

## Construct and solve decision analysis models

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### Overview

This standard identifies the competencies you need to construct and solve decision analysis models in health economics.

You will be required to demonstrate that you can identify which decision analysis models might be most appropriate for the data you have available. You will need to be able to apply and evaluate those methods, and interpret the results. This will include recognising where limitations in the models require the use of more sophisticated approaches – and applying them to rebuild the models.

This activity is likely to be undertaken by individuals (Health Economists) working at the interface between the NHS and pharmaceuticals, and may include jobs in Life Science, Pharmaceutical, Chemical Biology, Biotech and FMCG industries.

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### Performance criteria

- You must be able to:*
- P1 identify data needs, apply the algorithms of key models and interpret their results.
  - P2 apply management science and the principles of problem formulation.
  - P3 apply methods of clinical decision analysis to decision problems in health care.
  - P4 conduct sensitivity analysis on the models.
  - P5 interpret the results of decision analysis models.
  - P6 identify the limitations of such models.
  - P7 identify cases where more sophisticated methods of decision analysis may be necessary and refine or rebuild the models.
  - P8 demonstrate how to apply the methods in practice.

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**Knowledge and understanding**

- You need to know and understand:*
- K1 the application of clinical trial data to the economic evaluation of healthcare outcomes.
  - K2 the design of clinical trials and the nature of data collected during trials – including limitations of such data.
  - K3 appropriate sources of information that can be used to support the economic evaluation of healthcare decisions.
  - K4 the requirements of decision makers and methods for the synthesis of suitable data and parameters to inform the decision making process.
  - K5 the application of decision trees for analytical modelling of sequential events.
  - K6 the application of Markov models for analytical modelling of complex pathways.
  - K7 the limitations of decision trees and Markov models, and when alternative approaches might be applied.
  - K8 patient-level microsimulation models as alternative analytical methods.
  - K9 discrete event simulations as alternative analytical methods.
  - K10 generation of Dynamic models as alternative analytical methods.

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**Suite** Health Economists

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