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.

Health technology
Several statin monotherapies and combination therapies of statin with ezetimibe (E) were examined. The statins evaluated were:

- atorvastatin (A) at doses of 10, 20, 40 and 80 mg;
- fluvastatin (F) at doses of 20, 40 and 80 mg;
- lovastatin (L) at doses of 10, 20 and 40 mg;
- pravastatin (P) at doses of 10, 20, 40 and 80 mg;
- rosuvastatin (R) at doses of 5, 10, 20 and 40 mg; and
- simvastatin (S) at doses of 10, 20, 40 and 80 mg.

E was combined with A, L, P, or S.

Type of intervention
Secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised a hypothetical cohort of patients requiring cholesterol-lowering therapy.

Setting
The setting was primary care. The economic study was carried out in the USA.

Dates to which data relate
The dates to which the effectiveness and resource use data related were not reported. The price year was 2004.

Source of effectiveness data
The effectiveness data were derived from a synthesis of completed studies.

Outcomes assessed in the review
The outcome estimated from the literature was the lowering effectiveness of each statin monotherapy or combination
therapy. This was defined as the percentage reduction in low-density lipoprotein cholesterol (LDL-C).

Study designs and other criteria for inclusion in the review
It was unclear whether a review of the literature was undertaken to identify the primary outcome measure. The authors stated that the effectiveness data came from clinical trials.

Sources searched to identify primary studies
Not stated.

Criteria used to ensure the validity of primary studies
Not stated.

Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
Not stated.

Methods of combining primary studies
Not stated.

Investigation of differences between primary studies
Not stated.

Results of the review
The percentage reduction in LDL-C was:

35% with 10 mg A, 40% with 20 mg, 43% with 40 mg, and 51% with 80 mg;
22% with 20 mg F, 25% with 40 mg, and 35% with 80 mg;
19% with 10 mg L, 26% with 20 mg, and 29% with 40 mg;
20% with 10 mg P, 24% with 20 mg, 29% with 40 mg, and 37% with 80 mg;
40% with 5 mg R, 46% with 10 mg, 52% with 20 mg, and 55% with 40 mg;
27% with 10 mg S, 36% with 20 mg, 36% with 40 mg, and 44% with 80 mg;
50% with 10 mg A/E, 54% with 20 mg, 54% with 40 mg, and 60% with 80 mg;
3% with 10 mg L/E, 39 with 20 mg, and 45% with 40 mg;
34% with 10 mg P/E, 36% with 20 mg, and 41% with 40 mg;
46% with 10 mg S/E, 45% with 20 mg, 65% with 40 mg, and 61% with 80 mg.

The drugs were also grouped in five categories of efficacy (reduction in LDL-C): less than 25%, 26 - 35%, 36 - 45%,
46 - 55%, and 56% or more.

**Measure of benefits used in the economic analysis**
No summary benefit measure was used in the economic evaluation. In effect, a cost-minimisation analysis was performed because the least expensive regimen for each LDL-C reduction category was selected.

**Direct costs**
The perspective adopted in the study was not reported. Only drug costs were included in the economic evaluation and these were estimated from average wholesale prices. The unit costs were presented separately from the quantities of resources used. The price year was 2004. Discounting was not carried out because it was not relevant.

**Statistical analysis of costs**
No statistical analyses of the costs were carried out.

**Indirect Costs**
The indirect costs were not considered in the economic evaluation.

**Currency**
US dollars ($).

**Sensitivity analysis**
Sensitivity analyses were not performed.

**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section.

**Cost results**
For patients requiring less than 25% reduction in efficacy, the least expensive drug was L 10 mg.

For patients requiring a reduction in efficacy between 26 and 35%, the least expensive drug was F 80 mg.

For patients requiring a reduction in efficacy between 36 and 45%, the least expensive drug was R 5 mg.

For patients requiring a reduction in efficacy between 46 and 55%, the least expensive drug was R 10 mg.

Finally, for patients requiring a reduction in efficacy of 56% or greater, the least expensive drug was S/E 40 mg.

**Synthesis of costs and benefits**
A synthesis of the costs and benefits was not relevant since a cost-minimisation analysis was carried out.

**Authors’ conclusions**
Statin monotherapy was effective and efficient in reducing low-density lipoprotein cholesterol (LDL-C) levels. However, for patients requiring substantial reductions (i.e. more than 55% from baseline values), combination therapy with simvastatin (S) and ezetimibe (E) was cost-effective.
CRD COMMENTARY - Selection of comparators
The selection of the comparator was appropriate as it covered all available monotherapies for patients with hyperlipidaemia. However, the authors stated that other potential combination therapies for the treatment of hyperlipidaemia were available, but only E was taken into consideration. You should decide whether this is a valid comparator in your own setting.

Validity of estimate of measure of effectiveness
The effectiveness evidence came from a synthesis of clinical trials, but no information on the methods and conduct of the review was provided. It was unclear whether the primary studies were identified selectively and how many of them provided the clinical data. The issue of the comparability of the primary estimates was not addressed, and the methods used to combine them were not reported. Thus, it was not possible to examine the robustness and validity of the primary sources.

Validity of estimate of measure of benefit
No summary benefit measure was used in the analysis because a cost-minimisation analysis was conducted. Please refer to the comments in the 'Validity of estimate of measure of effectiveness' field (above).

Validity of estimate of costs
Only drug costs were considered in the economic evaluation. The perspective adopted in the study was unclear, although it might have been that of the payer. The impact of the intervention on other costs, such as avoided hospitalisations, was not investigated. The unit costs and dosages were reported, which helps the replication of the cost analysis in other settings. The costs were treated deterministically and were specific to the study setting. The price year was reported, which aids reflation exercises in other time periods.

Other issues
The authors did not make extensive comparisons of their findings with those from other studies. They also did not address the issue of the generalisability of the study results to other settings. However, the authors stated that the costs might not be generalisable to all institutions or payers because average wholesale prices were used. The study referred to patients requiring cholesterol-lowering therapy and this was reflected in the authors’ conclusions.

Implications of the study
The study results supported the use of statin monotherapy for the treatment of patients with hyperlipidaemia, while combination therapy should be restricted to patients with very high LDL-C levels. The authors stated that pharmacoeconomic studies should evaluate the cost-effectiveness of alternative combinations therapies for the treatment of hyperlipidaemia.

Source of funding
None stated.

Bibliographic details

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15736370

Other publications of related interest
Jones PH, Davidson MH, Stein EA, et al. Comparison of the efficacy and safety of rosuvastatin versus atorvastatin,


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MeSH
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