

Key Concepts in HTA

Chris Kamel
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CADTH

What's the problem we're trying to solve?

- *sustainable*
- *provides most appropriate health care for all*
- *when it's needed, where it's needed,*
- *regardless of ability to pay....*
- *doesn't bankrupt future generations*
- *doesn't come at the expense of education, environment, transportation, justice...or higher taxes?*

What is HTA?

(Health) technology assessment ... is a multidisciplinary field of policy analysis. It studies the medical, social, ethical, and economic implications of development, diffusion, and use of health technology.

•- From INAHTA (*International Network of Agencies for Health Technology Assessment*); www.inahta.org

For Whom?

- Government policy and decision makers (macro)
- Public drug plan managers (macro)
- Regional health authorities (meso)
- Hospitals and other health care facilities (meso)
- Health professionals (micro)
- Patients (micro)



Decision-Maker Needs

- Timeliness
 - Decisions can't wait for perfect evidence
- Relevance – answering the real policy questions
- Messaging – concise, understandable
- Context around decisions – social, legal, ethical, political, patient, public
- Policy analysis to support decision making
- Support to users to interpret and apply the information

The Role of HTA

- Provide basis for informed decisions about:
 - adoption, acquisition, diffusion, appropriate use, disinvestment
 - HTA is not, in and of itself, the decision
- Reliable and timely provision of (synthesized, appraised) evidence:
 - Is it safe?
 - For whom does it work and when?
 - Is it better than what we already have/do?
 - Does it provide value for money?
 - Can we afford it? Can we afford not to?
 - What else needs to be considered?

What is HTA (2)?

- “...systematic evaluation of properties, effects, and/or impacts of health care technology. It addresses the direct, indirect, intended and unintended consequences ... Its main purpose is to inform technology-related policymaking in health care. HTA is conducted by interdisciplinary groups using explicit analytical frameworks drawing from a variety of methods.”

- HTAi (www.htai.org)

What's the HTA Process?

~“to-do” list:

1. Priority Setting/Topic Selection
2. Research Question Formulation
3. Identifying the Relevant Primary Research
4. Collect and Appraise the Clinical Evidence
5. Economic Analyses: comparative cost effectiveness, impact on current budget and health systems (VALUE)
6. Evaluation of ELSI aspects
7. Develop summary of and disseminate findings
 - Involvement of KT and related outlets (recommendations, guidelines, etc)

3 natural ‘pockets’ of knowledge...

Systematic Reviews & Meta-analysis

Economic Evaluation

Additional aspects

Examples of Unintended Effects

Technology	Intended Use	Unintended Use/Consequences
Antibiotics	Kill or inhibit growth of bacteria that cause infectious diseases	Emergence of drug resistant bacterial strains
Antiretroviral therapy	Treatment of HIV/AIDS	Return to risky sexual behaviors in some patient groups
Prostate cancer screening with PSA test	Identify men with prostate cancer early enough to treat	Invasive testing, therapies, and adverse effects for men with slow-growing/low-risk cases that will never cause symptoms
Bariatric surgery	Weight loss in obese patients	Cure or remission of type 2 diabetes in many of the obese patients

HTA supports evidence-informed decisions

Across the lifecycle of a technology



Multiple Factors in Decision Making

- While HTA incorporates evidence on many facets of a decision (e.g., clinical, economic, ethical)
 - “Evidence” is but one input into a decision...
 - And even what is defined as “evidence” can differ
- “Evidence-*informed* decision making”
- Desire is to *reduce* uncertainty
 - Not realistic to eliminate it

Challenges to Managing Technologies

- Technological innovation
- Evidence-base
- HTA methodology
- Capacity
- Evidence-informed decision making
- Stakeholder interests
- Inertia....and constant change

General Recommendations

- HTA exists to support informed policy & practice decisions
 - HTA processes must be flexible given that it exists in a world of flux
- Flexibility must be balanced with systematic approach
- Transparency
 - Much room for improvement
 - Tradeoffs....increased interaction & dialogue increases costs, and length of time taken

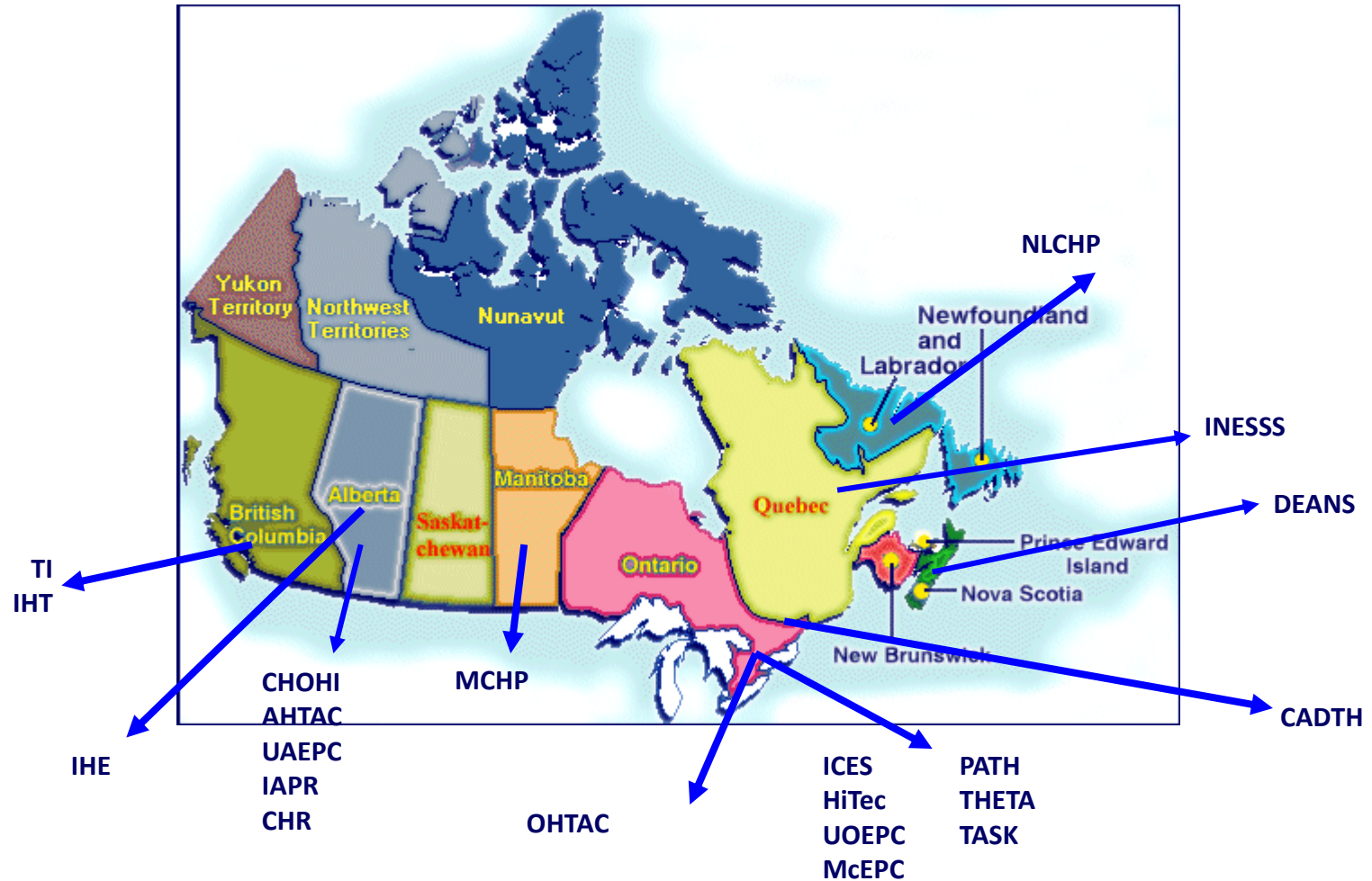
CADTH

Evidence
Driven.

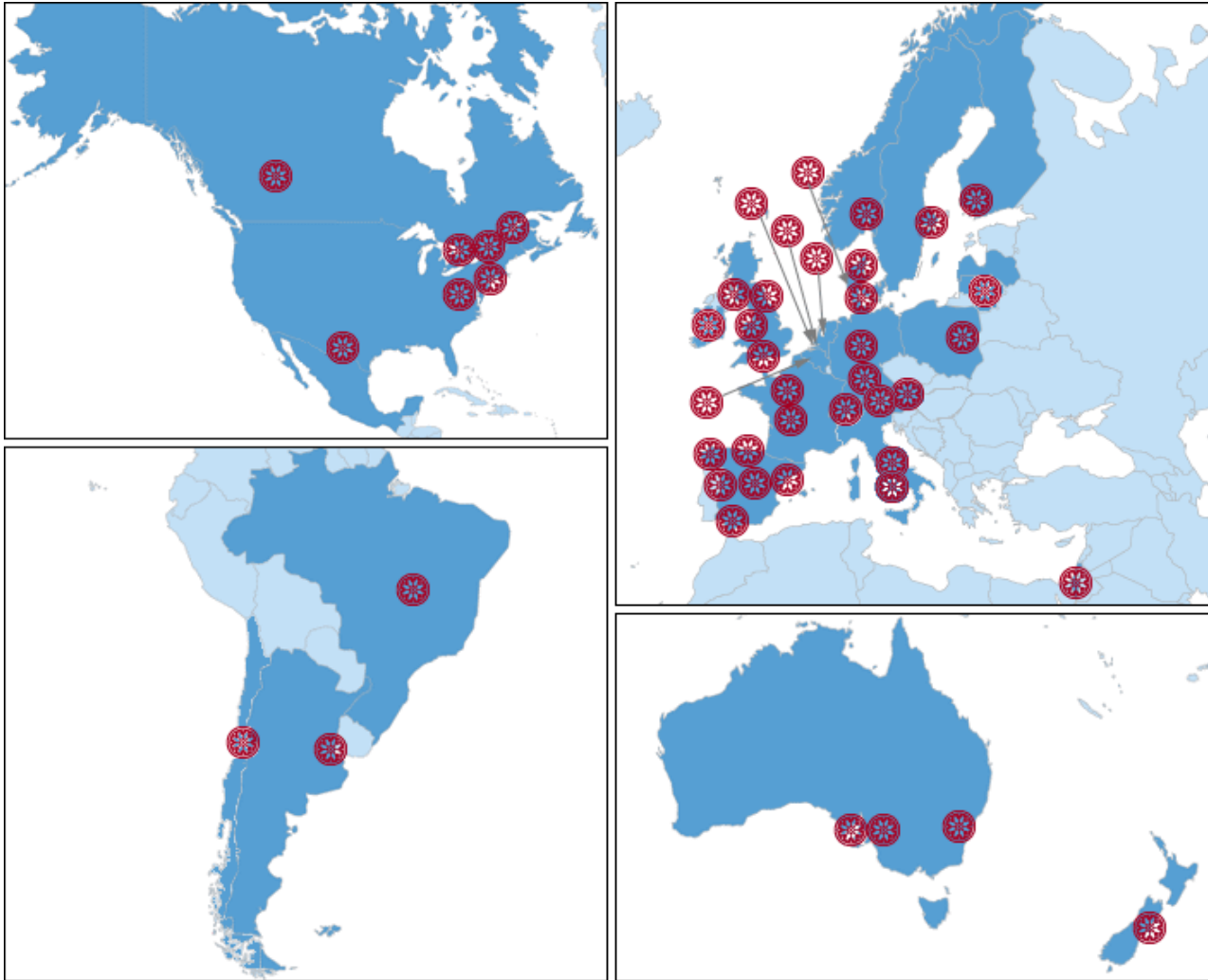
ACMETS

Preuves
à l'appui.

The HTA Landscape: Canada



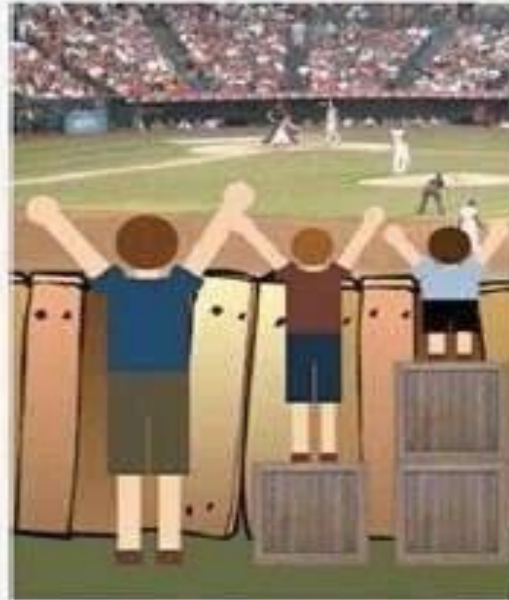
The HTA Landscape: International



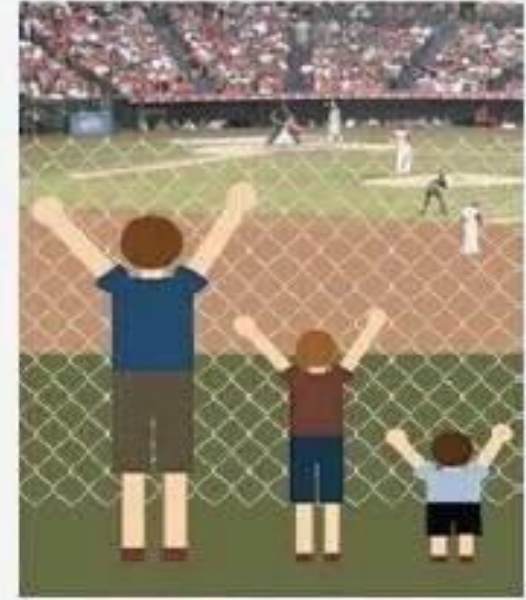
EQUALITY VERSUS EQUITY



In the first image, it is assumed that everyone will benefit from the same supports. They are being treated equally.



In the second image, individuals are given different supports to make it possible for them to have equal access to the game. They are being treated equitably.



In the third image, all three can see the game without any supports or accommodations because the cause of the inequity was addressed. The systemic barrier has been removed.

Pocket 1: CLINICAL

Systematic Review and Meta-Analysis

- Is it safe? Does it work? For whom? When?
- The basics of epidemiologic literature
 - Hierarchy of evidence
 - Efficacy vs effectiveness
 - Internal/external validity considerations
 - **Critical appraisal**
- Choosing and framing of a systematic review question
- How to systematically search the literature
- How to systematically select relevant research studies for inclusion
- Data collection
- Assessment of quality/validity/risk of bias
- Data analysis
 - Systematic review vs meta-analysis
- How to present your findings

Pocket 2: VALUE

Economic Evaluation

- Fundamentals concepts:
 - Why consider economics? Is this about containing costs or is it about getting value for money?
 - Opportunity cost
 - Different types of evaluations: cost minimization, cost effectiveness, cost utility, etc.
 - What's an ICER? An ICUR? A QALY?
 - Understanding how economic evaluations are informed by outputs from systematic reviews
 - Understanding the differences and uses of different types of economic models (trees, Markov models, etc.)
 - Case studies from CADTH demonstrating clinical and economic components of HTA

Getting the Right Question Right

- What decision is the HTA to inform?
 - Policy - Reimbursement? Disinvestment?
 - Practice – adoption vs appropriate use
 - What is/are the issue(s)?
 - Clinical? Economic? Financial? ELSIs?
Implementation?
 - Policy/practice decision drives the research question(s)
 - Not the reverse!
 - Question needs to be answerable
 - An absence of evidence is still an answer
- <http://www.bmj.com/content/bmj/311/7003/485.full.pdf>

PICO, PECO, PICOS, PICOTS

- P: person/patient/participant
- I/E: intervention/exposure
- C: comparator(s)
- O: outcome(s)
- T: time/timeframe
- S: setting
- S: study design

Why do we need to set priorities?

- Can't buy everything – finite resources (\$\$)
- Can't possibly subject all HTs to HTA
 - Drugs: more than 22,000 on market; ~400 new ones/yr
 - Devices: ~70,000 devices on market; 2000-4000 new applications/year
 - Capacity to undertake HTA insufficient
- Rapid change
 - 50% of diagnostic and treatment methods used today did not exist 10 years ago

Elements of Topic Identification & Prioritization

1. ID problems of relevance
2. ID possible types of assessment to help address these decision problems
3. Judge potential relative benefits
4. Communicate priorities to those responsible for undertaking assessments
5. Monitor & review assessments & priorities

~Henshall et al (1997) Int J Technol Assess Health Care; 13: 144-185