

effectiveness of presumptive treatment of all pregnant women for STDs (together with strong partner treatment strategies) in high-prevalence settings should therefore be studied.^{4,5} Mass treatment with a single dose of ceftriaxone of women attending prenatal clinics in Nairobi reduced the carriage of selected STDs and improved birthweight.¹¹ A combination of a single dose of metronidazole and azithromycin has the potential to effectively treat all nonulcerative STDs and bacterial vaginosis.^{12,13} Potential benefits include reducing the transmission of STDs and HIV infection and improving pregnancy outcomes. Risks include the creation of drug-resistant strains and unnecessary exposure of uninfected pregnant women to drugs. Although expensive, mass treatment might be an important component of the comprehensive strategy required to control STDs in rural Africa. □

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ABSTRACT

Objectives. This study estimated hip fracture incidence for elderly Hispanics in the United States.

Methods. A cohort of Spanish-surnamed 1992 Medicare enrollees was followed for 2 years. Hip fractures were identified by inpatient diagnostic code.

Results. For Hispanic women, the national age-adjusted hip fracture rate was 7.3 per 1000 person-years; for men, the rate was 3.3. Rates varied markedly, with higher rates for the predominantly Mexican-American southwestern states than for Puerto Ricans.

Conclusions. Nationally, the Hispanic population is at intermediate risk of hip fracture between Blacks and Whites, but geographic variation suggests that Mexican Americans are at higher risk than Puerto Ricans. (*Am J Public Health*. 1998;88:1245-1247)

Hip Fracture Incidence Among Elderly Hispanics

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Introduction

A striking feature of the epidemiology of hip fracture among the elderly is the wide variation in incidence by country, region, season, and race.¹⁻¹⁰ This variation is a potentially valuable tool in clarifying the etiologic contributions of genetic and specific environmental factors. Within the United States, much of the descriptive epidemiology of hip fracture is based on Medicare claims records from the Health Care Financing Administration (HCFA). Medicare data have shown that Blacks experience consistently lower rates of hip fracture than Whites.⁸ However, the ethnicity coding available on Medicare records has not permitted the calculation of hip fracture rates for Hispanics. No Hispanic race/ethnicity code was available before 1994, and the initial enhancement of the race/ethnicity coding left a majority of Hispanics coded White or other.¹¹

In the present study, we augmented Medicare enrollment files to identify a 1992

national cohort of Hispanic enrollees and link these enrollment records with Medicare hospital claims to estimate hip fracture incidence. Hispanic cohorts that were predominantly Mexican American, Cuban American, or Puerto Rican were derived, and hip fracture rates for these groups were compared.

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TABLE 1—Yearly Hip Fracture Rates per Thousand for Spanish-Surnamed Elderly Medicare Enrollees and for Whites and Blacks Without Spanish Surnames, 1992–1993

Age, y	Hispanic			White			Black		
	Estimated Events ^a	Rate per 1000	95% CI	Estimated Events ^a	Rate per 1000	95% CI	Estimated Events ^a	Rate per 1000	95% CI
Women									
65–74	972	1.9	1.6, 2.2	44 520	3.3	3.2, 3.4	1990	1.3	1.2, 1.5
75–84	2624	9.9	8.9, 11.0	120 550	12.9	12.7, 13.1	4200	4.7	4.4, 5.0
85+	1964	24.1	21.2, 27.1	118 400	33.7	33.1, 34.2	5240	15.2	14.3, 16.1
Age adjusted	...	7.3	6.8, 7.8	...	10.1	10.0, 10.2	...	4.1	4.0, 4.3
Men									
65–74	498	1.2	0.9, 1.4	17 670	1.6	1.6, 1.8	1230	1.3	1.1, 1.5
75–84	752	4.4	3.6, 5.3	34 990	6.1	5.9, 6.3	1710	3.6	3.1, 4.1
85+	804	17.0	13.8, 20.2	26 840	20.3	19.6, 21.1	1350	11.2	9.4, 13.0
Age adjusted	...	3.3	2.9, 3.6	...	4.3	4.2, 4.4	...	3.1	2.8, 3.3

Note. CI = confidence interval.

^aEstimated number of hip fractures calculated by multiplying numbers of observed events by inverse of sampling fractions.

Methods

Sources of Data

We obtained from HCFA 2 random samples of 1992 Medicare enrollment records based on race/ethnicity code: a 50% sample of persons with codes Hispanic and "other" and a 10% sample with codes White, Black, Native American, and "unknown." Enrollment records also included date of death through 1993 and the enrollee's Social Security number.

Hispanic ethnicity may be ascribed on the basis of self-identification, place of birth, or surname.¹² In this study, we identified a national cohort of Hispanics by Spanish surname, selecting all persons resident in the United States proper with surnames on the list developed by Passel and Word at the US Bureau of the Census,¹³ regardless of race/ethnicity code. Then, to separate the Hispanic population by ancestry, we used the 1990 Census Public Use Microdata Sample to identify states where the Hispanic elderly population is overwhelmingly of one ancestry.¹⁴ These states are Texas (for Mexican Americans), Arizona (for Mexican Americans), and Florida (for Cubans). However, there is no state where a majority of elderly Hispanics self-identify as Puerto Rican. Therefore, Puerto Ricans were identified as persons living in Puerto Rico (which participates in Medicare) or the 50 states whose Social Security number indicates issuance in Puerto Rico.¹⁵

White and Black cohorts included enrollees resident in the United States proper, excluding those with Spanish surnames.

Inpatient claim records with a diagnostic code for hip fracture (*International Classification of Diseases, 9th Revision, Clinical Modification* codes 820.0–820.9) for 1992 and 1993 were obtained from HCFA. Fractures were excluded when the other codes indicated neoplastic processes, trauma, or late effects of fracture.⁸

Statistical Analysis

Person-months for each cohort member began with the first month of 1992 enrollment and ended with fracture, death, or study termination. Persons enrolled in group health plans were excluded since hospital claims could not be filed for them. Incidence rates were based on ratio estimation from stratified random samples.¹⁶ Rates were age adjusted to the entire Medicare enrollment population 65 years of age and older. All analyses used SAS 6.07 (SAS Institute Inc, Cary, NC).

Results

Application of the Spanish surname list to the enrollment samples identified an estimated total of 492 580 women and 405 206 men.

Both age–sex-specific and sex-specific age-adjusted hip fracture rates are presented in Table 1. For women, the Spanish-surnamed rate of hip fracture was intermediate between the White and Black rates. For men, the age-adjusted Spanish-surnamed rate was lower than the White rate but close to the Black rate.

Figure 1 presents age-adjusted hip fracture rates for the 3 Hispanic groups, Whites, and Blacks. For both men and women, the Puerto Rican rates were lower than Cuban-American rates, which were, in turn, lower than Mexican-American rates.

Discussion

This study revealed national rates of Hispanic hip fracture intermediate between higher White rates and lower Black rates, based on a 2-

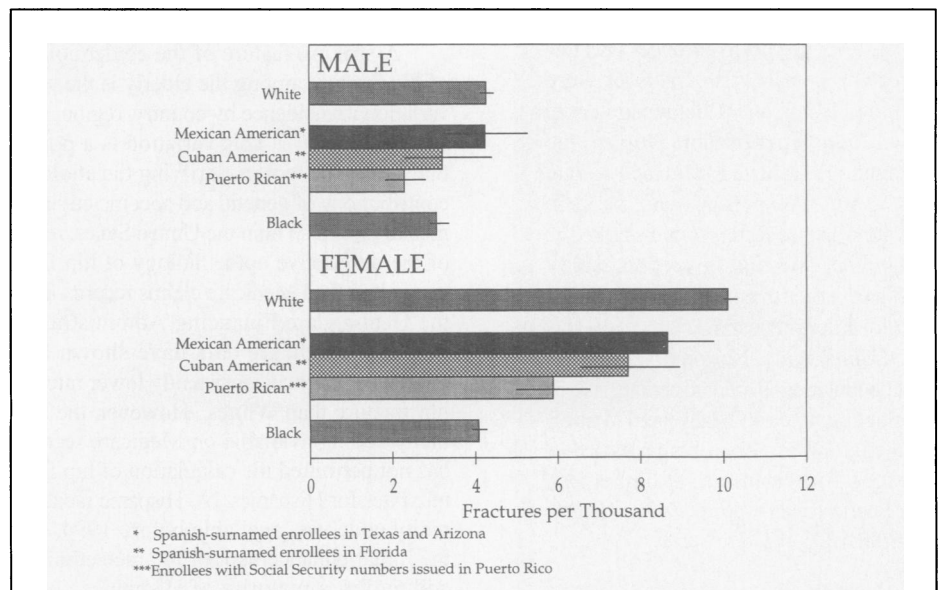


FIGURE 1—Yearly age-adjusted hip fracture rates for 3 Hispanic groups, Whites, and Blacks, 1992–1993.

year follow-up of a cohort of 1992 Medicare enrollees. Fracture rates for cohorts that were predominantly Mexican American, Cuban American, and Puerto Rican suggest a consistent pattern for men and women, with Mexican-American rates similar to White rates and Puerto Rican rates similar to Black rates.

Two previous studies found a very low risk of hip fracture among predominantly Mexican-American populations in California and Bexar County, Texas.^{17,18} Both studies drew from separate data sources for hip fracture numerators and population denominators, a possible problem since Hispanic self-identification "may vary over time and between different records, even without variation in the form of the question."¹⁹

There are limitations to the data in the present study. Hip fracture ascertainment may be incomplete and rates underestimated owing to Medicare enrollees hospitalized in the Veterans Affairs system, nursing home patients not hospitalized, or persons dying before hospitalization. Estimates of positive predictive value and sensitivity for fractures ascertained from Medicare data have been described.²⁰ This study used only inpatient diagnostic codes, so some fractures were missed.²¹ Unless the small proportion of missing outpatient fractures is systematically related to racial/ethnic groups, such omissions should not alter comparative findings. The necessary exclusion of persons enrolled in managed care plans may limit generalizability.

The method of ethnic identification is a concern in this study. However, all methods of determining Hispanic ethnicity are imperfect. Birthplace, even if it were available, has low sensitivity for Mexican Americans, most of whom are US born. Regardless of whether birthplace, self-identification, or surname is used, findings may not be generalizable to populations identified by another method. The

strength of this study is the single determination of ethnicity in establishing each cohort, obviating the possibility of numerator-denominator mismatch.

This study has attempted to redress the lack of information on hip fracture risk for elderly Hispanics. Our findings underscore the limitations of an aggregate Hispanic category that may mask considerable heterogeneity. □

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