Cost-benefit of treating hypertension  
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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.

Health technology
Antihypertensive drug treatment for the prevention of coronary heart disease and stroke.

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Swedish population of all ages and sex.

Setting
The study was carried out in Sweden.

Dates to which data relate

Source of effectiveness data
The effectiveness data were derived from a synthesis of studies, meta-analysis and an overview.

Link between effectiveness and cost data
The costing was undertaken separately in previously published studies.

Modelling
A model was used relating risk data, effectiveness data and costs to different age groups, sexes and diastolic blood pressure groups to estimate final costs and health outcomes.

Outcomes assessed in the review
A meta-analysis of the reduction in stroke and coronary heart disease following antihypertensive treatment was used, but details of the meta-analysis were not given in this paper. For evidence on the effectiveness of different drug types, another overview of trials was used, and again the results were not given.
Study designs and other criteria for inclusion in the review
Not stated.

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
Antihypertensive treatment results in a reduction of 38% in stroke and 16% in coronary heart disease.

Measure of benefits used in the economic analysis
Cost per life year gained.

Direct costs
The cost of treating hypertension was taken from another study, but no details regarding its derivation were given. Some costs and resources were reported separately. Medical costs during added years of life were not included. Costs were discounted at 5%. Prices were given in 1992 Swedish kroner (SEK).

Statistical analysis of costs
No statistical analysis was performed.

Indirect Costs
Indirect costs were discounted at 5%. No information was given on their derivation: the costs were obtained from another paper.

Currency
Swedish Kroner (SEK).
Sensitivity analysis
One-way sensitivity analyses were performed on risk reduction, risk factors, mortality risk after events, costs, quality of life and discount rates to test cost per life year gained.

Estimated benefits used in the economic analysis
Life years gained as generated in the separate meta-analysis were not reported separately from the synthesis. The duration of benefits estimated was life-long. Life years gained were discounted at 5%.

Cost results
The cost per person treated was 3,000 SEK (drugs were 1,600 SEK, consultations 1,100 SEK, and travel and time 300 SEK). The average annual treatment costs for the drugs varied depending on the drug type from 400 SEK (diuretics) to 1,800 SEK (calcium antagonists and ACE inhibitors). The direct costs of treatment in the first year after an event were 3,000 SEK to 60,000 SEK and thereafter, 3,000 SEK to 45,000 SEK. Costs were discounted at 5%. Indirect costs varied according to the age group and were reported for each disease category.

Synthesis of costs and benefits
The cost per life year gained varied according to the sex, age and pre-treatment diastolic blood pressure groups of the patients. It ranged between 1,000 SEK per life year gained for men aged 45 to 69 with a DBP 100-104 mmHg and 2,506,000 SEK per life year gained for women under 45 with a DBP of 90-94 mmHg. For calcium antagonists and ACE inhibitors the increased cost per life year gained using these treatments (compared to using diuretics and B-blockers) ranged from 54,000 SEK for men aged 45 to 69 years with a DBP over 105 mmHg to 623,800 SEK for women under 45 with a DBP of 90 to 94 mmHg. The sensitivity analysis showed that the lower cost per life year gained at increasing age was very stable, but it did vary in the youngest age group. The incremental cost-effectiveness ratios for the more expensive drug classes were higher than the ratio of treatment to no treatment.

Authors’ conclusions
It was cost-effective to treat patients with a DBP over 90 mmHg except when the patients were under 45 years of age. Calcium antagonists and ACE inhibitors (the more expensive drugs) were only cost-effective if there were specific reasons for not using the cheaper drug types.

CRD Commentary
No information was given on the derivation of the effectiveness data. The meta-analysis was conducted separately by different authors and no details were given on how it was performed. The costs (direct and indirect) used in this study were also taken from previously published studies and were not explained in this paper. Since the validity of effectiveness and cost results cannot be verified the study results should be treated with caution even though a thorough sensitivity analysis was conducted.

Source of funding
None stated

Bibliographic details

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Other publications of related interest
 Swedish Council for Technology Assessment in Health Care. Hypertension: evaluation of the causes and the efficiency


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