
Cost effectiveness of oseltamivir for the treatment of influenza in adults, adolescents and children in Finland

Jarvinen A, Joutseno J, Gyldmark M

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

This study evaluated the cost-effectiveness of oseltamivir for the treatment of patients with influenza-like illness, in three patient populations. The authors concluded that oseltamivir was cost-effective compared with usual care, from both the health care payer and the societal perspectives. The methodology appears to have been appropriate and, on the whole, was clearly and transparently reported. The conclusions reached by the authors appear to be appropriate.

Type of economic evaluation

Cost-effectiveness analysis, cost-utility analysis

Study objective

This study evaluated the cost-effectiveness of oseltamivir for the treatment of patients with influenza-like illness (ILI), for three patient groups.

Interventions

Oseltamivir was compared with usual care, which was defined as the relief of symptoms using over-the-counter (OTC) medications.

Location/setting

Finland/primary care.

Methods

Analytical approach:

A decision tree model was built up to incorporate the costs and outcomes of the treatment options. The model analysed three population subgroups, which were otherwise healthy adults (OHA) aged between 13 and 64 years, children aged between 1 and 12 years, and at-risk patients (ARP). A lifetime horizon was modelled. The authors stated that the perspectives were those of the health care payer and society.

Effectiveness data:

The effectiveness data were obtained from published studies, including clinical trials. The main outcomes included the time until return to normal activity, the probability of hospitalisation, and mortality for each potential complication. The effects of the treatments on mortality were discounted at an annual rate of 5%.

Monetary benefit and utility valuations:

The extended European Quality of life (EQ-5D) questionnaire, using time trade-off and visual analogue scale methods, was used to derive the utilities.

Measure of benefit:

The summary measure of benefit was quality-adjusted life-years (QALYs).

Cost data:

The direct cost categories included general practitioner and specialist visits, oseltamivir or OTC medications, and medications and hospitalisation for complications due to ILI. The unit costs were obtained from the literature. The human capital approach was applied to estimate the productivity costs, based on the days of sick leave due to ILI, which

was defined as the days taken to return to normal activity. The price year was 2005 and all costs were in Euros (EUR).

Analysis of uncertainty:

The uncertainty around the input parameters was addressed using probabilistic sensitivity analysis and the results were presented using cost-effectiveness acceptability curves. In addition, one-way sensitivity analysis was conducted on the clinical efficacies, such as the diagnostic certainty and the percentage of patients starting treatment within 48 hours after the symptoms emerged, the discount rate, and the cost of a working day.

Results

In the OHA group, the time to return to normal activity was 9.05 days for usual care compared with 8.12 days for oseltamivir. In the ARP group, it was 16.6 days for usual care and 14.9 days for oseltamivir. In the child group, it was 7.55 days for usual care and 6.14 days for oseltamivir.

The discounted QALYs, in the OHA group were 18.2717 for usual care and 18.2735 for oseltamivir. In the ARP group, they were 17.1685 for usual care and 17.1856 for oseltamivir. In the child group, they were 20.3727 for usual care and 20.3740 for oseltamivir.

From the health care payer's perspective, the costs per patient were EUR 136 for usual care and EUR 161 for oseltamivir, in the OHA group; EUR 204 for usual care and EUR 217 for oseltamivir, in the ARP group; and EUR 160 for usual care and EUR 179 for oseltamivir, in the child group.

The incremental cost per QALY gained for oseltamivir over usual care was EUR 13,405 in the OHA group, EUR 754 in the ARP group and EUR 15,404 in the child group. The results from the societal perspective were also reported by the authors.

The results from the one-way sensitivity analysis indicated that diagnostic certainty had the greatest impact on the incremental cost-effectiveness ratio. The probabilistic sensitivity analysis demonstrated that oseltamivir was a cost-effective treatment option even at a relatively low willingness to pay value of EUR 20,000 per QALY gained.

Authors' conclusions

The authors concluded that oseltamivir was cost-effective compared with usual care for the treatment of ILI, from both the health care payer and the societal perspectives.

CRD commentary

Interventions:

The intervention and comparator were clearly reported.

Effectiveness/benefits:

The effectiveness data were derived from published clinical studies. However, it is unclear if a systematic review of the literature was conducted to obtain the data as the authors reported neither the method of their search nor their selection criteria. This limits the possibility of judging the validity of these estimates.

Costs:

The categories of costs were consistent with both reported perspectives. The unit costs and their sources were well reported. The average gross income per working day was appropriately applied in order to estimate the productivity costs. However, the resource quantities were not reported, which makes it difficult to ascertain the amount of care used. The discounting of costs was irrelevant, given the short time horizon of the treatment. The price year was reported, which will facilitate future reflation exercises.

Analysis and results:

The analytical approach was well reported on the whole, including a diagram of the model structure and a full description of the clinical pathway. The incremental analysis was appropriately conducted and the results were well presented. In addition, the reliability of the results was addressed through extensive sensitivity analyses. The authors acknowledged a number of limitations to their study and discussed the potential impact of these on their results.

Concluding remarks:

The methodology appears to have been appropriate and, on the whole, was clearly and transparently reported. The conclusions reached by the authors appear to be appropriate.

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Bibliographic details

Jarvinen A, Joutseno J, Gyldmark M. Cost effectiveness of oseltamivir for the treatment of influenza in adults, adolescents and children in Finland. *Journal of Medical Economics* 2007; 10(3): 199-214

Other publications of related interest

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