

# Reducing social inequalities and the prevention of coronary heart disease

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Sirs—In his commentary on our paper, ‘Social class differences in coronary heart disease in middle-aged British men: implications for prevention’, published in the April 2004 issue of the *International Journal of Epidemiology*,<sup>1</sup> Professor Marmot takes exception to our assertion that the impact of social class on population levels of coronary heart disease (CHD) (estimated in our paper to be 22%) would be ‘modest’.<sup>2</sup>

While we agree that our use of the word ‘modest’ in this context may have been inappropriate, we stand by our conclusion regarding the *relative* potential of strategies reducing social inequalities in CHD when compared with strategies for population-wide modification of established coronary risk factors in the prevention of CHD. In our analysis, we estimated that in British middle-aged men, approximately one-fifth of all major CHD events would have been prevented if the average risks of non-manual social classes had been experienced by the whole population. A reduction in CHD rates of this magnitude would be both important and desirable. However, compared with the reduction in CHD risk which could be achieved by population-wide changes in the three most important causal factors for CHD (blood cholesterol, blood pressure, and cigarette smoking), this is a fairly limited reduction. We have shown in this study population that even modest (10%) population-wide reductions in both blood pressure and blood cholesterol (which could in turn be achieved by population-wide reductions in intakes of saturated fat and salt) would be sufficient to reduce CHD rates by almost 50%.<sup>3</sup> The limited contribution of reducing social inequalities reflects the high CHD risk and the unfavourable coronary risk profile of non-manual men in this study. Although these analyses relate to risk factor profiles in 1978–1980, the lack of a social class gradient in blood pressure and cholesterol in contemporary adults<sup>4</sup> suggests that the overall balance of benefit of the two approaches will not have changed markedly. The relative feasibility of implementing the two prevention strategies in the UK is debatable, since neither approach has been systematically applied to control of the CHD epidemic. However, the practical feasibility of centrally directed population-wide changes in diet has been well demonstrated in other settings.<sup>5–7</sup>

Professor Marmot implies that there is an inextricable link between low social position, poverty and CHD risk and uses the example of tuberculosis to illustrate how improvement of social conditions can play a crucial role in disease prevention.

However, the relationship between income, social position and CHD risk has not been constant during the CHD epidemic in the UK;<sup>8</sup> the epidemic of CHD now developing in other regions (e.g. South Asia) is tending to affect relatively affluent groups.<sup>9</sup> Thus, the social distribution of CHD at different times and places tends at least partly to reflect the social distribution of established CHD risk factors.<sup>9,10</sup> Although Professor Marmot implies that tuberculosis is a relevant historical infectious disease model for CHD prevention, it is possible that the systematic population-wide sanitation strategies which controlled cholera (another disease associated with poverty and the name of Robert Koch) in rich and poor alike, also have contemporary resonance for CHD prevention, which requires concerted population-wide action to bring about dietary change, reduce cigarette smoking prevalence and increase levels of physical activity.

While we believe that population-wide reduction in key coronary risk factors are crucial for the effective reduction in CHD risk, we recognize the importance of ensuring that these changes should occur in all social classes, not just the most affluent. We therefore agree with Professor Marmot that in the UK a combined approach to CHD prevention is necessary, emphasizing population-wide control of major risk factors, while building in special precautions to ensure that benefits occur in people in those social groups with particularly high CHD rates.

## References

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<sup>9</sup> Yusuf S, Reddy S, Ounpuu S, Anand S. Global burden of cardiovascular diseases: part I: general considerations, the epidemiologic transition, risk factors, and impact of urbanization. *Circulation* 2001;**104**:2746–53.

<sup>10</sup> Yusuf S, Reddy S, Ounpuu S, Anand S. Global burden of cardiovascular diseases: part II: variations in cardiovascular disease by specific ethnic groups and geographic regions and prevention strategies. *Circulation* 2001;**104**:2855–64.