Cost-effectiveness of optimizing use of statins in Australia: using outpatient data from the REACH registry

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The objective was to analyse the cost-effectiveness of increasing statin uptake for the secondary prevention of coronary artery disease in Australia. The authors concluded that maximising statin coverage was cost-effective. On the whole, the study quality seems to have been appropriate and the elements were clearly and fully reported. The authors stated a few limitations to their study, but their conclusions seem valid.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to estimate the cost-effectiveness of closing the statin “treatment gap” in the secondary prevention of coronary artery disease (CAD) in Australia, by increasing statin uptake from 82% (current levels) to 100%.

Interventions
The statins were routine-use generic simvastatin, pravastatin, and fluvastatin. Hypothetical 100% statin coverage, in secondary prevention, was compared with the current statin coverage.

Location/setting
Australia/primary and secondary care.

Methods
Analytical approach:
A Markov model was constructed, with yearly cycles and a five-year time horizon, for patients who were aged 45 years or older and had history of CAD. The health states were dead or alive (stay alive, nonfatal myocardial infarction, nonfatal stroke, or die). The authors reported that the perspective was that of the Australian government.

Effectiveness data:
The Reduction of Atherothrombosis for Continued Health (REACH) registry supplied data to build the model. The annual event rates for nonfatal myocardial infarction (MI), nonfatal stroke, and death from any cause were based on the Australian population over 45 years old with established CAD. This consisted of 2,058 people, 82% of whom were receiving statins. The transition probabilities between states were determined using these annual event rates and the relative risk associated with statins, which was from a published meta-analysis.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The main measure of benefit was life-years gained (LYG). The model assumed that all patients taking statins continued to do so throughout the five-year model. Future years of life were discounted at 5% per year.

Cost data:
The cost of improving the uptake of statins was estimated using the costs for implementing the "Coaching on Achieving Cardiovascular Health” programme. The cost of the statins was from the Australian Pharmaceutical Benefits Scheme
(PBS) reimbursement data for 2011. The costs of nonfatal MI and stroke were from relevant Australian diagnosis-related groups (DRGs). All values were expressed in Australian dollars (AUD) and discounted at 5% annually. The price year was 2011.

Analysis of uncertainty:
Uncertainty was assessed through a one-way sensitivity analysis, by varying the costs of closing the statin treatment gap, to find the value at which the incremental cost-effectiveness ratio was AUD 50,000 per LYG. A probabilistic sensitivity analysis was performed using Monte Carlo simulation.

Results
Over five years, 0.018 life-years were gained at a net cost of AUD 546 per person. These equated to an incremental cost-effectiveness ratio of AUD 29,717 per LYG.

Based on a willingness-to-pay threshold of AUD 50,000 per LYG, closing the treatment gap was cost-effective until its cost increased to AUD 600 annually; in the base case, the annual cost was AUD 250 per person.

Authors’ conclusions
The authors concluded that maximising coverage with statins for patients with CAD, in line with evidence-based recommendations, was cost-effective for secondary prevention.

CRD commentary
Interventions:
A justification was given for the comparator selected, but the baseline rate of 82% might not have been accurate, and smaller increases in coverage could have been assessed.

Effectiveness/benefits:
The current statin coverage and the events data were from the REACH registry, while a published meta-analysis provided the relative risk reductions associated with statin therapy. The population in the meta-analysis was elderly (65 to 82 years) and the authors did not discuss any issues with the generalisability of these relative risks to a younger population. Overall, the clinical inputs were well reported.

Costs:
The analysis of the costs was performed from the perspective of the Australian Government. The costs were from appropriate national sources and annual treatment and DRG costs were presented. The costs of adverse drug reactions were omitted and this might have overestimated the cost-effectiveness of improved statin coverage, but it is unlikely to have affected the authors’ conclusions.

Analysis and results:
The model structure and analysis were well reported. The authors compared their findings with those from other studies which, in general, agreed with their results. They also discussed the impact of varying data by setting, but did not evaluate its impact on the economic results through a sensitivity analysis. They reported a number of limitations to their study, for example, contraindications were not taken into account.

Concluding remarks:
On the whole, the study quality seems to have been appropriate and the elements were clearly and fully reported. The authors stated a few limitations to their study, but their conclusions seem valid.

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Bibliographic details