The Central Library's contribution to Hospital based Health Technology Assessment

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INTRODUCTION

Health Technology Assessment (HTA), originally intended to provide "a bridge between the world of research and the world of decision-making" 1 , plays an essential role in modern health care organizations by supporting evidence-based decision making not only in health care policy but also in practice.
Even though Technology Assessment developed to meet central policies' needs, the advancements in health care systems have raised worldwide the need for an HTA progressive decentralization.
In recent years, the application of HTA methodologies in hospitals had increased significantly. This kind of HTA "in context" has been given several names, such as Hospital-based HTA (HB-HTA) or Mini-HTA and is now the subject of specific working groups of the international HTA Society (HTAi). Unlike "classic" HTA, the purpose of the assessment is not to promote or avoid the diffusion of a new health technology over a country or a region, but to support the decision about its possible introduction in the hospital.
Available HTAs, centrally produced by Agencies, are frequently:

- Not relevant to hospital problems
- Delivered too late to be useful (12-18 months)
- Not user friendly for healthcare decision makers
- Unable to incorporate local data
- Produce policy advice that does not reflect local priorities and local values.

The diffusion of the use of HTA logic in health care organizations can be considered as a way for hospital managers to respond to three different environmental "pressures":

- to improve the level of efficiency and effectiveness (micro-economic efficiency) as a key to improve the efficiency of the entire system (macro-economic efficiency)
- the progressive acknowledgement of the relevance of the "context" factor
- to the diffusion of "evidence based medicine culture"

Despite the absence of a national agency, and perhaps because of this lack, the first Italian experiences of HTA are born inside single hospitals and, lately, regional health care systems2.
From the late 90s, the Italian Ministry of Health started several research projects aimed at sharing HTA experiences, reaching in 2003 the creation of an experimental HTA network (NI-HTA) between hospitals and regions that had developed special skills in this area[3].
The objectives of this network included the promotion of HTA in health care organizations and the definition of organizational models of HTA activities at different levels: national, regional and within

individual hospitals. Inside the network, the task of defining the organizational model at hospital level was given to San Matteo hospital, in collaboration with Policlinico Gemelli in Rome. This model, approved by the ministry, was obviously first applied in Policlinico San Matteo itself, through the creation of an HTA working group, focused on the evaluations of new health technologies in the hospital.

PURPOSE

The aim of this work is to analyze the requests made to the library by the HTA group and the relapses on the evaluation process of new technologies in the hospital. Furthermore, we consider the specificity and the skills that the librarian should have to work in this new approach to the scientific information. We describe our way to improve and facilitate the HTA group's work, starting from the design of a new web site with more information about HTA process and literature databases. In order to give clinicians proper tools to address correct technology requests, training courses have been designed with library support. Moreover, we try to define, if possibile, a threshold of technology assessment complexity above which library's involvement should be required.

CONTEXT

San Matteo Hospital

The General Hospital, San Matteo Foundation, Research Institute of Pavia is a public Institute of national prominence having its own autonomous organization within statutory dispositions and internal regulations. It pursues, following an excellence in standards, research within biomedical fields, it disburses high quality professional nursing and hospitalization services, it functions as a teaching and developing environment.

The Scientific Director supervises all the research activity ongoing within the Foundation. The relationship between the Foundation and the University of Pavia lies within the Regional Health Assistance, Formation and Research Network. The Foundation is both the reference structure for the educational departments of the Faculty of Medicine and Surgery of the University of Pavia and that for (under and post) graduate courses (and/or majors) in health-related professions. In relief organizations there is the presence of both biomedical research and clinical trials.

Here are some numbers regarding the Foundation: 1.250 bed inpatient facility, 57.000 hospital admissions, 2.300.000 outpatient clinic admissions, 75.000 accesses to first aid; with a medium weight - i.e. the indicator of the quality of the services involved - of 1,23.

The San Matteo hospital distributes health care services included in the essential levels of medical care in ordinary hospitalization regime, day hospital and outpatient clinic.

In 2009, the hospital researches published 548 articles on journals with Impact Factor and the total Impact Factor of the hospital was 2884.

The Central Library at San Matteo Hospital

The Scientific Library and Documentation Center at San Matteo Hospital plays a crucial role as a reference point for all the physicians and researches that work in the hospital.

Four people are employed and their work is divided into two main fields: the Scientific Document Delivery and the "traditional" librarian tasks, such as dealing with a great collection of journals, a reading room, a copy service and other facilities.

The library has a current subscription to 8000 journals online, of which almost 500 have a subscription for the paper version also.

Apart from the Document Delivery, the main activities of the library are:
-Organizing training courses for the use of Scientific Databases, such as PubMed, Cochrane Library, Cinhal, Embase, etc.
-Updating the general journals subscriptions catalogue for all the hospital
-Analyzing the scientific production of the hospital through the Journal of Citation Report (Impact Factor, H-index, etc)
The library is also part of some of the most important national catalogues, such as GIDIF,RBM (www.gidif-rbm.it), SBBL (www.sbbl.it), and above all BIBLIOSAN (www.bibliosan.it), a network system that links all the IRCCS (Scientific Institutes for Research, Hospitalization and Health Care) hospitals of Italy. It's a national project financed by the Ministry of Health and it gives to all the member institutions the access to the full text of about 5000 journals, to the Cochrane Library, to Web of Science, etc.
During the last year, one librarian started to collaborate with the Health Technology Assessment Team in order to help it, at the beginning, with the literature search. The collaboration continued with a greater involvement in the evaluation of the quality of the papers retrieved.

RESULTS

The HTA intranet tools
The Clinical Engineering Department website, before we redesigned it, contained a module, called "Technology Request form", in which there were three kinds of forms that could be filled in by the medical departments: one to apply for the purchase of new technologies, another one for the empowerment of already existing technologies and the last one for substitution interventions.
Given the absence of detailed instructions on completing the form, one major problem was the difficulty for the applicant to fill properly all the mandatory fields in the form, so we decided to create online tutorials to guide physicians in the application of new technology. To create these tutorials we used Camtasia Studio 5 ® and the three short videos (about 3 minutes each) resulting, one for each kind of form, were published on the HTA group website.

The request form
Any application of a new technology, usually a medical device, is submitted to the evaluation of an HTA working group (Nucleo HTA), headed by the medical direction and composed by professionals from the hospital's clinical engineering, pharmacy and financial offices. Depending on the complexity of evaluated technology, the working group can request the support of one or more experts on the assessed technology (mainly clinicians).
The assessment starts at any time a hospital division fills in the technology request form. This form, similar to the one used in the Danish mini-HTA model[4], consists on sequence of fields, mainly mandatory, about efficacy, effectiveness, efficiency and costs of the new technology.
The request form contains a section regarding scientific evidence of the technology, where the requesting division should describe the most important available scientific literature and, if available, guidelines and HTA reports.
The HTA working group evaluates all the requests, sets a priority among them and checks the financial sustainability. The results of this evaluation are then sent to the hospital Manager for his final approval and all the approved technologies undergo to the proper purchasing process.
Prioritization of requests can be made only if all of them are available at the same moment: for this reason hospital divisions can send their requests once a year (usually only in January) and the list of approved technologies has become part of the hospital's annual investment plan.

Simultaneously, training courses for medical department managers were organized, with the support of the library, on how to request an evaluation of a technology and which kind of request should be addressed to the library for a support in literature research.

When to assess a new technology?
The different types of requests that are made by San Matteo hospital departments can lead to different complexity of their evaluation, since the requests can refer to entirely new technologies, in few cases almost experimental, about which there is a lack of literature, or they can be related to well known technologies, even already in the hospital. So it is clear that it would be impossible not only to assess in detail all requests for technology, but it would also be useless, given that the economic and organizational impact of certain technologies can be very limited.
The problem, then, is to determine the criterion by which a request undergoes a full assessment by the HTA working group or a simpler cost-analysis: in some Italian hospitals adopting the model by NI-HTA[5], the threshold for evaluation is established solely upon economic impact, meaning that all technologies involving a cost of more than 25.000 € are fully evaluated, while for the cheapest technologies a simplified procedure is adopted. In our hospital, however, the assessment threshold is not fixed and depends on expected impact on the organization of the entire department and the hospital: inexpensive technologies that imply a different organization of the activities are fully evaluated, while expensive technologies included in an usual organizational context can be assessed by a simplified procedure.
Given the fact that most of the elements that are examined in a study of HTA are provided in the request form, the choice whether to assess a technology translates into different requirements about the request form: for a highly innovative technology, the compilation of most of the fields on the form is mandatory, while for technologies with low economic and organizational impact, the number of mandatory fields is reduced.
Within this presentation, we can cite two cases as examples of assessment, very different from each other: the evaluation of a system for remote magnetic navigation in interventional cardiology, where the assessment involves an activity similar to that of HTA agencies, based ie mainly on the analysis of effectiveness and cost-effectiveness, and the introduction of a system for remote reporting of electrocardiograms, where the analysis must include a number of variables highly dependent on the context and therefore not automatically derivable from other experiences described in literature. In each of these two evaluations, the support provided by the library science is different: larger, but in some ways easier in the first case, more limited but more difficult in the second.

Library's role in HTA and differences from ”traditional” librarian tasks
The usual activity of a scientific librarian consists of performing literature searches in scientific databases (PubMed, Cinhal, etc.) on a specific topic and then in downloading the articles selected by the researcher. Usually, a more "personal" intervention is not required.
Being involved in HTA process is something more challenging and the knowledge and skills necessary to help producing a good report are quite different from what is usually indispensable for a good "traditional" scientific librarian.
As there are only five people in the library, and this is the central library, their involvement in Document Delivery and in the ordinary administration of the library is very high. Despite of the lack of time, one librarian have been seriously involved by the HTA group during the different steps of a technology assessment.
This person is usually contacted by the HTA group when a new request of assessment is received. Then the librarian starts to search for literature in the main databases to frame the field of the evaluation. Before the evaluation of the literature retrieved, she takes part to the meeting with the clincian who

filled in the assessment request form and tries to define, as precisely as possible, the research question to be answered. After that, she designs a more specific search strategy and uses it in order to find out all the available literature. The main databases used are those indicated by the Institute of Health Economics of Alberta, Canada[6].If there are HTA reports about the technology under evaluation, she has to understand if they could be useful for the context or if more/different information is needed to assess the impact of the technology in our hospital. Infact, usually, an HTA report is the synthesis of many different pieces of information: articles and HTA reports. The result of this first survey is a pre-assessment paper, a limited review of the existing literature that will be the basis for the full assessment.
Differently from what happens in some other hospitals[7], there's only one librarian involved in this project, so she analyzes on her own the results and abstracts and assesses them using the PICO method. Then she compares choices she has done with the other members of the HTA group. The most appropriate articles are selected and the related full texts are provided by the librarian.
The second time the librarian gets involved is when it is time to write down the report. She usually describes the methods used to find and select literature and then she creates the flow-chart specifying the details of the inclusion/exclusion criteria. This part is very important because, if the search protocol is clear, it must be possible to perform the search with the same results.
Sometimes, the Medical Department requesting the technology contacts the central library to find support in the compilation of the "References" section of the request form So the involvement of the library by the HTA group becomes less extensive, since much of the literature research was made before the request.is sent.
The information retrieval plays a central role in the drawing up of HTA reports and the role of the librarian should then be crucial: "*...the information specialists are responsible for the comprehensiveness, consistency, reproducibility, and transparency of the literature search*"[8].

CONCLUSIONS

The impact of the central library on HTA activities has been extremely positive, although it is still at a stage where the procedures have not been completely standardized. This positive feedback was confirmed by members of the HTA group and the various medical departments. Moreover, this activity has led, for the librarian involved, to a radical expansion of knowledge, to be able to address, although not in detail, the clinical and technologic topics raised. In addition, the consultation of unusual databases compared to standard sources of information involves a less automatic way to set up searches and a greater adaptability (and sometimes capacity for initiative) in getting the desired result.
Currently only one librarian participates in the evaluation of technologies and offers support to applicants as previously described. For the needs of service coverage, we are considering to add another person to support the activity, perhaps through the establishment of a scholarship.
Since most of the requests of technology is concentrated in a period of few months (having the parameters to be included in the investment plan) and workload is particularly intense in the same period, we are considering, first, to work with Regional Health Care System to produce HTA reports and, secondly, to offer support to other hospitals in the region which are not equipped with specific HTA resources and, especially, have no advanced Documentation Center.

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