

HTA Policy and Principles: Week 7, 7th – 13th November 2016,

Exercise - Decision modelling – Decision Tree

Decision tree exercise

An evaluation of a programme of vaccinating the elderly against influenza reveals that in an average year there is a 10% chance of an elderly person contracting influenza, with 30% of infected patients requiring immediate hospital admission. The vaccination is found to be successful in 75% of those who receive it, although studies have shown that coverage tends to be less than 100%. Previous programmes undertaken in the wider community have achieved 50% coverage in this population. The average duration of influenza in elderly patients is 7 days, and following hospitalisation the average length of stay is 8 days at a daily cost of £235. The cost of the vaccination programme is £54 per person. The utility associated with influenza is 0.64, the additional dis-utility associated with hospitalisation is 0.23. There is an additional recovery period following influenza of 21 days during which the utility is 0.67. The utility associated with full health in this group of patients is 0.79. There is a two day utility impact of 0.08 associated with vaccination.

1. Use a decision tree to calculate the cost-effectiveness of a programme to vaccinate elderly patients in the community (comparator – do not vaccinate). Show all your workings and clearly state any assumptions that you have had to make.
2. Ascertain the impact on the cost-effectiveness of each of the following individually:
 - a. The use of a new painless injection with no associated utility impact?
 - b. An increase in the coverage of the vaccination programme to 65%?
 - c. An increase in the effectiveness of the vaccination to 85%?
 - d. A drop in the price of the vaccination to £47?