Cancer Incidence in the Puerto Rican–Born Population of Long Island, New York

ABSTRACT

Background. There are apparently no published data on cancer incidence in the Puerto Rican–born populations of the northeastern United States.

Methods. Standardized incidence ratios (SIRs) were calculated for 1980 through 1986 for the Puerto Rican–born population in Long Island (New York).

Results. Significantly reduced SIRs were found for males (SIR = 0.77) but not for females (SIR = 0.91), using expected numbers derived from incidence rates for all areas in the Surveillance, Epidemiology and End Results (SEER) Program (excluding Puerto Rico). Using incidence rates for Puerto Rico to obtain expected numbers, there was evidence for the retention of elevated SIRs for stomach cancer (both sexes) and for significantly elevated SIRs for lung cancer (both sexes), colon-rectum cancer (females), prostate cancer, and breast and uterine corpus cancer. Using rates for SEER areas, the SIRs for lung cancer approached 1.00, in contrast to other US Puerto Rican–born populations.

Conclusion. The data indicate the need for surveys on smoking and other health-related behaviors in the population studied and provide further evidence for heterogeneity in cancer patterns in US Puerto Rican–born populations. (*Am J Public Health.* 1991;81:1405–1407)

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Introduction

Migrant studies have contributed significantly to our understanding of changes in cancer rates that reflect environmental influences. Relative to the United States, cancer rates in Puerto Rico are reportedly higher for oral cavity, stomach, and cervix but lower for lung, breast, and corpus uteri.[1] Studies of cancer rates among the Puerto Rican–born population have been limited to mortality for the entire United States[2] and for selected areas such as New York City[3,4] and Illinois.[5] This report presents incidence data on a Puerto Rican–born population in the northeastern United States. According to analysis of data in the 1980 census microdata file,[6] 16.3% of the Puerto Rican–born population of Long Island (i.e., Nassau and Suffolk Counties in New York) was below the poverty level (Table 1); the figure for Puerto Rico was 62.4%.[7] Only 3.2% of the Long Island sample had resided in Puerto Rico in 1975, and only 18.8% did not speak English "well" or "very well" (Table 1).

TABLE 1—Puerto Rican–Born Population of Long Island (New York): 1980 Census

Characteristic	%
Total population	
Males	47.2[a]
Females	52.8[b]
Poverty level (%)	
<100	16.3
100–199	22.9
200+	58.5
Unknown	2.3
Education (age 25+ yrs.)	
High school graduate	43.9
Residence in 1975 (age 25+)[c]	
Same house	49.4
Same state	45.4
Puerto Rico	3.2
Other	2.0
Speaks English (age 25+)	
Only	9.3
Very well	43.7
Well	28.2
Not well	18.8

Note. Data calculated from 1980 census 5% microsample files.[6]
[a]n = 9440.
[b]n = 10 500.
[c]Based on a subsample.[6]

Methods

Data were obtained on all incident cancer cases (without personal identifiers) diagnosed among Puerto Rican–born residents of Long Island during 1980 through 1986 and reported to the population-based New York State Cancer Registry; 1986 was the latest year for which data were available at the time analyses were conducted. Cancers had been coded to the 9th Revision of the International Classification of Diseases.

Estimated numbers of Puerto Rican–born persons in the Nassau–Suffolk standard metropolitan statistical area[6] in 5-year age groups for each sex were multiplied by age- and sex-specific cancer incidence rates for all areas of the Surveillance, Epidemiology and End Results

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TABLE 2—SIRs for Cancer in the Puerto Rican–Born Population of Long Island (New York) in 1980–1986, Using Rates from the SEER Program (excluding Puerto Rico) and from Puerto Rico: Males

Site	Observed No.	Using SEER Rates: Expected No.	Using SEER Rates: SIR (95% CI)	Using Puerto Rico Rates: Expected No.	Using Puerto Rico Rates: SIR (95% CI)
All sites	177	228.5	0.77 (0.66, 0.89)*	134.8	1.31 (1.13, 1.52)*
Oral	13	11.4	1.14 (0.61, 1.95)	15.9	0.82 (0.44, 1.40)
Stomach	12	6.7	1.79 (0.93, 3.13)	11.8	1.01 (0.52, 1.77)
Colon–rectum	16	31.1	0.51 (0.29, 0.83)*	12.7	1.26 (0.72, 2.04)
Lung	39	46.6	0.84 (0.60, 1.14)	12.9	3.02 (2.16, 4.11)*
Prostate	31	35.5	0.87 (0.59, 1.24)	18.7	1.66 (1.13, 2.37)*
Bladder	7	15.2	0.46 (0.18, 0.95)*	6.7	1.05 (0.42, 2.16)

Note. SIRs = standardized incidence ratios; SEER = Surveillance, Epidemiology and End Results. Data are shown only if the observed number, or the expected number (using SEER rates), was 10 or more. Adjustment was not made for estimated Puerto Rican-born cases among all cases with unknown place of birth in the Registry; such adjustment would increase slightly the SIRs reported in the tables, but use of 1980 Census data to estimate the population for 1980-86 has undoubtedly already resulted in some overestimation of the SIRs.
*$P < .05$.

TABLE 3—SIRs for Cancer in the Puerto Rican–Born Population of Long Island (New York) in 1980–1986, Using Rates from the SEER Program (excluding Puerto Rico) and from Puerto Rico: Females

Site	Observed No.	Using SEER Rates: Expected No.	Using SEER Rates: SIR (95% CI)	Using Puerto Rico Rates: Expected No.	Using Puerto Rico Rates: SIR (95% CI)
All sites	218	239.3	0.91 (0.79, 1.05)	136.0	1.60 (1.39, 1.84)*
Stomach	9	3.4	2.64 (1.21, 2.30)*	7.1	1.26 (0.58, 2.39)
Colon–rectum	29	26.7	1.09 (0.73, 1.57)	12.6	2.30 (1.54, 3.31)*
Lung	23	23.5	0.98 (0.62, 1.47)	5.4	4.25 (2.69, 6.38)*
Breast	62	79.0	0.78 (0.60, 1.01)	36.8	1.69 (1.31, 2.20)*
Cervix	13	9.5	1.37 (0.73, 2.34)	16.6	0.78 (0.41, 1.33)
Corpus	18	16.9	1.07 (0.63, 1.69)	7.9	2.29 (1.36, 3.62)*
Ovary	8	10.7	0.75 (0.32, 1.48)	5.5	1.45 (0.62, 2.86)

Note. SIRs = standardized incidence ratios; SEER = Surveillance, Epidemiology and End Results. Stomach cancer was included for comparison with data for males.

(SEER) Program of the National Cancer Institute, excluding Puerto Rico, for 1981 through 1985.[8] Expected numbers were also obtained by using age-, sex-, and site-specific cancer incidence rates for Puerto Rico (available for 1978 through 1982).[9] Age-adjusted incidence rates for Puerto Rico changed little between 1980 through 1984 and 1985 through 1987.[10] Statistical analysis involved calculation of 95% confidence intervals (CIs)[11] on standardized incidence ratios (SIRs).

Results

For males (Table 2) the SIR for all sites was significantly lower than 1.00 on the basis of SEER rates, but significantly greater than 1.00 on the basis of rates for Puerto Rico. The SIR for stomach cancer (using SEER rates) was 1.79, with no evidence for a change from numbers expected using rates for Puerto Rico. Using SEER rates, significantly reduced SIRs were evident for colon–rectum and bladder cancer. SIRs for prostate and lung cancer were slightly less than 1.00 using SEER rates but were significantly elevated on the basis of cancer rates for Puerto Rico.

For females (Table 3) the SIR for all sites was only slightly and insignificantly reduced using SEER rates, and significantly elevated on the basis of rates for Puerto Rico. The SIR for stomach cancer was even higher than that for males. In contrast to males, the SIR for colon–rectum cancer was greater than 1.00 using SEER rates and significantly elevated on the basis of rates for Puerto Rico. The SIR for lung cancer was nearly 1.00 (using SEER rates) and significantly elevated on the basis of rates for Puerto Rico. The SIR for breast cancer was slightly less than 1.00 using SEER rates and, along with uterine corpus cancer, significantly elevated on the basis of rates for Puerto Rico. The SIR for cervix cancer was slightly greater than 1.00 using SEER rates and less than 1.00 on the basis of rates for Puerto Rico.

Discussion

Potential inaccuracies in the SIRs are presumably due mainly to errors in estimating the population at risk and hence the expected numbers of cancers. Census data from 1980 should be more accurate for the 1980 through 1982 period than for 1980 through 1986, and observed cancers for 1980 through 1982 were compared with expected numbers based on incidence rates for SEER (excluding Puerto Rico) for 1978 through 1981.[12] For all cancers the SIR for 1980 through 1982 was significantly reduced for males (i.e., 0.72; 95% CI = .56, .92) but not for females (i.e., 0.80; 95% CI = .64, 1.00). SIRs for 1980 through 1982 based on at least 10 observed cases were 0.76 (15 observed vs 19.85 expected) for lung cancer and 0.92 (13 observed vs 14.16 expected) for prostate cancer in males, and 0.62 (19 observed vs 30.84 expected) for breast cancer and 1.22 (14 observed vs 11.45 expected) for colon–

rectum cancer in females, or similar to the SIRs in Tables 2 and 3.

For 1980 through 1986, males but not females had significantly reduced SIRs, on the basis of SEER cancer rates, for all cancers and for several sites. For females, both lung and reproductive system sites, with the exception of cervix, showed high SIRs calculated by using cancer rates for Puerto Rico. The findings are clearly consistent with other studies of migrants,[13] showing retention of high risks of stomach cancer (characteristic of the homeland) and a transition toward higher risks in the United States for certain other cancers such as those of the lung, prostate, and female reproductive organs.

The finding of an only slightly elevated SIR for cervical cancer (using SEER rates) may reflect the higher socioeconomic status (SES) of the Puerto Rican–born population in Long Island vs other areas where relatively high mortality for cervical cancer has been reported for Puerto Rican immigrants.[3-5] Selective migration, related to such characteristics as SES, is possible but difficult to document. The higher SES of the Puerto Rican–born population in Long Island (vs Puerto Rico) is most likely due to improvement in SES after migration from Puerto Rico, with subsequent movement to Long Island (mainly from New York City). Increasing SES may result in changes in environmental factors such as dietary and sexual–reproductive patterns, leading to increased risks of certain cancers (e.g., uterine corpus and breast) and a reduced risk of cervical cancer; the explanation of patterns for lung cancer may be more problematic.

Changes in smoking behavior among migrants are difficult to assess because data on smoking prevalence in Puerto Rico are limited to a 1965 through 1968 survey of men 45 through 64 years old,[14] and age at migration was unknown for the present group of migrants. In the 1982 through 1984 Hispanic Health and Nutrition Survey, Puerto Rican men and women had smoking rates higher than those of non-Hispanic Whites, but data have not been reported for the Puerto Rican–born subgroup.[14,15] The effect of increasing SES and/or acculturation on smoking habits and lung cancer rates in specific Hispanic subpopulations[14] requires further study, in view of the present findings on lung cancer in a higher income group of Puerto Rican–born US residents. □

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