

## Chapter 1.3

# Health Technology Assessment: Development and Future

**Lise Lund Håheim**

*Norwegian Knowledge Centre for the Health Services, Norway*

**Berit Mørland**

*Norwegian Knowledge Centre for the Health Services, Norway*

### ABSTRACT

Scientific publications in medical fields are rapidly increasing and are overwhelming in numbers. This poses a challenge to health authorities, and health professionals who need knowledge to make informed decisions in finding the best evidence for treatment and practice in the health provision to the public. They need an accessible system that handle the information flow using a systematic approach. This applies to developing and industrialized countries alike. The rapid development of health technologies with the introduction of new drugs, devices, and complex treatment modalities to achieve better health outcomes increases the need for evaluation of the treatment effect. This chapter illustrates how the health service handles the information flow utilizing information technology, and the great benefit that is gained by this methodology.

### THEORETICAL FRAMEWORK AND METHODOLOGY OF HEALTH TECHNOLOGY ASSESSMENT

The development of evidence based medicine (EBM) has been one important way of a systematic thinking in medicine (NHS Centre for Reviews and Dissemination, 2001; Egger, Smith, & Altman, 2001; Chalmers & Altman, 1995). But in fact the systematic way of identifying and assessing documentation started in the mid seventies with the establishment of the Health Program of the Office of Technology Assessment (OTA) under the Congress in USA (Banta & Luce, 1993).

EBM has been following several paths. The proceeding of the field of health technology assessment (HTA) is one of them (NHS Centre for Reviews and Dissemination, 2001). It has been defined as a process that systematically assesses the medical, social, ethical, and economic implications of the development, diffusion, and use of health technology.<sup>1</sup> In HTA two approaches are combined by making and using systematic reviews of published literature, and appraising relevant issues linked to the task at hand providing a national/local

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context. Health economic issues related to these technologies are important in setting priorities in health care. Ethical discussions are important to raise the awareness of moral dilemmas as well as patients' views, rights and other implications in the healthcare decision making. Technologies using groundbreaking biotechnology in particular may pose legal problems. The organization of the service may need to be discussed. Patient safety and patient rights are relevant to take into consideration. The aim of HTA is to inform and provide decision makers at all levels of the healthcare system in broad terms about the current best knowledge of health technologies to assist them in making the best informed decisions on which health technologies will provide the highest quality health service and treatments of the best value for money (prioritization).

HTA is a multidisciplinary field of policy analysis. It combines the systematic review of published scientific literature of particular health issues with appraisals that put the health technology in question in a broader context. In this work there is an extensive use of information technology in the search for scientific literature indexed in databases on scientific literature (NHS Centre for Reviews and Dissemination, 2001; Mørland, 2003a; Health Technology Assessment; Lund Håheim & Mørland, 2003). The identified studies are evaluated for relevance of population, intervention, outcome and study design, before being included in the evidence base of the relevant subject. The overall grade of evidence is then evaluated. There are a great number of databases that are searched for specified literature. It is done in a defined and specific manner and the search strategy is published so that it may be repeated by others or at a later date. HTA is done in a transparent way by publishing all the information on how the work was done. The report is indexed to databases as systematic reviews. External review teams are frequently used in this work (Mørland, 2003a; Health Technology Assessment). The teams are most often multidisciplinary having

members of the medical professions, epidemiologist, health economist, statistician, and user/patient representatives, or others as needed. The range of disciplines is founded in the need to make sure the literature assessment is relevant and of highest quality. The members of the teams gain knowledge of the methods used in making systematic reviews, and can therefore bring this knowledge back into their own work place. As they are often chosen on a background of being "opinion leaders" in their field, they are important in the challenging work of implementing the results and increase the impact by having the full knowledge of how the work was undertaken. This individual knowledge assists in the transfusion of knowledge of health technology assessments through the health service.

HTA has developed steadily over the years to be a world wide effort to improve the decision making in the health services by presenting best evidence, but the work stops short of making political decisions or making guidelines. Its products are the applied use of research results and it is founded on research into best ways of performing assessments, and increasingly meeting the challenge of finding most efficient ways to disseminate and implement results. HTA relies heavily on information technology (IT) in all parts of the work. In assessing research the work relies entirely on information technology as it is used both in searching and collecting relevant studies/literature, during the assessment process, until the final report is made and it is disseminated. Different tools have been developed that are being used to streamline the work process by using standard forms and checklists, and data programs for grading the evidence level of the studies included and reporting results. For making the quantitative syntheses of effect estimates the statistical method of meta-analysis has been developed. Without the development of IT, and its efficient use in searching and sorting huge amount of literature, the EBM and HTA would not have been possible. Information technology

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