Health Technology Assessment (HTA)

Dr Hamid Ravaghi
- Why?
- What?
- How?
Why?

• New technologies

• Cost of new technologies

• Limited resources

• Ethical questions
WHAT?

Health Technology

- Instruments, equipment, drugs and procedures used in prevention, diagnosis, treatment or rehabilitation of health conditions

- Modes of intervention including delivery facilities, financing systems and infrastructure characteristics affecting health services and health technology use
HTA Definition

• HTA is “the systematic evaluation of properties, effects, and/or impacts of health-care technology. It may address the direct, intended consequences of technologies as well as their indirect, unintended consequences. Its main purpose is to inform technology-related policy-making in health care. HTA is conducted by interdisciplinary groups using explicit analytical frameworks drawing from a variety of methods”
WHAT?

Health Technology Assessment

- Multidisciplinary field of policy analysis. It studies the medical, social, ethical and economic implications of the development, diffusion and use of health technology. Its goal is to provide input to decision making in policy and practice.
WHAT?

**Specific parameters**

- Technical properties and safety
- Efficacy / effectiveness
- Efficiency (cost-effectiveness; cost-benefit)
- Impact on health system: health-related, organizational and economic
- Social acceptability (ethical and social aspects)
Evidence for informing decision-making

- Technological, ethical, legislative conditions
- Political, social, economic conditions

Intuitive decision-making + Evidence
WHAT?

Technology Assessment

Science

Decision-making
**AND THEN WHAT?**

### Impact of HTA Agencies

- **Coverage decision**
  - **YES**: Cochlear implant (Quebec, France)
  - **NO**: Transmyocardial revascularisation by laser (Norway)

- **Restriction of use of costly technologies**
  - Beta-interferon for multiple sclerosis (Denmark)
  - Implantable ventricular assist devices (Quebec, Oregon)
AND THEN WHAT?

Impact of HTA Agencies

- Control of inappropriate diffusion
  - The use of PSA (France, Norway, Quebec)

- Planning and deployment guides
  - Coronary angioplasty centres (Quebec)
  - PET scans (Quebec)
  - MRIs (Austria)
AND THEN WHAT?

Impact of HTA Agencies

- Elimination of useless interventions
  - Extraction of wisdom teeth (UK)
  - Routine pre-op chest X-rays (Sweden, Quebec)

- Security of procedures
  - Reuse of single-use catheters (Quebec)
• Diagnostic accuracy of computer assisted sperm analysis

• Diagnostic performance of techniques used for HER-2 testing in breast cancer

• Diagnostic accuracy and cost-effectiveness of occult blood used in screening for colorectal cancer
• **Its beginnings** - close to 30 years ago

• **Its origin** from the US, to Canada, Australia and Europe

• **Its purpose** - to assess the consequences of medical technologies

• **Its foundation** - the synthesis of existing evidence

• **Its definition** - more by its purpose than its methodology
Where can HTA have an impact?

HTA and diffusion of health technologies
Context is essential for evidence-informed decision making

There are decisions that...

take good evidence ... in context ... and use it well

poor evidence ... without context ... and use it poorly

WHAT?

RN Battista et al., 1999
Layers of questions & layers of evidence

How should we do it here?

Should we do it here?

Can it work here?

Can it work?

Implementation

Appropriateness

Effectiveness

Efficacy

Technical Performance

Health technology assessment

Regulation
Collaborating for improved health

Health technology regulation
- Safety
- Performance (devices)
- Efficacy (drugs)

Health technology assessment
- Clinical effectiveness
- Ethics
- Social issues
- Organizational

Health technology management
- Procurement
- Selection
- Training
- Use
**HOW?**

**Needs Assessment**

- Needs assessment documents the needs of the health system.

**Priority Setting**

- Priority setting arises from needs assessment and negotiation with stakeholders.
- **Elements taken into account:**
  - Variation in use of technology
  - Importance of disease
  - Impact on health
  - Cost
  - Ethical and legal aspects
HOW?

Methods

- Synthesis methods
- Modeling (data banks; administrative data)
- Primary data
HOW?

**Synthesis Methods**

- Medline and other databanks
- INAHTA
- Cochrane reviews
- Quality check
HOW?

Modeling of Data

- Economic evaluation
  - Cost-benefit
  - Cost-effectiveness
  - Cost-utility
  - Cost-minimization

- Social, ethical and legal aspects
HOW?

Primary data:

- Experimental
- Observational approaches
HOW?

The Practice of Health Technology Assessment

- National council, office, agency
- Third party payer unit
- Unit of a professional organization
- University-based unit
- Ministry unit
- Regional or provincial council, office, agency
- Private agency
HOW?

**INAHTA**

41 member organizations in 21 countries

- Europe (28)
- North America (7)
- Latin America (2)
- Middle East (1)
- Australasia (3)
HTA in Iran

• National HTA office (MOHME)

• Professional working groups

• National decisions
HOW?

Challenges

- Scientific credibility
- Autonomy
- Scientific capacity
  - Human and financial resources
  - Training
- Sharing and adaptation of information
- Diversification of products
Challenges

• Balancing access, quality of care and sustainability of the health care system

• Population health benefit

• What results in the greatest clinical benefits to the community?

• Are the interventions cost effective?

• Can we afford this? (appraisal)
Challenges

• Available data is not context-specific (often from high-income countries with different contexts)

• Desirable or acceptable levels of safety, effectiveness, cost-effectiveness, and other attributes of a technology, as well as acceptable trade-offs among these, may vary in different communities, countries, or other circumstances

• Planning and regulatory systems are often in their infancy
WHO Research Strategy and goals of HTA

- **Organization**: Structure & culture
- **Priorities**: Identify priority health needs
- **Capacity**: Increase knowledge & skills
- **Standards**: Best international practice
- **Translation**: Link policy, practice & products