

# Hypertension in Hispanic Americans

JOSÉ L. CANGIANO, MD

- **BACKGROUND** People of Hispanic origin constitute a fast-growing segment of the US population.
- **OBJECTIVE** To review the incidence and prevalence of hypertension in Hispanic Americans.
- **SUMMARY** Some 22.4 million Hispanics live in the United States, but they are not a homogeneous group: Puerto Ricans appear to have a worse health status than Mexicans and Cubans, but different studies have yielded conflicting results. Only approximately half of hypertensive Hispanic Americans know that they have high blood pressure, and only approximately one fourth of these have their blood pressure under control. The prevalence of hypertension among Hispanic Americans falls between that of blacks and non-Hispanic whites, but appears to increase with the process of acculturation. In addition, the prevalence of hypertension and other cardiovascular risk factors increases with decreasing socioeconomic status. Although cardiovascular mortality is declining in the US population at large, it is declining more slowly for Hispanics than it is for blacks and non-Hispanic whites.
- **CONCLUSIONS** Hypertension is a major health threat in the Hispanic community. Barriers to care posed by poverty, language, and lack of education increase the risk of less-than-adequate diagnosis and treatment.

- **INDEX TERMS:** HYPERTENSION; HISPANIC AMERICANS
- CLEVE CLIN J MED 1994; 61:345-350

From the Hypertension Section, VA Medical Center, San Juan, Puerto Rico.

Address reprint requests to J.L.C., Chief, Hypertension Section, VA Medical Center, One Veterans Plaza, San Juan, PR 00927-5800

**H**YPERTENSION has long been recognized as a major health concern for the US population at large. Although it is easy to diagnose and generally responds well to medication, it remains a leading cause of death.<sup>1</sup> Assessment of risk factors suggests that this applies to Hispanic Americans in the United States as well as in the Commonwealth of Puerto Rico.<sup>2,3</sup>

The highly publicized 1982-1984 Hispanic Health and Nutrition Examination Survey (HHANES) found that Hispanic Americans had lower age-adjusted rates of hypertension than blacks and non-Hispanic whites.<sup>2</sup> In fact, well-controlled studies conducted after HHANES suggest that the prevalence of hypertension among Hispanic Americans actually falls between that of blacks and non-Hispanic whites.<sup>4,5</sup> Furthermore, although cardiovascular mortality is declining in the United States, the rate of decline is slower for Hispanics than for blacks and non-Hispanic whites.<sup>6,7</sup> According to Francis, "Hispanics have the next highest death rate (after blacks) from high blood pressure and ischemic heart disease."<sup>7</sup>

Unfortunately for the future, the incidence and prevalence of hyper-

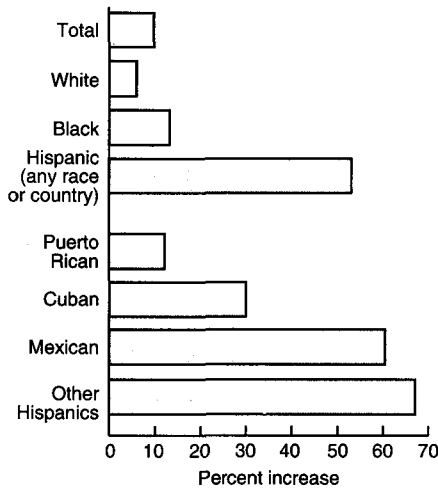


FIGURE 1. Percentage changes in population for the United States, 1980 to 1990. Data from United States Census Bureau, 1990.

tension among Hispanic Americans appear to rise with the process of acculturation, as these people assume more of the high-risk cultural and dietary habits of non-Hispanic Americans.<sup>8</sup>

DESCRIBING THE HISPANIC POPULATION

It is difficult to generalize about the Hispanic population in the United States because, unlike the island-dwelling population of Puerto Rico, it comprises many diverse subpopulations that share a common bond of language and culture. Each subgroup has distinct racial, ethnic, and cultural characteristics. These differences may affect the incidence and prevalence of hypertension. Also, the prevalence of Spanish as the primary or preferred language of a large segment of the US Hispanic population presents additional challenges for the delivery of effective, culturally sensitive health care.<sup>4</sup>

The 1990 Census showed that the US Hispanic population increased by 53% since 1980 (Figure 1) and now numbers 22.4 million people in the continental United States.<sup>9</sup> Mexican Americans are the largest group, accounting for 60.4% of the total; Americans of Central and South American origin account for approximately 22.7%; Puerto Ricans account for 12.2%; and Cuban Americans account for approximately 4.7% (Figure 2).<sup>9</sup>

The 1990 US Census figures do not include the 3.5 million Hispanics residing in the Common-

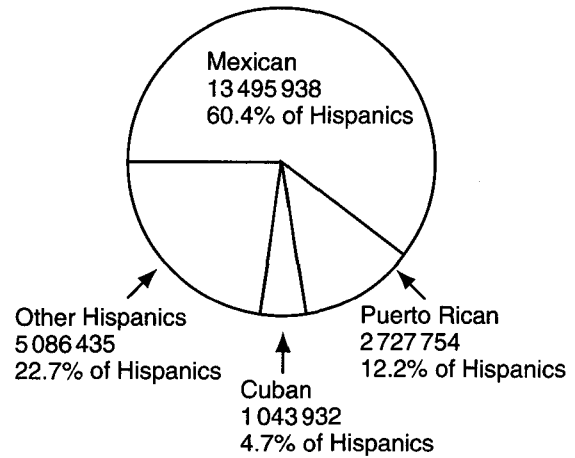


FIGURE 2. Major Hispanic subgroups as a percentage of the total, 1980 to 1990. Data from United States Census Bureau, 1990.

wealth of Puerto Rico. Accurate counts of the US Hispanic population are difficult to obtain, and the Census Bureau acknowledges their figures are understated. In fact, the bureau proposed adding 1.2 million Hispanics to their 1990 total.<sup>10</sup>

Further, the major Hispanic subgroups in the United States tend to live in distinct geographic areas (Figure 3) and have dietary, life-style, and racial ancestry patterns that distinguish each from the other subgroups.<sup>11</sup> For example, 90% of Mexican Americans live in the Southwest, and their racial ancestry is predominantly Caucasian and American Indian. Although most Puerto Ricans on the US mainland live in three northeastern states—New York, New Jersey, and Connecticut—the population of Puerto Rico must also be taken into account. Also, the differences in life-style and customs between Puerto Ricans in the United States and those on the island of Puerto Rico affect health status and delivery.

INCIDENCE AND PREVALENCE OF HYPERTENSION: AN OVERVIEW

Before the HHANES, conducted in 1982 through 1984 in three major US Hispanic subpopulations (Mexican, Puerto Rican, and Cuban), the incidence and prevalence of hypertension in Hispanics was widely believed to be somewhat higher than that of non-Hispanic whites and lower than

that of black Americans. Results from HHANES, however, suggested that Hispanic Americans had a significantly lower age-adjusted incidence of hypertension than whites and blacks, as measured in the National Health and Nutrition Examination Survey conducted from 1976 through 1980.<sup>2</sup>

The HHANES was conducted primarily among Mexican Americans; however, it showed that hypertension occurred among Hispanic subpopulations at various rates (Table 1).

Although HHANES made strides in attempting to qualify and quantify hypertension in Hispanic subgroups, the study had a number of weaknesses. For example, each subject's blood pressure was measured on only one occasion. This is inconsistent with the recommendations of the National High Blood Pressure Council. Further, blood pressure was measured among isolated ethnic subgroups in small geographic areas. Finally, readings and other data from this study were compared with data for black and white subjects that had been gathered in earlier studies.

Although the HHANES figures may have underestimated the prevalence of high blood pressure, at least they underscored, for the first time on a large scale, the fact that hypertension occurs frequently among Hispanic Americans and that it poses a major health risk for this population.<sup>2</sup>

Since the conclusion of HHANES, however, other studies whose protocols were compatible with National High Blood Pressure Council standards have suggested that hypertension in Hispanic populations in general conforms to the model before HHANES. Specifically, Caralis recently demonstrated that, as a group, Hispanics are more likely to have high blood pressure than non-Hispanic whites but less likely than black Americans.<sup>4</sup>

Caralis makes an important point that "the prevalence of hypertension and other cardiovascular risk factors was shown to increase with decreasing socioeconomic status in Hispanics and non-Hispanic whites but not in blacks. The excess prevalence of hypertension among Hispanics, as compared with non-Hispanic whites, is most evident at the lower end of the socioeconomic scale."<sup>5</sup>

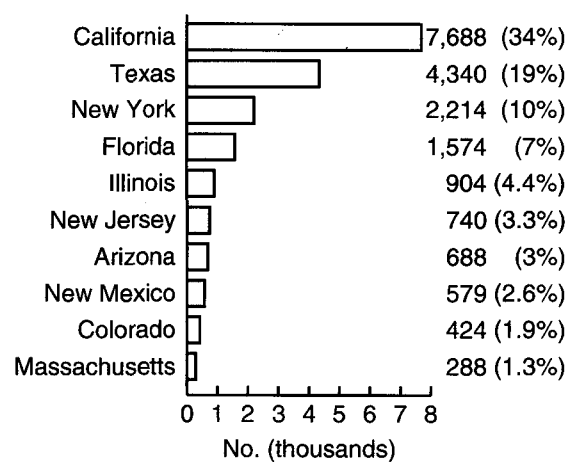


FIGURE 3. States with the largest numbers of people of Hispanic origin, 1990. Numbers in parentheses indicate percent of US Hispanic population. Data from United States Census Bureau, 1990.

HYPERTENSION IN HISPANIC SUBPOPULATIONS

Mexican Americans

HHANES established that blood pressure was controlled in only 22.6% of hypertensive Mexican American men and 43.6% of Mexican American women, using 140/90 mm Hg as the control threshold.<sup>2</sup> Although HHANES helped identify a pattern of hypertension (Table 1) and poor hypertension control levels in Hispanic populations, the results of the study have been open to question and reevaluation, as noted earlier.

The San Antonio Heart Study, conducted by Haffner et al in conformance with National High Blood Pressure Council guidelines,<sup>12</sup> presents another updated look at hypertension in the Mexican

TABLE 1  
PREVALENCE OF HYPERTENSION\* IN ADULTS AGES 18 TO 74 IN THE HISPANIC HYPERTENSION AND NUTRITION EXAMINATION SURVEY, 1981-1984

Population	Prevalence in men, %	Prevalence in women, %
Mexican Americans (Southwestern United States)	16.8	14.1
Cuban Americans (Dade County, Florida)	22.8	15.5
Puerto Ricans (New York City)	15.6	11.5

\*Defined as the average of two blood pressure measurements  $\geq$  140/90 mm Hg or taking antihypertensive medication; adapted from Pappas et al, reference 2

**TABLE 2**  
HYPERTENSION PREVALENCE  
IN PUERTO RICANS BY AGE\*

Age	Prevalence in United States, % <sup>†</sup>	Prevalence in Puerto Rico, % <sup>‡</sup>
< 45	4.2	8.1
45-64	25.1	26.1
> 65	39.4	33.9
Overall	12.3	10.1

\*Adapted from Ramirez, reference 3; statistical significance not provided

<sup>†</sup>National Health Interview Survey

<sup>‡</sup>Puerto Rico Department of Health

population. The results suggest that “the incidence of hypertension is lower in Mexican-American men than in non-Hispanic white men, but higher in Mexican women than in non-Hispanic white women, although neither of these differences was statistically significant.” This outcome also conflicts with that of HHANES, which suggested that Mexicans have a significantly lower incidence of hypertension than the white population.

An 8-year follow-up analysis of the San Antonio Heart Study by Haffner et al found that Mexican Americans with hypertension were younger, more obese, and had a higher prevalence of noninsulin-dependent diabetes mellitus than non-Hispanic whites. Recent data from this study shows that blood pressure control is worse in Mexican Americans with hypertension than in non-Hispanic whites with hypertension.<sup>13</sup>

Although Mexican Americans have a greater prevalence of diabetes, have disease of greater metabolic severity (placing them at greater risk for complications), and have higher levels of cholesterol and triglycerides, their incidence of cardiovascular mortality is not greater than it is for whites.<sup>8</sup>

Hypertension, however, is now recognized as an important risk factor for diabetic complications, and diabetes is a major concern for some Hispanic populations (including Mexican Americans). Therefore, hypertension exerts a major public health impact on Mexican Americans.<sup>12</sup>

### Puerto Ricans

*The Continental United States.* In the United States, Puerto Ricans tend to live in urban areas and to belong to lower socioeconomic groups. The Council on Scientific Affairs of the American Medical Association’s Report on Hispanic Health (January 1991) characterizes Puerto Ricans as hav-

ing the worst health status of the three major US subgroups of Hispanics. This report also cites HHANES data that demonstrate that almost 50% of hypertensive Puerto Ricans were not aware of their high blood pressure.<sup>8</sup>

Hypertensive Puerto Rican men were less likely to take medication to reduce their blood pressure than were Puerto Rican women or Cuban men.<sup>2</sup> In addition, at a hypertension threshold of 160/95 mm Hg and a control threshold of 140/90 mm Hg, only 11.9% of hypertensive Puerto Rican men and 41.6% of hypertensive Puerto Rican women in the United States achieved blood pressure control. Even at a less stringent threshold for control—165/95 mm Hg—only 19.7% of hypertensive Puerto Rican men had their blood pressure under control.<sup>2</sup>

The most widely cited recent study on hypertension in Puerto Ricans in the United States was based on data obtained at a health fair in South Bronx, New York City.<sup>14</sup> Some 64% of participants in this study were Puerto Rican. Almost 50% of the Puerto Ricans who said they did not have high blood pressure were, in fact, hypertensive. Thus, among Puerto Ricans living in New York City, the rate of unrecognized (and therefore untreated) hypertension appears to be quite high.<sup>14</sup> Of those Hispanic study participants who stated that they had hypertension, 77.5% did not have their blood pressure under control. Only 57.5% of hypertensive Hispanic patients were taking antihypertensive medication, and of this group 78.2% did not achieve control.<sup>14</sup>

The data presented in this study suggest that Hispanics in New York City have relatively low awareness of hypertension.<sup>14</sup> Although these data cannot be extrapolated to all Puerto Rican populations in the United States, they may be representative of those inner-city population pockets where poverty is likely, education level is low, access to medical care is limited, and language is a factor.

*The Commonwealth of Puerto Rico.* Approximately 3.5 million Hispanics live in Puerto Rico. Today, cardiovascular disease is the leading cause of death in the Commonwealth.<sup>3</sup> In 1986, “hypertension was moderately less prevalent in Puerto Rico than in the United States, especially in individuals older than 65 years, in whom the prevalence of hypertension was the highest (Table 2).”<sup>3</sup>

Even though the prevalence of detected hypertension appears to be lower for island-dwelling Puerto Ricans than for the general US population, their mortality rate from hypertension is higher. In

fact, 1985 figures show that “the death rate from hypertensive heart disease (in Puerto Rico) was twice that of the United States mainland.”<sup>3</sup>

Deaths due to heart disease have been increasing in Puerto Rico (72% since 1960). Ramirez states: “this is in sharp contrast to the precipitous drop in mortality from coronary heart disease and stroke in the United States during the last 25 years.”<sup>3</sup>

The HHANES finding that Puerto Ricans who reside in New York City have a greater propensity toward diabetes than other US Hispanic subgroups has lead Ramirez to suspect that “the rate of diabetic complications may also be higher among mainland Puerto Ricans than in other Hispanic groups.”<sup>3</sup> If this is true, then Puerto Ricans are at greater risk for cardiovascular disease than their hypertensive profile alone would imply.

Although the health care system in Puerto Rico continues to improve, changes in diet, increased social stress, and the high prevalence of diabetes and obesity may add to the increased heart disease death rate. Hypertension and its associated risk factors have become major public health issues for the Puerto Rican population in the Commonwealth.<sup>3</sup>

### Cuban Americans

HHANES results showed that 20.5% of Cuban American men and 13.8% of Cuban American women between the ages of 19 and 74 had high blood pressure. In addition, this study established that blood pressure control was achieved by only 26.1% of hypertensive Cuban American men and 29.5% of women, using 140/90 mm Hg as the control threshold. With a less stringent standard of 160/95 mm Hg, 50.6% of hypertensive Cuban American men evaluated had achieved control.<sup>2</sup>

Citing a 2-year study that screened 25 536 high-school students in Florida, Caralis noted that male Cuban adolescents had a greater prevalence of diastolic blood pressure greater than 90 mm Hg than did non-Hispanic white teenagers (3.6% vs 2.0%). As in the studies of adults, the rate of hypertension among Cuban male adolescents was less than that of black male adolescents (4.5%). In this study the prevalence of systolic blood pressure greater than 140 mm Hg was 7.4% for Hispanics and 5.6% for non-Hispanic whites (Table 3). The long-term rami-

**TABLE 3**  
PREVALENCE OF HIGH BLOOD PRESSURE IN MALE ADOLESCENTS

	Cubans, %	Non-Hispanic whites, %	Blacks, %
Elevated diastolic blood pressure	3.6	2.0	4.5
Elevated systolic blood pressure	7.4	5.6	Not reported

\*Adapted from Caralis, reference 4

fications of elevated blood pressure in male adolescent Hispanics living in the United States are currently unknown.<sup>4</sup>

### Other Hispanic populations

Although there are currently no useful data available on the incidence and prevalence of hypertension among Hispanics who do not belong to the aforementioned groups, these “others” represent the fastest-growing group of Hispanics in the United States. It is reasonable to assume that the general hypertensive trends noted with the other Hispanic populations will apply to these other groups as well.

Thus, although the incidence and prevalence of hypertension in this subgroup is unknown, it is fair to speculate that hypertension in this population is not likely to be well controlled, constituting a major public health risk for hypertension and cardiovascular disease.

### BASIC TREATMENT GUIDELINES

Treatment for all hypertensive patients should be individualized. There are no data to support a different approach to treating hypertension in Hispanic patients at this time. When such patients are indigent—and more than likely uninsured—cost of treatment must be considered. Bilingual medical, prescribing, and patient instructions will greatly aid compliance when language is a barrier.

### SUMMARY

Recognition and treatment of hypertension represent major challenges for those who provide health care to Hispanic Americans. Lack of patient education, the language barrier, poverty, and limited access to medical care may increase the risk of less-than-adequate diagnosis, treatment, and control of hypertension among significant numbers of this patient population. While cardiovascular mortality is declining in the US population at large, it is declining more slowly for Hispanics than it is for blacks and non-Hispanic whites.

Based on data currently available, the incidence and prevalence of hypertension in Hispanics parallel, and in some Hispanic subgroups appear to exceed, that of the general non-Hispanic white population, but are lower than the incidence and prevalence in blacks.

Among the major subgroups, Mexican Americans are more likely to be obese and have diabetes, both of which are significant cardiovascular risk factors. Puerto Ricans may also be at greater risk of complications from diabetes.

The HHANES study appears to have engendered an unwarranted complacency about the importance of hypertension in Hispanic Americans. Hyperten-

sion is a major health threat in the Hispanic community, both in the United States and the Commonwealth of Puerto Rico.

To better control hypertension among Hispanic Americans, there is an urgent need for comprehensive studies to determine the similarities and differences among Hispanic subgroups and their risks of developing hypertension.

---

#### ACKNOWLEDGMENT

---

The author wishes to recognize the help given by Sandoz Corporation in preparing the manuscript. Part of this manuscript has been published as a monograph.

---

#### REFERENCES

---

1. Geronimus AT, Neidert LJ, Bound J. A note on the measurement of hypertension in HHANES. *Am J Public Health* 1990; 80:1437-1442.
2. Pappas C, Gergen PJ, Carroll M. Hypertension prevalence and the status of awareness, treatment, and control in the Hispanic Health and Nutrition Examination Survey (HHANES), 1982-1984. *Am J Public Health* 1990; 80:1431-1436.
3. Ramirez EA. Cardiovascular health in Puerto Ricans compared to other population groups in the United States. *Ethn Dis* 1991; 1:188-199.
4. Caralis PV. Hypertension in the Hispanic-American population. *Am J Med* 1990; 88(Suppl 3B):9-16.
5. Caralis PV. Coronary artery disease in Hispanic Americans. *Postgrad Med* 1992; 91:179-182, 185-188, 193.
6. Francis CK. Hypertension, cardiac disease, and compliance in minority patients. *Am J Med* 1991; 91(Suppl 1A):29-36.
7. Francis CK. Making a difference: managing hypertension in minority patients. *Am J Med* 1990; 88(Suppl 3B):1-2.
8. Council on Scientific Affairs. Hispanic health in the United States. *JAMA* 1991; 265:248-252.
9. US Department of Commerce News. Census Bureau releases 1990 census counts on Hispanic population groups. Washington, DC: Bureau of the Census, June 12, 1991. CB91-216.
10. US Department of Commerce News. Census Bureau releases refined estimates from post-enumeration survey of 1990 census coverage. Washington, DC: Bureau of the Census, June 13, 1991. CB91-221.
11. 1990 Census Profile. Race and Hispanic origin. Washington, DC: Bureau of the Census, June 12, 1991. Issue No. 2.
12. Haffner SM, Mitchell BD, Valdez RA, et al. Five-year incidence of hypertension in Mexican-Americans and non-Hispanic whites: the San Antonio heart study. *Am J Hypertens* 1992; 5:147-153.
13. Haffner SM, Morales PA, Hazuda HP, Stern MP. Level of control of hypertension in Mexican American and non Hispanic whites. *Hypertension* 1993; 21:83-88.
14. Barrios E, Iler E, Mulloy K, et al. Hypertension in the Hispanic and black population in New York City. *J Natl Med Assoc* 1987; 79:749-752.