Choosing a CT Scanner: Eliciting User Needs

The needs of users are paramount in both designing and choosing medical devices. However, user needs elicitation is often based on qualitative methods whose findings can be difficult to integrate into medical decision-making. A newly published paper in BMC Medical Informatics describes the application of analytic hierarchy process (AHP) to find out user needs for a new CT scanner for use in a public hospital.

AHP was used to design a hierarchy of 12 needs for a new CT scanner, grouped into four categories, and to prepare a questionnaire to investigate the relative priorities. The questionnaire was completed by five senior clinicians working in a variety of clinical specialisations and departments in the same Italian public hospital.

Although safety and performance were considered the most important issues, user needs changed according to clinical scenario. For elective surgery, the five most important needs were:

- spatial resolution
- processing software
- radiation dose
- patient monitoring
- and contrast medium.

For emergency, the top five most important needs were:

- patient monitoring
- radiation dose
- contrast medium control
- speed run
- and spatial resolution.

AHP effectively supported user need elicitation, helping to develop an analytic and intelligible framework of decision-making. User needs varied according to working scenario (elective versus emergency medicine) more than clinical specialization. This method should be considered by practitioners involved in decisions about new medical technology, whether that be during device design or before deciding whether to allocate budgets for new medicaldevices according to clinical functions or according to hospital department.

The authors suggest that the results also have important implications for the manufacturers of CT scanners as they suggest that decisions on device functionality and features should be made according to the medical scenario rather than the clinical specialization. This would then enable manufacturers to produce competitively priced devices, which are appropriate for the particular clinical setting.

Reference: User needs elicitation via analytic hierarchy process (AHP). A case study on a Computed Tomography (CT) scannerLeandro Pecchia, Jennifer L Martin, Angela Ragozzino, Carmela Vanzanella, Arturo Scognamiglio, Luciano Mirarchi and Stephen P Morgan

http://www.biomedcentral.com/1472-6947/13/2/abstract

Published on : Mon, 7 Jan 2013