

Health Technology Assessment (HTA) 101

Tammy J Clifford PhD

VP, Strategic Initiatives & Chief Scientist



If a man is offered a fact which goes against his instincts, he will scrutinize it closely, and unless the evidence is overwhelming, he will refuse to believe it. If, on the other hand, he is offered something which affords a reason for acting in accordance to his instincts, he will accept it even on the slightest evidence. The origin of myths is explained in this way.

*-Bertrand Russell,
mathematician, & philosopher
(1872 - 1970)*



Canadians value our health care system

The Canadian Press | November 25, 2012

OTTAWA -- Canadians, it seems, love their universal health care.

A new national poll...examined the pride Canadians place in a list of more than a dozen symbols, achievements and attributes.

The online survey ... found universal health care was almost universally loved, with 94 per cent calling it an important source of collective pride -- including 74 per cent who called it “very important.”

<http://www.ctvnews.ca/canada/poll-canadians-are-most-proud-of-universal-medicare-1.1052929>





**Institute for
Research on
Public Policy**
**Institut de
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en politiques
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For immediate distribution – November 4, 2009

NEWS RELEASE

90 % of Canadians support public health care

New poll for Policy Options examines our attitudes to universal health care

Montreal – Nine Canadians in ten remain supportive of universal health care, and seven Canadians in ten think Barack Obama is on the right track in pursuing health reform in the United States, according to a new Nanos Research poll conducted exclusively for *Policy Options*.

“These numbers are way beyond any margin of error,” notes pollster and *Policy Options* Contributing Writer Nik Nanos. “There are very few, if any, pillars of Canadian public policy of which Canadians approve as strongly as the principle of universal health care, which has been with us since it was first adopted by the Pearson government in the 1960s.”

Fully 89.9 percent of Canadians support universal health care, and within those two response groups, the vast majority, 79.9 percent or four Canadians in five, give their

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But gaps affect one-third of Canadians, poll shows

Ottawa, Aug. 7, 2012 – More than one-third of Canadians have gone or have had a family member go without needed health care because of insufficient insurance coverage, a new poll indicates.

The gapis highest among those in Atlantic Canada, lower-income earners, women, and those who are self-employed, work part time or are unemployed.

“Our medicare system that covers only physician and hospital care was designed when these were the most important forms of treating patients,” said Dr. John Haggie, president of the CMA. “Public health coverage has not kept up with medical advancements that see more and more Canadians being treated through advanced surgical treatments and new pharmaceuticals.”

<http://www.cfhi-fcass.ca/NewsAndEvents/NewsReleases/NewsItem/12-08-09/79805a0a-305d-4efa-94a0-3283b4d90572.aspx>



Canada health spending to reach \$211B in 2013

October 29, 2013—Canada will spend roughly \$6,000 per person on health care this year.

11.2% GDP

Total health spending growth has slowed each year since 2011. It is expected to rise by 2.6% in 2013—less than half the average growth of 7% per year between 2000 and 2010.

http://www.cihi.ca/CIHI-ext-portal/internet/en/Document/spending+and+health+workforce/spending/RELEASE_29OCT13



What is the money being spent on?

Drugs

~16% of total spending on health

~\$35 billion (up 2.4% from 2012)



Physicians

~15% of total spending

~\$31.4 billion



Hospitals

~30% of total dollars spent on health

~\$62 billion (up 2.6% from last year)



Why is health spending increasing?

Compensation for health care professionals

More, newer, costly health care services

Overall population is aging

The public/private split

The public sector pays for about 70% (\$148 billion) of health care in Canada.

The remaining 30% (\$63 billion) comes from private sources such as health insurance and individuals' out-of-pocket expenses.

This split has been fairly consistent since 1997

What do we want from our health care system?

sustainable

provides most appropriate health care

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's the problem?



What can help us solve this problem?

Health Technology Assessment (HTA)

What is HTA? (I)

(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.net



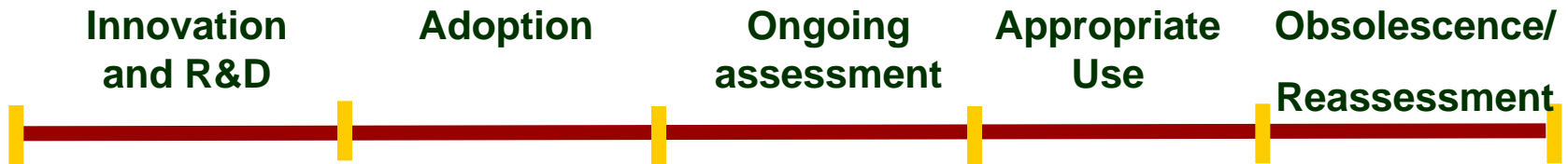
What is HTA? (II)

“...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.”

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The Role of HTA

**Supporting evidence-informed
decisions across the lifecycle of a
technology**



The Role of HTA

- 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's the **trade-off?**
 - **What else** needs to be considered?

For whom?

- Government policy and decision makers
- Public drug plan managers
- Regional health authorities
- **Hospitals and other health care facilities**
- Health professionals
- Patients



Challenges to Using Evidence

- **Different decisions to be made**
 - To start doing something? To stop doing something? To change something we're already doing? To evaluate how it's going?
 - What is the desired outcome?
 - Clear *a priori* objective(s)
 - From whose perspective(s)?
 - Implications – for policy, for practice
 - Time horizon
 - Evaluation mechanism
 - All are legitimate – but who decides?

Challenges to Using Evidence

- Different decisions to be made
- Different definitions of evidence

What is Evidence?

“Evidence, broadly construed, is anything presented in support of an assertion. This support may be strong or weak. The strongest type of evidence is that which provides direct proof of the truth of an assertion. At the other extreme is evidence that is merely consistent with an assertion but does not rule out other, contradictory assertions, as in circumstantial evidence.”

~Wikipedia

Challenges to Using Evidence

- Different decisions to be made
- Different definitions of evidence
- Different sources of evidence

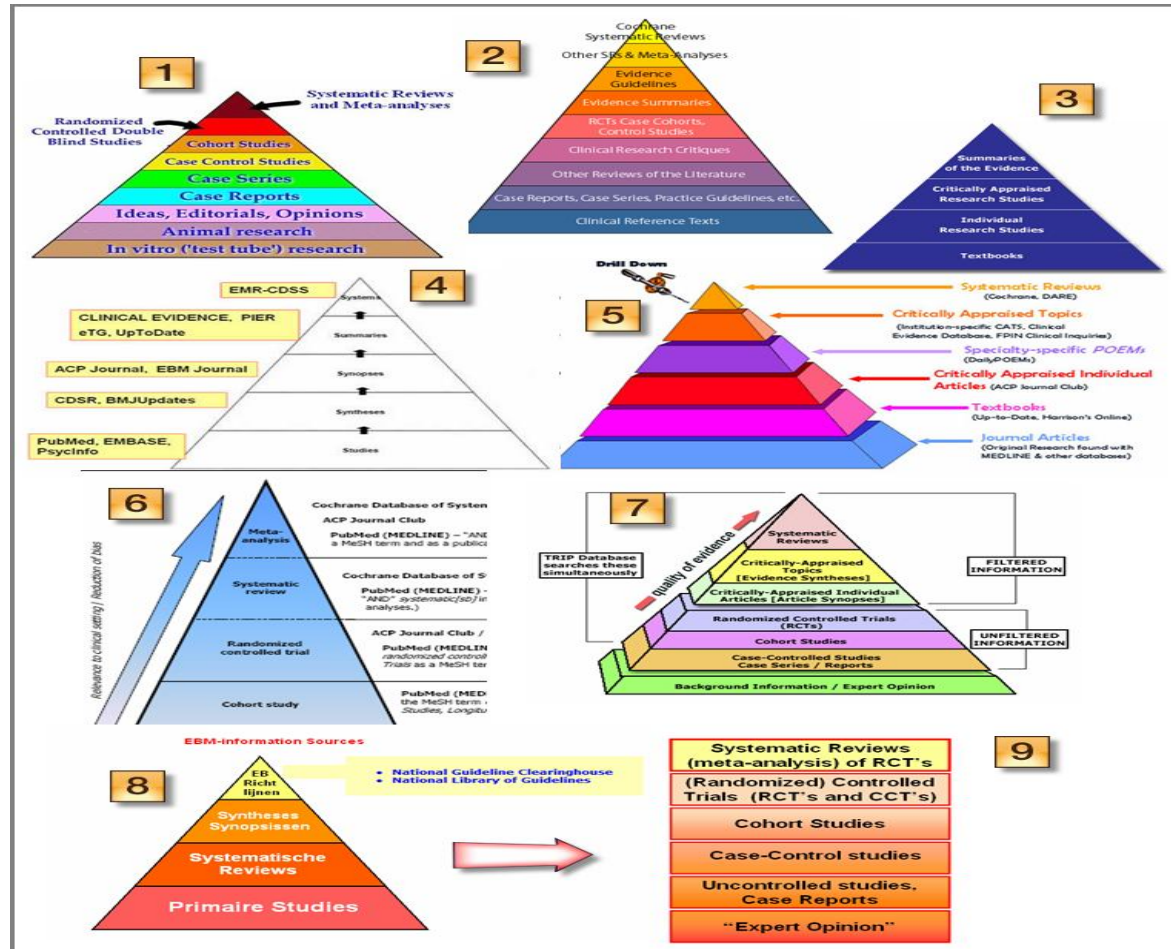
Lots of sources of evidence



Challenges to Using Evidence

- Different decisions to be made
- Different definitions of evidence
- Different sources of evidence
- Different “levels” – or weightings – of evidence

Different “levels” of evidence



Challenges to Using Evidence

- Different decisions to be made
- Different definitions of evidence
- Different sources of evidence
- Different “levels” – or weightings – of evidence
- Differential availability (e.g., grey literature) of evidence

All Trials Registered | All Results Reported

It's time all clinical trial results are reported.

Patients, researchers, pharmacists, doctors and regulators everywhere will benefit from publication of clinical trial results. Wherever you are in the world please sign the petition:

Thousands of clinical trials have not reported their results; some have not even been registered.

Information on what was done and what was found in these trials could be lost forever to doctors and researchers, leading to bad treatment decisions, missed opportunities for good medicine, and trials being repeated.

All trials past and present should be registered, and the full methods and the results reported.

www.alltrials.net



Challenges to Using Evidence

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- Different conclusions – who to believe? when?

Who to believe? What is the truth?

A Decade of Reversal: An Analysis of 146 Contradicted Medical Practices

Mayo Clinic Proceedings; Vol 88, Issue 8, August 2013, Pages 790–798

Objective: To identify medical practices that offer no net benefits.

Results:Of the 363 articles testing standard of care, 146 (40.2%) reversed that practice, whereas 138 (38.0%) reaffirmed it.

Conclusion: The **reversal of established medical practice is common** and occurs across all classes of medical practice. This investigation sheds light on low-value practices and patterns of medical research

<http://www.sciencedirect.com/science/article/pii/S0025619613004059>



What is HTA? (I)

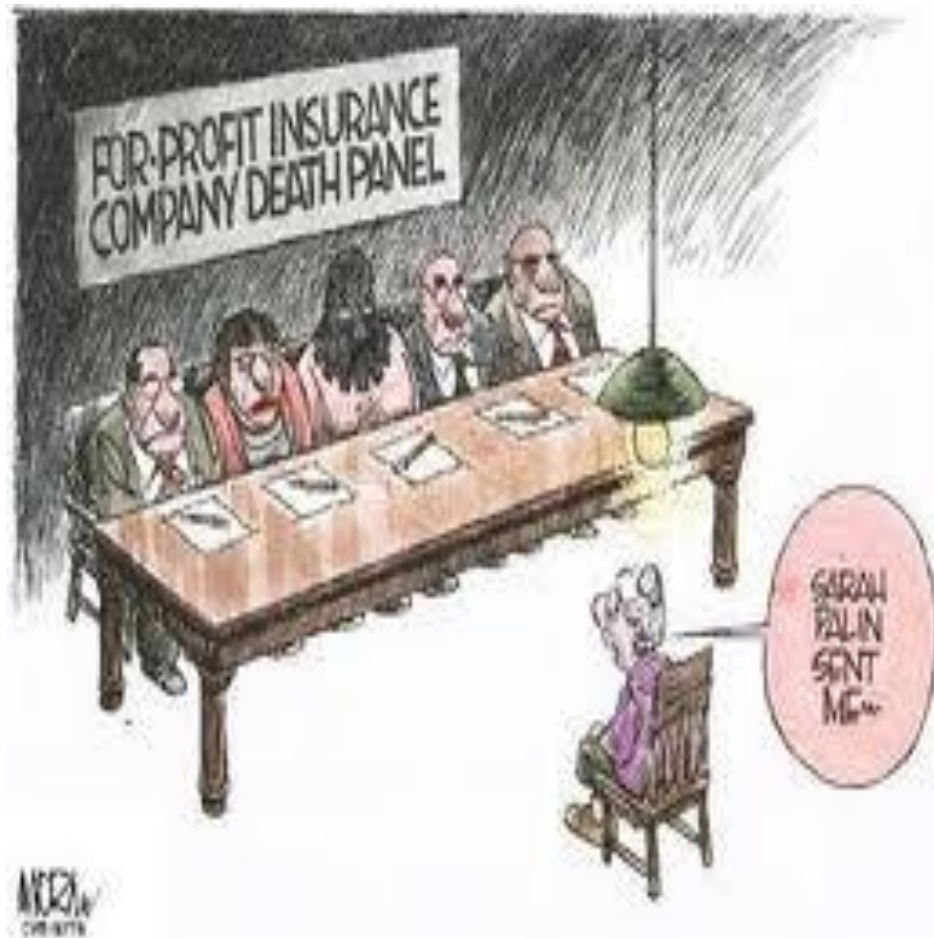
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Challenges to Using Evidence

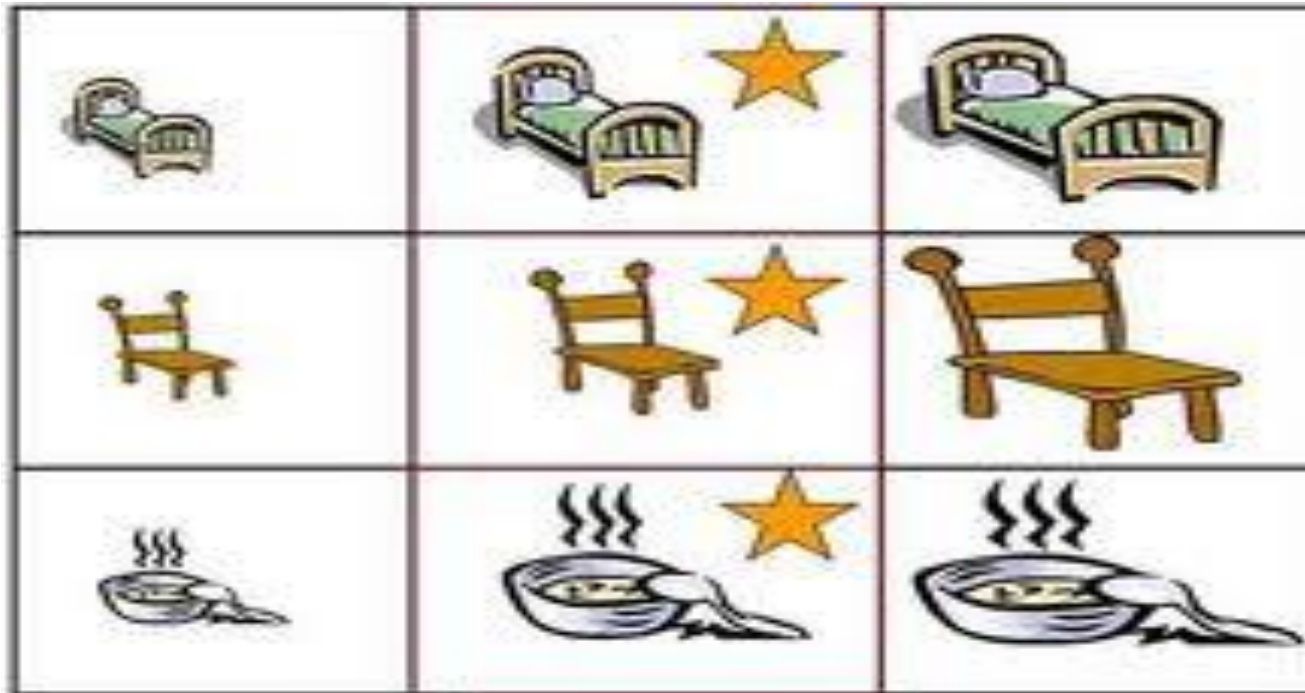
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- Different “levels” – or weightings – of evidence
- Differential availability (e.g., grey literature)
- Different conclusions – who to believe? when?
- Different kinds of evidence – clinical, ethical, social, *economic*



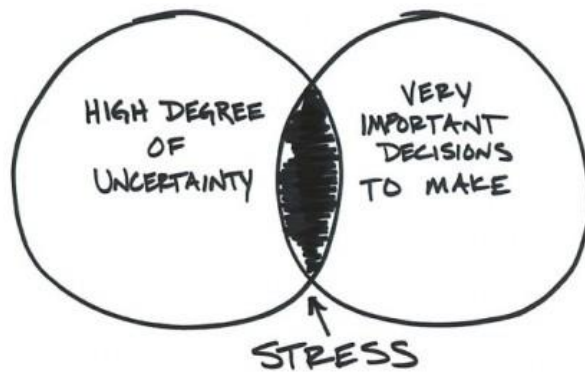
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- Different conclusions – what to believe?
- Different “comfort levels” with uncertainty

Goldilocks Principle



Level of comfort with Uncertainty



BEHAVIORGAP.COM



(Dis)comfort with uncertainty vs. Realities of Real World Decision making

Value of Information (VOI) Analysis

...is the amount a decision maker would be willing to pay for (more) information prior to making a decision.

Before concluding “More research is needed...”

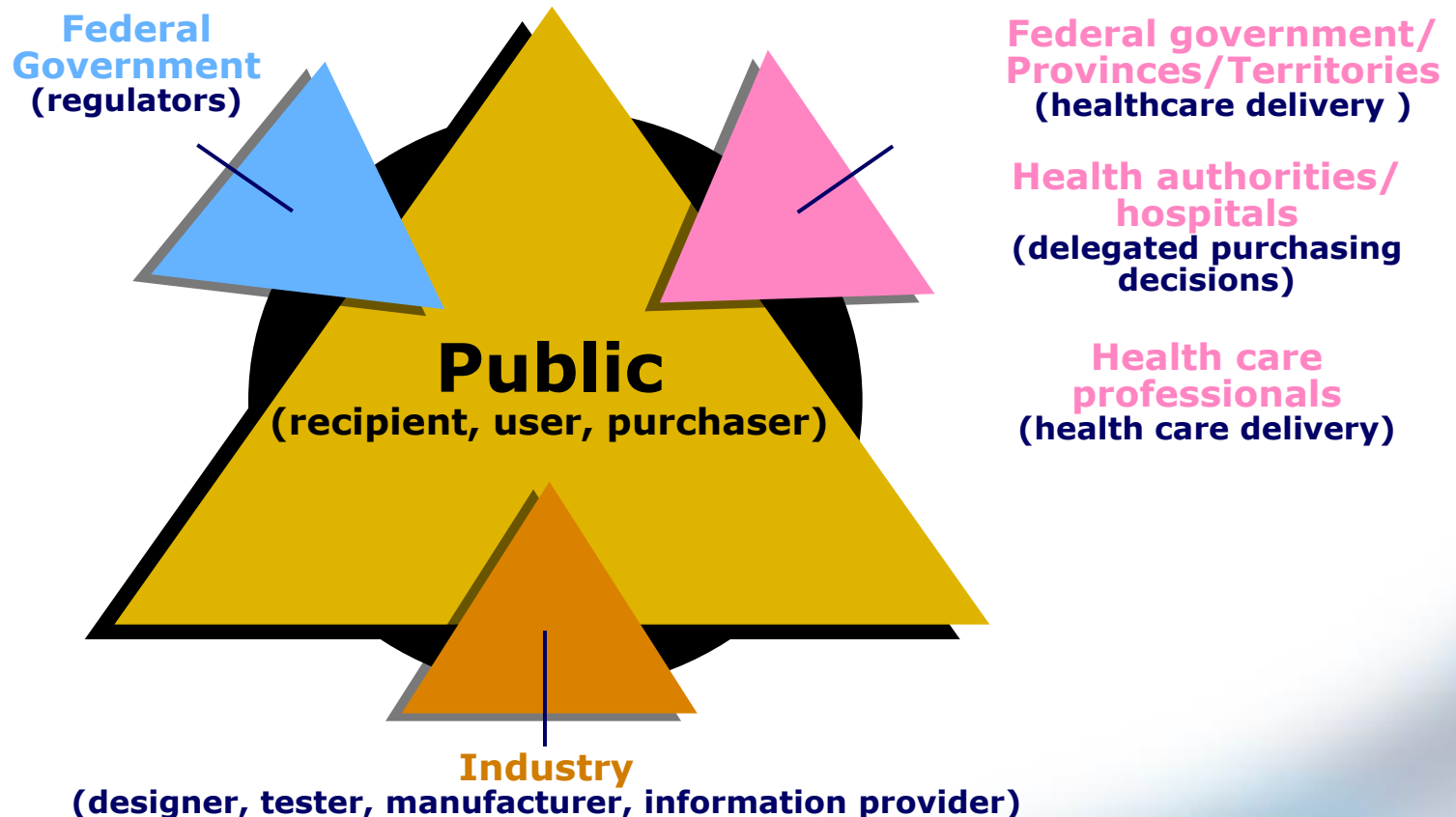
...would an investment to get more (better?) evidence translate to a “better” (or more certain) decision?



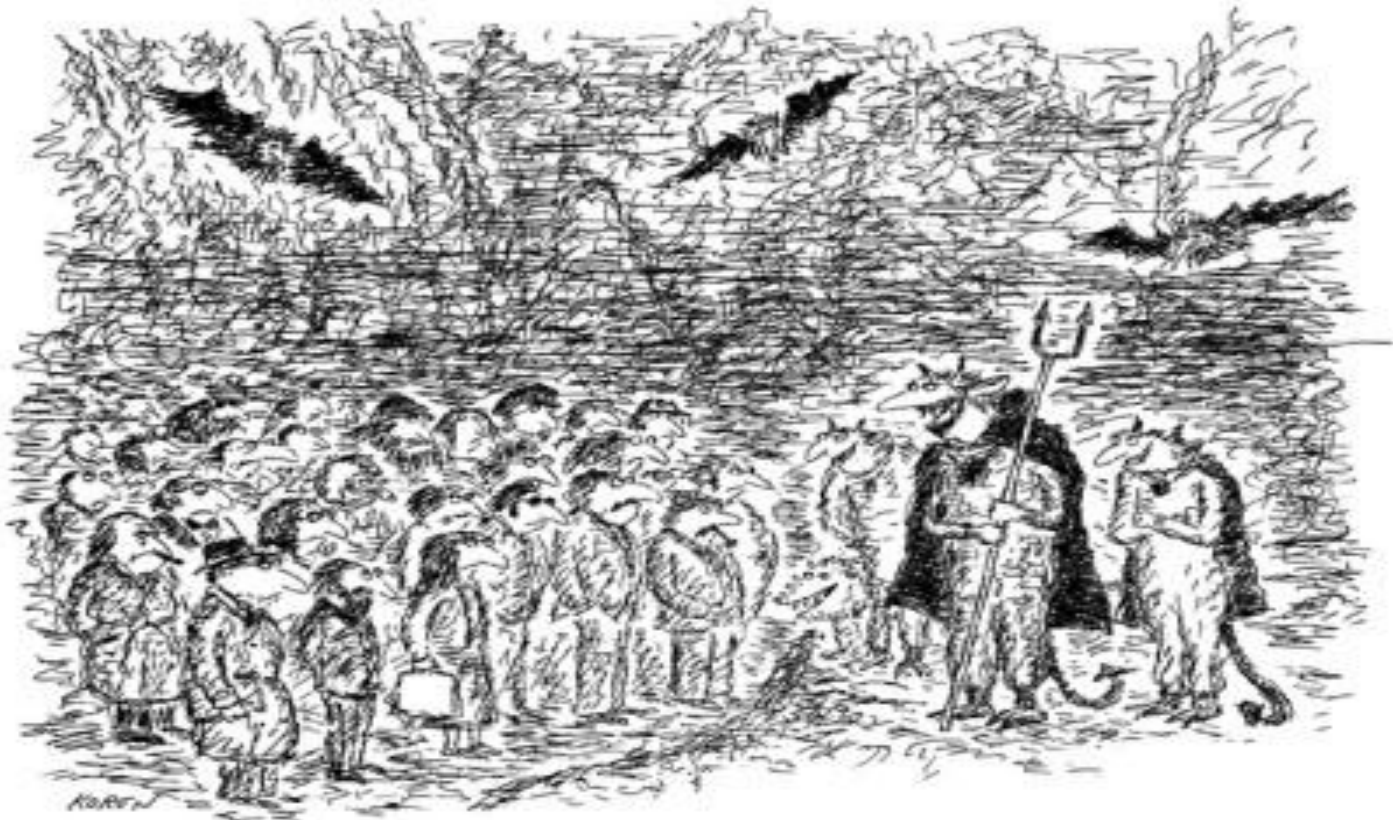
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- Differential availability (e.g., grey literature)
- Different conclusions – what to believe?
- Different “comfort levels” with uncertainty
- *And evidence, while necessary, is not sufficient!*

Principal Stakeholders in Canadian Health Care



Values & preferences



"You'll find there's no right or wrong here. Just what works for you."

Decision Making aka Evidence in Context



The story so far....

- **Our health care system is important to Canadians**
 - Demand/Need > \$\$
 - Gaps/inequities
 - Opportunity costs → choices
- **People want things that work (and that offer value?)**
 - “Evidence” should inform decisions
- **Evidence is necessary but not sufficient.**
 - Evidence comes in all shapes & sizes.
 - Sometimes it is there when you need it, sometimes it isn't.
- **Values & preferences of affected population must be considered**
 - *Evidence in context.*
- **Affected population is larger than you might think**
 - Opportunity cost



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HTA – one size does not fit all

- Agency/organization
 - *Mandate/remit*
 - *Governance*
 - *Linkages to other groups/programs*
- “Report”
 - *Evidence in context*
- Processes
 - *Decision making framework(s)*

HTA – one size can not fit all

“To be useful to decision makers, HTA must be tailored to the decision nodes of the health-care system and the needs and interests of decision makers at each of these nodes.”

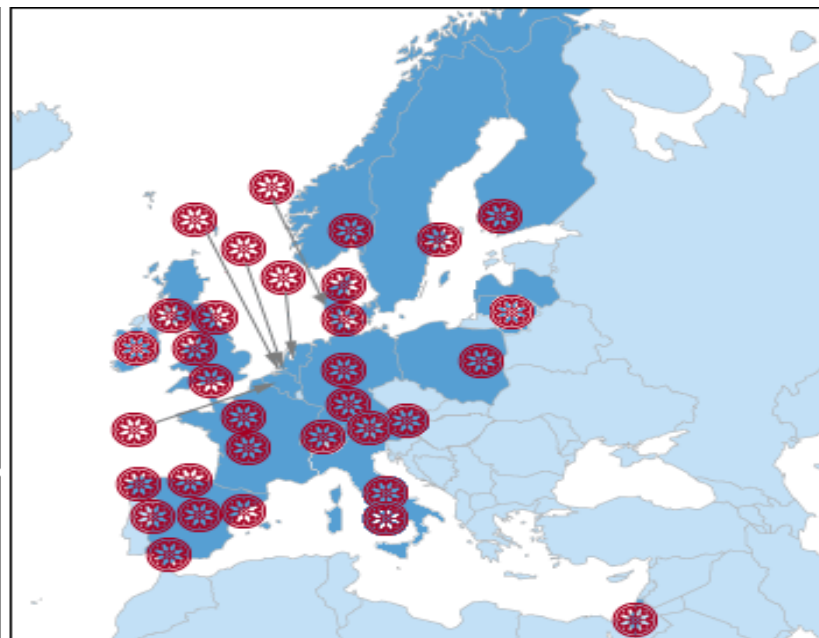
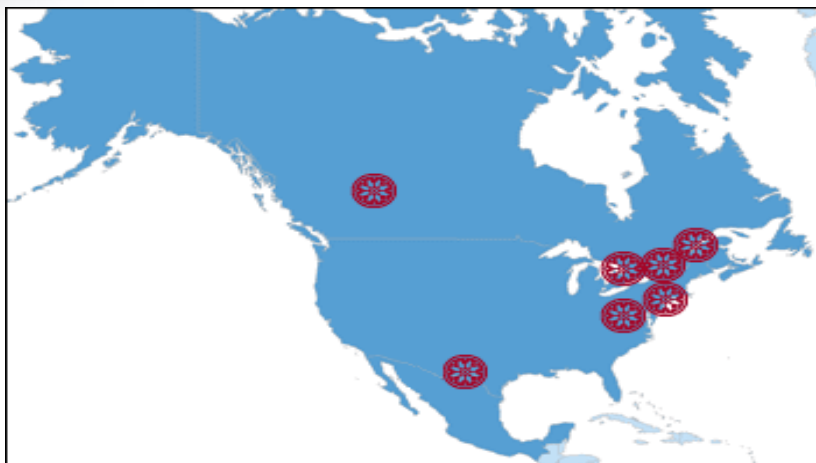
*The OECD Health Project.
Health technology and Decision Making. Paris, France: OECD. 2005.*



The HTA Landscape: Canada



The HTA Landscape: International



But...

...there are commonalities...in methods & in evidence-base.

So we need not (always) start from scratch.

And there is much to be learned/shared.

What goes into an HTA?

3 natural 'pockets' of knowledge...

1. Priority Setting/Topic Selection
2. Research Question Formulation
3. Identifying the Relevant Primary Research
4. Collect and Appraise the Clinical Evidence

Systematic
Reviews &
Meta-analysis

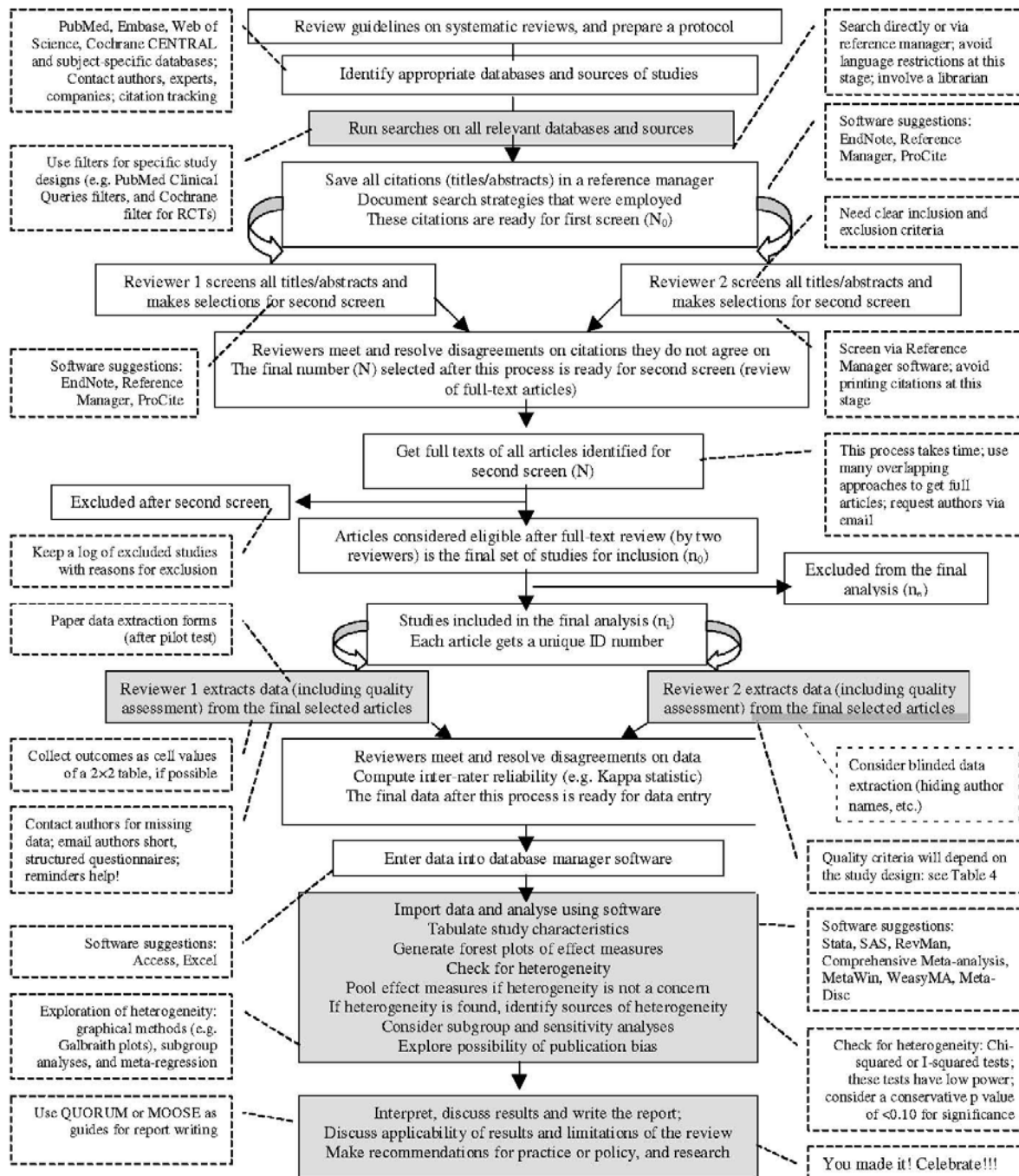
5. Economic Analyses: SR of existing EE; comparative cost effectiveness; impact on current budget and health systems (VALUE)

Economic
Evaluation

6. Evaluation of ELSI aspects
7. Summarize/disseminate findings (a la KT)
8. Recommendation/decision

Additional
aspects

Define a focused 4-part review question (Patient, Intervention, Comparison and Outcome)



Clinical - SR/MA

(Pai et al, 2004)





Rapid Responses/Reviews

- “Rapid review,” “mini-HTA”
 - Tailored to individual needs
 - Question(s) & timeline
 - More focused than traditional HTA
 - Methods “less rigorous”



Example: CADTH's Rapid Response Program

Tailored Approaches

	HTA/OU (6+mos)	RR L1 (1-3 d)	RR L2 (~6 wk)	RR L3 (~16wk)	RR L4 (~20 wk)
Protocol	X			X	X
Lit Search	X	X	X	X	X
Broad Screen	2+	1	1	2+	2+
Relevance Assessment	2+	1	1	2+	2+
Data Extraction & QA	2+	N/A	1	1	2+
Meta-Analysis	Y	N	N	N*	Y
Review	Int & Ext	Int	Int	Int & Ext	Int & Ext

Economics

- **Fundamentals concepts:**

- Why consider economics?
 - Value for money
- Opportunity cost
 - Finite budget means choices & trade-offs
- Different types of evaluations
 - Informed by outputs from clinical SR/MA
 - ICER? ICUR? QALY?
- Budget impact
 - Can we afford this?



Additional Considerations

- **ELSI - Ethical/Legal/Social implications**
 - + Environmental/Training/Organization of Care Issues
- **Who's involved & how?**
 - In deciding what technologies are subjected to HTA (& when)
 - In determining the scope of the review
 - In conducting the review
 - In determining how recommendations/decisions are made
 - In making the recommendation/decision
 - In implementing the decision

Tend to be quite Context specific

Common Challenges (I)

- Technological innovation
- Fiscal realities
- Evidence-base
 - Quantity & quality
 - Residual uncertainty
- HTA methodology
 - **Faster (& cheaper)**
 - New approaches
 - Rapid reviews
 - Qualitative research



Common Challenges (II)

- Capacity
 - Need > Demand > Supply
- Evidence-informed, contextualized decisions
 - *“Globalize the evidence, localize the decision.”*
- Stakeholder interests
 - Inclusivity, balance, transparency, timeliness
- Inertia...and constant change
- Measuring impact/ROI



COUNTERTHINK

RAISE YOUR HAND
IF YOU HAVE
ANY FINANCIAL
CONFLICTS OF
INTEREST IN THIS
DECISION...

FDA
DRUG-DECISION
PANEL



CADTH

The Forecast: Building on our EBM roots

- View challenges as opportunities
 - ↑ demand for evidence-informed decision-making
 - ↑ demand for high quality, timely HTA
 - Clinical, economic, financial, ethical, social
 - ↑ attention to qualitative factors
 - ↑ transparency, inclusivity & engagement
 - *“Nothing about us, without us.”*
 - ↑ co-operation & collaboration

Opportunities & Resources

HTAi: htai.org

- *Hospital-based HTA ISG*

INAHTA: inahta.net

CADTH: cadth.ca

- CADTH Annual Symposium
 - April 6-8 2014 National Capital
- “The Exchange”
 - Network of HTA producers
 - Includes hospital-based groups (e.g. HiTEC at LHSC, MUHC TAU)

SMDM & ISPOR

EQUATOR

PROSPERO

Cochrane & Campbell



A Future for Health Technology Assessment

- Relevance/Quality/Impact
- Evidence is:
 - Necessary.
 - defined broadly.
 - trustworthy.
 - being shared in a timely manner.
- Expertise/experiences are shared & leveraged.
- Processes are:
 - aligned with best practice.
 - Transparent, inclusive and efficient.
 - Viewed by all as being reasonable and fair.



HTA...

- ...can help support evidence-informed decisions**
- ...at all stages of a health technology's lifecycle**
- ...by bringing together the best available evidence**
- ...relating to the clinical, social, ethical & economic implications of a decision surrounding the use of a technology**
- ... as compared to the alternatives**
- ...in a transparent and reproducible manner.**