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Towards a better understanding of professional behaviour change

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Disclosure

- Jeremy Grimshaw:
 - holds a Tier 1 Canada Research Chair in Health Knowledge Transfer and Uptake
 - Co-ordinating Editor of the Cochrane Effective Practice and Organisation of Care
- Cochrane Effective Practice and Organisation of Care group funded by:



Key messages

- Consistent evidence of evidence – practice gaps
- Professional behaviour is key determinant of evidence-practice gaps
- The good news is that it is possible to change health care provider behaviour! However current evidence base provides little practical guidance for health care systems about which interventions to use and how to optimise them
- Current attempts to reduce evidence-practice gaps often fail to recognise the complexity of professional behaviour and behaviour change
- Need for broad based knowledge translation research to establish the evidence base to reduce evidence-practice gaps

'All breakthrough, no follow through'

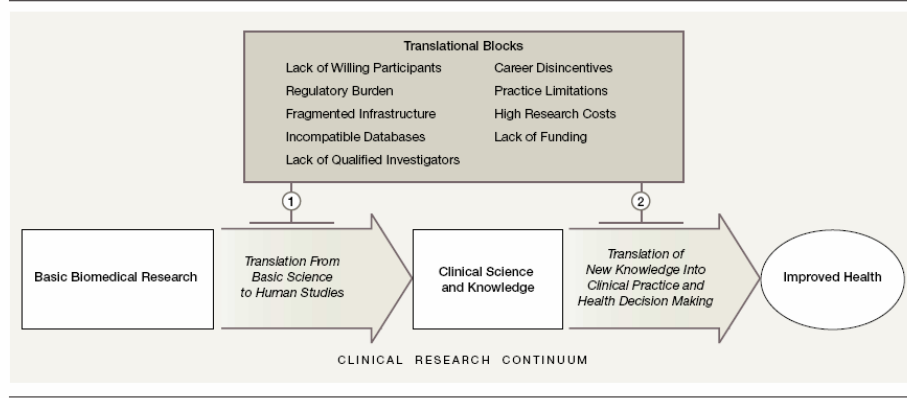
Woolf (2006) Washington Post op ed

Background

- Much of the US \$100 billion/year worldwide investment in biomedical and health research is wasted because of dissemination and implementation failures

Background

Figure 1. The 2 Translational Blocks in the Clinical Research Continuum



Institute of Medicine; Clinical Research Roundtable,
Sung et al. JAMA 289:1278,2003



Background

- Consistent evidence that health care systems and health care professionals fail to deliver the quality of care that they aspire to:
 - 30-40% patients do not get treatments of proven effectiveness
 - 20–25% patients get care that is not needed or potentially harmful

Schuster, McGlynn, Brook (1998). *Milbank Memorial Quarterly*
Grol R (2001). *Med Care*



Background

- Ferlie and Shortell suggested four levels at which interventions to reduce evidence-practice gaps might operate:
 - the individual health professional;
 - health care groups or teams;
 - organisations providing health care;
 - the larger health care system or environment in which individual organizations are embedded.

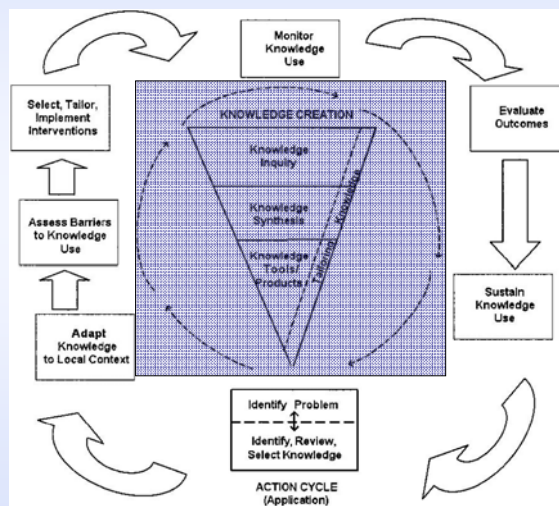
Ferlie, Shortell (2001). *Milbank Quarterly*

Background

- Most clinical care occurs within the context of a provider – patient dyad.
- Interventions at other levels are mediated through the provider – patient dyad.
- Provider behaviour is most proximal determinants of evidence based practice.
- Changing provider behaviour is (one of) the right objective(s) to reduce evidence – practice gaps

A model for reducing evidence – practice gaps

Knowledge for knowledge translation



Knowledge to Action loop

From: Graham ID et al. Lost in Knowledge Translation: Time for a Map? *Journal of Continuing Education in the Health Professions*, 2006

Knowledge for knowledge translation

Potential barriers to evidence based practice – knowledge management

- Over 20,000 health journals published per year
- Published research of variable quality and relevance
- Individual studies rarely by themselves provide sufficient evidence for policy or practice changes
- Individual studies are often misleading

Knowledge for knowledge translation

Potential barriers to evidence based practice – knowledge management

- Research users (consumers, health care professionals, policy makers, researchers) often poorly trained in critical appraisal skills
- Average time professionals have available to read = <1 hour/week

Knowledge infrastructure for knowledge transfer and uptake

- Health care systems have largely failed to invest in knowledge infrastructure
- As a result, they abrogate responsibility for knowledge management to consumers, health care professionals, managers and policy makers
- In effect, this is leaving knowledge management to the market place

Knowledge infrastructure for knowledge translation

- Health care systems need to invest in knowledge infrastructure
- Knowledge infrastructure should be considered as important as the sewers for a knowledge based health care system

Improving knowledge access

The Cochrane Library is the single most reliable source for evidence on *the effects of health care interventions*.

www.cochranelibrary.com

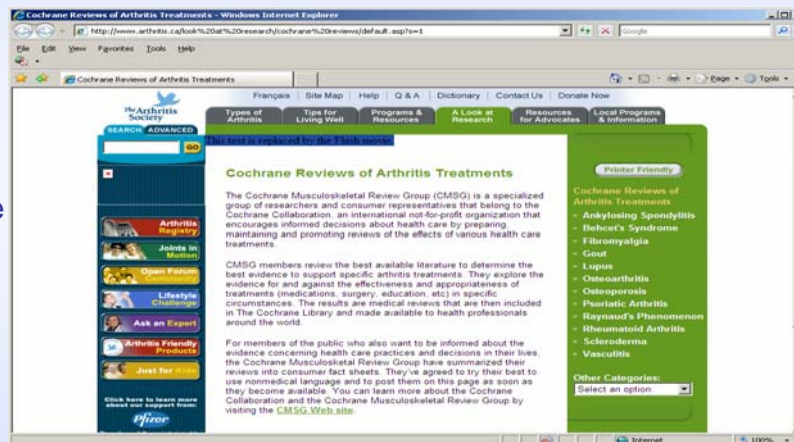


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Improving knowledge access



'Cochrane inside'



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Improving knowledge access



'Cochrane inside'

Canadian Agency for Drugs and Technologies in Health

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Optimal Therapy Resources

As a centre for information and education on optimal drug prescribing and use, COMPUS creates opportunities for collaboration, cooperation and networking for health care providers and consumers, both within Canada and internationally. We support the local implementation of optimal drug therapy by offering advice, tools, and proven strategies. In addition to our **Optimal Therapy Reports**, here are two innovative online resources to help you implement or tailor your individual optimal drug therapy initiatives.

<p>MPUP Collection</p> <p>The Medication Prescribing and Use Project Collection</p> <p>Network with others involved in optimal drug therapy projects and programs. Scan or contribute to this online database of interventions.</p>	<p>Interventions</p> <p>Interventions Database for Prescribers and Consumers</p> <p>The interventions database summarizes current research evidence about the effects of strategies to improve drug prescribing practice.</p>
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Optimal Therapy Resources
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Improving knowledge access



'Cochrane inside'

Program in Policy Decision-Making
A research program affiliated with McMaster University's Centre for Health Economics and Policy Analysis

Canadian Cochrane Network and Centre
A national centre affiliated with the Cochrane Collaboration

www.researchtopolicy.ca

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Links

McMaster University

Through a partnership between McMaster University's Program in Policy Decision-Making and the Canadian Cochrane Network and Centre, we have created an inventory of systematic reviews of governance, financial and delivery arrangements within health systems from two sources: 1) a manual search of the Cochrane Library (Issue 3, 2007); and 2) an overview of reviews being led by members of the Cochrane Collaboration's Effective Practice and Organization of Care (EPOC) review group (with the search completed up to February 2004 and an updated search currently in progress). A paper describing our methods and findings, including scope notes for our taxonomy, is currently under review. This work was funded by a grant from the Cochrane Collaboration's Opportunities Fund (RFP20061101) and by a grant to the Canadian Cochrane Network and Centre from the Canadian Institutes of Health Research (MSP-13278).

To view a complete listing of the systematic reviews that we have identified, please click on "Search". To view a listing of publications produced by a particular author, published in a particular periodical, published in a particular year, having a specific word or phrase in the title, assigned a particular key word (from a three-level taxonomy that can be progressively accessed by clicking on each category of interest) or designated a specific type of review, please enter the details or select an option from the menu and then click on "Search". To conduct an open search or to connect any of the aforementioned search options, please enter the details of the search in the Open search box and then click on "Search". For example, to search for Cochrane reviews authored by Jeremy Gimshaw, enter the following search: Gimshaw "Cochrane review of effects". The search function does not currently accept Boolean operators (and/or). Publications are listed in chronological order.

Basic Search
Author:
Periodical: -- All --
Year of publication: -- All --
Title - Exact word(s):

Search

Or

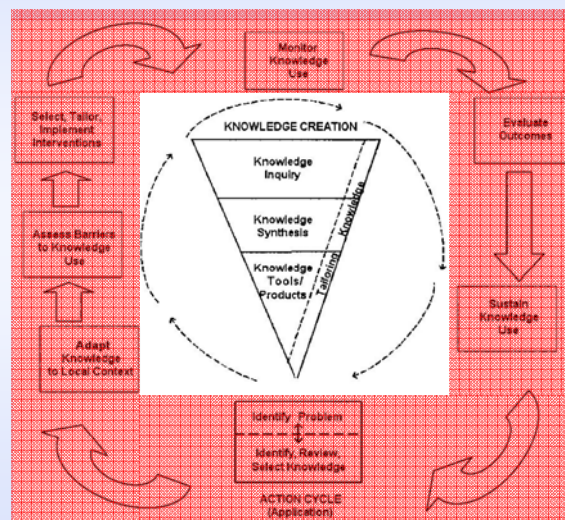
Keyword Search
Assigned keywords:

OHRI IRSO

Knowledge infrastructure for knowledge transfer and uptake

- Potential components for national/regional knowledge infrastructures:
 - **Push**
 - Rapid response services
 - Knowledge intelligence services
 - Targeted push of summarised information
 - Clearing houses for evidence based tools
 - **Pull**
 - Capacity building
 - Evidence informed processes
 - **Linkage and exchange**
 - Local R&D/HTA function

Action cycle



Knowledge to Action loop

From: Graham ID et al. Lost in Knowledge Translation: Time for a Map? *Journal of Continuing Education in the Health Professions*, 2006

Barriers to evidence based practice

- Structural (e.g. financial disincentives)
- Organisational (e.g. inappropriate skill mix, lack of facilities or equipment)
- Peer group (e.g. local standards of care not in line with desired practice)
- Individual (e.g. knowledge, attitudes, skills)
- Professional - patient interaction (e.g. problems with information processing)

Richard Grol's challenge

'Evidence based medicine should be complemented by evidence based implementation'

Grol (1997). *British Medical Journal*

- Most approaches to changing clinical practice are more often based on beliefs than on scientific evidence

So what is the evidence base for implementation?

Cochrane Effective Practice and Organisation of Care (EPOC) Group

EPOC aims to undertake systematic reviews of interventions to improve health care systems and health care delivery including:

- Professional interventions (e.g. continuing medical education, audit and feedback)
- Financial interventions (e.g. professional incentives)
- Organisational interventions (e.g. the expanded role of pharmacists)
- Regulatory interventions

Bero, Eccles, Grilli, Grimshaw, Gruen, Mayhew, Oxman, Shepperd, Tavender, Zwarenstein (2006).
Cochrane Library.

Cochrane Effective Practice and Organisation of Care (EPOC) Group

Progress to date - register and reviews

- Register of 6000+ primary studies
 - RCTs, CBAs, ITSs
- 43 reviews, 42 protocols
- Collaborating with over 300 researchers globally

Bero, Eccles, Grilli, Grimshaw, Gruen, Mayhew, Oxman, Shepperd, Tavender, Zwarenstein (2006). *Cochrane Library*.

Cochrane Effective Practice and Organisation of Care (EPOC) Group

- Australian satellite based at NICS
 - Dr Russ Gruen (editor)
 - Emma Tavender (satellite)
- Survey of Federal and State Australian policy makers to enhance relevance of ongoing work
- Increase number of EPOC reviews undertaken in Australia
- Training for Australian EPOC reviewers
- Training for Australian EPOC review users
- Linkages to global community ('invisible college')

Overview of reviews

The screenshot shows the CADTH website interface. At the top, there is a navigation menu with links for Home, Contact Us, Advanced Search, Sites, Etranet, Help, and Français. Below the menu is a search bar and a logo for the Canadian Agency for Drugs and Technologies in Health. The main content area features a banner for 'Rx for Change' with a background image of a computer monitor and a document. Below the banner, there is a breadcrumb trail: Browse » Intervention » Review » Individual Studies. The text describes the 'Rx for Change' database as a summary of current research evidence on strategies to improve drug prescribing practice and drug use. It lists several resources for more information, including a fact sheet, a database overview, development methods, and a recorded web cast event. A sidebar on the right contains a 'Media Centre' with links to Events, Careers, Subscribe, and Resources. At the bottom, there are links for Top of Page, Privacy Policy, Feedback, and Terms of use, along with a copyright notice for 2008 CADTH and a last updated date of January 7, 2008. The browser address bar shows the URL: http://www.cadth.ca/index.php/en/compus/optimal-ther-resources/interventions. The OHRI and IRSO logos are visible in the bottom right corner.

Overview of reviews

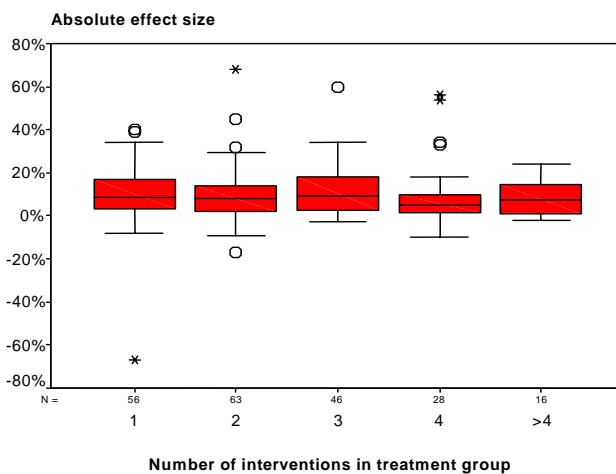
- Identified over 150 systematic reviews of professional behaviour change interventions
- Most interventions appear to be effective with average effects between 5-10% absolute improvement in care
- Greater 'within intervention' variation than 'across intervention' variation
 - Eg educational outreach - 4.8% absolute improvement, interquartile range 3.0% to 6.5% (17 comparisons of improving prescribing)
 - Eg 2 audit and feedback - +5% absolute improvement, inter-quartile range = +3% to 11% (88 comparisons)

So what is the evidence base for implementation?

Conclusions

- Imperfect evidence base for decision makers
- Many current rigorous evaluations have methodological weaknesses (eg unit of analysis errors)
- Poor reporting of study settings, barriers to change, content and rationale of intervention
- Generalisability of study findings is frequently uncertain

Recognising the complexity of professional behaviour change



Multifaceted interventions

Grimshaw et al (2004).
Health Technology Assessment

Recognising the complexity of professional behaviour change

NEXUS

DRAM

ARTICLES

Effect of audit and feedback, and reminder messages on primary-care radiology referrals: a randomised trial

Martin Eccles, Nick Steen, Jeremy Grimshaw, Lois Thomas, Paul McNamee, Jennifer Soutter, John Wilsdon, Lloyd Matowe, Gillian Needham, Fiona Gilbert, Sangyong Bond

Effect of enhanced feedback and brief educational reminder messages on laboratory test requesting in primary care: a cluster randomised trial

Ruth F Thomas, Bernard Lewis Crook, Craig Ramsay, Martin Eccles, Jeremy Grimshaw

Summary
Background Laboratory services play an important part in screening, diagnosis, and management of patients within primary care. However, unnecessary use of laboratory tests is increasing. Our aim was to assess the effect of two interventions on the number of laboratory tests requested by primary-care physicians.
Methods We did a cluster randomised controlled trial using a 2x2 factorial design, involving 55 primary-care practices (370 family practitioners) that request all laboratory tests from one regional centre. The interventions were quarterly feedback of practice requesting rates for nine laboratory tests, enhanced with educational messages, and brief educational reminder messages added to the test result reports for nine laboratory tests. The primary outcome was the number of targeted tests requested by primary-care practices during the 12 months of the intervention. This study is registered as an International Standard Randomised Controlled Trial, number ISRCTN06490422.
Findings Practices that received either or both the enhanced feedback and the reminder messages were significantly less likely than the control group to request the targeted tests in total (enhanced feedback odds ratio 0.87, 95% CI 0.71-0.94; reminder messages 0.89, 0.83-0.93). The effect of the interventions varied across the targeted tests individually, although the number of tests requested for both interventions was generally reduced. Neither intervention was consistently better than the other.
Interpretation Enhanced feedback of requesting rates and brief educational reminder messages, alone and in combination, are effective strategies for reducing test requesting in primary care. Both strategies are feasible within most laboratory settings.

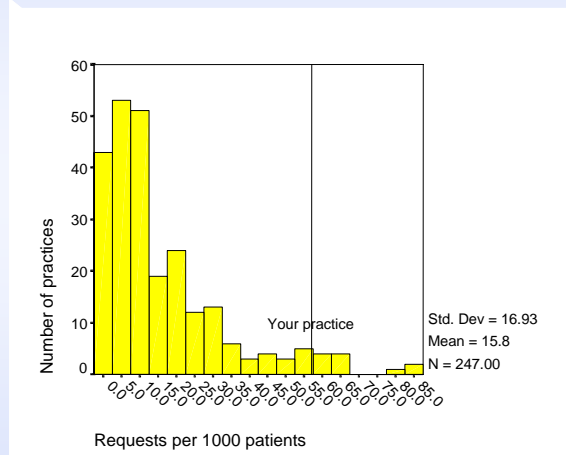


Recognising the complexity of professional behaviour change

- Studies evaluated audit and feedback to reduce unnecessary:
 - x-ray diagnostic tests (NEXUS)
 - laboratory diagnostic tests (DRAM)

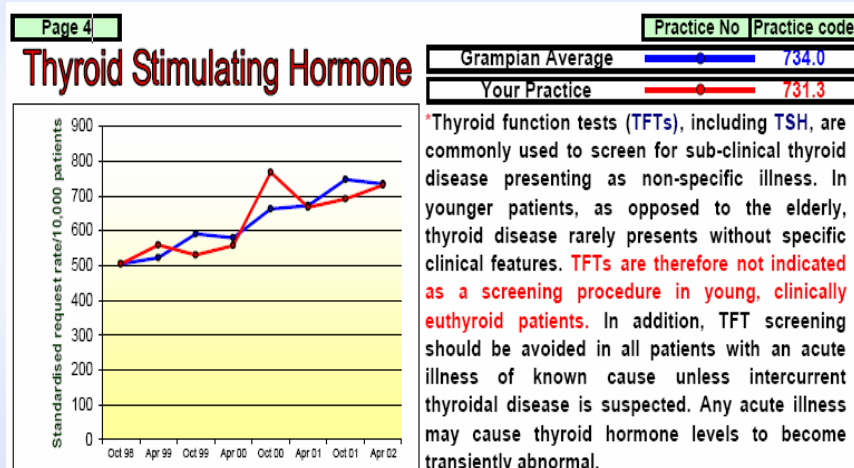


Recognising the complexity of professional behaviour change - NEXUS feedback



Requests for knee x-rays

Recognising the complexity of professional behaviour change - DRAM feedback



Recognising the complexity of professional behaviour change

Results

- Two reasonably similar trials addressing diagnostic test ordering using similar interventions (minor difference in audit and feedback)
 - NEXUS – audit and feedback led to 1% reduction in inappropriate x-ray test requests
 - DRAM – audit and feedback led to 13% reduction in inappropriate lab test requests
- Highlights our poor understanding of determinants of professional behaviour and behaviour change
- Highlights the need for knowledge translation research

Knowledge translation research

- Knowledge translation is a human enterprise that can be studied to understand and improve dissemination and implementation approaches
- Knowledge translation research is the scientific study of the determinants, processes and outcomes of dissemination and implementation.

Knowledge translation research synonyms

- Canada Knowledge translation research
- Australia Evidence implementation research
- Europe Implementation research
- US Quality improvement research
Dissemination and implementation
research (NIH)

Knowledge translation research

- Knowledge synthesis (to identify the knowledge base for KT);
- Research into the evolution and critical discourse around research evidence;
- Research into knowledge retrieval, evaluation and knowledge management infrastructure;
- Identification of knowledge to action gaps;
- Development of methods to assess barriers and facilitators to KT;
- Development of the methods for optimizing KT strategies;
- Evaluations of the effectiveness and efficiency of KT strategies;
- Development of KT theory; and
- Development of KT research methods.

Knowledge translation research

- Emergent field of research with distinctive conceptual and methodological challenges
- Inherently interdisciplinary
- Relatively few groups internationally with sustained track record
- Relatively few research funders have developed sustained funding programs for knowledge translation research

Knowledge translation research

Challenges for developing knowledge translation research

- Building interdisciplinary capacity
- Sustained funding for fundamental and applied health research
- Innovative models for engaging health system – knowledge translation research networks and platforms
- National and international co-ordination of research agendas and activities

Key messages

- Consistent evidence of evidence – practice gaps
- Professional behaviour is key determinant of evidence-practice gaps
- The good news is that it is possible to change health care provider behaviour! However current evidence base provides little practical guidance for health care systems about which interventions to use and how to optimise them
- Current attempts to reduce evidence-practice gaps often fail to recognise the complexity of professional behaviour and behaviour change
- Need for broad based knowledge translation research to establish the evidence base to reduce evidence-practice gaps