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# Cardiovascular diseases mortality in Cuba, Mexico, Puerto Rico and US Hispanic populations

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## KEYWORDS

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## Summary

**Background:** The large scale migration currently taking place from Latin-America to the United States has created a new era in public health. A systematic examination of patterns of cardiovascular mortality (CVD) for the major US Hispanic populations was carried out and a direct comparison to their respective countries/regions of origin was conducted to evaluate possible transitions in health with migration.

**Methods:** Vital statistics records from the US, Mexico, Cuba and Puerto Rico compiled by governmental agencies in each country during 2000 were used to estimate CVD age-adjusted mortality.

**Results:** Total age-adjusted CVD mortality for Mexican Americans, Cuban Americans and mainland Puerto Ricans was similar to non-Hispanic whites, and lower than among blacks. CVD rates in Mexico and on the island of Puerto Rico were likewise similar in magnitude, while these mortality rates were 20% higher in Cuba. Death from ischemic heart disease, on the other hand, was higher in non-Hispanic whites than Mexican Americans, Mexicans, Cuban Americans, but lower than Puerto Ricans, Cubans and US blacks. Stroke rates tended to be lower in US whites and all Hispanics and higher in Mexico and Cuba.

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*Conclusions:* These data suggest at most a very modest Hispanic advantage in CVD within the US at the present time and a substantial burden of both heart disease and stroke in the countries from which these individuals have immigrated. Further surveillance efforts will be required to determine whether the long-term trends for these populations are following the downward course observed in the US.  
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## Introduction

Both coronary heart disease (CHD) and stroke have followed a path of sharp decline in many industrialized countries in recent decades [1,2]. A number of major public health challenges must still be met, however, before an equally effective prevention strategy can be implemented for all social strata. Within the US well recognized disparities persist in the burden from cardiovascular diseases (CVD) among various racial/ethnic sub-populations and substantial heterogeneity has been observed in the trends across geographic regions [2]. It has also become apparent in recent years that the true burden of CVD in growing immigrant populations from Mexico and other Spanish-speaking countries has not been adequately defined [3–7]. Improved surveillance and prevention for these high-risk populations is thus an important priority.

Hispanic populations are now the largest minority group in the US [8,9]. These populations themselves are highly internally heterogeneous in terms of their country of origin, average level of education and wealth, and cultural background [8–11]. According to the 2000 census, 33 million Latinos resided in the United States, representing 12.0% of the total US population. Of these individuals 22 million were of Mexican origin, 3 million were Puerto Rican, and 1.3 million were Cuban [8,9]. In the published vital statistics data both CVD and all cause mortality are substantially lower for all Hispanic groups compared to white and black [2,11]. Characterized as the “Hispanic paradox”, this outcome is contrary to what would be expected for a population with a moderately high frequency of CVD risk factors and low average levels of education and income. In fact, considerable controversy exists regarding the accuracy of the vital statistics data [3–7,10,12–20]. While some national longitudinal cohort studies show a much reduced advantage for Hispanics, community surveys in the Southwest document higher rates of CVD in Mexican Americans [3,5,7,12–15]. Although different in character, numerous biases plague all of the various surveillance mechanisms that are

currently in place, making it impossible to resolve this controversy at the present time. A synthesis of information derived from multiple sources is therefore likely to be required to obtain reliable estimates.

Additional insight into the public health status of the Hispanic population in the US can be obtained by describing the health situation in the country of origin. This approach could help focus information on the burden of disease and risk factor prevalence to develop efficient and culturally acceptable public health interventions. Unfortunately almost all prior surveillance research on CVD has been restricted to developed countries and the magnitude of the health burden from these disorders is only now being recognized in middle-income and poor countries [21–25]. The vital records systems in these countries are often weak and the long-term data required to monitor trends are especially limited [26]. These issues have not been thoroughly evaluated in the countries on the US borders that are the principal source of Hispanic migrants. As a result, we are faced not only with uncertainty about the extent to which US vital systems are accurately recording the mortality experience of Hispanics in this country but we cannot yet say with confidence that the data from the countries that are sending immigrants to the US would support direct comparisons.

The primary purpose of this study was therefore to use the vital records data to characterize the pattern of CVD in each of the countries of origin of the major US Hispanic groups and to compare these data to what is currently being recorded among the respective immigrant groups. First, we attempted to determine whether adequate data resources existed to permit a detailed comparison of the patterns of CVD mortality in Mexico, Cuba, Puerto Rico and related population groups in the US. Second, we wanted to examine whether or not these patterns were consistent with risk factor profiles and other public health information as the first step to characterize the transition in CVD health currently taking place as a result of the on-going Hispanic migration.

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