

## The Basics of Evidence-Based Decision Making

For decision makers, practitioners, and researchers

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## Knowledge Broker Study

- RCT
  - To evaluate effectiveness of a knowledge translation (KT) strategy including knowledge brokers (KBs)
  - To promote evidence-based public health decision making
- CIHR funding
- Canadian health regions (n=108)
- 3 intervention groups with ↑ active KT strategies:
  - an online registry of systematic reviews at [health-evidence.ca](http://health-evidence.ca)
  - [health-evidence.ca](http://health-evidence.ca) & targeted messages (7 systematic reviews)
  - [health-evidence.ca](http://health-evidence.ca), targeted messages, & a KB
    - 30 Canadian public health decision makers (DMs)

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## Objectives

- To gain an increased understanding of EBDM and the steps involved
- To provide direction to decision makers, practitioners, and researcher regarding the promotion of EBDM
- To provide resources to support decision makers, practitioners, and researchers in the promotion of EBDM

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## Evidence-based public health

- “the **development, implementation, and evaluation of effective** programs and policies in public health through application of principles of **scientific** reasoning including **systematic** uses of data and information systems and appropriate use of **program planning** models”

Brownson RC, Gurney JG, Land G. Evidence-based decision making in public health. *Journal of Public Health Management and Practice* 1999;5:86-97.

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## EBDM in public health

- The conscientious, explicit, & judicious use of **the best available research evidence** in making decisions about public health program & policy development

DiCenso, Guyatt, & Ciliska, 2005

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## Why evidence-based?

- ↑ **likelihood that programs/policies will be effective**
- **Effective use of limited resources**
- Steps align with public/community health improvement process and core functions of public health system (assessment, policy development, and assurance)
- Evidence provides a scientific grounding
- Professional responsibility/accountability
- Public Health Standards/Competencies
- Funders look for it

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## What is evidence?

### effectiveness evidence

- **Systematic review & Meta-analysis**
  - Time saving
    - Retrieve & appraise all available literature
    - Determine overall effectiveness of intervention on a specific population, for specific outcomes (meta-analyses calculate an overall effect size)
    - Reduce unmanageable amounts of information into a digestible quantity
  - Objective
    - Rigorous approaches
    - Emphasize quality
    - Improves reliability & accuracy of conclusions
- Other research
  - Levels of evidence

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## Levels of Evidence

### in descending order of scientific rigour

- **Systematic Reviews or Meta-Analysis**
- Randomized Controlled Trials
- Clinical Trial, Controlled Clinical Trials
- Cohort Studies, Longitudinal Studies
- Retrospective Studies
- Best Practice Guidelines; Clinical Practice Guidelines
- Case Studies, Case Reports
- Expert Opinion

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## ...and what isn't effectiveness evidence

- Other data sources
  - Surveillance
  - Program evaluation (process)
- Other information
  - Routine practice
  - Clinical experience
  - Opinion
  - Anecdotal information

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## Steps of evidence-based decision making in public health

- **Asking** answerable questions
- **Accessing** the best available research evidence
- **Appraising** the evidence for validity (quality) & relevance
- **Applying** the information in your setting
  - Directly
  - Following adaptation
- **Evaluating** the program or policy (Brownson, 1999)

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## Best Practices

### a.k.a. "effective practice"

- Those sets of processes & activities that are consistent with
    - **Quality evidence**
    - Health promotion values, goals, ethics
    - Health promotion theories, beliefs
    - Understanding of the environment
  - Informed by **evidence** regarding
    - **Effectiveness**
    - Feasibility & affordability (costs and cost/benefit)
  - & data/information about
    - Plausibility
    - Practicality
    - Sustainability (resources, leads to sustainable change)
    - Acceptability (social, political, community, partners, organizational priorities)
- & that are most likely to achieve health promotion goals in a given situation  
Kahan & Goodstadt, 2001

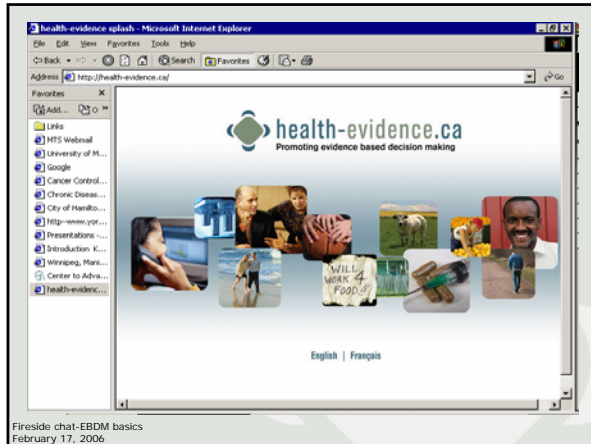
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## EBDM

### Searching for evidence

- Gathering best available research evidence to answer your question
  - Skills
  - Resources
    - Time
    - Tools

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## Health-evidence

[www.health-evidence.ca](http://www.health-evidence.ca)

- On-line registry
  - Free
  - Easy-to-use
  - Searchable
  - Quality-rated effectiveness evidence
  - Summaries of evidence with implications for practice, programs, and policy
- Upcoming features
  - Targeted updates of new research
  - On-line network
  - Moderated discussion forums
  - Knowledge, skill, and organizational capacity development opportunities

What else would help you?

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## Resources

### systematic review sites

- Health-evidence <http://health-evidence.ca> (CDN)
- Effective Public Health Practice Project (EPHPP) <http://www.myhamilton.ca/myhamilton/CityandGovernment/HealthandSocialServices/Research/EPHPP> (CDN)
- CDC Guide to Community Preventative Services <http://www.thecommunityguide.org> (US)
- The Centre for Public Health Excellence at NICE [www.publichealth.nice.org.uk](http://www.publichealth.nice.org.uk) (UK)  
National Institute for Health and Clinical Evidence <http://www.nice.org.uk>
- Cochrane Health Promotion and Public Health Field <http://www.vichealth.vic.gov.au/cochrane/welcome/index.htm>  
The Cochrane Collaboration [www.cochrane.org](http://www.cochrane.org)
- The Campbell Collaboration (C2) [www.campbellcollaboration.org](http://www.campbellcollaboration.org)
- Database of Abstracts of Reviews of Effects (DARE) <http://www.york.ac.uk/inst/crd/darehp.htm>
- EPPI <http://eppi.ioe.ac.uk>
- HDA Evidence Base <http://www.hda.nhs.uk/evidence>

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## Additional resources

- Secondary Journals
  - Evidence-based Nursing [www.evidencebasednursing.com](http://www.evidencebasednursing.com)
  - Clinical Evidence [www.clinicalevidence.com](http://www.clinicalevidence.com)
  - Bandolier [www.jr2.ox.ac.uk/bandolier](http://www.jr2.ox.ac.uk/bandolier)
- Databases
  - PubMed [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)
  - ERIC

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## Resources

### Clinical/Best Practice Guidelines

- National Guideline Clearinghouse <http://www.guideline.gov>
- Agency for Health Care Research and Quality <http://www.ahrq.gov>
- Ontario Guidelines Advisory Committee (GAC) <http://gacguidelines.ca>
- Guidelines International Network <http://www.g-i-n.net>
- Guideline Resources of BMJ <http://bmj.bmjournals.com/cgi/collection/guidelines>
- Registered Nurses Association of Ontario Best Practice Guidelines <http://www.rnao.org/bestpractices/index.asp>
- Scottish Intercollegiate Guidelines Network <http://www.sign.ac.uk>

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## EBDM

### appraising the evidence

- Critical appraisal skills
  - process of reviewing and evaluating a piece of scientific research in a very objective and structured way in order to assess, before using it to inform decision making, its
    - Methodological quality or validity
    - Relevance
- No single tool has been accepted as the gold standard for quality assessment (Katrak, 2004)

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## Critical appraisal Tools

### Systematic reviews

- Health-evidence validity tool and dictionary
  - <http://health-evidence.ca/pdf/ValidityTool.pdf>
  - <http://health-evidence.ca/pdf/Dictionary.pdf>

### Other

- CASP (Critical Appraisal Skills Program) <http://www.phru.nhs.uk/casp/casp.htm>
- CEBM (Centre for Evidence Based Medicine) <http://www.cebm.net>
- SCHARR (School of Health and Related Research) <http://www.shef.ac.uk/scharr/ir/userg.html>

### Best/Clinical Practice Guidelines

- AGREE <http://www.agreecollaboration.org>

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## Questions to ask

- Goals and objectives
- Target
- Core Components
  - Knowledge/Skill development
    - by whom
    - for whom
  - Environmental supports
  - Policies
  - Equipment/supplies/resources
- Theory base
- Evidence-base
- Evaluation
  - Conducted
    - Process
    - Outcome
    - Both
  - Results
    - Planned
    - Pilot
- Part of a larger initiative
- Funding

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## EBDM

### Applying the evidence

- Directly
- With Adaptation
  - modifying key characteristics of an intervention/evidence without competing with or contradicting the evidence's
    - Core elements
    - Underlying theory or logic
    - Goals

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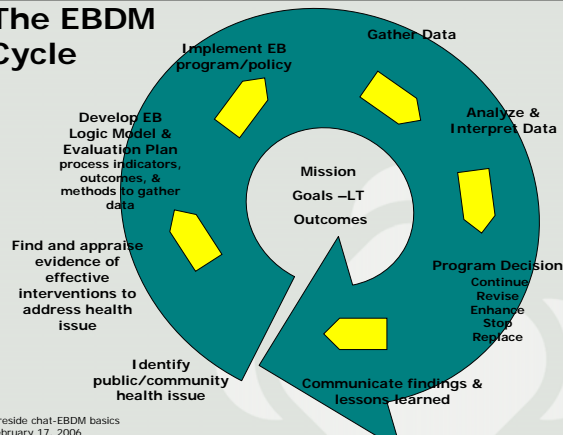
## EBDM

### Evaluation

- Outcome
  - Effectiveness of your intervention(s)
    - Did your intervention result in the desired behaviour change(s)
  - Cost and feasibility
  - Sustainability
- Process
  - Inform your current/future program and policy development

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## The EBDM Cycle



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## EBDM

### Program planning tools

- The Health Communication Unit (THCU) <http://www.thcu.ca>
- Program Evaluation Tool Kit: A Blueprint for Public Health Management (Porteous, Sheldrick, & Stewart, 1997) [http://ottawa.ca/city\\_services/grants/toolkit/index\\_en.shtml](http://ottawa.ca/city_services/grants/toolkit/index_en.shtml)
- CDC's Framework for Program Evaluation in Public Health <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm>
- Canadian Evaluation Society Resources <http://www.evaluationcanada.ca>

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## Barriers to EBDM

- Time
  - Timeliness
- Research results
  - availability
  - relevance
- Resources to
  - search for, retrieve & appraise
  - adapt & implement
- -ve attitude re EBDM

Cillska et al., 1999; Dobbins et al., 2001



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## Facilitators of EBDM - Organization

- Culture
  - Learning
    - knowledge & skill development
      - critical appraisal
    - Questioning
    - Outcome-based program/policy evaluation
  - Change-able
  - Promoting EBDM
    - expected, valued, & rewarded
    - routine reading & use of research evidence (esp. systematic reviews) in daily practice & decision making
- Leadership
  - managers
    - role models
    - collaboration with front line staff
  - informal
  - Adequate resources
    - Overcome issues of time

Dobbins et al., 2001; Senge, 1994; Udod & Care, 2004

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## Facilitators of EBDM - Manager

- Position in organization
- Critical appraisal skills
- Reviews easy to use
- Expectation to use reviews in future

Dobbins et al., 2001

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## EBDM in (organization/team) Role of managers

- Communicate organization's value of evidence-based decision making
  - Across the region and organization
  - Role modelling
  - Mission/vision - evidence based decision making
- Assess organizational capacity
  - [www.chsrf.ca/other\\_documents/working\\_e.php](http://www.chsrf.ca/other_documents/working_e.php)
- Ensure broad ownership of responsibility for EBDM
  - EBDM in strategic plans → work plans
  - Agenda item at team meetings
  - Performance appraisals
  - Hiring processes
- Create & maintain EBDM-supportive environments
  - Provide adequate resources
    - HR - # & skills
    - IT & other infrastructure
    - \$ - professional development, time (to use evidence), program evaluation
  - Ensure systems in place to facilitate access to & use of evidence in program/policy development & evaluation
  - Support research/program evaluation
  - Facilitate reflective practice & critical thinking

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## EBDM Role of public health professionals

- Explore your personal attitude
- Recognize your professional responsibility
- Evaluate your knowledge and skills
- Include EBDM skill development in personal development plan
- Participate in reflective practice & critical thinking
- Role model EBDM for others

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## EBDM Role of researchers

- Partner with public health organizations, decision makers, and practitioners when
  - Setting research priorities
  - Deciding on research questions
  - Conducting research
  - Analysing findings
  - Disseminating findings and discussing implications

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## Applying the evidence Questions to ask

- What programs/policies do we currently have?
  - How do they fit with our broader strategic direction?
  - How well do these fit with the evidence?
  - Are they working here? - How do we know?
- Where are the linkages between our programs?
- Based on evidence & what we know about our community, which programs/policies should we:
  - Continue?
  - Adapt? - How?
  - Stop?
  - Develop?
  - Realign? – strengthen linkages

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## Applying the evidence Questions to ask

- What should we do re: evaluation?
- What do we need to support us as we move ahead? (then plan to get these)
  - Knowledge, skills, evidence, human resources, \$
    - Consider grants, partnerships, workshops
  - Evaluation – process & outcome

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## Additional Resources

- KEN – Manitoba  
[http://www.cancer.ca/ccs/internet/standard/0\\_3182\\_3331\\_407538771\\_419967129\\_langId-en\\_00.html](http://www.cancer.ca/ccs/internet/standard/0_3182_3331_407538771_419967129_langId-en_00.html)
- Cancer Control Planet  
<http://cancercontrolplanet.cancer.gov>
- CHNET-Works! <http://www.chnet-works.ca>

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