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Title : Explaining the massive declines in coronary heart disease mortality rates in Iceland, 1981 - 2006
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Background: coronary heart disease mortality rates have been decreasing in Iceland since the 1980s. We used the validated IMPACT model to examine how much of the decrease in Iceland between 1981 and 2006 could be attributed to medical and surgical treatments and how much to changes in cardiovascular risk factors.
Methods: the previously validated IMPACT mortality model was used to combine and analyse data on uptake and effectiveness of cardiological treatments and risk factor trends in the entire Iceland population. The main data sources were official statistics, national quality registers, published trials and meta-analyses, clinical audits and a series of national population surveys.
Sensitivity analyses were then conducted.
Results: between 1981 and 2006, coronary heart disease mortality rates in Iceland decreased by 80% in men and women aged 25 to 74 years. This fall resulted in 295 fewer deaths in 2006. Approximately one quarter of this decrease was attributable to treatments in individuals (including some 7% to secondary prevention, 6% to heart failure treatments, 5% to initial treatments of acute coronary syndrome, and 1% to hypertension treatments). Approximately three quarters of the mortality decrease was attributable to population risk factor reductions (principally cholesterol, 36%; smoking, 20%; systolic bloodpressure, 25% and physical activity, 5%). Adverse trends were seen for diabetes (-5%), and obesity (-4%).
Conclusions: approximately three quarters of the large coronary heart disease mortality decrease in Iceland between 1981 and 2006 was attributable to reductions in major cardiovascular risk factors in population, (mainly decreases in total serum cholesterol, smoking and bloodpressure levels). These findings emphasize the value of a comprehensive strategy that promotes tobacco control and a healthier diet. It also highlights the potential importance of effective, evidence based medical treatments.