Evidence based decision making in policy and practice

Dr Philip Baker, PhD, ACE
Adjunct Professor, School of Public Health
Director of Epidemiology, CRS, Div CHO, Queensland Health
4+ million people, Area of 1,730,648km², 7X the UK
Is decision making evolving? What is being created?

Source: http://mindunclouded.blogspot.com/2010/05/myth-of-progress-evolution-as.html
• Video making - a decision
The Big Bang Theory

- Does this D-making process make sense?
- Is it transparent?
- Is it reproducible?
- When might it be used?
- Used in health?
Ref: J.A Muir Gray Evidence-based Healthcare: How to Make Health Policy and Management Decisions
Churchill Livingston, 1997
Evidence-based medicine

- Evidence-based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients
  
  Sackett et al 1996

- EBM is the integration of best research evidence with clinical expertise and patient values

  Sackett et al 2000
Evidence-based public health

- Evidence-based public health is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of communities and populations in the domain of health protection, disease prevention, health maintenance and improvement (health promotion)

  Jenicek 1997
Why be evidence-informed? *

- Effectiveness
- Limited resources
  - Time and money
- Reduce likelihood for harm
- Focus efforts
- Provide ‘back up’ for decisions
Evidence-based process

1. Ask an answerable question
2. Find the evidence to answer that question
3. Critically appraise the evidence
4. Integrate the evidence with your expertise and values of population
5. Evaluate your effectiveness in EBP

*Sicily Statement on evidence-based Practice
BMC Medical education 2005, 5:1
# EBM and EBPH

<table>
<thead>
<tr>
<th></th>
<th>EBM</th>
<th>EBPH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Settings</strong></td>
<td>Hospitals, Clinics</td>
<td>+Communities, +Public spaces, +The physical and policy environments</td>
</tr>
<tr>
<td><strong>Evidence</strong></td>
<td>Controlled trials</td>
<td>Variety of quantitative and qualitative studies often with a lag to outcome. Process evaluations.</td>
</tr>
<tr>
<td><strong>Uses</strong></td>
<td>Individual patient management</td>
<td>Program planning, Town planning, Program evaluation, Policy evaluation, Service delivery</td>
</tr>
</tbody>
</table>
Public health policy

…we believe that the thoughtful extension of evidence-based principles to all these realms of public policy is important for all those who wish to improve human well being.

Sally Macintyre & Mark Petticrew

*J Epidemiol. Community Health* 2000;54; 802-803
Systematic reviews are essential!

• Summarise results of a range of research studies on a specific topic into a single report

• Key stages:
  1. Identify relevant studies
  2. Assess their quality
  3. Analyse/summarise the evidence

• Role:
  – Key source of evidence based information to support and develop policy and practice
  – State of knowledge in an area
  – Identify gaps in knowledge

Source: Cochrane Public Health Group
Barriers to Implementing EBPH
Brownson et al 2009

- Political Environment
- Deficits in relevant and timely research
- Information systems, resources
- Leadership
- Required competencies (need capacity building)
Capacity building

“… encouraging an understanding of the process of conducting and interpreting a systematic review is a practical way for those in any discipline to propagate such an approach.”

Role of workforce capacity building

- University Training
- Workforce Development
Capacity Building – workforce development

2 day workshops
Since 2005: Australia Queensland & Victoria
Australia
Wales: 2009 & 2011

Example
* meets an identified and ongoing need for EBPH
* useful – increasing knowledge
Follow-up survey (2009)

Explored barriers in a trained group n=88

- Lack of time was the most common barrier reported by 52% of respondents,
- Poor confidence in their EBP skills (19%)
- Application of EBP principles was not relevant to their work (10%)
- Difficulties in understanding the concept (8%).
Follow-up survey (2009)

- Barriers = negative association with the use of various EBP skills

Suggested:
- Improve resource provision (e.g. access)
- Change the workplace culture
- More time
Increasing the use of evidence in health policy: Australia

Campbell DM *et al* 2009

38 policy makers surveyed

“Reported rarely using research to inform policy agendas or evaluate the impact of policy”

Of Campbell’s suggestions:

• Make research findings more accessible
• Increase relevance of research to policy

Summarised Synthesis of evidence for evidence informed decision making

- Health-evidence.ca
- Healthsystemsevidence.org
Health Systems Evidence

Health Systems Evidence is a continuously updated repository of syntheses of research evidence about governance, financial and delivery arrangements within health systems, and about implementation strategies that can support change in health systems.

About Health Systems Evidence

Why use it and who’s behind it?

What’s in it?

Two-page backgrounder (PDF)

Searching Health Systems Evidence

How to search it?

What a search will retrieve

On-line tutorial - Coming soon

Health Systems Evidence is updated monthly. The database was last updated on 2011-07. To receive general or topic-specific monthly updates, please subscribe to the Health Systems Evidence Service. To let us know about new syntheses or website errors, please e-mail us at mhf@mcmaster.ca.

Health system topics

- Governance arrangement (135)
- Financial arrangement (142)
- Delivery arrangement (1437)
- Implementation strategy (618)
Cochrane Systematic review example

Community-wide interventions for increasing physical activity

Baker P, Francis D, Soares J, Weightman A, Foster C

Cochrane Library

2011, Issue 4

Context

• Physical activity is important for reducing the overall burden of disease

• The prevalence of physical inactivity remains high or has even increased

• Community-wide interventions: attractive - whole population. They also generally

• Produce visible infrastructure, long-lasting
Public Health questions

- Do community wide, multi-strategic interventions increase community levels of physical activity?
- Are the effects different within and between populations?
- Is there an equity gradient?
Components of the intervention *

Multi-strategic interventions that aim to reach the whole community, which must have included at least 2 of a possible 6 components:

1. social marketing;
2. other communication strategies;
3. individual counselling by health practitioners;
4. partnerships with government or non-government groups;
5. working in specific settings; and
6. environmental change strategies.
What studies did we include?

25 included studies

• Only 3 contained elements of all the strategies with a further three including an element from five of the strategies.

• Most included building partnerships with local government of NGO’s.

• Studies were generally of low quality (16 categorised as high risk of bias).

• 19 studies were from high income countries and 6 were from lower income countries (including 4 from China).
What did we find?

- Variation in interventions, population and outcomes.

- The results of the studies themselves were inconsistent, making it especially difficult to identify the key, reliable findings.

- Few studies reported a substantial or sustained increase in physical activity (7 of 25)

- There was no evidence that more intense interventions worked better than others.
Conclusions

- Insufficient evidence.
- Different interventions seemed to reach different segments of the population.
- Need for more robust studies to investigate community wide interventions.
- New studies should be rigorously designed and analysed and should include process evaluations.
Challenges

• Many systematic reviews say “we need more research”
• Inconclusive
• Do we need a “toss of a coin”?
5 Key Questions

- What should be transferred
- To whom should it be transferred
- By whom should it be transferred
- How should research knowledge be transferred?
- With what effect should research knowledge be transferred

Lavis JN, Robertson D, Woodside JN, Mcleod CB, Abelson J (2003) *Milbank Quarterly*

- **Applicability** (feasibility)
  - whether the intervention process could be implemented in the local setting, no matter what the outcome.

- **Transferability** (generalisability)
  - if the intervention were to be implemented in the local setting, would the effectiveness of the program be similar to the level detected in the study setting?

Translating what we know

Question: What evidence-based public health interventions can be used to improve antenatal outcomes for Australian Aboriginal Women

Antenatal interventions with public health focus improving outcomes
Aboriginal and Torres Strait Islander

- Study designs: systematic reviews
- Participants: expectant mothers.
- Intervention type: any antenatal intervention that had a public health focus for improving outcomes (excluded medical interventions and models of care).
- Outcomes: access to antenatal care and outcomes associated with accessing antenatal care such as the number of antenatal care visits, preterm births (<37 weeks) and low birth weight babies (<2500 g).
Method of application

1. Search of the current available systematic reviews, assess quality
2. 2nd search => factors that may affect the applicability
3. Assess transferability of these interventions into these communities.
4. Consideration of these factors, clinical judgement
5. Recommendations
Results of search for Systematic Reviews (medium & high quality)

i) Antenatal Care
1. Reducing the number of antenatal visits (Villar and Khan-Neelofur, 2000);
2. Home-visiting as a delivery of public health nursing interventions to clients in the prenatal or postnatal period (Ciliska et al., 1999);
3. Giving women their own case notes to carry during pregnancy (Brown and Smith, 2004);
4. Traditional birth attendant training (Sibley et al., 2004);

ii) Health education and supportive interventions
1. Additional social support for women with increased risk of low birth weight babies (Hodnett and Fredericks, 2003);
2. Health education and support strategies for teenage peer support programs based at either the home or the clinic (Brunton and Thomas, 2001);
3. Telephone-based supportive interventions (Dennis and Kingston, 2008);
4. Structured educational programs in groups or individually by an educator (Gagnon and Sandall, 2007);

(iii) Interventions targeted specific risk factors
1. Smoking cessation interventions (Lumley et al., 2009).
Table 2: Factors identified from primary evaluations that were important in assessing the applicability and transferability of interventions to the Aboriginal and Torres Strait Islander setting

**Applicability**

*Organizational structures*
1. Intervention is integrated with other services (e.g. hospital liaison, shared care)
2. Intervention is community based and/or community controlled services

*Social norms/ethics*
3. Intervention has a respect for Aboriginal and Torres Strait Islander people and their culture
4. Intervention has a focus on communication, relationship building and development of trust
5. Intervention values Aboriginal and Torres Strait Islander staff and female staff
6. Intervention has a respect for family involvement in health issues and child care
7. Intervention provides a welcoming and safe service environment

*Resources available and skills*
8. Setting has an appropriately trained workforce

**Transferability**

*Components of an intervention which would facilitate transferability*
9. Intervention includes flexibility in service delivery and appointment times
10. Intervention has a specific service location intended for women and children
11. Intervention provides continuity of care and a broad spectrum of services
12. Intervention includes outreach activities
13. Intervention includes home visiting
14. Intervention includes provision of transport
15. Intervention includes provision of childcare or playgroups

*Characteristics of the target populations*
16. Characteristics of target populations are comparable to those in studies
Delivery and characteristics of antenatal care
Reduced number of antenatal visits

Applicability: applicability is not an issue as this intervention would involve a reduction of services.

Transferability: the review suggested that a minimum of four antenatal visits should be recommended and that the activities undertaken in antenatal care be proven to be effective. This population is not directly comparable to the populations in which the conclusions from the systematic review were made. Aboriginal women are less likely to access antenatal care in the first trimester of pregnancy, a time when many risk factors could be addressed (AHMAC, 2008). Further, a smaller proportion of Aboriginal women access five or more antenatal sessions compared with other mothers in Queensland (Australia’s mothers and babies, 2008).
Home-visiting to deliver public health nursing interventions

Applicability: these interventions could adopt some of the factors identified in Table 2 (i.e. factors 3, 4, 5, 6, 7) tailoring them to this population.

Transferability: interventions that are home based and which have an outreach component have been successful in this population, so it is not unreasonable that this intervention may increase attendance at education classes and improve awareness of community services (factors 13 and 14). For example, as part of the Closing the Gap Campaign, a home-visiting service in Central Australia funded through the Australian Nurse Family Partnership Program is being implemented to help mothers gain confidence and improve their parenting skills (Australian Government, 2010). The findings from the systematic review were also in high risk groups and therefore share some similarities with this population (factor 16).
Giving women their own case notes to carry during pregnancy

Applicability: this intervention requires little resources to be implemented so minimal issues with applicability would be anticipated.

Transferability: the systematic review found these interventions had no effect on important outcomes and only impacted upon the mothers feeling of being in-control. It is uncertain to what extent Aboriginal women in the target population would be prepared to carry the notes.
From the review process:

- Interventions should consider a combination of strategies.
- Interventions that are home-based and have outreach components seem feasible and are likely to provide health improvements.
- Design, implementation and delivery of antenatal and breast-feeding interventions should include adequate input from members of the community.
• Challenges!
• Identify barriers and facilitators
• Build capacity in the workforce
• Invest in systematic reviews
• Translate what we know to issues of relevance
• Evolve and be creative!!
Thank you
Outline

• Ways of making Health-care decisions
• Evidence informed decision making in medicine, public health and health policy: definitions
• Synthesis of evidence for public health
• Increasing use of systematic thinking / follow-up survey
• Need for systematic making and development review
• Supporting EBP
• Knowledge Translations; research to practice
• Applicability and transferability – challenging settings
How can the evidence be used in public health?

- Physical inactivity
- Increase population levels
- Complex
- How?
- Multiple points
- Complex interventions
## Translating evidence into action


<table>
<thead>
<tr>
<th>Questions</th>
<th>Evidence needed</th>
<th>Issue</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should we do something?</td>
<td>Prevalence, trends, health impacts</td>
<td>1. Burden of the problem/issue</td>
<td>Burden estimates using costs, YLL, DALYs, or QALYs</td>
</tr>
<tr>
<td>What should we target?</td>
<td>Modifiable determinants of the problem/issue</td>
<td>2. Determinants, potential targets</td>
<td>Modifiable behaviours &amp; environments, population goals</td>
</tr>
<tr>
<td>Who, how &amp; where should we intervene?</td>
<td>Relevant opportunities for action</td>
<td>3. Framework for action</td>
<td>Target groups, strategies, settings, sectors, support action</td>
</tr>
<tr>
<td>Specifically, what could we do?</td>
<td>Potential specific actions &amp; their likely impact &amp; cost-effectiveness (C-E)</td>
<td>4. Potential interventions</td>
<td>Estimated effectiveness, C-E &amp; population impact of potential interventions</td>
</tr>
<tr>
<td>Specifically, what should we do?</td>
<td>Implementation implications</td>
<td>5. Portfolio of interventions</td>
<td>Agreed ‘best set’ of interventions &amp; support actions</td>
</tr>
</tbody>
</table>

Contextual relevance – health, social, cultural, political

Translating evidence into action

Approaches to knowledge translation

ISLAGIATT principle

‘It Seemed Like A Good Idea At The Time’

Martin P Eccles
• Policy briefs of systematic reviews
• Overviews of systematic reviews
• Systematic reviews
• Protocols of systematic reviews
• Links: user summaries, full-reports

Sample scenarios that Health Systems Evidence can help with:

Scenario 1: A Ministerial task force urgently needs information about the effects of various physician-payment options on quality of care

Scenario 2: A local health authority seeks information about alternative healthcare delivery models for rural communities

Scenario 3: A research-funding agency needs to identify what’s known about implementation strategies to support national policy priorities