in fourteen reported four or more partners in the preceding 12 months, and among Black men, almost one in five reported this many partners (see Table 1).

These data may be subject to underreporting bias, and sample sizes are relatively small. Nevertheless, they suggest that a larger subset of Black men than White men practices a high rate of partner change. In an environment of insufficient condom use and limited use of health care, such a subset may suffice to keep some STDs endemic to Blacks.¹

Sexual behavior is but one component of the elevated STD incidence among Blacks. Health behaviors that are more prevalent among Blacks (such as vaginal douching and lack of male circumcision)

may enhance sexual transmission of pathogens. Socioeconomic status is strongly associated with STD incidence.² In addition, the high prevalence of STD among Blacks keeps incidence high irrespective, to some extent, of sexual behavior differentials. Even so, having multiple sexual partners clearly places the individual and the community at increased risk for STD transmission; reducing the rate of partner change among a small "high-risk" subset of a population can reduce transmission throughout the entire community.¹

Specific attention should be focused on identifying and intervening in the small subset of men who have many sexual partners. Offering these men screening and counseling for asymptomatic STD, education about STD recognition and behavioral prevention, and wider access to STD clinical services has the potential to dramatically reduce STD incidence among these men and their larger communities. □

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TABLE 1—Number of Sexual Partners and Percentage Distribution in the Year Preceding Survey, by Race and Gender

No. of Partners	Female		Male	
	White (n = 1869)	Black (n = 280)	White (n = 1472)	Black (n = 158)
0	28.3	22.5	14.3	10.8
1	63.3	62.5	67.7	52.5
2-3	7.2	12.8	11.0	19.0
4	0.6	1.1	3.1	6.6
5+	0.5	1.1	3.8	11.1

Source. General Social Survey, 1988-1990, National Opinion Research Center, University of Chicago, Chicago, Ill.