

# Statistical Brief



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## Underreporting of American Indian Race on North Carolina Death Certificates

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### Introduction

Previous reports have shown that American Indian race is often not accurately reported on death certificates. For example, a 1999 study by Rosenberg, et al.<sup>1</sup> indicated that death rates of American Indians are understated in official national publications by approximately 21 percent. The denominators of death rates, usually based on Census population data, tend to undercount minorities, which will inflate the death rates. Death certificates, used in the numerators, tend to undercount minorities, which will deflate the death rates. In the Rosenberg, et al. study, the **net** effect of these two opposing influences was that death **rates** for American Indians were understated by 21 percent.

The total American Indian/Alaska Native (AIAN) population of North Carolina according to the 2000 Census was 99,551 (1.2% of the state's total population), counting those who reported American Indian/Alaska Native alone as their race. Counting also those people who reported American Indian/Alaska Native in combination with one or more other races, the AIAN population of North Carolina was 131,736. Among the American Indians in North Carolina are eight state-recognized tribes. One of these tribes, the Eastern Band of Cherokee, is a federally-recognized tribe, the only tribe residing on a federal reservation, and the only tribe in North

Carolina served by the Indian Health Service of the United States Public Health Service.

The Indian Health Service (IHS) provides comprehensive health care services to members of federally-recognized American Indian tribes. To address the misclassification of American Indian race on death certificates, the IHS National Epidemiology Program has undertaken a comprehensive linkage of state-provided death certificates to IHS patient records. Goals of this project were to check the quality of the race data on death certificates and provide information for targeting state-level training for collection of better race data. The IHS has completed this death certificate linkage for about 15 states. This report presents the results for North Carolina.

### Methods

North Carolina submitted death certificate records to the IHS for all deaths occurring in North Carolina for the period 1990-2003, approximately 933,000 death records. Linkages between death certificates and IHS patient records were conducted by the IHS with probabilistic methods (LinkPlus software) using name, date of birth, gender, Social Security number, and other identifiers.

As mentioned above, only the Eastern Band of Cherokee in North Carolina is served by the Indian Health Service, so not all American Indian death certificates would be expected to match to the IHS patient records. Approximately 10 percent of American Indians in North Carolina are members of the



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Eastern Band of Cherokee. Figure 1 shows the residence locations of the Cherokee in North Carolina by census tract (those who reported Cherokee alone). Though the highest concentrations are in the reservation areas in the far western part of the state, significant numbers of Cherokee live all across the state.

## Results

Out of 932,670 deaths occurring in North Carolina during the 14-year period 1990-2003, the death certificates indicated that 7,634, or 0.8 percent, were American Indian. Matching to the IHS patient records identified an additional 172 American Indian deaths that were not picked up by the race coding on the death certificates, for a total of 7,806. The ratio of the 7,806 to the 7,634 is 1.02, which means that the IHS linking process yielded two percent more American Indian deaths than were indicated on the death certificates.

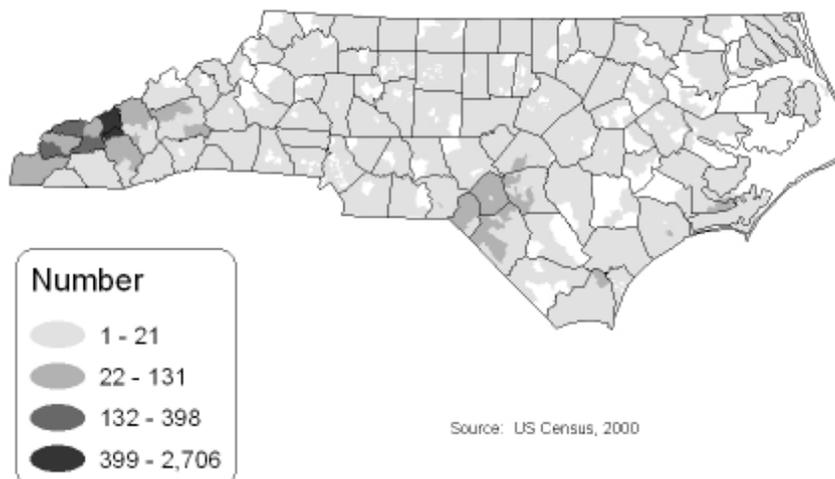
As mentioned before, we would not expect most American Indian death certificates in North Carolina to match to the IHS patient records. A better approach to calculating a “misclassification rate” is to take the total number of death records that matched to the IHS data base and see what percentage of those were not indicated as American Indian by race codes on the death certificates. In North Carolina, 1,032 death

records matched to the IHS data base. Of these, 172 did not have American Indian race recorded on the death certificate, for a misclassification (underreporting) rate of 17 percent.

Ninety-seven percent (168) of the 172 American Indian deaths that were misclassified were counted as “white” on the death certificate. For the 710 matching American Indian deaths where the decedent was a resident of the two western counties containing the Cherokee Indian Reservation (Qualla Boundary), the misclassification rate was 5 percent. In contrast, for the 322 matching American Indian deaths where the decedent was not a resident of the two reservation counties, the misclassification rate was 43 percent.

One of the items of information captured in the IHS patient data base is “blood quantum.” The categories are: full Indian, ½ to full, ¼ to ½, and Indian but less than ¼. Our data show that 21 percent of the 1,032 North Carolina death certificates that matched to an IHS patient record had a blood quantum of full, 33 percent were ½ to full, 14 percent were ¼ to ½, 30 percent were Indian but less than ¼, and two percent had unknown or unspecified blood quantum. The misclassification rate is much higher among those with a lower blood quantum. Figure 2 shows that the death certificate misclassification rate for those decedents classified by the IHS as ½ or more Indian

**Figure 1**  
**Native American Population with Cherokee as One Tribe Reported by Census Tract**



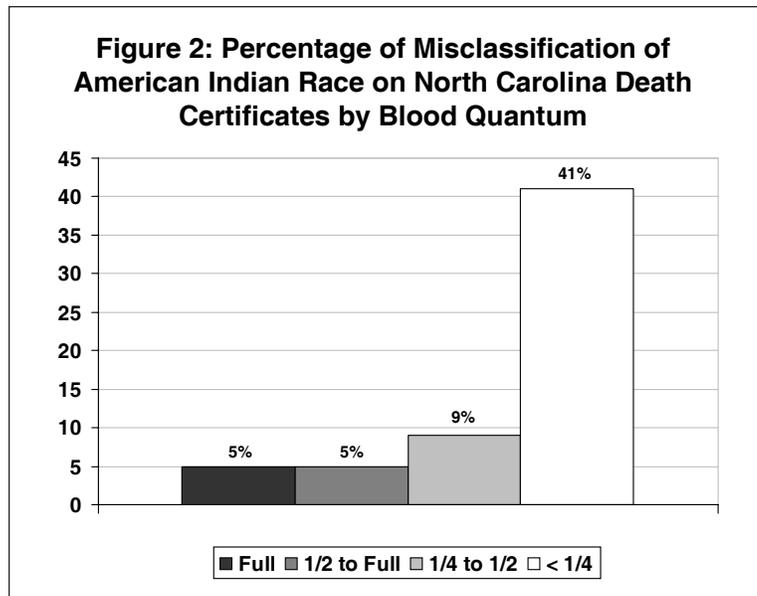
is only five percent, compared to a misclassification rate of 41 percent for those classified as Indian but less than 1/4.

### Discussion

Of the 1,032 North Carolina death records for 1990-2003 that matched to the Indian Health Service patient data base, 172 were not identified as American Indian on the death certificates, for an underreporting rate of 17 percent. Underreporting was much higher among those Cherokee living outside the reservation counties and among those whom the Indian Health Service classified as less than 1/4 Indian. While race information on the death certificate is ideally based on responses from an informed person or surviving family member, or on self report in the case of “pre-need” arrangements, the results of this study suggest that sometimes race is determined based only on observation by the funeral director.

Other states whose death certificates were linked to Indian Health Service patient records had much lower underreporting rates than North Carolina. For example, the underreporting rate for New Mexico, where 10 percent of the population is American Indian, was only two percent. Tribal officials in New Mexico often act as funeral directors and therefore are involved in recording race on the death certificates and do not make assumptions about race.

We do not know the level of misclassification among American Indians in North Carolina other than the Cherokee. The Cherokee comprise only about 10 percent of the total American Indian population of North Carolina. If we extrapolate the underreporting rate of 17 percent for the Cherokee to all American Indian deaths in North Carolina, there would be an estimated 9,200 American Indian deaths over this 14-year period, rather than the 7,634 reported on death certificates.



Further efforts are needed in North Carolina to improve the recording of American Indian race on death certificates. This presents a training opportunity for the Field Services Unit of the North Carolina Vital Records Section when working with local funeral directors. Also, the accuracy of the data for other minority groups should be examined.

In the absence of complete morbidity reporting systems for most major diseases, we rely extensively on death certificates to portray the health status of American Indians and other populations in North Carolina. We may be substantially understating health problems in some minority populations when using death certificate information, which will compromise efforts to address health disparities in the state.

### Reference

1. Rosenberg HM, Maurer JD, Sorlie PD, Johnson NJ, et al. Quality of death rates by race and Hispanic origin: A summary of current research, 1999. National Center for Health Statistics. *Vital and Health Statistics* 1(128). 1999.

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