Optimal detection and treatment of cardiac risk could save millions of lives and billions of pounds

September 10 2020

Credit: CC0 Public Domain

Nearly 3.5 million cases of heart disease and stroke could be prevented, and £68 billion saved in health and social care costs over a period of 25

years, if every adult in England at high risk of cardiovascular disease were diagnosed and treated, suggests an economic analysis, published in the online journal *BMJ Open.*

Picking up all undiagnosed cases of diabetes would accrue the largest overall health and financial benefits, calculate the researchers.

There are more than 1.8 million people in England on the coronary heart disease register and more than one million on the stroke or mini-stroke (TIA) register. Cardiovascular disease is estimated to have cost the UK economy around £23.3bn (€26 bn), overall, in 2015.

As part of its strategy to improve cardiovascular disease prevention, NHS England has highlighted six high risk conditions that are currently under-diagnosed and insufficiently well managed despite a range of available treatments and lifestyle modifications. The six high risk conditions are: high blood pressure, high cholesterol, atrial fibrillation (irregular heart beat), diabetes (types 1 and 2), high blood glucose, and chronic kidney disease.

Increasing diagnosis and treatment of these six conditions could improve health outcomes and potentially save substantial sums, but to date, the potential benefits haven't been quantified, say the researchers.

To rectify this, the researchers estimated the total cost savings and health improvements that might be achieved if all adults with one or more of these high risk conditions in England were diagnosed and treated to current standards of care, or in accordance with National Institute for Health and Care Excellence (NICE) guidelines.

Their analysis also explored which high risk groups would benefit the most from optimal detection in terms of cost savings and health benefits.

They used a disease prevention model (School for Public Health Research (SPHR) CVD Prevention Model), focused on English NHS and social services, and the demographic and clinical features of participants in the nationally representative 2014 Health Survey for England to inform their estimates.

They calculated incremental and cumulative costs, savings, and quality-adjusted life years (QALYs)—a measure of years lived in good health, as well as the net monetary benefit to the NHS and social services in the UK, over 5, 10, and 25 years.

The interventions included in their modelling were taken from NICE guidance for each of the high risk conditions. These included: diagnostics (NHS Health Check, annual review for people with a pre-existing high risk condition); drugs (for lowering cholesterol and high blood pressure, blood thinners and treating diabetes); lifestyle modifications (weight management, smoking cessation, diabetes education, and nutritional advice for chronic kidney disease); as well as supplementary assistance (blood pressure self-monitoring, medicines use review).

The results showed that if every adult with one or more high risk conditions were diagnosed and then managed appropriately at current levels, £68bn could be saved, 4.9 million QALYs gained, and 3.4 million cases of cardiovascular disease prevented over a period of 25 years.

And if all these people were managed according to NICE guidelines, £61bn would be saved, 8.1 million QALYs would be gained, and 5.2 million cases of cardiovascular disease prevented. The greatest benefits would come from picking up undiagnosed high cholesterol in the short term and undiagnosed diabetes in the long term.

The researchers acknowledge that their results depended on accurate

modelling of current care in England, which, in turn, drew on a range of data sources that were sometimes based on relatively small numbers. And the figures might be an underestimate, because the model didn't include some vascular conditions such as peripheral vascular disease, they point out.

Nevertheless, they conclude: "Substantial cost savings and health benefits would accrue if all individuals with conditions that increase [cardiovascular disease] risk could be diagnosed, with detection of undiagnosed diabetes producing greatest benefits."

Sticking to NICE guidance would further increase the health benefits, they suggest, adding that the "projected cost-savings could be invested in developing acceptable and cost-effective solutions for improving detection and management."

More information: What are the cost-savings and health benefits of improving detection and management for six high cardiovascular risk conditions in England? An economic evaluation, *BMJ Open* (2020). DOI: 10.1136/bmjopen-2020-037486

Provided by British Medical Journal