

Variation in heart disease death risk in England largely attributed to population characteristics

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In England, a country with a universal access health care system, there is wide variation between local populations in the rate of death from coronary heart disease, which is largely explained by population characteristics such as low socioeconomic factors, white ethnicity, levels of smoking, and diabetes, according to a study in the November 10 issue of *JAMA*.

"Although mortality from [coronary heart disease](#) (CHD) has been steadily decreasing since the 1970s, it is still responsible for 15 percent of all deaths and nearly half of all circulatory disease deaths in England. A national policy was launched in 2000 to reduce the CHD mortality rate by two-fifths in those individuals aged younger than 75 years by 2010. This goal was achieved nationally, but regional variations in CHD [mortality rates](#) persist," according to background information in the article.

In England, populations and primary care services are grouped geographically into primary care trusts (PCTs, 152 trusts in place between 2006 and 2010), with there being a large variation in CHD mortality rates between PCTs. "The goal of our study was to identify factors that explain variations in CHD mortality between PCTs. Potential causes for variability include characteristics relating to the population and to the service," the authors write. "Evidence on service characteristics associated with reduced coronary mortality would,

therefore, inform the development of improved delivery of health care by trusts, as well as the evolution of health care systems in other countries, including the United States, who are seeking to improve population health."

Louis S. Levene, M.B., B.Chir., F.R.C.G.P., of the University of Leicester, England and colleagues conducted a study to examine whether differences in CHD mortality between PCTs would be explained by variations in population characteristics and primary health care services. The study included all 152 primary care trusts (total registered population, 54.3 million in 2008) and analysis of data regarding CHD mortality and population characteristics (including an index of multiple deprivation [low measures on economic, social and housing issues], smoking, ethnicity, diabetes) and service characteristics (level of provision of primary care services, levels of detected [hypertension](#), pay for performance data).

The average age-standardized CHD mortality rates per 100,000 European Standard Population decreased from 97.9 in 2006 to 93.5 in 2007 to 88.4 in 2008. Analysis indicated that in all 3 years, 4 population characteristics were significantly positively associated with CHD mortality: index of multiple deprivation; smoking, white ethnicity, and registers of individuals with diabetes. Only one service characteristic, the level of detected hypertension, was significantly negatively associated with CHD mortality. The median (midpoint) proportion with detected hypertension appears to have increased gradually between 2006 and 2008.

"Therefore, higher proportions of white individuals, higher levels of deprivation, higher levels of diabetes, higher proportions of smokers, and lower levels of detected hypertension were associated with higher levels of CHD mortality at PCT level in our models," the authors write.

"These findings have a number of implications. Coronary heart disease mortality rates are predominantly explained by population characteristics. Programs to reduce mortality should address those characteristics of populations amenable to intervention, including smoking and deprivation. The importance of paying attention to population characteristics is emphasized by the finding that better detection of hypertension in the population was associated with reduced CHD mortality at the population level," the researchers write. "The extent to which primary health care services can affect these population factors is not certain."

More information: *JAMA*. 2010;304[18]:2028-2034.

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