

Curso de Engenharia Biomédica
Disciplina: Introdução à Engenharia Biomédica
Área: Gestão de Sistemas de Saúde

Tutor e contactos

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Título

Development of a decision support tool to inform the purchase of cardiac device implants in Portuguese hospitals

Âmbito e objectivos do trabalho

In order to pursue their activity, hospitals need to often purchase multiple medical devices and other medical equipments. The purchase of medical devices must take into account multiple factors which include the quality of devices, their performance, their price, doctors' preferences, and different types of device to be used for different treatments. Several companies offer multiple equipments with different characteristics which hospitals need to analyse. In the purchase of devices, hospitals are constrained by their budgets and by government regulations. Given that the burden associated to cardiovascular diseases has been increasing in recent decades (cardiovascular diseases have accounted for 38% of total deaths in Portugal in 2000), the ageing of the population and the emergence of new types of cardiac implants, spending on cardiac implants devices is expected to increase in the future. Hospital managers lack decision support tools to systematically compare devices and to make informed decisions about their purchase, while considering the multiple factors that affect the purchasing decision.

The first part of the study aims at analysing the process by which hospitals make decisions on the purchase of cardiac device implants. The second part of the study aims at developing tools that might help Portuguese hospital managers at improving their decision process in the purchase of cardiac device implants. Building a decision support tools will involve the development of a multicriteria decision model following the key steps:

1. Definition of the types and characteristics of cardiac device implants used currently in medical practice and that should be considered for purchase;
2. Definition of the objectives to be attained by hospitals purchasing cardiac device implant, as well as constraints to their purchase;
3. The development of a multicriteria model based on the MACBETH method to produce information and create scores to compare medical devices;
4. The use of the MACBETH software to build the decision support tool for hospital managers.

Sugestões de fontes de informação

Suggested readings:

Goodwin P. and Wright, G. (1998) Decision Analysis for Management Judgment, Second Edition, Chichester: Wiley

Sanderson, C., Gruen, R. (2006) Analytical Models for Decision Making, Understanding Public Health Series, Berkshire: Open University Press

Drummond, M., Sculpher, M.J., Torrance, G.W., O'Brien, B.J., Stoddart, G.L., Methods for the Economic Evaluation of Health Care Programmes, 3rd Edition, Oxford University Press, 2005

MACBETH software manual.

The use of internet sources available on the area is advised. Some information available in the internet:

http://www.infarmed.pt/portal/page/portal/INFARMED/DISPOSITIVOS_MEDICOS

http://www.biomedea.org/HTTTG/Documents/Medical_Device_Regulations.pdf

http://ec.europa.eu/enterprise/medical_devices/index_en.htm

The group will need to contact cardiologists, other physicians and hospital managers to develop the multicriteria model.