Overview principles of decision analysis and economic modeling in healthcare, and introduced advanced software TreeAge Pro 2011

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Abstract

Introduction: Decision analysis models are conceptual framework for most of the cost - effectiveness (CEA) and cost-utility (CUA) analyses and this model increasingly play important role in decision making. The aim of this paper is to improve the understanding and use of decision analysis and economic modeling techniques, with particular emphasis on decision trees and Markov modeling.

Material and Methods: A review of the published literature was performed using the seven search engine and database includes Web of Science, PubMed Cochrane, Embase, EconLit, EBSCO and HEED with key words includes: Decision Analysis, Health Economic Modeling and TreeAge and their combination to describes the structure, application, and limitations of the more popular decision analytic methods, including decision trees, Markov models, and sensitivity analysis in healthcare.

Results: We identified 19 relevant published articles. The results indicate that decision analytical models are widely used in economic evaluation of health care interventions with the objective of generating valuable information to assist health policy decision-makers to allocate scarce health care resources efficiently.

Conclusion: Decision analytic modeling allows a rational, feasible, scientific, and timely approach to measure the efficiency of new medical technologies in health care by using the best available evidence of different sources to produce detailed estimates of the clinical and economic. Despite TreeAge Pro software increasing in developing countries as economic modeling studies of various health interventions are applied but unfortunately its role in proper form is not known yet in Iran.

Key words: Decision Analysis, Economic Modeling, decision tree, Markov models, TreeAge Pro 2011

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