

# Decision making processes for introducing new health technology at institutional level: decision makers' perspective.

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*New health technologies have significantly improved health and quality of life. Nevertheless, they also create challenges in ensuring value for money and concerns over safety and efficacy. Health technology assessment (HTA) has been recognised as an essential tool in addressing these issues. However, concern about HTA dissemination and use by decision makers at institutional level has been expressed. This study explores health care decision makers' experiences concerning decision-making processes for the introduction and adoption of new health technologies at one group of not-for-profit private hospitals in South East Queensland. The aim of the study was to gain knowledge about HTA adoption at institutional level and suggest ways to encourage diffusion of HTA into practice. Thirteen in-depth, semi-structured interviews were conducted with key decision makers. Interviewees described decision-making processes as "informal". Safety and effectiveness were considered important, but cost and doctor demand were the standard drivers for decisions about the uptake of new technologies. The decision makers were generally unclear about HTA and its potential. Most information for decisions was based on information from suppliers, other hospitals within the group, and the people or departments who requested the product. The main areas identified for improvement were a desire to have a more formal process for evaluating new health technology, the need for unbiased and timely information, and the usefulness of hospital based, or local HTA. Findings from this study show that the evidence provided by HTA is not being fully utilised by decision makers in this group of hospitals to make informed decisions.*

**Field of research:** Management, Evidence-Based Decision-Making, Health Technology.

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## **1.0 Introduction**

This study explores decision making processes to introduce new health technologies and decision makers' perception of HTA as a tool for evidence-based decision making. The study is part of a larger project which uses a multi-method multiple case study as the research design.

## **2.0 Literature Review**

In recent years, new technologies have emerged faster than ever before. This phenomenon has also occurred in the health care sector. New health technologies undoubtedly improve the quality of life and health care. However, there is good evidence to show that new health technologies are one of the major drivers contributing to the escalation of health care expenditure (Baker, Birnbaum et al. 2003; Productivity Commission 2005). In an environment of limited resources, this development has become a vital priority setting issue for decision makers in health services (Gibson, Martin et al. 2002; Gibson, Martin et al. 2004; Leggat, Scheil et al. 2006; May 2008).

Rapid introduction of new health technologies also raise concerns about whether their efficacy and safety are sufficiently tested (Oliver, Mossialos et al. 2004). Driven by these issues, health technology assessment (HTA) activity has developed in many countries. HTA is defined as 'a multidisciplinary field of policy analysis. It studies the medical, social, ethical, and economic implications of development, diffusion, and use of health technology' (International Network of Agencies for Health Technology Assessment 2008). Originally HTA developed to help policy makers at governmental level to make informed decisions regarding health technologies. Current and future trends show HTA target audiences are not restricted to policy makers anymore, but include managers, clinicians, and the general public (Battista and Hodge 2009; Gallego, van Gool et al. 2009).

Despite the growing importance of HTA as a tool to support informed decision making, concern over its dissemination and use by decision makers has been expressed (Lehoux, Denis et al. 2003; Hivon, Lehoux et al. 2005). Decisions as to whether or not to adopt any new health interventions are multi-level and happen at the macro (national), meso (institutions) and micro (individual) levels of the health sector. Research on decision making and priority setting regarding new health technologies have mainly focused on the macro or national level (Oliver, Mossialos et al. 2004; Lehoux, Denis et al. 2005; Logan, Fougere et al. 2005; OECD 2005; The New Zealand National Health Committee 2005). Very little research has been conducted at meso (institutions) or micro (individual) levels (Gallego, Fowler et al. 2008).

Also, most research related to new health technologies focuses only on the decision making environment in public health institutions (Penelope 2004). Public hospitals, however, are not the only healthcare providers. With the increasing number of potential demands from the public, a number of countries, including Australia, have seen the emergence of private healthcare providers as a necessity (Commonwealth Department of Health and Aged Care 2000; Duckett 2004; Sharma 2007).

In Australia, private hospital proprietors include not-for-profit institutions, single hospital operators, private health insurance funds and large listed public companies (Australian Health Directory 2009). Not-for-profit private hospitals are owned by religious, charitable, or community institutions and in 2002-03 provided 37% of the available beds (Perrott and Hughes 2005). Not-for-profit private hospitals are usually supported by government, charities, and donations (The Senate: Standing Committee on Economics 2008); hence they must make wise decisions in prioritizing resource allocations, especially when making decisions for new health technology acquisition. Yet, there is limited research on decision making to introduce health technology in the not-for-profit private hospital sector.

### **3.0 Methodology and Research Design**

#### **3.1 Setting**

This study took place in South East Queensland, Australia. The hospitals selected are under one parent company of a not-for-profit private health care provider. Letters of invitation with a summary of the research project were sent out to the General Managers of the hospitals. Out of four hospitals in the group, three gave positive responses. These three hospitals became the research sites for this study. The largest of these three hospitals has 286 beds.

#### **3.2 Participants and recruitment**

Targeted convenience sampling was used to identify decision makers in these hospitals. Decision makers were selected based on who could provide the best information. From these three facilities, 13 key decision makers gave their consent to be interviewed; seven administrative managers, four nurse managers and two medical managers. It is important to note that these are people who are involved directly with decision making processes in these hospitals, but most of them do not have full authority to approve the purchasing of new health technologies.

The General Managers from these hospitals helped to develop the list of potential participants. Letters of invitation which outlined the research objectives were sent to the specified individuals. Those who answered positively were contacted and an interview was arranged to take place in a location that suited them.

#### **3.3 Data collection and analysis**

A four-part semi-structured interview guide was developed to investigate the current decision making processes, the mechanism and criteria used for evaluation, the role of HTA as a tool for decision making, the implementation stage, and options for future improvement. The guide was used as a prompt sheet to ensure the same items were covered during each interview and the first author conducted all the interviews. The interviewees signed a consent form before the interview. The interviews were recorded with permission from the interviewees and the interviewer later transcribed the interviews.

After each interview, preliminary data analysis was conducted. This permitted detection of issues that needed more investigation in the next interviews (Creswell 1994).

After preliminary analysis was carried out, paragraphs and sentences were coded and labelled into segments. This was repeated until all comments were allocated to categories (Silverman 2004).

### **3.4 Ethics**

The study was approved by Griffith University Human Research Ethics Committee. Written consent was obtained from all study participants. All interviews were de-identified and all data were kept confidential.

## **4.0 Findings**

From the given list, fifteen people were approached, however one was on leave and one was on secondment; thirteen agreed to participate. Seven were administrative managers, four were nurse managers and two were medical managers.

### **4.1 Description of Current Decision-making Processes**

Respondents were asked to describe the current process for introducing new health technology.

The respondents from two hospitals described the current process as "informal" and one hospital described the process as "formal". All three hospitals, however, have a committee to review technology requests. The complexity of the processes is based on the cost involved. For technologies that cost less than AUD1,000 the department managers make their own decisions. They have a product review committee to evaluate new technologies but this committee only acts in an advisory capacity. The committee does not have the authority to make binding decisions. The product review committee consists of managers from every department in the hospitals.

If the technologies are not too costly (less than AUD1,000) or it involves a straightforward change in procedure, then often these are just approved for introduction immediately at the department level, without further consultation. If the new technology is more expensive and could affect business strategy, then the decisions will be left for senior executives to make. Usually, the decisions are made collectively, but ultimately, the final decisions will be made by the General Managers of the hospitals.

"I can't say we have formally documented the process. It may seem very formal further down, but from where I sit, to me, it looks like a very informal process. For example the product committee will evaluate the smaller ones, such as new stitches or a piece of equipment, the product committee will evaluate and do a trial".

Doctors are the main drivers for introducing new health technologies in these hospitals. In not-for-profit private hospitals, doctors are hospital 'customers' and not their employees. Usually, what the doctors demand the hospitals have to provide, because the doctors will take their patients with them if they move to another hospital. Despite the hospitals being described as 'not-for-profit' organizations, this does not mean they can operate without making a profit. They are still business entities and need customers (i.e. patients) to pay for their operational and development costs. Without patients, the not-for-profit hospitals will be out of business.

"Most cases are driven by clinical need - a doctor coming in and saying 'I want to use this', and because the doctors are our customers they have a lot of influence. Or on the other side they would say 'if you don't get this I am taking my business elsewhere' – that's the common one"

The decision making processes are quite similar between these three hospitals and this is due to them being under the same parent company. The parent company does try to standardise the decision making processes, but this is still in an early stage.

## **4.2 The Evaluation Mechanism for Decision Making**

All participating hospitals have a standardised mechanism to evaluate new health technologies. However, the mechanism is not a requirement for decision making processes. They have a product review committee to review the new health technologies before they decide to introduce the technologies. The product review committee evaluates the health technologies based on the technology itself, any workplace health and safety issues, the cost-benefit of the product, the organisational-technology fit, and the clinical and financial risk.

There is a standardised product review form that has been introduced by the parent company, but it is up to the General Managers to decide if the form is a requirement or not. This is one reason why there is a range of decision making processes between these hospitals.

For 'state-of-the-art' technologies, which are expensive items, the hospital's executive committee will make a decision purely from the business point of view. The executive committee consists of the General Manager and all hospital's directors. Here the requester must present a business case to the executive committee and in the business case, the product cost analysis, such as payback period is an important criterion.

Most of the information for the evaluation is supplied by the requesters. It is the requester's responsibility to find out any relevant information about the technologies. There are no standardised guidelines or specific criteria regarding the information that the requestor should investigate and provide. Usually the requestor gets the information from the suppliers or possibly the conferences they attend. Other sources of information were also quoted, such as from other hospitals within the group that had used the technologies, research publications, conferences and seminars.

“The person who wants to do it will provide lots of information to us, they get it from research, through their friends, through the conferences, seminars, through the companies who are providing the instrument, and also their personal experience....when they do trials for example, and sometimes they themselves are the researchers”.

### **4.3 The Decision Makers Perception on Health Technology Assessment (HTA)**

Most of decision makers in not-for-profit private hospitals are not familiar with health technology assessment (HTA). The interviewer had to explain what HTA is and relate it to product review, as an example. However, they agreed that HTA could be a valuable tool for decision making and it should become a requirement for decision making processes.

“I think it is essential really. I think the health technology assessment form is a good basis to support decision making”.

No decision makers in the three hospitals were familiar with the term ‘mini-HTA’, although they did express some difficulty in finding good guidelines or a checklist to assess new health technologies. They also believed that the decision processes should be more formal and structured.

“I think if you formalise things that is a good starting point, because if we have a formal approach to decision making, it takes emotion out of it. It’s a good basis to take out the emotional part... because we know in hospital everybody wants something, particularly the doctors”.

### **4.4 The Implementation Process of New Health Technologies and Future Improvement.**

Usually when new technology is introduced, the implementation is quite complex. The policy and guidelines must be written, staff training must be undertaken, and the equipment must be set up, especially for significant and expensive piece of technology. As one participant indicated:

“Even new equipment sometimes needs new policy and procedure. We also look around the health technology assessment itself whether it has a policy that supports the processes undertaken by the product review committee, so they have a guideline on how to go about assessing what we are looking for ... and it is their job to make sure it is formalised”.

As for post-implementation evaluation, the hospitals have a mechanism, because the instruction is clear from parent company, to investigate and review issues after the implementation phase. The hospitals have a formal structured evaluation process where a review form is used.

When asked for their suggestions on future improvement, 90% of the decision makers believe that it would be more effective if the decision making process is more formal and structured because such structured decision making will ensure the decisions are based on facts and will leave out biases and subjective decision making.

“I would probably say... about the advantages or disadvantages of it... needs more structure around the decision making processes. Like this review paper I’m giving you, this is very structured and used for a very large project. We could probably use a little bit more rigorous structure for some smaller processes, when we’re purchasing many things... although it’s always a collaborative decisions on things. We could probably be more structured around analysis... you know”.

They were also talking about timely information and that they would like to get the information they need when they need it, and not have to wait for one or two years afterwards. Technologies are changing so fast, that one or two years delay means there will be a newer technology down the line.

“I think it’s a lot to do with timing... you know, the world is changing very fast as far as technology is concerned and it’s hard to do everything at once. So from my perspective it’s all about timing. It is not an easy thing to say that we could do it better, but you know a lot of stuff that gets put on the table all the time....”

Participants also believe it would be beneficial if they can get information on new technology they want to introduce from an independent body such as HTA agencies, and not just from the requester(s) and the vendors, because they are interested parties.

## **5.0 Discussion**

Participants describe the process as ‘informal’ and many of its aspects do not reflect evidence-based decision making. It seems only partial evidence is often considered, with business strategy and cost consideration as the major deciding factors for decisions. The participants revealed that the decision making criteria for introducing new health technologies is driven by the demand from doctors and sometimes from the pressure to be a market leader in health care.

These hospitals do have product review committees which function in a similar manner to health technology assessment. But their role in decision making processes is minimal and they are only involved as advisers. They do not have the authority to approve or reject proposals and they only evaluate the inexpensive technologies, which are not going to affect business strategy.

The impact of HTA as a support tool for decision makers is still at an introductory stage. Most decision makers are not aware that they can acquire much of the information for new health technologies from independent bodies such as HTA agencies. They do know about TGA (Therapeutic Goods Administration), MSAC (Medical Services Advisory Committee), and PBAC (Pharmaceutical Benefits Advisory Committee), but they do not know that

besides these agencies there are many more from around the world that can provide comprehensive evidence such as INAHTA (International Network of Agencies for Health Technology Assessment) and HTAi (Health Technology Assessment International). The evidence of this study is that lack of appropriate, standardised assessment might lead to uninformed decisions, which, in turn, might affect the life of a patient because the hospital has invested in under-researched health technologies.

The HTA agencies, or the regulatory body, should investigate more effective strategies to disseminate the evidence from HTA to decision makers at the hospital level. One such strategy is by promoting the application of a more structured decision making processes for introducing new health technologies. To achieve this, the HTA form or guide or checklist should be applied. The hospitals should create a process including guidelines and a review form which is in line with HTAs reasoning. An example of such a form that they can refer to is the 'mini-HTA' form. An initiative from Queensland Health (the State Health Department) instructs the public hospitals under its jurisdiction to create a standardised procedure for decision making processes to introduce new health technologies. Yet to date, no standardised process has been introduced. Currently, every hospital must create its own process. Each hospital must investigate on its own and discover the best practice to follow. Evidence from Danish hospitals indicates that 'mini-HTA' is a good tool to solve this issue (Kidholm, Ehlers et al. 2009). The HTA agencies should introduce the 'mini-HTA' form more rigorously, as it can become the best available tool at the evaluation stage of decision making processes for introducing new health technologies.

## **6.0 Conclusion**

HTA in hospitals is still in its infancy and still has a long way to go in disseminating HTA evidence and embedding it into practice. The regulatory body and HTA agencies should be more rigorous in making sure decision makers conduct a proper evaluation of the new health technologies before being introduced, in the best interest of the patients. One of the strategies that could be used is to introduce 'mini-HTA' or hospital based HTA, and makes this a requirement for decision making processes regarding the introduction of new health technologies.

Evidence from Denmark and other countries suggests a strong need for local HTA tools at hospitals (Ehlers, Vestergaard et al. 2006). The 'mini-HTA' can become such a tool, ensuring that the format is flexible enough for local adaptation to meet local needs (Ehlers, Vestergaard et al. 2006). Health authority such as Queensland Health should take a leading role to introduce mini-HTA in both public and private hospitals.

## **7.0 Acknowledgement**

The first author is currently a PhD candidate at School of Public Health, Griffith University, Queensland. She would like to say thank you to her supervisors, to her funders (Universiti Teknologi MARA, Malaysia and Ministry of Higher Education, Malaysia), to the participating hospitals and to all participants.



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