

**LOCAL HEALTH
TECHNOLOGY
ASSESSMENT:
A Guide
for Health Authorities**



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**LOCAL HEALTH TECHNOLOGY
ASSESSMENT:
A Guide for Health Authorities**

Written by:
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HTA Initiative #7

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Health technologies are pervasive in modern society. They include:

drugs, devices, medical and surgical procedures, and the administrative and support systems through which health care is delivered.

They are applied across the spectrum of health care:

primary prevention, early detection of disease and of risk factors, diagnosis, treatment, rehabilitation and palliative care.

Purpose of this Guide

This guide is intended to help policy and decision-makers in health care who require advice on health technologies that are raising questions at the local level, for example within Regional Health Authorities.

Decision-makers in health care have to make informed choices on which technologies to pay for and on how they ought to be used.

Decision-makers in health authorities have to consider a range of health technologies that will impact on the local health care systems and the people that they serve. The issues will often be complex and include scientific and economic considerations.

Health Technology Assessment (HTA) is a tool to help decision-makers on such issues. Decision-makers in health authorities may benefit both from HTA information that is available from other agencies and from local application of HTA principles. Both options are considered in this guide.

ABOUT THE AUTHOR

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1.

Health Technology Assessment

What is Health Technology Assessment?

Health technology assessment is the systematic evaluation of the properties and effects of health care technology.

Its main purpose is to provide objective information to support health care decisions and policy making.

Components of the HTA process include:

- Comparison of the health technology with an alternative intervention, typically the standard of care.
- Identification and retrieval of information on the health technology.
- Critical evaluation of the retrieved information.
- Synthesis of the evaluation findings, bringing together different types of information and analysis.
- Formulation of conclusions and, possibly, recommendations.
- Dissemination of the HTA findings to provide input to policy and other decisions.

Attributes of health technologies

Attributes of technologies that are important areas for HTA include:

Safety	Information considered by regulatory agencies and also safety issues associated with procedures and with effects of technology on overall process
Efficacy	The performance of a technology under 'ideal' conditions or conditions of best practice
Effectiveness	The performance of a technology under 'routine' conditions, for example when it has become widely distributed in a health care system
Economic impact	Costs of a technology are of immediate interest to health care budgets, but HTA will often be concerned with economic costs and benefits, and in judgments as to whether a technology is a good value for money
Equity	The extent of access to a technology
Ethical issues	The consequences of the technology for the well being and rights of those it might affect.

Categories of Assessment

Regulatory Governments have established regulatory programs for some health technologies. Such programs have a principal focus on ensuring the quality of individual pharmaceutical products and some medical devices, with evaluation of evidence of safety and of the validity of manufacturers' label claims. Programs of this sort are administered by Health Canada and the US Food and Drug Administration.

Advisory A broader concept of HTA includes the examination of the effects of health technologies, and provision of an advisory role in regards to policy and administrative decisions. Instead of concentrating on an individual product there is often an emphasis on technology in a more generic sense. This wider perspective may often be concerned with issues such as how the technology will influence the organization of health services, its potential economic impact and effects on individuals' quality of life.

This guide is concerned with this broader, more advisory aspect of HTA. The HTA programs operated by AHFMR: www.ahfmr.ab.ca and by the Canadian Coordinating Office for Health Technology Assessment: www.ccohta.ca provide examples of the approaches that have been taken.

2. Which Technologies Should be Assessed?

Selection of technologies for assessment will often involve a range of interested parties.

Points to consider in selection of technologies for assessment include:

A. Is there a significant decision needed at the local level on a health technology?

What is seen as ‘a significant decision’ will depend on local circumstances and requirements of policy makers and administrators. It may be influenced by issues such as:

- Potential influence of the technology on health status – considering types and numbers of patients who will be affected. Effects on mortality, morbidity and quality of life.
- Perceived shortcomings of existing health services.
- Potential impact on health care resources – on budget and infrastructure, and other services.
- How quickly the technology might diffuse through the health system.
- Presence of local ‘champions’ of the technology.
- Marketing initiatives by vendors.
- Access to the technology and associated pressure from consumers.
- Variation in use – potential for inappropriate use; standards of performance.

B. Is relevant HTA advice already available?

Relevant assessments may have already been undertaken by other groups.

C. Are timelines and resources realistic?

There will be a need to consider the time likely to be required for the assessment project and time by which advice is needed and/or a decision has to be made. If advice from the HTA is not sufficiently timely, its impact will be limited.

A key resource is appropriately experienced persons who are available to undertake the assessment. Availability of data may be an important consideration for some questions on health technologies.

3. Approaches to Assessment

An array of methods is available to provide an indication of how well a technology works and of its economic and social consequences. Approaches may include both primary and secondary data collection and analysis. These are not necessarily alternatives, but rather steps in a process, to be used together in various combinations. There is a need to decide which methods are appropriate and affordable in each case. For example:

Methods of assessment

Primary data collection and analysis

Experimental studies – randomised controlled trials, weaker study designs

Observational studies – cohort, case control

Qualitative research studies

Secondary data analysis

Meta-analysis and other systematic reviews

Cost-effectiveness and cost-utility analysis

Group judgment methods such as consensus development conferences, Delphi studies

The Evidence Based Medicine Working Group from the University of Alberta has prepared a “collection of tools for identifying, assessing and applying relevant evidence for better health care decision-making.” This provides a useful guide to the application of different methods: www.med.ualberta.ca/ebm/.

Additional Sources of Information on Assessment Methods

Considerable detail on assessment methods and their application are available through authoritative documents prepared by HTA agencies, such as the following:

NHS Centre for Reviews and Dissemination. *Undertaking Systematic Reviews of Research on Effectiveness*. CRD Report Number 4 (2nd Edition). York: NHS CRD, March 2001: wwwO.york.ac.uk/inst/crd/report4.htm

Canadian Coordinating Office for Health Technology Assessment. *Guidelines for economic evaluation of pharmaceuticals*. 2nd Edition. Ottawa: CCOHTA, 1997: www.ccohta.ca/entry_e.html

Kristensen, F.B., Hørder, M., & Poulsen, P.B. (eds.) *Health Technology Assessment Handbook* (1st edition). Copenhagen: Danish Center for Evaluation and Health Technology Assessment, 2001. <http://147.29.115.214/publikationer/docs/Metodehaandbog/MethodologyHandbook180601.pdf>

4. Sources of Information on HTA and Health Technologies

HTA in Canada

In **Alberta**, information on health technologies and their assessment is available through the programs operated by the Alberta Heritage Foundation for Medical Research, the Institute of Health Economics and the Calgary Health Region.

Requests for assessments from AHFMR should be made in writing to:

The Director
Health Technology Assessment
Alberta Heritage Foundation
for Medical Research
Suite 1500, 10104 – 103 Ave NW
Edmonton AB T5J 4A7
or email: postmaster@ahfmr.ab.ca

AHFMR. The HTA Unit of AHFMR undertakes assessments on a wide range of health technologies. The program's publications are available on request. Titles of all reports are given in the Foundation's website: www.ahfmr.ab.ca and the longer reports are available in full text and can be downloaded.

The HTA Unit undertakes assessments in response to requests from organizations and individuals. Write the Director at the address on the left to request an assessment. The AHFMR program also provides brief advice, on request, on issues related to health technologies.

IHE. The Institute of Health Economics undertakes research in the areas of health economics, health outcomes and health policy research and related services. Its work includes assessment of pharmaceuticals and other health technologies. Details of its publications are available from its website: www.ihe.ab.ca.

Calgary Health Region. A Health Technology Implementation Unit (CaHTIU) has been established as a mechanism to provide research and “applied” support for HTA and similar assessments that may be useful to CHR. The CaHTIU also has a strong research component targeted towards development of strategies for optimizing health care: www.calgaryhealthregion.ca/htiu/.

At the **national level**, information on HTA is available through the Canadian Coordinating Office for Health Technology Assessment (CCOHTA) in Ottawa: www.ccohta.ca. CCOHTA undertakes assessments on a wide range of health technologies and aims to facilitate information exchange, resource pooling and the coordination of priorities for health technology assessments.

Publications from CCOHTA include bulletins that describe emerging health technologies, giving a useful picture of products and procedures that may be of future significance to Canadian health care.

Other organisations in Canada undertaking HTA, which are linked with CCOHTA and AHFMR through the Canadian Health Technology Evaluation Forum, include the Agence d'Évaluation des Technologies et de Modes d'Intervention en Santé, Montreal (AETMIS): www.aetmis.gouv.qc.ca; the Institute for Clinical and Evaluative Sciences (ICES), Toronto: www.ices.on.ca; the Health Services Research Utilization Commission in Saskatchewan: www.hsurc.sk.ca; and the Manitoba Centre for Health Policy (MCHP), Winnipeg: www.umanitoba.ca/centres/mchp.

International Sources of Information

Information on health technologies is available through a range of electronic data bases. Perhaps the most immediately accessible and useful data base is PubMed, maintained by the US National Library of Medicine.

A literature search for an HTA will often begin with PubMed:

www.ncbi.nlm.nih.gov/entrez/query.fcgi.

The website of the International Network of Agencies for Health Technology Assessment (INAHTA): www.inahta.org provides useful contact information on its members, (38 HTA organisations in 19 countries) and downloadable HTA publications. Accessible through this website is the **HTA data base**: www2.york.ac.uk/inst/crd maintained by the NHS Centre for Reviews and Dissemination in England. This is another very useful 'first look' resource when searching for assessments that have been undertaken on particular technologies.

Health Technology Assessment on the Net: a guide to Internet sources of information:

www.ahfmr.ab.ca/hta/hta-publications/infopapers/Internet_sources_of_information.pdf is an AHFMR publication which is updated annually.

It focuses on Internet sites, and also includes details of specialized bibliographic databases, government and regulatory sources; and hospital administrative databases.

Considerable further detail on information resources for HTA is now available through the *Etext on Health Technology Assessment (HTA) Information Resources*, an international collaborative publication which has been coordinated by the US National Library of Medicine: www.nlm.nih.gov/nichsr/ehta.

5. Scope and Reliability of Health Technology Assessment Reports

HTA reports vary greatly in their scope and complexity. This is to be expected – the HTA report will reflect the question about the health technology that has been raised, the context of the health system concerned and the data, time and resources available. There will be a trade off between the time and resources available and the scope and depth of an assessment.

If an HTA report is to be used to help in decision-making, to what extent can you rely on it? Important considerations are the accuracy of the information in the report and the context in which the assessment has been undertaken.

These points have been considered by INAHTA, which has developed a checklist intended as a guide both for those who use HTA reports as a source of information and for those who prepare such documents: www.inahta.org/checklisteng.html. The INAHTA document notes that a key to improving the usefulness and generalisability of HTA reports is to aim for transparency in the assessment process.

For those reading reports prepared by other organisations, the checklist gives guidance on what to look for in an HTA report and in assessing the reliability of the information provided. It should be seen as complementary to the authoritative guidelines for assessment of health technologies that have been prepared by a number of agencies.

The checklist includes questions to be considered by those reviewing or preparing an HTA report. These sorts of questions should be asked when considering sources of information on health technologies. Additional detail is given in the INAHTA document.

Questions to ask about an HTA report, based on the INAHTA Checklist

Preliminary information

Is there:

- appropriate contact information?
- identification of who prepared the HTA report?
- a statement regarding conflict of interest?
- a statement on whether the report has been externally reviewed?
- a short summary that can be understood by the non-technical reader?

Why the assessment has been undertaken

- Is reference made to the question that is addressed and the context of the assessment?
Why has the assessment been undertaken, who requested it, how does the question relate to the health care system?
- Is the scope of the assessment specified?
Which attributes of the technology are addressed?

How the assessment has been undertaken

- What sources of information have been used?
Details of the literature search, other sources of information, source and basis of any cost or administrative data.
- Is there information on the process for selecting material for assessment?
Process used by assessors, sources of material and the basis for selection. Is it made clear why the selected papers have been chosen and not others?
- Is there information on the basis for interpretation of selected data ?
The report should describe results of relevant studies and consider their quality and limitations. There should be an indication of how these results have been synthesised.

Results of the assessment

- Are the results of the assessment clearly presented?
Absolute values should be presented, not just relative values. Estimates or indications of uncertainty should be included.
- Is there interpretation of the assessment results ?

Implications of the assessment results and conclusions

- Are the findings of the assessment discussed?
What is the relationship of the results obtained to the question being addressed by the assessment. Is there comment on missing or uncertain information, and the reliability of the analysis Do the assessment findings follow from the data? Are additional assumptions or opinions contributing to the position taken?
- If relevant to the assessment, are medico-legal implications considered?
- Are the conclusions from the assessment clearly stated?
- Are there suggestions for further action?

6. HTA and Local Decision-making

The material provided so far has given a brief overview of HTA and sources of information about it. Considerable information is available about health technologies and their assessment. How can this be used in the local context? How relevant is this collection of experience to local decision-making?

What is the Question?

The first steps are to define the question that has arisen in the local context and to specify the issues that may need to be considered for the technology. A number of these follow directly from the material presented in earlier sections:

- What is the technology and what are the essential details of the proposal being made?
- What are the policy issues that have to be addressed?
- How many patients or clients within the health authority may be affected by the technology?
- What is the clinical significance of the condition(s) it is intended to address?
- What are current standards of care for management of the condition (within the local health system or through referral)?
- What are the expected comparative clinical or other benefits from the technology, relative to existing arrangements?
- What competencies and training programs will be needed if the technology is to be introduced?
- Will significant infrastructure be required for the technology to be operated effectively?
- What are the capital and set up costs?
- What are the recurrent costs?
- Are any cost savings envisaged?
- Will the technology replace the currently used approach or will both be in use in the future?
- If there is likely to be an increase in expenditure, how will this be met?
- Are there likely to be any issues related to patient acceptance of the technology?
- Are there any areas for discussion with or between health care professionals?
- Are there any essential timing considerations?
- What are the alternative options to using the technology?

The issues defined by these questions need to be brought together in a business case for consideration and guidance of local decision-makers. Aspects related to this are included in the publication HTA Initiative #6: *AHFMR Screening Procedure for Use when Considering The Implementation of Health Technology*: www.ahfmr.ab.ca/hta/index.php3. Approaches to a business case for a particular area of health technology, telehealth, are included in another AHFMR publication, HTA series A #4: *Assessment of telehealth applications*: www.ahfmr.ab.ca/hta/hta-publications/joint/telemedicine_update.pdf.

Application of HTA to the Local Question

Approaches that may be considered in assisting decision-making on the health technology may include use of existing HTA reports, commissioning an HTA from an organisation outside the health authority, undertaking an HTA within the health authority or, possibly, undertaking a local primary study to collect data that are not available. Participants in the SEARCH program of the AHFMR may be a useful resource in undertaking local assessments within a health authority.

Use of existing HTA reports

In some cases, the technology may have been assessed by an HTA agency and details can be obtained from published reports. Use of existing HTA reports may be able to settle many of the local issues. Points to consider are:

- To what extent do the HTA report(s) meet the points in the INAHTA checklist mentioned in Section 5? Is the report transparent? What is included, excluded and assumed?
- How recent is the HTA report? Are there likely to have been significant developments in the technology or important new data on its efficacy, effectiveness or efficiency since the report was published?
- How relevant are the issues discussed in the HTA report to your local situation? (For example data on effectiveness of a medication may be readily applicable whereas information on costs and organisation of a diagnostic imaging service may be less easy to use).

Commissioning an HTA

It may be possible to get an HTA agency to accept a request to do an assessment on the technology, to help meet your decision needs. For example, AHFMR may be able to assist.

An important consideration here is timing of the assessment – the HTA agency will have to fit the assessment into its work program and there might

be some delay, particularly if a detailed assessment is envisaged. Also, the HTA agency will usually be able only to undertake analysis of material that is readily available through the literature. Local administrative data and cost information may be needed to put the assessment sufficiently in context. Responsibility for obtaining local information may well involve the health authority and other government agencies.

Undertaking a local HTA

The health authority may wish to undertake its own HTA using local resources. Some 'musts' to consider under this option include:

- Appropriate comparison with the standard of care and possibly also alternative new technologies.
- Identification of relevant sources of information. (Assistance of a librarian/information specialist is highly desirable).
- Appraisal of the quality of the available literature. (Critical appraisal is needed, as indicated in earlier sections).
- The relevance of the literature to the local question. For example, do published studies on the technology relate to very different populations or societies? Is there evidence only on efficacy of the technology rather than data that might give an indication of its possible effectiveness in the local setting?
- Are published cost or economic studies closely applicable to the local situation or more a general guide? It may well be necessary to include analysis based on local cost data and consequences of the technology and the alternatives to it. The services of a health economist will be desirable.
- As with the previous option, it may well be necessary to obtain administrative data that apply to the local health system.
- How is the local assessment to be reviewed prior to completion?
- Will the local assessment be made generally available?

Local primary studies

In some cases it may be appropriate to put in place a local study to measure the effectiveness and/or efficiency of a newly introduced technology. Details are beyond the scope of this guide, but issues to consider will include:

- Identification of a coordinator and data manager
- Acceptance of the study and protocol by all those who will be involved
- Ethics approval
- The power of the study and the time needed to have a reasonable chance of producing an answer to the question
- Compliance with the protocol
- Drop out
- Systematic collection and monitoring of data
- Analysis of data
- Feedback of results from the study to the local decision-making process
- Eventual publication of findings

7.

Follow-up to the Assessment

Once the assessment has been completed there will be a need to disseminate its findings and to put in place arrangements for implementation, if changes are to be made. A number of issues relevant to this phase of the process have been discussed in the AHFMR publication *Framework for Regional Health Authorities to make optimal use of Health Technology Assessment*: www.ahfmr.ab.ca/hta/index.php3. Tasks may include identifying resources needed to offer the technology, and development of implementation plans.

There may be insufficient evidence available for the HTA to reach a firm conclusion on effectiveness or other attributes of the health technology. In such cases it will be necessary to carefully consider how to proceed. Some of the options available have been outlined in the previous section. If use is to be made of a technology for which there is insufficient evidence of efficacy, effectiveness or efficiency then it will be prudent to put in place appropriate data collection and review procedures, together with clear information to stakeholders that the status of the technology is not established.

Alternatively, the absence of appropriate evidence may well indicate that the appropriate decision is not to proceed with use of the technology. In some cases, such decisions can be kept under review, and reconsidered should further data become available – for example through reports of outcomes from long term clinical trials.

It will be necessary to effectively communicate the findings of the assessment to local stakeholders. Approaches to this dissemination phase will vary, but might well include distribution of the assessment report and a summary of findings as hard copy and electronically, presentations to stakeholders and use of focus groups. Feedback from stakeholders may well be of great importance to implementation plans.

There may well be a continuing need for evaluation of the technology as it comes into use within the local health system. Implementation plans may need to include provisions for monitoring the use and impact of the technology and for a follow up assessment, where necessary.