Knowledge is not enough: Improving Research’s Useability & Use

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Can we keep up to date?

To save time, just assume I know everything
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2012

But that was last year!
The “half-life” of knowledge

Of 100 systematic reviews:

Median time to a change that would effect clinical decisions was 5.5 years.

7 out of date when published

Figure 2. Overall survival time (95% CI) free of signals for updating.

The immediate decrease in survival at time zero reflects the 7 systematic reviews for which signals for updating had already occurred at the time of publication. The low number of reviews at risk after 10 years reflects the fact that the sample spanned 1995 to 2005 and censoring occurred on 1 September 2006. Thus, only reviews published before September 1996 and having no signals for updating could have more than 10 years of observation.

Warning: Most innovations don’t work

- Arthoscopic knee lavage (Moseley, NEJM, 2002)
- Blood glucose monitoring for non-insulin dependent diabetes (DiGEM trial, BMJ 2007)
- Vertebroplasty for osteoporotic fractures (NEJM, 2010)
- Tight control of diabetes (ACCORD, NEJM, 2010)
- Prostate cancer screening (Djulbegovic, BMJ 2010)
- Ovarian cancer screening (JAMA, 2011)
- Lung Cancer Screening (NEJM, 2011)
- Telemonitoring elderly patients at high risk (Takahashi, Arch Intern Med, 2012)
Some variants of Evidence-Based Practice

Bob Phillips, Oncology, Leeds
Patients in Trials

Yaser Faden, Richard Nicholl
Neonatology, Jeddeh & London
“PICO” rounds

Martin Burton
ENT, Oxford

GP Practice
Beaumont St
Oxford
Layers of research information

- Systems
- Synopses
- Summaries
- Systematic Reviews
- Single Studies

Haynes, ACPJC

95 trials/day
11 meta-analyses/day
Evidence-Based Paediatric Oncology

Bob Phillips,
Oncology, Leeds
Patients in Trials

- 80-90% kids in clinical trials
- Compare current versus new
- Gradual improvement
- Rare cases with no trials
Most new treatments don’t work
an analysis of 136 trials in myeloma

“These studies as well as our empirically confirm investigators often do not know in advance what they will discover”

Djulbegovic et al

**Figure 1:** Distribution of scores evaluating success of innovative therapies over standard ones in 136 randomised trials in multiple myeloma
Scores from 4–6 denote that innovative treatments were better, while scores 1 to 3 indicate that standard treatments were preferred.
Evidence-Based Perinatology

Cochrane Neonatal Group

Our reviews

Welcome
More about us
Scope of our work
Related Cochrane entities
Our contributors
Funding and support
Contact us
Our reviews
Reviews needed
The Cochrane Library
Resources for review authors
Resources for handsearchers
Resources for healthcare users
What’s new
Workshops and events
Newsletters

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By Subtopic:
Neonatal Group (342)
- Immediate care of the newborn (7)
- Method, technology of resuscitation of the newborn infant (7)
- Management of the neonate (8)
- Fluid therapy (8)
- Feeding (8)
- Parental care (8)
- VITAMINS (8)
- Fever (8)
Questions from Ward Round

- Ward round -> questions

- Between rounds - -> look up

- Discuss at next ward round OR Journal Club (if major change)
Evidence-Based Primary Care

- Wide range of conditions (13,000!)
- No single evidence source

Logbooks of Clinical Questions

Fortnightly “Journal Club”
Half GP consultations for 30 conditions
Other half for over 800 conditions

Core topics: Must know (almost) everything
“Just in case” learning

Must know some basics
“Just in time” learning
The scatter of trials & metaanalyses

Neurological research in 2009
• 2,770 randomized trials in 900 journals
• 547 systematic reviews in 290 journals

Hoffmann et al BMJ 2012
Use an evidence-based update service

McMaster Plus Processes

- 140+ journals scanned
  - 60,000 articles
- Is it valid? (<5%)
  - Intervention: RCT
  - Prognosis: inception cohort
  - Etc
- Is it relevant?
  - 6-12 GPs & specialists asked: Relevant? Newsworthy?
- < 0.5% selected

Number Needed to Read to find 1 valid is 20+
Number Needed to Read to find 1 valid & relevant is 200+

http://hiru.mcmaster.ca/hiru/HIRU_McMaster_PLUS_projects.aspx
From knowledge to action: digesting the evidence

REGULAR Fortnightly “Journal Club”

Step 1 – 10 minutes
- Discuss new problems and topics (questions, EBM journal, guidelines)

Step 2 – 40 minutes
- Read and appraise research paper for last week's problem

Step 3 – 10 minutes
- Agree conclusions and “next actions”
- Organise changes in practice and follow up – who, what, when?

Write to study authors for more details
The (missing) guidebook for IBS


- At one year, patients in the guidebook group had a 60% reduction in primary care consultations ($p=0.001$) and a reduction in perceived symptom severity ($p=0.001$) compared with controls.

- PROBLEM: Missing details of guidebook.
  - No response from author to 3 emails
  - Colleague said booklet was on sale
  - Google search found the book

Price: £8.99
Descriptions in 80 treatment studies selected for EBM journal were often inadequate

Glasziou et al BMJ, 2008
Problems in treatment descriptions of 133 non-drug trials in top 6 journals, 2009

Individual checklist items and overall rating of completeness of the intervention description

Hoffmann, Erueti, Glasziou BMJ 2013
Follow up after journal clubs: The Epley for BPPV (Vertigo)

- **TREATMENT**: “Each head position has to be maintained for more than 30 seconds. *Patients received illustrated instructions* for the specific maneuver …”

- All agreed “useful”
- 3 months later
  - only 2 doctors did it
  - Put video in intranet
- Another 3 months later
  - Still only 2 doctors
  - Trained each person to do
Learning the “how to” of Epley

1. Bookmark the video (on YouTube)
2. Tip: watch with patient first!!
Conclusions: Use and Usability

For each clinical discipline we need:

- Filtering of research: systematic reviews, EB-journals
- Summaries sufficient for decision making
- Details sufficient for implementation
- “Next Actions” after critical appraisal