

Hospital Based HTA - Implementation for the Czech Republic

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Abstract— This study is set out to explore the concept of hospital-based HTA and identify various forms of this approach, usage diversification in hospitals around the world, the type and the extent of questions solved by implementation and further spreading of hospital-based HTA concept. The methodology consists of data collection from three hospitals in Spain, Italy and Canada, that are organized into comprehensive schemes and serve not only as the comparison between these countries but also as the tool to find out the key factors needed to model and recommend the implementation steps and process structures of hospital-based HTA in Czech republic.

Keywords—HTA, Hospital-based HTA, foreign countries examples, implementation.

I. INTRODUCTION

No health care system in the world can afford to provide unlimited health services to all the inhabitants, irrespective of the cost. This means that access to some health services must be considered priority, while on the other hand access to others must be limited. The decisions on their limitation are taken either by the government of the country or the particular hospital itself.

Hospital-based HTA is the concept, whose main goal is to help hospitals in situations when they must make choices or prioritize.

Another reason why health technology assessment (HTA) is being performed at the hospital level is that costs, benefits and impacts of used technologies can be directly assessed.

Even though, since the concept is new and there is relatively small amount of the evaluations containing quantitative data released, it is more than interesting to compare the different hospital-based HTA approaches and try to evaluate their impacts on the hospitals as well as health care systems they are being implemented in.

For this reason, theoretical part of this study represents the review of hospital-based HTA practical approaches and usages in various hospitals in different health care systems around the world. Countries, whose case studies are being reviewed, are for example Denmark, USA and France.

II. STATE OF THE ART

Health technology assessment (HTA) is considered as part of the movement that aims to improve quality and efficiency in health care [1].

A. Hospital-based HTA

Hospital-based HTA is the implementation of methods of health technology assessment at the hospital level and its application for specific hospital, considering its unique characteristics and individual needs. The main purpose of HTA is to produce evidence-based information about the clinical, economical, ethical, social and organizational impacts of health technologies in general.

Health technology assessment programs influence practice on a broad scale through reimbursement decisions or national guidelines. Hospital-based HTA programs inform clinical decisions at the local level. Typically, they do this by adapting general HTA to their local setting or by creating new HTA [2]. While health technology assessment is often done at a national or international level, many local health services and hospitals consider that it makes sense to move the assessment closer to the point of care, where the costs, impacts, and benefits of technologies can be directly assessed [3].

Health care systems in many countries have established so called agencies, which produce scientific information as a tool for decision-making at the organizational level. These agencies can operate alternatively at national level (e.g. SBU, in Sweden) or at a regional level (e.g. CAHTA, in Catalonia). Similarly to HTA agencies, also HTA units in hospitals around the world can help decision-makers, in this case hospital management, to find solution for various issues they have to cope with as well as introduce new strategies for improvement of specific organizational context. HTA entities can also be found at other levels of the health care system, such as at the health care organization level. Most of the time, HTA conducted at the local level is done by large university hospitals, but it can also be conducted in other types of organizations, such as local health centers or specialized institutes (e.g. the Research Institutes in Rehabilitation and Mental Health of Quebec have their own local HTA units) [4].

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Hospital-based HTA has spread since the mid-1990s, particularly in Northern Europe, Italy, Spain, Canada and Australia. One of the main drivers of hospital-based HTA is increased pressure to make more efficient use of scarce resources at all levels of the health care system - a situation confronting decision-makers over recent decades [4].

B. World-wide survey

In 2006 an Interest Sub-Group (ISG) interested in the application of HTA at hospital level was created within HTAi. It was called "Hospital-Based HTA" (HBHTA - Hospital Based Health Technology Assessment Sub-interest Group). Its main goal is to gather professionals and health care facilities to investigate different usages and approaches on the application of HTA in hospitals in different health care systems.

The participating countries in this survey are: Austria, Denmark, France, Germany, Italy, Poland, Spain, Sweden, Switzerland, The Netherlands (Europe), Canada, USA (North America), Argentina, Brazil, Colombia, Mexico (South America), Australia, New Zealand (Oceania).

On the base of a collective reflection the group agreed to adopt a conceptual model that intends to reduce the variability of organizational solutions for hospital based HTA that can be found in real world. The model identifies four different groups, depending on (i) the focus of the action and on (ii) the level of complexity of the organizational solution implemented for performing HTA processes within hospitals. The performance of HTA related activities in a hospital could be oriented to produce evidence for managerial decision-making (e.g. decision of investment) and/or to support effective clinical practice. These functions could be then performed by individual professionals or complex and multi-professional organizational units. Considering the two variables, "focus of action" and "organizational complexity" four different models for HB-HTA have been conceptualized [5].

The HTAi HBHTA has proposed a framework for classifying the various types of HTA activities that exist at the health care organization level, depending on institutional and other socio-economic factors characterizing the healthcare systems in different countries [4].

The hospital-based HTA models are:

The Ambassador Model (Q1): Clinicians recognized as 'opinion leaders' play the role of ambassadors of the HTA "message" inside the HCOs. They may not take part to assessments but play a key role in results diffusion within hospitals [5]. The ambassador program was initiated in 1996 by the Swedish Council on Technology Assessment in Health Care (SBU), which has established a network of over 40 local 'ambassadors' whose aim is dissemination of HTA

recommendations. The ambassador model does not produce HTA locally, but it promotes use of HTA recommendations made by other entities within the hospital [4].

The Mini-HTA (Q2): It is the case of Danish mini-HTA, in which single professionals participate in the assessment process collecting data at organizational level to inform decision makers at an higher level [5]. The term 'mini-HTA' was first used by the Copenhagen University Hospital in Denmark and was initially coined in reference to efforts to support decisions related to approval of new health technologies in that hospital. The mini-HTA consists of a questionnaire or a form used to collect data within the health-care organization. The questions usually cover four themes: the technology, the patients, the organizational consequences and the financial consequences. The mini-HTA is often the main basis for decision-making in hospital management, while in other contexts it is used as a supplement by decision-makers [4].

The Internal Committee (Q3): Evidence is produced by multidisciplinary groups (called internal committees), representing different perspectives and taking the responsibility of reviewing evidences to issue recommendations useful hospital-wide. Usually documents are produced on a peer-to-peer basis by professionals, who rarely work full time on HTA [5].

The HTA Unit (Q4): Formal organizational structure based on specialized HTA personnel working on a full time basis inside the Unit. This model represents the highest degree of structure for hospital HTA [5]. The policy committee is in charge of developing locally pertinent recommendations, using the evidence from technical reports produced by the professional staff [4]. This committee includes ten volunteers (nurses, physicians, other health professionals and patient representatives) and an administrator, and is assisted by consultants, ethicists and health economists when needed [4].

III. METHODS

The whole process of study methodology to set up recommendations for implementation best describes the following process diagram. First, data was collected through e-mail correspondence, foreign publications and accessible Internet data from three different hospitals, particularly from Italy, Spain and Canada. Then, the scenarios were prepared of how the system Hospital-based HTA works in those hospitals. Next step was subsequently drafted a general model that could be a suitable model for the implementation of hospital-based HTA in the Czech Republic. This model was subsequently discussed with several experts in the Czech Republic.

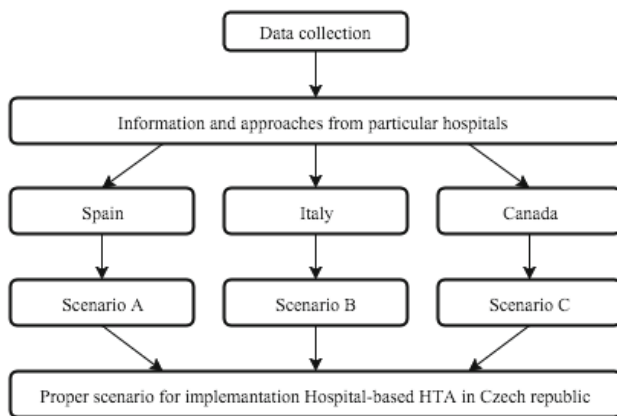


Fig. 1 – Process diagram of study methodology

IV. RESULTS

Based on the foreign countries experiences, particularly Spain, Italy and Canada and collected information from their directives, we would recommend three phases of implementation for hospitals in Czech republic.

A. Pre-Implementation Phase

Pre-implementation phase is similar to start-up of every planned process. It consists of detailed planning of future steps, determination of required details necessary for further activities and also analysis as well as allocation of the resources, which are obviously required at the beginning of the process.

Determination of necessary professions is key factor of initial phase. Only after it is determined who is involved in the process, planning and preparation of educational materials and seminars can be released. Education, in this case, means spreading awareness and introducing the hospital-based HTA approach with the help of theory materials already published and also review of foreign countries experiences.

Definition of objectives has to be clearly defined right at the beginning of process implementation to avoid making mistakes, doing unnecessary work and miss the important deadlines.

Schedule proposal (which can of course be changed during the implementation phase) and implementation time estimation are not necessary but useful and influencing factors, which are advised to be discussed right at the beginning as well.

B. Implementation Phase

1. Step – Organizational structure: The first step is to establish HTA Unit in hospitals. Organizational structure is inspired by the one used in Hospital Clinic of Barcelona,

Spain. The main reasons are its simplicity and also availability of the employees, which could cover required tasks and activities via part-time job agreement at hospital HTA Unit. There still would be some particular outsourced professions required, nevertheless this should occur only in the case of specific assessment processes, therefore should be neither financially nor time consuming.

2. Step - Defining the Scope of Activities: Scope of activities is defined as per the example of HTA Unit in Italian hospital. The model represents wide range of activities, but there are also related difficulties to manage them.

Technology Assessment: The core activity of this HTA Unit. Technology Assessment process generally consists of assessment of: technical parameters and properties, safety, efficiency and effectiveness, economic requirements and consequences, effect to Quality of Life, social, legal, political and ethical aspects. Even though the basic steps are followed, there is no strict structure defined and it always depends particularly on the technology that is being assessed and type of data the final report comes up with. As an example, doing meta-analysis of studies is widely spread quality assessment tool.

Research and Education: Activities of HTA Unit is closely linked to scientific research and educational activities of the hospital. Both of them own as well as regularly come up with valuable data which they can share and exchange to improve overall research and education quality.

Hospital Management Support Activities: The main goal of these activities is to come up with evidence-based reports and evaluations that help decision-makers to make correct and objective decision.

Support activities for Clinicians: The main support activity of HTA Unit for clinicians is the result of technology assessment, which influence the decision-makers to either purchase or not purchase certain technology. While the new effective technology can facilitate and improve the work of physicians, on the other hand non-effective one could cause errors in treatment, necessity of double checks and prolonged and more costly treatment process.

3. step - Recommendation for Assessment Process: The Process of Assessment is inspired by the one used by HTA Unit in Canada. It is comprehensive evidence-based assessment process, where synthesis of quality evidence review and multiple-step technology assessment leads to final report and evaluation of given technology. Procedures for neither collection of relevant data nor technology assessment are strictly given, nevertheless there are many accessible materials about HTA in general, which are considered

helpful while arranging these parts of the Assessment Process.

C. Post-implementation Phase

The main purpose of this phase is to create communication network to support exchange of information on assessment results as well as the new technology usage, impact and experience with it.

All useful information should be shared and exchanged between departments involved in using new technology, researchers, policy-makers, even other hospitals.

New communication network can be created either by improving current hospital information system or by purchasing brand new system, which however would be more costly.

V. CONCLUSIONS

This study was set out to explore the concept of hospital-based HTA and to identify various forms of this approach, usage diversification around the world, the type and the extent of questions solved by implementation and further spreading of hospital-based HTA approach. This study has also sought to introduce the models of individual hospital HTA Units experience, the role and impact of intervention on the particular hospitals in three countries: Spain, Italy and Canada.

Till now, there is no hospital-based HTA concept being implemented or already used by any health care facility in the Czech Republic. For this reason, theoretical part of this study is dedicated to introduction of the topic via reviewing the case studies describing various issues solved by hospital-based HTA approach. Case studies represent several countries with different health care systems, economic and social policies as well as cultural background.

Methodology goes even further and provides collection of data from three hospitals, that are organized into comprehensive schemes and serve not only as the comparison between these countries but also as the tool to find out the key factors needed to model and recommend the implementation steps and process structures.

Recommended model represents the synthesis of Spanish, Italian and Canadian experience with HTA Units in their hospitals, while considering the available qualifications as well as already well established departments, which could possibly cooperate with and also use services and support from future. Suggested steps of implementation process are made carefully in a general way, so the process can be applied also to other teaching hospitals in the Czech

Republic, requiring only minor adjustments according to originality and individuality of each hospital.

This study offers an evaluative perspective on a relatively new concept, with still not enough quantitative data published, nevertheless synthesizing all information from either available released materials or gained from trustful resources, to not only introduce the concept, but also recommend the process of its implementation, modified according to the conditions in particular hospital in the Czech Republic. This study based on the results of the Master thesis Hospital-based HTA - Implementation to Czech Republic [6].

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CONFLICT OF INTEREST

"The authors declare that they have no conflict of interest".

REFERENCES

1. Gagnon M-P, Sánchez E, Pons JM V (2006) Integration of health technology assessment recommendations into organizational and clinical practice: A case study in Catalonia. *Int J Technol Assess Health Care* 22:169–76. doi: 10.1017/S0266462306050987
2. Mitchell MD, Williams K, Brennan PJ, Umscheid CA (2010) Integrating local data into hospital-based healthcare technology assessment: two case studies. *Int J Technol Assess Health Care* 26:294–300. doi: 10.1017/S0266462310000334
3. Gagnon M-P, Desmartis M, Poder T, Witteman W (2014) Effects and repercussions of local/hospital-based health technology assessment (HTA): a systematic review. *Syst Rev* 3:129. doi: 10.1186/2046-4053-3-129
4. Gagnon M-P (2014) Hospital-based health technology assessment: developments to date. *Pharmacoeconomics* 32:819–24. doi: 10.1007/s40273-014-0185-3
5. Cicchetti A, Marchetti M, Dibidino R, Corio M (2008) Hospital Based Health Technology Assessment World-Wide Survey.
6. Matlonová V, Kubatova I (2015) Hospital Based HTA - Implementation to Czech republic. Czech Technical University in Prague.

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