

# Using nationwide 'big data' from linked electronic health records to help improve outcomes in cardiovascular diseases: 33 studies using methods from epidemiology, informatics, economics and social science in the ClinicAI disease research using Linked Bespoke studies and Electronic health Records (CALIBER) programme

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## Plain English summary

### Big data to improve outcomes in cardiovascular diseases

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## Plain English summary

How can we reduce death and suffering from heart disease by learning from the lifelong experience of UK citizens? Heart disease is the most common cause of early death in the UK, but we do not know how we can deliver benefits to patients by bringing together general practitioner and hospital records. We established a secure, anonymous research platform [ClinicAI disease research using Linked Bespoke studies and Electronic health Records (CALIBER)] and we used this to identify ways to improve quality of care and prospects for patients with heart disease. We studied millions of people initially free from heart disease and followed them up. We also studied people presenting with chest pain in the community or suffering from a heart attack. We compared treatment in the UK and Sweden, as both countries have similar health systems, although Sweden achieves better results for patients. We also tested a computerised tool that helps guide doctors to make decisions in chest pain clinics. We carried out a detailed study of hospital working practices to identify the types of care that give better results. Finally, we recruited > 3000 patients being investigated for chest pain to help find out why diseases progress. Our findings could help doctors and policy-makers to make better decisions on care so that patients have better quality of life and longer life. In addition, the results will lead to better public health policy. Our findings clearly show that research using one of the NHS' greatest assets – its data – is vital to innovate improvements in disease prevention, to make earlier diagnoses and to give the best treatments.

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