

patients. We aimed to estimate the potential for each strategy to reduce future CHD deaths in England and Wales.

**Methods** We used the Stock of Health (SoH) model, where each individual is born with a 100% stock which then depreciates year-by-year, reflecting fixed and modifiable risk factors. A CHD death occurs when the individual's CHD's SoH falls below a critical point. Births, deaths and risk factor distributions were obtained from the Office of National Statistics and the Health Survey for England. Model parameters were calibrated using data from the US Cardiovascular Lifetime Risk Pooling Project. We modelled ten policy scenarios: population-wide, individual-based and combination strategies. The population-wide strategies were: a systolic blood pressure (SBP) reduction of 0.1 mmHg achieved by health promotion media strategies (Pop1), a 1.3 mmHg reduction achieved by mandatory salt reformulation (Pop2) and an attainable goal where SBP levels fall to those observed in the US population (Pop3). The individual-based strategies assumed that in currently uncontrolled hypertensive patients, control was then achieved in 30% (Indi1) and 50% (Indi2) of them.

**Results** We forecast that approximately 467,200 CHD (95% CI 466,900–467,600) deaths may occur between 2013 and 2030. By controlling 30% and 50% of hypertensive patients, we predict approximately 3800 (3200–4300) and 6200 (5700–6800) fewer deaths respectively. Conversely, we predict approximately 1300 (800–1900) fewer deaths by health promotion; some 16,400 (15,800–16,900) fewer deaths by mandatory reformulation and approximately 25,400 (24,900–25,900) fewer deaths by gradual SBP declines to US levels. Combining Pop1 and Indi1 might achieve approximately 5100 (4500–5600) fewer deaths in 2030; whereas combining Pop1 and Indi2 could achieve some 7500 (2000–13,000) fewer deaths. Combining Pop2 and Indi1 might prevent approximately 19,700 (19,200–20,300) deaths; while combining Pop2 and Indi2 could prevent or postpone some 21,900 (21,400–22,400) deaths by 2030.

**Conclusion** Both population-wide salt reduction policies and individual-based treatment strategies could substantially reduce CHD deaths in England and Wales. Even greater reductions in mortality might be achieved by reducing SBP to US levels. However, there is no clear single successful intervention, but both types of strategies are needed to maximise our chances of controlling the burden of mortality attributable to blood pressure.

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#### EUROHEART II - COMPARING POLICIES TO REDUCE FUTURE CORONARY HEART DISEASE MORTALITY IN NINE EUROPEAN COUNTRIES: MODELLING STUDY

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**Background** Coronary heart disease (CHD) death rates have been falling across most of Europe in recent decades. However, CHD remains the leading cause of mortality. Furthermore, substantial

risk factor reductions have been achieved in some European countries, but not in others. This partly reflects rather patchy implementation of the most effective prevention policies. Our study therefore aimed to quantify the potential impact of future policy scenarios (reducing smoking, diet and physical inactivity) on future CHD mortality in diverse countries across Europe.

**Methods** We updated previously validated IMPACT CHD mortality models in nine countries (Czech Republic, Finland, Iceland, Italy, Ireland, Northern Ireland, Poland, Scotland and Sweden). Using recent risk factor data, these models were extended from 2010 (baseline year) to predict potential reductions in CHD mortality to 2020 (in people aged 25–74 years). We then modelled the mortality reductions in each country expected with future policies to decrease cardiovascular risk factors. We compared three alternative policy scenarios: conservative, intermediate and optimistic improvements for smoking prevalence (absolute decreases of 5%, 10% and 15%), dietary saturated fat intake (1%, 2% and 3% decreases in energy, replaced by unsaturated fats), dietary salt (decreases of 10%, 20% and 30%), and physical activity (absolute increases of 5%, 10% and 15%). Probabilistic sensitivity analyses were then conducted.

**Results** Under the conservative, intermediate and optimistic policy scenarios, we estimated approximately 11%, 21% and 29% fewer CHD deaths respectively in 2020 in these countries. Depending on the future mortality trends assumed, this represented between 11,000 and 18,500 fewer CHD deaths for the optimistic scenario. For the conservative scenario, 5% absolute reductions in smoking prevalence could decrease CHD deaths in each country by 2–3% (e.g. approximately 40–80 fewer deaths in Ireland, 460–760 fewer deaths in Poland). Salt intake reductions of 10% could decrease CHD deaths by approximately 1.2–2.5%; and 1% reductions in saturated fat intake might decrease CHD deaths by some 1.5–2.2%. The 5% absolute increases in physical activity levels might decrease CHD deaths by just 0.8–1.4% (approximately 20–40 fewer deaths in Ireland, approximately 220–370 fewer deaths in Poland). These projections remained stable under a wide range of probabilistic sensitivity analyses.

**Conclusion** Modest and feasible policy-based reductions in cardiovascular risk factors (already been achieved in some other countries) could translate into substantial reductions in future CHD deaths across Europe. However, this would require the European Union to more effectively implement powerful evidence-based prevention policies.

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#### Ageing populations

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#### PHYSICAL CAPABILITY IN MIDLIFE AND SURVIVAL OVER 13 YEARS OF FOLLOW-UP IN A BRITISH BIRTH COHORT STUDY

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**Background** Better performance in objective tests of physical capability, including stronger grip and faster walking speed, has consistently been linked to lower all cause-mortality rates in community-dwelling older populations. It remains unclear whether associations are also found in younger populations who