Cost-effectiveness of a hypertension management programme in an elderly population: a Markov model


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 assess the cost-effectiveness of a hypertension management programme in middle-class patients aged 65 years or older, in Argentina. The authors concluded that the hypertension programme had a high probability of being cost-effective, compared with usual care. The methods were good and the results were well reported. Some of the methods were not well reported, but the authors' conclusions appear to be appropriate for this study setting.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to assess the cost-effectiveness of a hypertension management programme for middle-class patients aged 65 years or older.

Interventions
The hypertension programme was compared with usual care. Usual care included visits to the primary care physician. The hypertension programme consisted of usual care plus personal and telephone contact with patients, support for non-pharmacological treatment, educational material, and optional workshops.

Location/setting
Argentina/primary care.

Methods
Analytical approach:
A Markov model, with a cycle length of one year, was developed to combine the cost and outcome data. A lifetime horizon was used and the authors reported that the perspective of a third-party payer was adopted.

Effectiveness data:
Most of the effectiveness data were from a published study (Figar, et al. 2004, see 'Other Publications of Related Interest' below for bibliographic details). The transition probabilities for disease progression were based on a general cardiovascular risk equation, which was from a published study. The main clinical effectiveness estimates were the systolic blood pressure for each treatment option and the number of patients with well-controlled blood pressure for each treatment option.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The measure of benefit was life-years gained (LYG) and these were discounted at an annual rate of 5%.

Cost data:
The economic analysis included the intervention costs (labour and capital) and the costs of treatment for cardiovascular events. A breakdown of cost items was given, with unit costs and resource use reported separately. The price year was 2010 and all costs were discounted at an annual rate of 5%. Costs were calculated in Argentinian pesos and converted to
International dollars (INT$), using the purchasing power parity conversion rate.

Analysis of uncertainty:
Both one-way and probabilistic sensitivity analyses were performed to examine the uncertainty in the model parameters. The results were displayed in scatter plots and cost-effectiveness acceptability curves.

Results
The average cost was INT$ 5,633.20 for usual care, compared with INT$ 5,828.50 for the hypertension programme. The average LYGs were 10.78 for usual care, compared with 10.96 for the hypertension programme. The hypertension programme had an incremental cost-effectiveness ratio (ICER) of INT$ 1,124.49 per LYG.

The sensitivity analysis showed that the base-case results were robust. In 43% of iterations, the hypertension programme dominated usual care, as it was more effective and less costly. At a willingness-to-pay threshold of INT$ 45,000 per LYG the programme was cost-effective in 95% of iterations.

Authors’ conclusions
The authors concluded that the hypertension programme was cost-effective, compared with usual care, within wide ranges of assumptions.

CRD commentary
Interventions:
The intervention was relatively well reported and was appropriate in the authors' setting. It was compared with the usual practice. The population was described, but middle-class patients were not defined.

Effectiveness/benefits:
The effectiveness data were mainly from a published study. Little information was provided on the methods of this study, making it difficult to assess the validity of the effectiveness estimates. The study publication should be consulted to assess its validity. Life-years gained were an appropriate measure of benefit, but QALYs could have captured the impact of the intervention on quality of life, as well as allowing comparisons with other programmes. The authors acknowledged that not using QALYs might have limited their study.

Costs:
The costs appear to have reflected the perspective stated. The unit cost and resource use estimates were reported in detail, with the distributions used in the probabilistic sensitivity analyses. As the unit costs appear to have been from Argentina, the results might not be readily generalisable to other settings. The price year, discounting, and currency conversions were clearly reported.

Analysis and results:
The analytic approach used to synthesise the cost and outcome data was appropriate, and the results were sufficiently presented and discussed. The impact of uncertainty in the model parameters was investigated and discussed. The authors acknowledged some limitations to their analysis including that the source study for the effectiveness data was not a randomised controlled trial.

Concluding remarks:
The methods were good and the results were well reported. Some of the methods were not well reported, but the authors' conclusions appear to be appropriate for this study setting.

Funding
Not stated.

Bibliographic details

PubMedID
21466695

DOI
10.1186/1478-7547-9-4

Original Paper URL
http://www.resource-allocation.com/content/9/1/4/abstract

Other publications of related interest

Indexing Status
Subject indexing assigned by CRD

MeSH
Aged; Aged, 80 and over; Cost-Benefit Analysis; Diet Therapy; Exercise; Humans; Hypertension; Markov Chains; Patient Education as Topic

AccessionNumber
22011000879

Date abstract record published
21/09/2011