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Estimating Mortality in the Hispanic Population of Connecticut, 1990 to 1991

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A B S T R A C T

Among all deaths to Connecticut residents (1990/91), 1260 were acceptable Spanish-surname matches (using father's surname for females), of which only 793 (62.9%) were identified as Hispanic origin on the death certificate. Certificates also identified 127 non-Spanish-surnamed Hispanics. With death rates for non-Hispanics used as the standard, the standardized mortality ratio for Hispanics based on the 920 (793 plus 127) deaths identified by the Hispanic-origin item was lower (by 33% in males and 36% in females) than that based on all 1387 (1260 plus 127) Hispanics. Spanish-surname matching should improve estimation of mortality rates in some Hispanic populations. (*Am J Public Health.* 1995;85:998–1001)

Introduction

In a National Mortality Followback Survey study of adults who died in 1986 in selected states, 20% more Hispanics were identified by informant interview than by the death certificate's "Hispanic-origin" item, and 16.4% were missing a "substantive response" from one or both sources.[1] There is continuing concern about the quality of the latter item (part of the recommended standard death certificate since 1989).[2] Self-identified Hispanic ethnicity, as obtained in longitudinal studies[3] and in the US census, has been recommended for health surveillance[4] but would not be obtainable for all deaths (especially those among nonhospitalized persons). Use of Spanish-surname matching for both numerators and denominators of rates[5–8] results in some women being misclassified (owing to marriage between Hispanics and non-Hispanics). Matching of surnames in the 1976 Current Population Survey with the 1980 census list of 12 497 Spanish surnames resulted in only about 5% underestimation of the number of self-reported Spanish-origin persons aged 14 years and older, but misclassification was frequent among ever-married women[9] and may have increased since 1976.

This study matched Spanish surnames[9] with surnames for males and father's surname for females (i.e., maiden name for those ever married) on death

certificates to identify probable Hispanic decedents in Connecticut. In 1990, Connecticut residents included 213 116 Hispanics who were predominantly Puerto Rican (69%) or "other" (24%, chiefly from Central and South America).[10]

Methods

The Hispanic-origin item was missing from the majority (67.2%) of death certificates for deceased Connecticut residents in 1989; analyses were limited to the 55 491 deaths in 1990 and 1991. Father's surname was missing for only 5.9% of female decedents in 1990 and 5.7% in 1991. Exact matching (by computer) of surname (for males) or father's surname (for females) with the 1980 census Spanish-surname list[9] was required, but manual checking of names of at least nine letters long detected eight compound or hyphenated Spanish surnames not found by computer matching.

Numerators for age-, sex-, and cause-specific death rates (1990/91) for non-

Hispanic Connecticut residents (of any race) were estimated by subtracting all probable Hispanic decedents (defined below) from total resident deaths in 5-year age groups from 0 to 4 years up to 85+ years. Denominators were estimated by subtracting the Hispanic population (using 1990 census data for 1990 and 1991) from the total population of the state (using 1990 census data for 1990 and official state estimates for 1991). Expected numbers of deaths for Hispanics for both 1990 and 1991 were obtained by multiplying the estimated non-Hispanic death rates by the 1990 census's Hispanic population. Confidence limits were calculated[11] for the standardized mortality ratio, or the ratio of observed to expected deaths among Hispanics.

TABLE 1—Comparison between the Results of Spanish-Surname Matching and the Response to the Hispanic-Origin Item on Death Certificates, among all Deceased Connecticut Residents in 1990 and 1991

Response to Hispanic-Origin Item on Certificate	Result of Spanish-Surname Match[a]		
	No. Matches	No. Nonmatches[b]	Total
Yes	793	195 (127)[c]	988 (920)[c]
No	331 (315)[d]	45 088	45 419
Unknown or missing	157 (152)[d]	8 927	9 084
Total	1 281 (1 260)[d]	54 210	55 491

[a]Based on matching of surname (males) or father's surname (females) with the 1980 census list of Spanish surnames.
[b]Includes 1617 females with father's surname missing from the certificate.
[c]After excluding 68 matches because of coding or data-entry errors, or birthplace inconsistent with Hispanic origin (see text).
[d]After excluding 21 decedents born in various European countries and not accepted as valid surname matches (see text).

Results

There were 1281 matches between surname (males) or father's surname (females) and the Spanish-surname list,[9] but 21 matches were excluded because the birthplace was Poland, Austria, France, Hungary, Greece, or Italy; these 21 included surnames that could be French or Italian (as well as Spanish).[12] Of the remaining 1260 deaths (Table 1), 22 born in Spain, 17 born in Portugal, and 6 born in the Philippines were not excluded, in view of disagreement on the definition of Hispanic/Latino.[13,14] The sensitivity of the death certificate's Hispanic-origin item was 62.9% (793/1260) for 1990/91 (Table 1), with little change from 1990 (372/600, or 62.0%) to 1991 (421/660, or 63.8%). The false-negatives included 315 with a response of no to the Hispanic-origin item; despite this response, 102 of these certificates listed a birthplace consistent with Hispanic origin (i.e., Puerto Rico, Latin America, the Philippines, Portugal, or Spain). The remaining 213 deaths were accepted as Hispanic only on the basis of Spanish-surname matching.

The Hispanic-origin item, while missing or unknown for 16.4% of all deaths (23.4% in 1990 and 9.5% in 1991), ostensibly involved 195 false-positives; the positive predictive value was 80.3% (793/988; Table 1). Of these 195, however, 127 deaths (57 males and 70 females) were not excluded as Hispanic for the following reasons: surname or father's surname was Spanish but was misspelled on the computer file (8 deaths); father's surname was missing from the certificate (18 deaths); the surname was an apparent variation in spelling of a Spanish surname, or one of the "special problem"[9] surnames excluded from the 1980 census Spanish-surname list because of their common occurrence among all Americans (26 deaths); infants had mother's surname but father's surname was Spanish (2 deaths); mother's maiden name was Spanish (47 deaths); the birthplace alone suggested possible Hispanic origin (19 deaths); and there was no evidence to support the positive response to the Hispanic-origin item but there was also no apparent coding or data-entry error (7 deaths). The remaining 68 nonmatches were rejected on the basis either of coding or data-entry errors or of birthplace (e.g., Haiti, Jamaica).

Age- and sex-specific estimated non-Hispanic death rates, based on all resident deaths minus all 1387 Hispanic deaths (i.e., 1260 determined from surname matches and 127 from the Hispanic-origin item; Table 1), were used in calculating two different standardized mortality ratios. The first (standardized mortality ratio A, or SMRA in Table 2) used only the Hispanic-origin item (793 plus 127, or 920 deaths for both sexes combined; Table 1); the second (standardized mortality ratio B, or SMRB in Table 2) used all 1387 "Hispanic" deaths. The SMRA/SMRB ratio was 0.673 for males and 0.644 for females for all causes combined; for males, SMRA was significantly lower than 1.00 while SMRB was significantly above 1.00. SMRA/SMRB was lowest for cancers and cardiovascular diseases and highest for human immunodeficiency virus (HIV) (among both sexes), chronic liver disease and homicide (among males), and diabetes (among females).

SMRA/SMRB for cancers with at least 10 deaths varied but was below 0.60 for several sites.

Discussion

The finding that use of the Hispanic-origin item alone probably underestimates the number of (predominantly Puerto Rican) Hispanic decedents in Connecticut (Table 1) is consistent with that from studies using informant statements (for adults)[1] and birth-record information (for infant deaths)[15] as the gold standard. The better performance of the Hispanic-origin item for certain causes of death (e.g., HIV-related deaths in both sexes and homicides in males) (Table 2) could be owing to more investigation of these deaths and/or to greater awareness that these causes are important in Hispanic populations. Sole use of the Hispanic-origin item probably only slightly underestimates the standardized mortality ratio for chronic liver disease in males but considerably underestimates those ratios for cardiovascular diseases and all cancers combined (in both sexes). The SMRBs in Table 2 are consistent with those reported for the US Puerto Rican–born population (1979 to 1981)[16] and for Hispanic adults in a national longitudinal study that obtained Hispanic ethnicity for all participants.[3]

In conclusion, estimating total death rates among Connecticut Hispanics and standardized mortality ratios for many specific causes, including smoking-related chronic diseases for which future increases in death rates are expected,[17,18] should benefit from the additional effort involved in Spanish-surname matching.

TABLE 2—Estimated Standardized Mortality Ratios for Hispanic Residents of Connecticut (1990 through 1991), by Two Methods of Estimation

Cause (ICD-9 Code)	Based Only on the Hispanic-Origin Item[a]			Addition of Spanish-Surname Matches[b]			SMRA/ SMRB
	Deaths	SMRA	95% CI	Deaths	SMRB	95% CI	
Males							
All	570	0.74	0.68, 0.81*	845	1.10	1.03, 1.18*	0.673
HIV (042–044)	73	3.02	2.39, 3.83*	90	3.73	3.02, 4.61*	0.810
All cancers (140–208)	71	0.41	0.32, 0.52*	127	0.73	0.61, 0.87*	0.562
Stomach (151)	(11)	1.61	0.80, 2.88	(15)	2.19	1.23, 3.62*	0.735
Colorectal (153–154)	(4)	0.22	0.06, 0.56*	(13)	0.70	0.37, 1.20	0.314
Lung (162)	(18)	0.38	0.23, 0.60*	(41)	0.87	0.63, 1.19	0.437
Prostate (185)	(5)	0.29	0.09, 0.68*	(11)	0.64	0.32, 1.15	0.453
Diabetes (250)	7	0.69	0.28, 1.42	15	1.47	0.82, 2.43	0.469
Cardiovascular (390–448)	101	0.40	0.32, 0.48*	178	0.70	0.60, 0.81*	0.571
Pneumonia (480–486)	9	0.45	0.21, 0.86*	21	1.05	0.65, 1.61	0.429
Chronic lung (490–496)	9	0.42	0.19, 0.79*	13	0.60	0.31, 1.03	0.700
Chronic liver (571)	27	2.59	1.70, 3.77*	34	3.26	2.29, 4.60*	0.794
Accidents (800–949)	62	1.00	0.77, 1.29	81	1.30	1.04, 1.63*	0.719
Suicide (950–959)	27	0.99	0.65, 1.44	38	1.36	0.98, 1.91	0.728
Homicide (960–978)	53	3.04	2.30, 4.01*	63	3.62	2.80, 4.66*	0.840
Females							
All	350	0.56	0.51, 0.63*	542	0.87	0.80, 0.95*	0.644
HIV (042–044)	23	2.96	1.87, 4.44*	24	3.09	1.98, 4.60*	0.958
All cancers (140–208)	68	0.40	0.31, 0.51*	113	0.67	0.55, 0.81*	0.597
Colorectal (153–154)	(7)	0.38	0.15, 0.79*	(15)	0.82	0.46, 1.36	0.463
Lung (162)	(11)	0.30	0.15, 0.54*	(15)	0.41	0.23, 0.68*	0.732
Breast (174)	(12)	0.35	0.18, 0.61*	(17)	0.50	0.29, 0.80*	0.700
Diabetes (250)	16	1.36	0.78, 2.20	19	1.62	0.97, 2.52	0.840
Cardiovascular (390–448)	110	0.49	0.41, 0.59*	178	0.79	0.68, 0.92*	0.620
Pneumonia (480–486)	7	0.34	0.13, 0.69*	11	0.53	0.26, 0.95*	0.642
Chronic lung (490–496)	6	0.31	0.11, 0.68*	9	0.47	0.21, 0.89*	0.660
Chronic liver (571)	4	0.70	0.19, 1.79	7	1.22	0.49, 2.51	0.574
Accidents (800–949)	17	0.69	0.40, 1.10	22	0.89	0.56, 1.35	0.775
Suicide (950–959)	5	0.77	0.25, 1.79	7	1.08	0.43, 2.21	0.713
Homicide (960–978)	8	1.69	0.73, 3.33	12	2.54	1.31, 4.44*	0.665

Notes. ICD-9 = *International Classification of Diseases,* 9th edition; SMRA = standardized mortality ratio A; SMRB = standardized mortality ratio B; CI = confidence interval; HIV = human immunodeficiency virus. Standardized mortality ratios were based on estimated death rates for non-Hispanic Connecticut residents; the same expected numbers of deaths (not shown) were used for both SMRA and SMRB (see text).
[a]A total of 920 deaths (i.e., 793 plus 127; Table 1).
[b]A total of 1260 matches with Spanish surname (males) or father's surname (females), and 127 nonmatches based on the Hispanic-origin item. Thus, 467 additional deaths (1260 minus 793) were based only on Spanish-surname matching (Table 1).
*P < .05.

Similar analyses are needed in other states because of probable variation in the following: the prevalence of Hispanics among all decedents (which affects the positive predictive value of the Hispanic-origin item); the prevalence of various ethnic groups (e.g., Portuguese and Italian), which affects the utility of Spanish surname lists[9]; the success of efforts to improve the recording of Hispanic origin by funeral directors[19]; and rates of marriage between Hispanics and non-Hispanics. □

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Renal Failure among Male Hispanics in the United States

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ABSTRACT

This study examined epidemiologic patterns and time trends among male patients with Hispanic surnames in the Medicare End-Stage Renal Disease Program and compared US Hispanics with non-Hispanic Blacks and Whites. Male Hispanics had substantially higher proportions of end-stage renal disease attributed to diabetes than did Blacks and Whites. There were notable regional differences among Hispanics. Between 1980 and 1990, the incidence of treated renal failure among Hispanics increased more than that among Blacks or Whites. The increasing number of Hispanics in the United States with end-stage renal disease emphasizes the importance of explicit health evaluations and prevention strategies for Hispanic populations. (*Am J Public Health.* 1995;85:1001–1004)

Introduction

In 1972, Congress created an entitlement to Medicare, the End-Stage Renal Disease Program, for persons diagnosed with kidney failure who were eligible for benefits under Social Security. From the mid-1970s to 1990, the population of those with end-stage renal disease grew from about 10 000 to more than 150 000. Both average age and the proportion of this population with renal failure attributed to diabetes also increased during this period.[1–3]

In regional studies, Hispanic groups have shown varied distributions of chronic diseases predisposing to renal failure that differ from those of non-Hispanics. Mexican Americans have a higher prevalence of non-insulin-dependent diabetes than either Blacks or Whites,[4–9] Puerto Ricans have a prevalence similar to that of Mexican Americans,[4,9,10] and Cuban Americans are similar to non-Hispanic Whites.[4] Rates of hypertension among Hispanic groups are lower than those among Blacks[5,11,12] and similar to or lower than those among Whites.[5,7,11–15]

Regional studies show a higher incidence of diabetes-related end-stage renal disease among Mexican Americans than among non-Hispanic Whites. The ratio of end-stage renal disease attributed to diabetes among Mexican Americans in comparison with Whites was much higher in Texas between 1978 and 1984[16]; in south-central Los Angeles,[17] the incidence rates among Hispanics were lower in 1980 but had increased to twice those in non-Hispanic Whites by 1985.

No studies have examined national patterns of Hispanic end-stage renal disease in the United States, even though Hispanics are the second most numerous and fastest growing minority in the country. The absence of indicators of Hispanic ethnicity among data from the Medicare End-Stage Renal Disease Program mandates the need for alternative methodologies to evaluate patterns of the disease among Hispanics in the United States. This study used a methodology based on identification of Hispanic end-stage renal disease patients through their Hispanic surnames. This methodology has been applied outside the end-stage renal disease setting,[18–27] and, despite its limitations, it provides a means of generating demographic and health data for Hispanics that are otherwise unobtainable.

This paper reports on the demographic characteristics of US male Hispanic end-stage renal disease patients,