Addressing the Pressing Need for Modernizing and Expanding Training and Education in Health Technology Assessment in Canada

Adrian Levy PhD

April 16, 2019

Overview

- “Problématique actuelle”
- Current Situation
- Desired Future State
- Immediate Next Steps

“Problématique actuelle”

- Basic problem
  - ➔ inadequate supply of analysts able to reliably conduct and lead HTA projects
- Evidence
  - ➔Life sciences industry (Big Pharma, device manufacturers, contract research organizations), public and private insurers
    - ➔constantly posting job advertisements for HTA analysts at any level
  - ➔Lots of “churn”, often directional - from public to private sector
    - ➔High salaries commanded by recent graduates
      - ➔ a newly minted MSc in Economics with an interest in HTA earning $100K+ in Canada and upwards of $140K in New Jersey

“Problématique actuelle”

- This issue is growing with increased evaluative needs from
  - Public sector
    - ➔Growing need in HTA agencies, health technology management, ….
    - ➔localization of results for Ministries of Health looking to fund new and expensive drug therapies
    - ➔Hospital-based HTA
  - Pharma
    - ➔Growing HEOR groups; early stage HTA
  - Private insurers
    - ➔Growing issue in Canada; already “big” in United States and other jurisdictions
  - ➔ Middle income countries

Current Situation in Canada/abroad

- "Typical" HTA analyst – MSc in epidemiology, economics, or statistics
- Asked to independently and reliably complete and contextualize individual sections of an HTA dossier – or – guide the development of the entire HTA dossier
  - Such individuals often take a long time to develop into confident and competent analysts
- Why?
  - Typically come with individual skills, e.g., critical appraisal, biostats, study design, others
  - HTA requires competencies that are interdisciplinary and required skills are highly applied
- ➔ Existing solutions:
  - By necessity, analysts becomes better self-directed learners, reading, taking short courses put on by CADTH, ISPOR, ISPE, MDM, York, Glasgow, others.
  - Invite expert speakers
  - Undertake two+ year MSc at U of T or McMaster U

    ➔ each has major limitations

Existing training

- Current efforts at graduate training exist in Canada

POST-MARKET DRUG EVALUATION RESEARCH TRAINING CAPACITY IN CANADA: AN ENVIRONMENTAL SCAN OF CANADIAN EDUCATIONAL INSTITUTIONS

Matthew O Wiens[1,2], Judith A Soon[1,2], Stuart M MacLeod[3], Sunaina Sharma[4], Anik Patel[2]

J Popul Ther Clin Pharmacol Vol 21(3):e370-e378; October 19, 2014

TABLE 1 Canadian institutions with potential to train graduate students in post-market drug evaluation research

Institution	Departments/Schools	Degrees Available	Total Grads/Year (Approx.)	PT Study Available	Thesis vs. Non-Thesis
University of British Columbia	Pharmaceutical Sciences, Population and Public Health, Bioinformatics	MSc, MHSc, MPH, PhD	100	Yes	Both
Simon Fraser University	Health Sciences	MPH, MSc	60	Yes	Both
University of Victoria	Health Information Science	MSc, PhD	10	No	Thesis
University of Northern BC	Community Health Science	MSc	6	No	Thesis
University of Alberta	Public Health, Epidemiology Pharmacy	MSc, MPH, PhD	58	Yes	Both
University of Calgary	Community Health Science	MSc, MCM, PhD	25	No	Both
University of Saskatchewan	Community Health and Epidemiology, Public Health, Pharmacy	MSc, MPH, PhD	32	Yes	Both
University of Manitoba	Community Health Science, Pharmacy	Diploma, MSc, MPH, PhD	30	Yes	Both
University of Toronto	Health Policy Management and Evaluation, Public Health, Health Informatics, Pharmacy	MSc, MHI, MHSc, MScCH	110	Yes	Both
McMaster University	Health Research Methodology	MSc, PhD	50	Yes	Thesis
University of Ottawa	Epidemiology and Community Medicine	MSc, PhD	20	No	Thesis
Queen's University	Community Health and Epidemiology	MPH, MSc, PhD	25	Yes	Both
University of Western Ontario	Epidemiology and Biostatistics	Certificate, MSc, PhD	40	Yes	Both
University of Waterloo	Applied Health Science	MSc, MPH, PhD	60 (Not known MSc, PhD)	Yes	Both
University of Guelph	Population Medicine	MSc, PhD, DVSc	30	Yes	Both
Lakehead University	Public Health	MPH	30	Yes	Both
McGill University	Epidemiology, Biostatistics and Occupational Health	MSc, PhD	45	Yes	Both
Université de Montreal	Community Health, Population Health, Veterinary Medicine, Pharmacy	Diploma, MSc, PhD	200 (incl. 60+ diploma)	Yes	Both
Université de Sherbrooke	Clinical Sciences	MSc, PhD	Not known	Not known	Not Known
Université Laval	Community Health, Pharmacy	MSc, PhD	15	Yes	Thesis
Dalhousie University	Community Health and Epidemiology, Health Informatics	MSc, MHI, PhD	15	Yes	Both
University of Prince Edward Island	Veterinary Medicine	MVSc, MSc, PhD	Not Known	Not known	Both
Memorial University	Epidemiology	Diploma, MSc, PhD	Varies	Yes	Both

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Existing training….however….

- Even learning a specific technique like Markov modeling in an advanced course on economic evaluation does not allow the analyst to step in and reliably undertake a real world incremental cost-effectiveness analysis

- Examples of missing applied skills and knowledge
- Articulating the decision problem
- Context for submission – HTA submissions
- Reconciling experimental and observational study design
- Developing a conceptual model
- Transforming relative risks into long term survival
- Synthesizing and correctly applying evidence to the decision problem at hand
- Micro-costing
- Data management
- Applying correct utility values
- Ethics/Legal/Social issues

Current Situation - Structure

- Existing published curriculum

CAPACITY BUILDING IN AGENCIES FOR EFFICIENT AND EFFECTIVE HEALTH TECHNOLOGY ASSESSMENT

Debjani Mueller
CMeRC
dbmueller7@yahoo.de

Iñaki Gutiérrez-Ibarluzea
OSTEBA

Tara Schuller
IHE

Marco Chiumente
SiFaCT - Italian Society of Clinical Pharmacy and Therapeutics

Jeonghoon Ahn
National Evidence Based Healthcare Collaborating Agency

Andres Pichon-Riviere, Sebastian García-Martí
ICES

David Grainger
Lilly

Elizabeth Cobbs
Merck

Marco Marchetti
HTA Unit, University Hospital "A. Gemelli"

International Journal of Technology Assessment in Health Care, 32:4 (2016), 292–299.

CAPACITY BUILDING IN AGENCIES FOR EFFICIENT AND EFFECTIVE HEALTH TECHNOLOGY ASSESSMENT

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Table 1. "Soft" and "Hard'" Skills Identified by Users and Producers

Hard/scientific skills	Skills for communication with patients and public/communication between involved organizational structures
Literature search	Team building
Critical appraisal of literature	Working in (and communicating to) a multidisciplinary team
Evidence-based medicine	Coordinating and managing an HTA "project" and "project" team including stakeholders
Health technology assessment	Way to communicate to patient and public
Health economics	Communication between different organizational structures that are involved
Economic analysis	Understanding culture, local context
Epidemiology	Report writing – catering for different audiences
Clinical effectiveness	How to "read" a report
Healthcare policy	Consensus building skills
Statistics	Know how to adapt reports to local context
Ethics	
Priority setting in HTA	
CPGs evaluation AGREE instrument	
Horizon scanning	

HTA, health technology assessment; CPG, Clinical Practice Guideline; AGREE, Appraisal of Guidelines for Research and Evaluation.

Largely driven by content

CAPACITY BUILDING IN AGENCIES FOR EFFICIENT AND EFFECTIVE HEALTH TECHNOLOGY ASSESSMENT

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CONCLUSION

In attempting to cover the broad range of skills pertinent to composing and using an HTA report, the workshop raised further questions, but also provided certain answers. As discussed, the group recognized that the possession of certain competencies or acquiring the same gradually can help a person working with HTA. However, it would be useful for both those seeking work in this area or those hiring professionals to have a checklist of essential and optional skills. If such a checklist of skills were created, it would require the necessary educational and legal framework to define those skills and capabilities. Also, is it

Existing Offerings for HTA Training

- Disjointed for HTA needs
- Incomplete
- Undifferentiated for levels and sectors
- Focus is often more theoretical than applied

Analogous to Public Health Curricula

Pan-Canadian Public Health Network
Partners in Public Health

Guidelines for MPH Programs in Canada

The Public Health Human Resources Task Group

4/15/2019 Introduction: Guidelines for MPH Programs in Canada - Canada.ca

Government of Canada Gouvernement du Canada

Home > Public Health Agency of Canada > Public Health Practice > Guidelines for MPH Programs in Canada

Guidelines for MPH Programs in Canada

- Currently 19 Master's of Public Health in Canada
  - face-to-face, online, and blended curricula
  - focus on many "soft" skills

Curricular considerations for pharmaceutical comparative effectiveness research

Michael D. Murray*

Purdue University College of Pharmacy and Regenstrief Institute, Indianapolis, USA

PHARMACOEPIDEMIOLOGY AND DRUG SAFETY 2011; **20**: 797–804

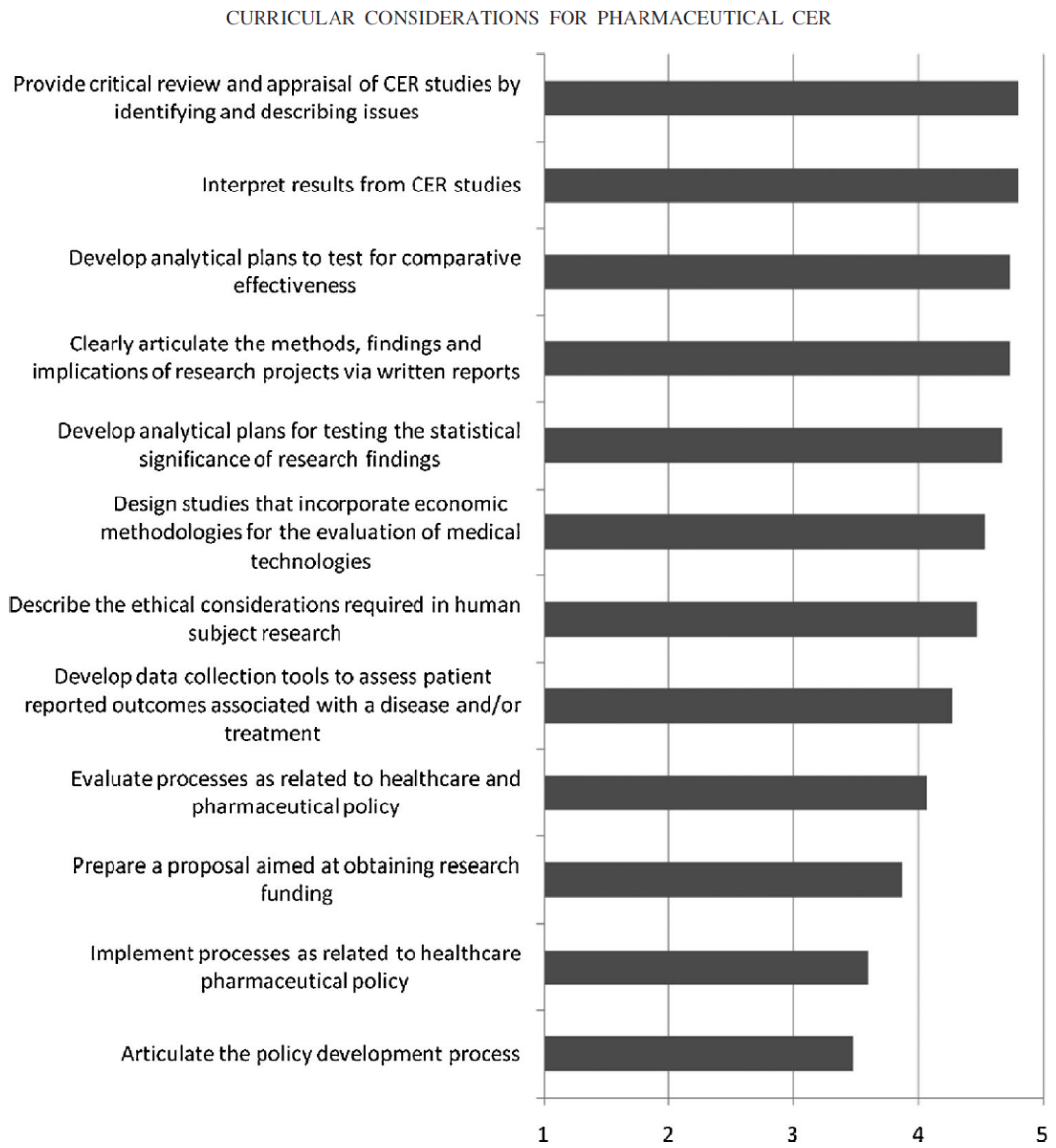

Figure 2. Skill rankings from the pre-panel meeting survey (1 = least important; 5 = most important)

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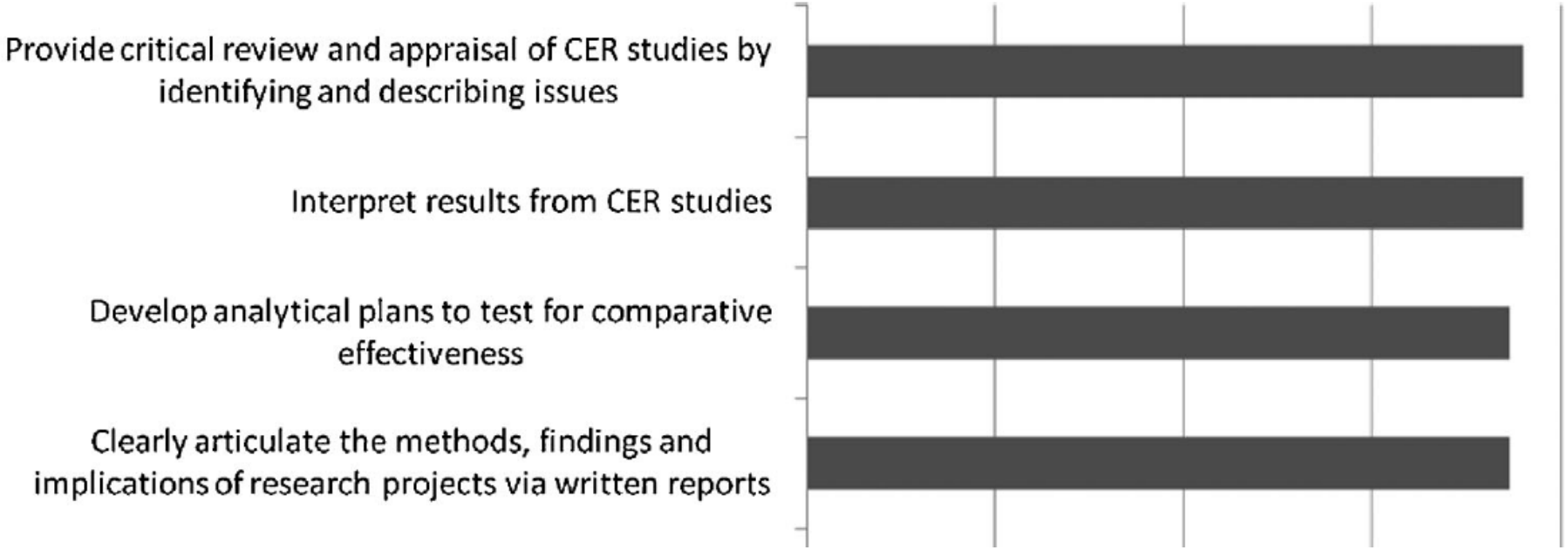
CURRICULAR CONSIDERATIONS FOR PHARMACEUTICAL CER



Desired Future State

- What is needed?

  ➔an integrated and applied curriculum focused on HTA analysts

  - Addressing needs of different levels of learners
    - “Executive” overview ➔ Broad
    - Junior analysts with specialization (based on background expertise) ➔ Deep
    - Senior analysts/project leaders/researchers ➔ Broad and deep

Desired Future State

- Curriculum

➔ grounded in modern pedagogy

- best practices in instructional design, active learning strategies, learning plan tailored to individual learners

➔ based on core competencies and work products, i.e., “Begin with the end in mind”

➔ HTA dossier

➔US AMCP dossier; Global value dossier in Pharma; EUnetHTA “Core Model”

➔ requires both contextual knowledge and “hard” analytic skills

Desired Future State

- Medium?
  - ➔ offered in a way that many more people can access the curriculum
- Potential solution
  - ➔on-line platform
    - ➔ adaptive learning techniques tailored to individual
    - ➔ synchronous and asynchronous modes
    - ➔ on-line instructional design
      - ➔ core competencies ➔ learning objectives ➔ assessments ➔ contentl
      - ➔ on-line instructional design
    - ➔applied focus

Immediate Next Steps

- Develop core competencies
- Develop learning objectives

Core Competencies

➔ Tiered

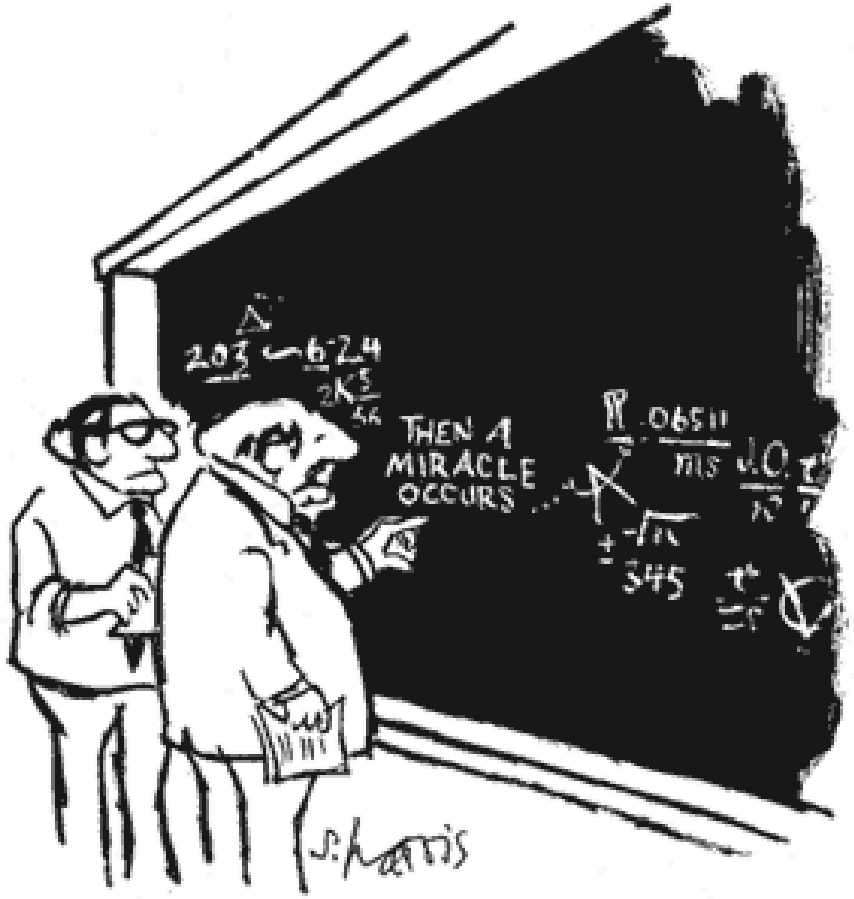
- Executive overview
- Junior analyst
- Senior analyst

➔ Targeted

- HTA agency e.g. CADTH
- Life sciences industry – manufacturers, contract research organization
- Public insurer, decision maker

Thank you very much for your interest

adrian.levy@dal.ca



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

Learning objectives

- Context
- Epidemiology
- Biostatistics
- Evidence synthesis
- Costing
- Economics
- Ethics/Legal/Social issues

➔ Levels

- Executive view – Describe
- Junior analyst – Apply
- Senior analyst – Synthesize