

Birthplace and the Risk of AIDS among Hispanics in the United States

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Abstract: To extend previous work showing that the risk of AIDS (acquired immunodeficiency syndrome) is higher in US Hispanics than in Whites who are not Hispanic, we compared US residents born in different Latin American countries. We computed the cumulative incidence (CI) of AIDS and the distribution of cases by mode of exposure. Cases were those reported to the Centers for Disease Control between June 1, 1981 and December 12, 1988, and populations specific for birthplace were from the 1980 census. The reference group was the White population that was not Hispanic, CI 25.7/100,000. We estimated a similar rate in Mexican-born persons

(25.3/100,000). In the South and West, the rate in Mexican-born Hispanics was half the reference rate. In each US region, the CI of AIDS in heterosexual intravenous drug abusers (IVDAs) in Puerto Rican-born persons was several times greater than that in other Latin American-born persons. Puerto Rican-born persons were the only Latin American-born persons in whom most cases were in heterosexual IVDAs. The data suggest that resources for preventing AIDS in Hispanics are needed most in those of Puerto Rican ethnicity for AIDS related to intravenous drug abuse. (*Am J Public Health* 1989; 79:836-839.)

Introduction

The risk of acquired immunodeficiency syndrome (AIDS) is higher in US Hispanics than in Whites who are not Hispanic.^{1,2} Since Hispanics are a diverse ethnic group, targeting public health resources for preventing AIDS in Hispanics would be improved by information on AIDS risks in different Hispanic ethnic subgroups. Because data on AIDS cases reported to the Centers for Disease Control (CDC) include country of birth but not country of ancestry, we investigated the variation in the risk of AIDS by country of birth.

Methods

We analyzed the 78,751 AIDS cases meeting the case definition³ reported to CDC between June 1, 1981 and December 12, 1988 in residents of the United States (the 50 states and District of Columbia). * We classified persons with AIDS according to their race/ethnicity and country or territory of birth. We computed the cumulative incidence, the number of cases per 100,000 US population of the respective group (1980 US census),⁴ and the relative risk (RR), the ratio of the cumulative incidence in a group to the cumulative incidence in Whites who were not Hispanic. The 99% confidence limits around RRs were approximated by the first-order Taylor series method.⁵ Since census data were unavailable for birthplace by race/ethnicity, we estimated the population of US-born Hispanics as the difference between resident Hispanics and residents born in Latin America.

Analyses were stratified by geographic region (Northeast, Midwest, South, and West)⁴ and by presumed mode of acquiring human immunodeficiency virus (HIV) infection.⁶ To detect the effect of differences in the prevalence of the various means of acquiring HIV in different populations, we stratified only the AIDS patients by exposure category, not the populations.

Results

Of the 10,336 Hispanic persons with AIDS in the United States, 49 percent were reported to have been born in the

United States, 37 percent in a specified Latin American country or territory, 1 percent in another specified country, and 4 percent in an unspecified foreign country; the birthplace of the remaining 10 percent was unreported. Of the 4,045 Latin American-born persons with AIDS in the United States, 94 percent were Hispanic.

The cumulative incidence of AIDS in all Hispanics was elevated (70.8/100,000), but was not elevated in persons born in Mexico (25.3/100,000) (Table 1). In the South and West, the cumulative incidence in Mexican-born persons and in US-born Hispanics (≥ 75 percent of whom were of Mexican ethnicity in those regions) were both lower than the reference rate, but in the Northeast and Midwest they were higher than the reference rate.

The pattern of risk by ethnicity was similar for AIDS in homosexual/bisexual men without a history of intravenous drug abuse, representing 61 percent of all cases. In addition, the cumulative incidence in US-born Hispanics was about the same as the reference rate in the nation as a whole and in the Midwest (where 70 percent of US-born Hispanics were of Mexican ethnicity). A similar pattern was seen for AIDS in homosexual/bisexual male intravenous drug abusers (IVDAs), representing 7 percent of all cases; the cumulative incidence in Mexican-born persons was less than the referent in the West and the nation as a whole, and similar to the referent in the other three regions.

For AIDS in heterosexual IVDAs, representing 19 percent of all cases, the cumulative incidence in Mexican-born persons was above the referent in the Northeast and similar to the referent elsewhere (Table 1). The cumulative incidence in US-born Hispanics and persons born in Puerto Rico and Cuba exceeded the referent in each region, but among those born in other Latin American countries the cumulative incidence was greater in the Northeast region only. In each region, the cumulative incidence was markedly greater in Puerto Rican-born persons than in persons born in Cuba, Mexico, or other Latin American countries.

In the nation as a whole, Puerto Rican-born persons were the only Latin American-born persons in whom most AIDS cases were in heterosexual IVDAs (Table 2). Among persons born in Mexico, Cuba, and other Latin American countries, the proportion of cases in heterosexual IVDAs was 10 percent or less. Among the Puerto Rican-born, the proportion of cases in heterosexual IVDAs ranged from 32 percent in the South and West to 52 percent and 61 percent in the Midwest and Northeast, respectively—proportions

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*NOTE: Residents of Puerto Rico or other US territories were excluded.

TABLE 1—Cumulative Incidence (CI)* and Relative Risk (RR)† of AIDS in Hispanics and/or Latin American-Born Persons, by Ethnic Group‡ and US Region, for Different Exposure Categories

Region	Ethnic Group‡	Population (1980 Census)	Exposure Category of AIDS Cases					
			All Categories Combined		Homosexual Non-IVDAs#		Heterosexual IVDAs†	
			CI	RR (99% CL)‡	CI	RR (99% CL)	CI	RR (99% CL)
Total USA	Non-Hispanic Whites†	180,256,366	25.7	1.0	19.9	1.0	1.7	1.0
	US-Born Hispanics	9,704,157	51.7	2.0 (1.9, 2.1)	21.7	1.1 (1.0, 1.2)	20.9	12.2 (11.3, 13.1)
	Puerto Rican-Born	1,002,863	181.2	7.0 (6.6, 7.5)	45.9	2.3 (2.0, 2.6)	104.3	60.7 (55.4, 66.6)
	Mexican-Born	2,199,221	25.3	1.0 (0.9, 1.1)	18.7	0.9 (0.8, 1.1)	1.0	0.6 (0.4, 1.0)
	Cuban-Born	607,814	118.0	4.6 (4.2, 5.1)	97.2	4.9 (4.4, 5.4)	5.3	3.1 (1.9, 4.8)
	Other Latin American-Born	1,094,618	88.2	3.4 (3.2, 3.7)	64.9	3.3 (3.0, 3.6)	5.2	3.0 (2.1, 4.3)
	All Hispanics	14,608,673	70.8	2.8 (2.7, 2.8)	32.1	1.6 (1.6, 1.7)	25.3	14.7 (13.8, 15.7)
Northeast	Non-Hispanic Whites	40,995,586	31.9	1.0	22.6	1.0	5.1	1.0
	US-Born Hispanics	1,176,477	260.2	8.2 (7.7, 8.6)	60.6	2.7 (2.4, 3.0)	153.9	30.3 (27.9, 32.9)
	Puerto Rican-Born	746,193	204.0	6.4 (6.0, 6.9)	40.4	2.0 (1.7, 2.3)	125.0	24.6 (22.2, 27.2)
	Mexican-Born	18,126	292.4	9.2 (6.4, 13.1)	220.7	9.8 (6.5, 14.7)	27.6	5.4 (1.7, 17.2)
	Cuban-Born	138,235	149.7	4.7 (3.9, 5.6)	125.1	5.5 (4.5, 6.7)	10.9	2.1 (1.1, 4.2)
	Other Latin American-Born	525,258	96.5	3.0 (2.7, 3.4)	67.4	3.0 (2.6, 3.4)	9.9	1.9 (1.4, 2.8)
	All Hispanics	2,604,289	241.6	7.6 (7.3, 7.9)	69.6	3.1 (2.9, 3.3)	126.8	25.0 (23.2, 26.8)
Midwest	Non-Hispanic Whites	51,510,114	8.9	1.0	6.9	1.0	0.3	1.0
	US-Born Hispanics	868,013	14.3	1.6 (1.3, 2.0)	7.3	1.1 (0.8, 1.5)	4.0	12.5 (7.8, 20.2)
	Puerto Rican-Born	103,053	87.3	9.9 (7.5, 13.0)	31.1	4.5 (2.9, 7.1)	45.6	141.5 (92.5, 216.5)
	Mexican-Born	215,247	25.6	2.9 (2.0, 4.1)	18.6	2.7 (1.8, 4.1)	0.5	1.4 (0.1, 19.1)
	Cuban-Born	21,995	72.7	8.2 (4.3, 15.6)	63.7	9.2 (4.6, 18.4)	0.0	0.0 (0.0, 79.0)
	Other Latin American-Born	68,237	33.7	3.8 (2.2, 6.5)	26.4	3.8 (2.1, 7.0)	1.5	4.5 (0.3, 60.1)
	All Hispanics	1,276,545	26.7	3.0 (2.6, 3.5)	14.6	2.1 (1.8, 2.6)	7.2	22.4 (16.0, 31.2)
South	Non-Hispanic Whites	56,028,373	22.8	1.0	17.7	1.0	0.9	1.0
	US-Born Hispanics	3,233,698	19.3	0.8 (0.8, 0.9)	13.5	0.8 (0.7, 0.9)	2.4	2.7 (2.0, 3.7)
	Puerto Rican-Born	104,422	116.8	5.1 (4.1, 6.5)	51.7	2.9 (2.1, 4.1)	37.3	43.0 (28.0, 65.9)
	Mexican-Born	527,795	11.9	0.5 (0.4, 0.7)	8.7	0.5 (0.3, 0.7)	0.6	0.7 (0.1, 2.9)
	Cuban-Born	395,351	105.7	4.6 (4.1, 5.3)	86.8	4.9 (4.3, 5.6)	3.3	3.8 (1.8, 7.8)
	Other Latin American-Born	212,700	89.8	3.9 (3.3, 4.8)	66.8	3.8 (3.0, 4.7)	0.5	0.5 (0.0, 7.1)
	All Hispanics	4,473,966	34.2	1.5 (1.4, 1.6)	24.3	1.4 (1.3, 1.5)	3.1	3.6 (2.8, 4.6)
West	Non-Hispanic Whites	31,722,293	50.3	1.0	41.2	1.0	1.1	1.0
	US-Born Hispanics	4,425,969	27.2	0.5 (0.5, 0.6)	20.1	0.5 (0.4, 0.5)	2.3	2.1 (1.6, 2.8)
	Puerto Rican-Born	49,195	168.7	3.4 (2.5, 4.4)	87.4	2.1 (1.4, 3.1)	54.9	48.4 (28.9, 80.8)
	Mexican-Born	1,438,053	26.8	0.5 (0.5, 0.6)	19.9	0.5 (0.4, 0.6)	1.0	0.9 (0.4, 1.7)
	Cuban-Born	52,233	145.5	2.9 (2.2, 3.9)	116.8	2.8 (2.0, 3.9)	7.7	6.7 (1.8, 24.6)
	Other Latin American-Born	288,423	84.6	1.7 (1.4, 2.0)	68.0	1.7 (1.4, 2.0)	1.0	0.9 (0.2, 4.1)
	All Hispanics	6,253,873	34.8	0.7 (0.6, 0.7)	25.6	0.6 (0.6, 0.7)	2.5	2.2 (1.7, 2.8)

*AIDS cases reported between June 1, 1981 and December 12, 1988, per 100,000 population of the same ethnic group (1980 census).

†Reference group is US non-Hispanic Whites (regardless of birthplace).

‡Race/ethnicity and/or country of birth.

#Homosexual/bisexual men without a history of intravenous drug abuse.

†Heterosexual men and women with a history of intravenous drug abuse.

‡CL = Confidence limits.

that were several times greater than among the other foreign-born. In the Northeast, where 64 percent of US-born Hispanics and 57 percent of all Hispanics were of Puerto Rican ethnicity,⁷ most AIDS cases in US-born Hispanics and in all Hispanics were in heterosexual IVDAs. Among residents of Puerto Rico (excluded from the above analysis), the pattern was similar: 54 percent of cases were in heterosexual IVDAs.

Discussion

Although the risk of AIDS is elevated in US Hispanics,^{1,2} the present study shows that the risk in persons of Mexican ethnicity is similar overall to that in the reference group of Whites who are not Hispanic, but varies by region. This finding agrees with HIV-antibody test data on applicants for military service which show that in the West (where 76 percent of Hispanics are of Mexican ethnicity), the prevalence of HIV antibody in Hispanics (0.9 percent) is the same

as that in Whites who are not Hispanic (0.8 percent) (RR = 1.1, 99% confidence limits = 0.7, 1.7).**

The high proportion of cases in heterosexual IVDAs found among Hispanics overall⁵ primarily reflects the high proportion in persons of Puerto Rican ethnicity (birth or ancestry). The strong association between persons of Puerto Rican ethnicity and heterosexual IVDAs with AIDS may be related to the concentration of both in the Northeast region. Of all US residents of Puerto Rican ethnicity, 74 percent resided in the Northeast,⁷ where 74 percent of heterosexual IVDAs with AIDS and 89 percent of Hispanic heterosexual IVDAs with AIDS also resided. The Puerto Ricans' geographic location at the center of the AIDS epidemic in heterosexual IVDAs could have exposed them to a greater

**Unpublished data on tests done from October 1985 through March 1988, by US Department of Defense.

TABLE 2—Percentage Distribution of AIDS Cases in Hispanics and/or Latin American-Born Persons, by Exposure Category for Different Ethnic Groups and US Regions

Region	Ethnic Group*	AIDS Cases	Exposure Category of AIDS Cases				Total
			Heterosexual IVDAs†	Homosexual non-IVDAs	Homosexual IVDAs	All Others	
Total USA	Non-Hispanic Whites§	46,373	6.7	77.2	7.4	8.7	100.0
	US-Born Hispanics	5,015	40.4	41.9	6.3	11.4	100.0
	Puerto Rican-Born	1,817	57.6	25.3	5.6	11.5	100.0
	Mexican-Born	556	4.1	74.1	3.6	18.2	100.0
	Cuban-Born	717	4.5	82.4	4.2	8.9	100.0
	Other Latin American-Born	965	5.9	73.6	4.7	15.8	100.0
	All Hispanics	10,336	35.7	45.3	5.8	13.2	100.0
	Northeast	Non-Hispanic Whites	13,075	15.9	70.8	4.3	9.0
US-Born Hispanics		3,061	59.2	23.3	5.1	12.4	100.0
Puerto Rican-Born		1,522	61.3	21.8	5.3	11.6	100.0
Mexican-Born		53	9.4	75.5	1.9	13.2	100.0
Cuban-Born		207	7.2	83.6	3.9	5.3	100.0
Other Latin American-Born		507	10.3	69.8	3.6	16.3	100.0
All Hispanics		6,291	52.5	28.8	5.0	13.7	100.0
Midwest		Non-Hispanic Whites§	4,564	3.6	77.8	6.2	12.4
	US-Born Hispanics	124	28.2	50.8	0.8	20.2	100.0
	Puerto Rican-Born	90	52.2	35.6	1.1	11.1	100.0
	Mexican-Born	55	1.8	72.7	1.8	23.7	100.0
	Cuban-Born	16	0.0	87.5	6.2	6.3	100.0
	Other Latin American-Born	23	4.4	78.3	8.7	8.6	100.0
	All Hispanics	341	27.0	54.8	2.4	15.8	100.0
	South	Non-Hispanic Whites	12,763	3.8	77.8	7.9	10.5
US-Born Hispanics		624	12.2	70.2	7.0	10.6	100.0
Puerto Rican-Born		122	32.0	44.3	10.7	13.0	100.0
Mexican-Born		63	4.8	73.0	4.8	17.4	100.0
Cuban-Born		418	3.1	82.1	3.1	11.7	100.0
Other Latin American-Born		191	0.5	74.4	5.2	19.9	100.0
All Hispanics		1,528	9.1	71.1	6.0	13.9	100.0
West		Non-Hispanic Whites	15,971	2.2	81.7	9.9	6.2
	US-Born Hispanics	1,206	8.6	73.7	9.4	8.3	100.0
	Puerto Rican-Born	83	32.5	51.8	8.4	7.3	100.0
	Mexican-Born	385	3.6	74.3	3.9	18.2	100.0
	Cuban-Born	76	5.3	80.3	10.5	3.9	100.0
	Other Latin American-Born	244	1.2	80.3	6.2	12.3	100.0
	All Hispanics	2,176	7.3	73.5	8.3	10.9	100.0

*Race/ethnicity and/or country of birth.

†Intravenous drug abusers.

§For comparison with Hispanics: non-Hispanic Whites (regardless of birthplace).

risk of IVDA-related AIDS. Nevertheless, even in the regions where Puerto Ricans are a minority of the Hispanic population, the cumulative incidence of AIDS in heterosexual IVDAs was higher in persons born in Puerto Rico than in those born in Cuba, Mexico, or other Latin American countries. This suggests that the higher cumulative incidence in persons of Puerto Rican ethnicity may be due to a higher prevalence of intravenous drug abuse or sharing of needles and syringes, independent of geographic region.

Alternatively, Puerto Rican IVDAs outside the Northeast are likely to visit or be visited by other Puerto Ricans from the Northeast or from Puerto Rico itself, where most Hispanic persons with AIDS are IVDAs and the prevalence of HIV infection is high. HIV-antibody test data on applicants for military service show that the prevalence of HIV antibody in residents of Puerto Rico (0.6 percent) is almost as high as that in Hispanic residents of New York City (0.7 percent) and greater than that in residents of the United States as a whole (0.1 percent) or any of the 50 states.^{8***}

Even without a higher prevalence of intravenous drug abuse, sharing needles and syringes with persons from the Northeast or Puerto Rico could account for Puerto Ricans in the Midwest, South, and West having higher cumulative incidence and higher proportions of AIDS cases in heterosexual IVDAs than other Hispanics outside the Northeast region.

Our estimates of cumulative incidence in persons born in Mexico, Cuba, and other Latin American countries may be too high, because as many as one million undocumented Hispanic aliens may not have been counted in the 1980 census.[†] Despite this possible bias, Mexican-born persons in the South and West had a lower cumulative incidence than White non-Hispanics. This possible bias is less likely to apply to persons born in Puerto Rico, as their US citizenship gave them no motive to avoid participation in the US census.

We have no data on the country of ancestry of US-born Hispanics with AIDS. It would be useful to know whether patterns of AIDS risk according to ancestry follow those according to birthplace. The high cumulative incidence and high proportion of cases in heterosexual IVDAs among

***Unpublished data on tests done from October 1985 through December 1987, US Department of Defense.

†Personal communication: Karen Woodrow, Bureau of the Census.

US-born Hispanics in the Northeast (where 57 percent of the Hispanic population is Puerto Rican) and the low cumulative incidence and low proportion in heterosexual IVDAs among US-born Hispanics in the West (where 76 percent of the Hispanic population is Mexican) suggest that the patterns are similar. If so, strategies for preventing AIDS⁹⁻¹¹ in US-born Hispanics should be similar to those for non-US-born Hispanics. Our data for the latter suggest that resources for preventing AIDS in Hispanics are needed most in those of Puerto Rican ethnicity, particularly for AIDS related to intravenous drug abuse.

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3rd International Conference on AIDS Education: Call for Abstracts Extended to July 7

“Changing Environments: Meeting the Challenge” is the theme for the 3rd International Conference on AIDS Education, to be held September 10-13, 1989 in Nashville, Tennessee. The conference is sponsored by the International Society for AIDS Education and several other international and national organizations.

The main purpose of the conference is to bring together persons from academic, governmental, and community settings who are working in the interdisciplinary field of AIDS education, counseling, and prevention. Conference participants will review current approaches and methods in the context of meeting the challenges posed by changing social, economic, and institutional environments, as well as changing communication and information technologies. The adaptation of AIDS education and counseling programs to such change will be emphasized. Policy, psychosocial, legal, and ethical issues will be addressed.

The format of the conference will provide structured and unstructured periods for networking and idea exchange as well as plenary sessions featuring experts in the field. Concurrent sessions will be classified into three groups: Research Seminars, Roundtable Discussions, and Workshops. A Poster Session will further enhance knowledge and networking. Informal networking will occur during breaks, social events, and in the exhibits area.

The call for abstracts has been extended to include abstracts postmarked by July 7, 1989. To obtain an abstract form or additional information, contact: Conference Secretariat, 3rd International Conference on AIDS Education, P.O. Box 582, Vanderbilt University Medical School, Nashville, TN 37232-2351 USA. Tel: (615) 322-2437 or (615) 433-2252.