

Check-ups for cardiovascular disease should be targeted at a few high risk patients, study finds

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A team of researchers led by the University of Birmingham have found that targeting as few as 1 in 12 adults for a heart check-up achieves most of the benefits of mass screening at a fraction of the cost.

Cardiovascular disease (CVD), which includes heart disease or stroke, is the leading cause of death worldwide. CVD can be prevented through drug treatments, but this requires at-risk patients to be identified before they become ill. Check-ups, like the NHS Health Checks programme, are typically offered to otherwise healthy adults over the age of 40, and include questions about smoking and lifestyle habits, measurement of blood pressure and cholesterol levels, and an offer of drug treatment where appropriate.

However, a new study has shown that identifying at-risk patients using a CVD 'risk score', and prioritising check-ups for those with the highest scores, can achieve many of the health benefits of age-based health check-up programmes at a far lower cost to the NHS.

Researchers conducting the study automatically calculated patients' CVD risk scores from the risk factors outlined in their electronic medical records, including age, gender and smoking habits. Using data from The Health Improvement Network database (THIN), the researchers simulated the outcomes of different screening strategies for a group of 10,000 patients aged between 30 and 74.

The results showed that the most cost-effective strategy was to rank patients by their calculated CVD risk and invite those at highest risk first. This strategy required just 8% of the population to be invited for screening, rather than inviting everyone aged over 40. Because progressively fewer low-risk patients needed treatment, inviting more patients resulted in diminishing returns.

'This study has important implications for the future of CVD screening,' says Professor Tom Marshall of the Institute of Applied Health Research at the University of Birmingham, who led the research. 'Our findings highlight the need to re-evaluate existing screening programmes, which may not be the best use of staff time. A focused screening programme targeted on those at highest risk, rather than everyone aged over 40, would result in significant cost savings for the NHS while retaining the most of the health benefits. Our research also raises the question of whether other mass screening programmes might be better targeted.'

The risk scores used in the study were calculated by a computer, and the researchers note that anybody can calculate their own risk score online using the QRisk calculator.

Professor Marshall says: 'If you calculate your 10-year risk score and it comes out as higher than 13% it is probably worthwhile having a check-up. A lot of people in this category could benefit from drug treatment. But if your risk score is less than 5% it is very unlikely you need treatment and a check-up would not be a good use of NHS staff time.'

More information: C. Crossan et al. Cost effectiveness of case-finding strategies for primary prevention of cardiovascular disease: a modelling study, *British Journal of General Practice* (2016). [DOI: 10.3399/bjgp16X687973](https://doi.org/10.3399/bjgp16X687973)

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