Socioeconomic Status and Coronary Heart Disease Mortality in the City of Sao Paulo, Brazil (1996 to 2007)

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Introduction: Since the early 1980s there is a decline of coronary heart disease (CHD) mortality rates in Brazil mainly in the city of São Paulo with important social differences. Our hypothesis will be to verify if mortality rate trends from CHD are occurring at the same pace in different areas of the city of São Paulo according to socioeconomic status. Methods: We analyzed all 58,445 deaths classified as CHD from 1996 (first year of 10th Revision of the International Classification of Diseases) to 2007 (most recent data available) for people aging 35 to 74 years-old of both sexes. São Paulo is organized into 96 districts that were classified into four areas, from the wealthiest (#1) to the poorest (#4), according to the proportion of households with a family income less than or equal to five minimum wages identified on National Census data (1991 and 2000). The population estimate for each district was based on National Census data by extrapolation and estimation on the intercensus years by the official demographic agency. Death rates were adjusted by the Segis standard population. “Jointpoint Regression Program 3.3.1” was applied to perform a simulation to verify the peak and the trends of CHD deaths in a log-linear model using Poisson regression; it created a Monte Carlo permutation test to identify points where the trend line changes significantly in magnitude or in direction; and it also allows calculation of the Annual Average Percent Change with 95% Confidence Interval.

Results: For all areas, the pattern of decline was linear and continuous. For men, the Annual Average Percent Change for age-adjusted CHD death rates observed was in area #1 (wealthiest): −5.0 (−5.7 to −4.3); area #2: −4.0 (−5.0 to −3.0); area #3: −3.4 (−4.2 to −2.6), and for area #4 (poorest): −2.8 (−3.6 to −2.0). For women, the Annual Average Percent Change was for area #1: −5.2 (−6.6 to −3.7); area #2: −4.4 (−5.2 to −3.6); area #3: −3.4 (−4.3 to −2.5); and for area #4: −3.9 (−4.8 to −2.9). For men, the age-adjusted death rates for the triennial 1996–98 were not different among these areas; however for the triennial 2005–07 the mortality rate in area #1 was significant lower compared to other areas. For women, a significant mortality rates difference was observed during all time of observation a with significant trend among the areas (area #1 showing the lowest rates and area #4 the highest ones.) Conclusion: An overall decline of CHD death rates was observed for all areas of the city according to socioeconomic classification for women. However, for men, only from the latter period, the mortality rates decline was different according to socioeconomic status.