

100 Ways of Using Data to Make Lives Better

A series from The Farr Institute of Health Informatics Research showcasing the UK's most significant examples of using data in research

How Good are Statins at Preventing Heart Disease?

By using data from electronic health records, researchers at The Farr Institute gathered evidence to show how effective statins are in preventing heart disease and reducing costs to the NHS



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*Public Health
Case Study 4*

The Challenge:

Over half of UK adults aged over 45 years have high cholesterol levels. High cholesterol levels are known to increase the likelihood of a heart attack or stroke. Clinical trials have demonstrated that lowering cholesterol lowers the risk of a heart attack or stroke. Statins are a drug which reduce cholesterol. They were originally given to patients who had suffered a heart attack or stroke to reduce the chances of another attack. In the 1990s 6,600 men living in the West of Scotland participated in a large clinical trial called The West of Scotland Coronary Prevention Study (WOSCOPS). It finished in 1995 and showed that treatment with a statin (pravastatin) prevented heart attacks in people who had not had a heart attack, but had high cholesterol levels and hence were at higher risk of having a heart attack. After the study finished, the electronic health record system in Scotland allowed researchers to follow the participants for a further 10 years, demonstrating the benefits to both the patients and the health service in prescribing statins to prevent heart attacks and strokes.

The Research:

The original WOSCOPS trial ran for 5 years and compared the rates of first time heart attacks in two groups of men. One group received a placebo tablet and the second group received a daily dose of pravastatin. The patients were then followed for a further 10 years through electronic hospital records, which record the reason for admission, treatments in hospital and national death records.

The Results:

The WOSCOPS trial demonstrated that 5 years of treatment with pravastatin reduced first time heart attacks or death from coronary heart disease in middle aged men by 31%. Ten years later the results show there is still a benefit to taking a statin to prevent heart disease. There was a one-third reduction in the risk of a heart

attack and similar reductions in the need for procedures which restore blood flow to the heart when the blood vessels get blocked and a previously unseen drop in hospital admissions due to heart failure. There was no difference in hospital admissions for other diseases, suggesting that the pravastatin was safe to take over this period. The data estimates that for every 1,000 patients treated for 5 years with a statin this would save the NHS £710,000 over 15 years. As well as the reduction in costs due to fewer surgery requirements, there was also a significant reduction in the number of days spent in hospital.

The Impact:

The use of statins has transformed the healthcare of patients at risk from heart disease and stroke. They provide a cost-effective prevention strategy for the NHS and have made a major contribution to the reduction in deaths due to heart disease in both Europe and the USA. Clinical trials like WOSCOPS and the ability to gather evidence of the effectiveness of statins by using electronic health record data have provided evidence of safety and benefits in the long term. This has led to the development of international clinical guidelines and strategies to lower cholesterol to treat heart disease and stroke.

For further information on heart disease including steps you can take to prevent heart disease, explanations of treatments, how to support people with heart disease and the latest research please visit the British Heart Foundation website, www.bhf.org.uk

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