Assessment of methods in health care

Health technology assessment (HTA) involves the systematic evaluation of the scientific evidence relating to the effects, risks and costs of methods used in health care.

Evidence Based Medicine (EBM)

To practice EBM means to integrate individual clinical expertise with the best available evidence.


Some important government agencies compiling knowledge

The Swedish Council for Health Technology Assessment and Assessment of Social Services (SBU)

Independent government agency
Government funded
Annual budget: about 12 million $
Staff: ~ 90 employees
~ 200 contracted researchers
Board of directors and two advisory scientific boards

Director: Odont Dr Susanna Axelsson

Ingegerd Mejäre Professor, Project director, The Swedish Council on Health Technology Assessment
Kranj 20th October 2016
ingegerd.mejare@sbu.se
The Scientific Advisory Board gives their opinion from clinical, ethical and health economical aspects.

External reviewers scrutinize the report.

The Board of Directors gives the final approval.

Mission

To scientifically evaluate established and new methods from a medical, ethical, social and economic perspective.

To contribute to the best possible health care for the population and the best use of resources.

Such as:

- Which treatment options are most effective?
- How can we diagnose diseases most accurately?
- How can we use healthcare resources to achieve optimum benefits?

Why assess science?

- Professionals in health care are obliged to work in accordance with science and proven experience.
- Research and clinical experience shall provide guidance for the health care.

The amount of decision support

- >15 millions published scientific papers
- >16 000 medical scientific journals
- >1.4 millions new scientific papers every year
- 10-15 % of what is published will have lasting value!

Main criteria for selecting the most urgent topics to investigate

- Significant impact on life and health
- Affect many
- Large practice variations
- Uncertain knowledge
- Unclear cost effectiveness
- Controversy
SBU’s activities

Knowledge compilation
- Systematic reviews of established methods – Yellow reports
- Urgent assessment of new methods – Alert reports
- Assessment of other HTA reports – SBU Comments
- Quick answers to the health care – SBU Inquiry service

Knowledge dissemination
- Marketing
- Information
- Education
- Web www.sbu.se

Treatment of prolonged pain
Concussion
Blood clot – prevention, diagnostics and treatment

Early fetal diagnostics
Dementia
Risk assessments in psychiatry

Is single reading with computer-aided detection (CAD) as good as double reading in mammography screening?

Background:
In accordance with European guidelines, mammography screening comprises independent readings by two breast radiologists (double reading). CAD (computer-aided detection) has been suggested to complement or replace one of the two readers (single reading + CAD).

The aim of this systematic review is to address the following question: Is the reading of mammographic x-ray images by a single breast radiologist together with CAD at least as accurate as double reading?

SBU aims at minimizing the "bias" in the assessment and synthesis of knowledge.

- Systematic process
  - literature search
  - quality assessment of individual studies
  - quality of evidence of an outcome (across studies)
- Reproducible and transparent process
- Broad spectrum of expertise in the project
- Review by independent experts
- Meticulous and clear declaration of conflicts of interest.

The process in short

Question
Litterature hoovered

Conclusions from good enough studies
Systematic review

Included studies scrutinized and valued
Synthesis of results

“The Grading of Recommendations Assessment, Development and Evaluation” (www.gradeworkinggroup.org)

A relevant challenge:
Every fourth person in Sweden will be aged 65 or more in 2030.

Question: What do we know about the caring for the elderly?

- Depression
- Urine incontinence
- Hip fracture rehabilitation
- Stroke rehabilitation
- Chronic ulcers
- Medicines

RESULT

- There is largely insufficient research into the effects of health care for elderly.
- However, interdisciplinary teams seem to help and give positive effects. They should be available in more places.

A worried voice…

From Epigrams 1760

Doctors are men who prescribe medicines of which they know little, to cure diseases of which they know less, in human beings of whom they know nothing.

International collaboration

HTAi – Health Technology Assessment International
INAHTA – the international network for HTA agencies
European collaboration in HTA
EUnetHTA
Cochrane Collaboration
ASSESSMENT OF METHODS IN HEALTH CARE
A HANDBOOK

Available on SBU’s website:
http://www.sbu.se/en/method/

How to assess and scrutinize methods in health care in a systematic and transparent way.

Health technology assessment (HTA) involves a systematic evaluation of the scientific evidence relating to the effects, risks, and costs of methods used in health care.

A SBU report is also taking into account ethical and social aspects.

Literature review process – flow chart

Chapters in the book:
1. An overview of the steps in a systematic evaluation
2. Structuring and defining the review questions
3. Criteria for inclusion/exclusion
4. Literature search
5. Assessing a study’s relevance
6. Assessing the quality of intervention studies
7. Assessing the Evidence for Diagnostic Tests
8. Evaluation and synthesis of studies using qualitative methods of analysis
9. Composite appraisal of results
10. Grading evidence
11. Health economics
12. Ethical and social aspects

Process for the systematic assessment of scientific evidence.

Question (Chapter 2)
• Formulate the question in a structured manner
• Establish criteria for inclusion and exclusion.
Structuring and defining the review questions (Chapter 2).

**P**opulation

Example: Population: Diabetics type 1 and 2

**I**ntervention

Control: diabetics food according to present convention

**C**ontrol

Outcome: mortality, diabetic complications, quality of life, side effects...

Selection of literature (Chapters 3-4).

- Literature search (Chapter 3)
- Initial screening of abstracts
- Obtain articles in full text
- Determine which articles meet inclusion-and exclusion criteria (Chapter 4).

Quality assessment and data extraction (Chapters 5-8).

Templates for quality assessment.

- Relevance
- RCT
- Observational studies (STROBE)
- Diagnostic studies (QUADAS)
- Qualitative studies
- Systematic reviews (AMSTAR)
The hierarchy of evidence according to study design

1. Systematic reviews and meta-analyses
2. Randomized controlled trials (RCT)
3. Non-randomized controlled trials (cohort, case-control, cross-sectional, case series)

Tables of data (Chapter 8).

- Tables of data from the studies that comprise the scientific evidence are an important part of the report.

Synthesis and weighing results (Chapter 9)

- Meta-analyses can be performed using Cochrane Collaboration’s programme Rev Man, which is free of charge.

Grading the strength of evidence in the results (Chapter 10).

- The reliability of the composite results is expressed as the strength of evidence. SBU uses the evidence-grading system GRADE.
- GRADE is developed by an international group of experts and is being used increasingly by organizations and authorities such as WHO, NICE and Cochrane Collaboration.

Synthesis of results

"The Grading of Recommendations Assessment, Development and Evaluation" (www.gradeworkinggroup.org)

GRADE – a method for rating the confidence in the evidence in a transparent way.

- The quality of the body of evidence is rated separately for each outcome measure:
- A four-graded scale is used:
  - Very confident ()
  - Moderately confident ()
  - Limited confidence (low) ()
  - Little confidence (very low) ()
Health economy (Chapter 11)

A comprehensive evaluation requires an assessment of the cost-effectiveness and economic consequences of a method being either introduced, extended, contracted or phased out.

Ethical and social aspects (Chapter 12).

- Besides including the method's effects, risks and cost-effectiveness, the assessment should consider its ethical and social consequences.