Getting research into practice: can we do this better?

Kongress für Allgemeinmedizin und Familienmedizin (DEGAM 2010)

Chris Del Mar  cdelmar@bond.edu.au
what I am going to say

we have 2 responsibilities:

1 use evidence in clinical practice
   – guidelines
   – EBP
2 produce evidence
   – generate research
   – support others generate research
we have 2 responsibilities:

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“...systematised statements summarising the evidence to enable better clinical decisions...”
The growth of guidelines in the past 20 years

- Guideline (PT)
- Practice Guideline (PT)
- Guideline [ti]

PT = publication type
Ti = Title
there are so many guidelines!

What we need from guidelines

Information needed in clinical practice
What we need from guidelines

Information needed in clinical practice

Information from research
What we need from guidelines

Information from guidelines

Information needed in clinical practice

Information from research
Guidelines are sometimes wrong

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Guideline</th>
<th>Contradictory evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide oral steroids to treat wheezing in children induced by acute respiratory infection</td>
<td>Canadian Asthma Consensus Guidelines 2003⁴⁵</td>
<td>RCT undertaken in 687 children.⁴⁸ There was no benefit from prednisolone.</td>
</tr>
<tr>
<td></td>
<td>British Thoracic Society, Scottish Intercollegiate Guidelines Network. British guideline on the management of asthma⁴⁶</td>
<td></td>
</tr>
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<td></td>
<td>Global Strategy for Asthma Management and Prevention. <em>NIH publication No. 02-3659. 2003</em>⁴⁷</td>
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## Guidelines are sometimes wrong

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<tr>
<td>Ask patients with Type 2 diabetes not using insulin to self-monitor their blood glucose</td>
<td>American Diabetes Association, 2008 NICE guidelines, 2008*</td>
<td>3-arm RCT of 453 patients in UK. Self-monitoring did not improve diabetes outcomes.</td>
</tr>
<tr>
<td>Offer PSA screening for prostate cancer.</td>
<td>Supported by many Society guidelines; implicitly supported by NICE guideline</td>
<td>Cochrane review. Two further RCTs in 2009 had contradictory results.</td>
</tr>
<tr>
<td>Use combined agents (inhaled steroids and beta-agonists) for COPD</td>
<td>The Global Initiative for Chronic Obstructive Lung Disease (GOLD)</td>
<td>Two meta-analyses found no clinically important benefits and serious adverse effects.</td>
</tr>
</tbody>
</table>
Guidelines do not always give the same recommendation

Proportion of patients with AF suggested for anticoagulation

Range of Guidelines

% of patients

0 20 40 60 80 100

13 16 17 18 20 33 33 35 46 48 61 65 66 66 79 81 83 88 91
**Guidelines: most recommendations are weak**

<table>
<thead>
<tr>
<th>Guideline recommendation</th>
<th>Strong</th>
<th>weak</th>
</tr>
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<tbody>
<tr>
<td>evidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliable</td>
<td></td>
<td><strong>✓</strong></td>
</tr>
<tr>
<td>Unreliable</td>
<td></td>
<td><strong>✓</strong></td>
</tr>
<tr>
<td>Trade-offs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>balanced</td>
<td></td>
<td><strong>✓</strong></td>
</tr>
<tr>
<td>clearly favouring one option</td>
<td></td>
<td><strong>✓</strong>*</td>
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# guidelines: 2 types of statement

| Factual evidence | statements of information derived from clinical research  
|                 | based on the best research evidence available.  
|                 | eg Systematic reviews of RCTs for treatments.  
| Recommendations  | statements about what action should be taken in particular clinical circumstances.  
|                 | informed by the factual evidence (the “evidence”)  
|                 | but also depend on other factors, (balance of benefits and harms, individual patient preferences, costs compared to alternatives, and accessibility in the local context)  

## Guidelines: 2 Types of Statement

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<th>Recommendations</th>
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<td>statements based on clinical research, eg Systematic reviews of RCTs for treatments.</td>
<td>statements about what action should be taken in particular clinical circumstances.</td>
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Informed by the factual evidence (the “evidence”) but also depend on other factors, (balance of benefits and harms, individual patient preferences, costs compared to alternatives, and accessibility in the local context).  

If considering whether to start warfarin in a patient with atrial fibrillation:

“warfarin reduces the risk of stroke by around 75%”
guidelines: 2 types of statement

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</tr>
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<td>Recommendations</td>
<td>statements about what action should be taken in particular clinical circumstances.</td>
</tr>
<tr>
<td></td>
<td>&quot;patients with CHAD2 scores of 2 or more should generally be commenced on warfarin&quot;</td>
</tr>
</tbody>
</table>
guidelines...

1. Guideline may not cover what we need to know
2. Guidelines may be wrong
   - out-of-date
   - no factual evidence to support the recommendations
   - not quantitatively expressed
   - bias or too-narrow an approach
3. Benefits and harms not considered
   - Patient’s preferences
4. Finding information in guidelines
   a. **Recommendations**: clear enough? These include details of who, what, when, where and how
   b. **Navigation**: can we find what we need easily?
4 good questions

1. What will happen if we do nothing?
2. What are the options?
3. What are the benefits and harms of each option?
4. How likely are the benefits and risks of each option?
checklist

3 Are benefits and harms considered?
   This is necessary to apply the patient’s preferences
   if yes, proceed. Otherwise discard...

   A subset of questions\textsuperscript{27} to enable patient preferences to be best
   addressed are these:

   1. What will happen if we do nothing?
   2. What are the options?
   3. What are the benefits and harms of each option?
   4. How likely are the benefits and risks of each option?

   if no, they may nevertheless be useful.
   if yes, these are \textit{ideal} guidelines – a bonus!

4 Can we find the information we need in the guideline?

   a Recommendations: are these clear enough for the clinicians to
   follow? These include details of who, what, when, where and how –
   otherwise we have to look up another source for them.

   b Navigation: can we find what we need easily?
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Evidence-based practice
“...conscientious application of the best evidence to healthcare decisions...”
"I’m sorry doctor, but again I have to disagree."
Evidence-based practice
how to do it in primary care

• as part of the consultation – Sackett
• literature search service
• EBP journal clubs

EBP journal club
eg 1. Can sutures get wet?

- EBP journal club in Mackay → Q?
- 857 patients in RCT: skin cancer wounds
- 8.4% vs 8.9% infection rate

Heal, C et al. BMJ 2006;332:10
eg 2. NSAIDs for UTI?

Symptomatic treatment (ibuprofen) or antibiotics (ciprofloxacin) for uncomplicated urinary tract infection? - Results of a randomized controlled pilot trial

Jutta Bleidorn1, Ildikó Gägyor1,2, Michael M Kochen2, Karl Wegscheider3 and Eva Hummers-Pradier1

Abstract

Background: Uncomplicated lower urinary tract infections (UTI) are usually treated with antibiotics. However, little evidence for alternative therapeutic options.

This pilot study was set out 1) to make a rough estimate of the diagnosis of uncomplicated urinary tract infection with a double-blind, randomised, placebo-controlled...
eg 2. NSAIDs for UTI?

<table>
<thead>
<tr>
<th></th>
<th>Ciprofloxacin</th>
<th>Ibuprofen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>80</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>d4</strong></td>
<td>17/33</td>
<td>21/36</td>
</tr>
<tr>
<td>Symptom-free</td>
<td></td>
<td>sig</td>
</tr>
<tr>
<td><strong>d9</strong></td>
<td>6/33</td>
<td>12/36</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; infection</td>
<td>NS</td>
<td></td>
</tr>
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eg 2. NSAIDs for UTI?

- Rx UTIs as ARIs?
- effective UTI symptomatic treatment
- ?alternative management for healthy women with UTI?
- needs larger RCT... €1.4m
eg 3. Vit D to prevent influenza?

Randomized trial of vitamin D supplementation to prevent seasonal influenza A in schoolchildren

Misuyoshi Umashima, Takaaki Segawa, Minoru Okazaki, Mana Kurihara, Yasuyuki Wada, and Hiroyuki Ida

ABSTRACT

Background: To our knowledge, no rigorously designed clinical trials have evaluated the relation between vitamin D and physician-diagnosed seasonal influenza.

Objective: We investigated the effect of vitamin D supplements on the incidence of seasonal influenza A in schoolchildren.

Design: From December 2008 through March 2009, we conducted a randomized, double-blind, placebo-controlled trial comparing vitamin D3 supplements (1200 IU/d) with placebo in schoolchildren. The primary outcome was the incidence of influenza A, diagnosed with influenza antigen testing with a nasopharyngeal swab specimen.

Results: Influenza A occurred in 18 of 167 (10.8%) children in the vitamin D3 group compared with 31 of 167 (18.6%) children in the placebo group (relative risk (RR), 0.58; 95% CI: 0.34, 0.99; P = 0.04). The reduction in influenza A was more prominent in children who had not been taking other vitamin D supplements (RR: 0.36; 95% CI: 0.17, 0.79; P = 0.006) and who started nursery school after age 3 y (RR: 0.36; 95% CI: 0.17, 0.78; P = 0.005). In children with a previous diagnosis of asthma, asthma attacks as a secondary outcome occurred in 2 children receiving vitamin D3 compared with 12 children receiving placebo (RR: 0.17; 95% CI: 0.04, 0.73; P = 0.006).

Conclusion: This study suggests that vitamin D3 supplements during the winter may reduce the incidence of seasonal influenza A in schoolchildren.

SUBJECTS AND METHODS

Study design

A multicenter, randomized, double-blind, parallel-group trial was conducted at http://...
### eg 3. Vit D to prevent influenza?

<table>
<thead>
<tr>
<th></th>
<th>Vit D</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza A</td>
<td>18</td>
<td>31</td>
</tr>
<tr>
<td>Influenza B</td>
<td>39</td>
<td>28</td>
</tr>
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334 healthy children

**Am J Clin Nutr 2010; 91:1255**
research productivity in primary care:

54 outputs in 1999 in Australia in 21 journals
Over 10 years 1990 -99=

1 article / 1000 Drs / year

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</tr>
<tr>
<td>Medicine</td>
<td>105</td>
</tr>
<tr>
<td>Surgery</td>
<td>61</td>
</tr>
<tr>
<td>Public Health</td>
<td>148</td>
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research productivity in primary care:

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<tr>
<td>Primary care</td>
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<td>160</td>
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<td>Surgery</td>
<td>68</td>
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Glasziou’s triangle

- **Leaders:** designing, finding funds, managing
- **Collaborators:** participating, enrolling patients
- **Users:** EBM finding results, putting them to work for patients
what I said

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“On the evidence I have Frau Braun, you are statistically insignificant”

Questions?
we can talk later over coffee or beer...