Getting evidence into practice

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barriers and challenges to getting evidence in to practice evidence for interventions to promote implementation in dental practice.
“Leaks” between research & practice

The Evidence Pipeline

“Leaks” between research & practice

The Impact of inappropriate targeting
Barriers to Changing Practice

Knowledge and attitudes of practitioner
  • Information overload
  • Clinical uncertainty
  • Influence of opinion leaders
  • Obsolete knowledge

Patient factors
  • Demands for care
  • Perceptions and beliefs about appropriate care
  • Compliance with clinical guidance

Practice environment
  • Time constraints
  • Poor practice organisation


Barriers to Changing Practice

Educational environment
- Outdated undergraduate education
- Inappropriate continuing education
- Lack of incentives to participate in effective educational activities

Wider health system
- Inappropriate funding system
- Lack of financial support for innovation
- Failure to provide practitioners with access to appropriate information

Social environment
- Media influence in creating demands for treatment
- Commercial concerns promoting products and equipment


Barriers Affecting Change in Practice

- Finance – risk of loosing income
- Irregular patient attendance
- Poor staff loyalty
- Poor staff communication
- Not having a financial stakehold
- No access to peer support internal/external
- Personal – inertia or negative attitude
- Relying on one educational sources e.g. journals

Barriers to Change

Operate at 3 levels

- Individual
- Practice environment
- Health care system
## Interventions to promote the implementation of research findings

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Consistently effective interventions</th>
<th>Interventions of variable effectiveness</th>
<th>Interventions that have little or no effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational outreach visits</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reminders (manual or computerised)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multifaceted interventions (a combination that includes two or more of: audit and feedback, reminders, local consensus processes, or marketing)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactive educational meetings (workshops that include discussion or practice)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit and feedback</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>The use of local opinion leaders</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Local consensus processes</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Patient mediated interventions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational materials e.g. clinical practice guidelines, audiovisual materials, and electronic publications)</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Didactic educational meetings (such as lectures)</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Bero L et al Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings. *BMJ* 1998;317:465-468
Effectiveness of Dissemination and Implementation Strategies

235 studies, 309 comparisons

• single interventions median effect size
  - education +8% (+4 to +17)
  - audit and feedback +7% (+1 to +16)
  - reminders +13% (-1 to +34)

• single vs. multi-faceted interventions
• limited economic evaluation
• no evidence on which strategies work best in different contexts
• majority of studies conducted in USA
• few conducted in dental practice

HTA Systematic Review of Effectiveness and efficiency of guideline dissemination and implementation (Grimshaw et al 2004)
Evidence-based Guidelines

- **SIGN** (Third Molars, Prevention Pre-school, Prevention 6-16 yr old)
- **NICE** (Wisdom teeth, Implants for orofacial reconstruction, Dental Recall, Head & Neck Cancer, HealOzone, Infective endocarditis)
- **SDCEP** (Scottish Dental Clinical Effectiveness Programme)
- **ADA** (Fissure Sealants, Infective Endocarditis, Topical Fluoride, Reconstituting Infant Formula, Fluoride Supplements, Non-Fluoride Caries Preventive Agents)
Scottish Clinical Effectiveness Programme (SDCEP)

- Conscious Sedation
- Decontamination-Cleaning of Dental Instruments
- Dental Caries in Children
- Drug Prescribing (Second Edition)
- Emergency Dental Care
- Oral Health Assessment and Review
- Oral Health Management of Patients Prescribed Bisphosphonates
- Practice Support Manual

www.sdcep.org.uk
Third Molar Extraction

- Commonly performed operation
- SIGN / NICE guidelines recommend that they should not be performed in symptomless patients.
Numbers of surgical and non-surgical third molar treatments and general anaesthetic treatments per 1000 claims in Scottish General Dental Service.

Tilley C, Crawford F, Clarkson J, Pitts N, McCann M. What’s the evidence that NICE guidance has been implemented? Analysis is subject to confounding. BMJ. 2005 May 7;330(7499):1084-5; author reply 1085-6.

NICE - Guidance on the removal of wisdom teeth
SIGN 43 - Management of Unerupted and Impacted Third Molar Teeth
Have prevention guidelines had an impact?

- Some of best evidence of effectiveness in dentistry –
  - is for topical fluorides and fissure sealants for caries

- Cochrane topical fluoride review
  - Gel 25% reduction
  - Varnish 46% reduction
  - Toothpaste 24% reduction
  - Mouthrinse 26% reduction

- Cochrane Sealant Review
  - 57% reduction at 48-54 months

- However uptake in general practice is low.
Latest SIGN Recommendations

Preventive treatments

• **A -** Fluoride varnish should be applied at least twice yearly in all children.

• **A -** Resin-based fissure sealants should be applied to the permanent molars of all children as early after eruption as possible.

• **GPP -** Glass ionomer sealants may be considered if the application of a resin-based sealant is not possible.

SIGN 138 • Dental interventions to prevent caries in children

A national clinical guideline

March 2014

www.sign.ac.uk/guidelines/fulltext/138/
Implementation –SIGN

Internal barriers by:

- developing guidelines according to a highly respected methodology
- ensuring clarity of definitions, language, and format
- presenting the guideline in a way appropriate to target group(s), subject matter, and the intended use.
Implementation – SIGN

- external barriers by developing guideline specific implementation strategies consisting of elements from the following four domains.
  - Improving processes
  - Awareness raising and education
  - Networking
  - Implementation support tools
Fluoride varnish applications

Increased risk

% GDPs applying Fluoride Varnish

<table>
<thead>
<tr>
<th>GDPs applying Fluoride Varnish</th>
<th>Never</th>
<th>Very few</th>
<th>Some</th>
<th>Most</th>
<th>Every</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPs applying Fluoride Varnish</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>GDPs applying Fluoride Varnish</td>
<td>11.4</td>
<td>13</td>
<td>15.4</td>
<td>19.4</td>
<td>20.6</td>
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<tr>
<td>GDPs applying Fluoride Varnish</td>
<td>29.9</td>
<td>28</td>
<td>33.1</td>
<td>28.5</td>
<td>27.7</td>
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<tr>
<td>GDPs applying Fluoride Varnish</td>
<td>28</td>
<td>23</td>
<td>14</td>
<td>23</td>
<td>17.6</td>
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<tr>
<td>GDPs applying Fluoride Varnish</td>
<td>8.1</td>
<td>11.9</td>
<td>7</td>
<td>7</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Never | Very few | Some | Most | Every
Variation in sealant use

![Chart showing variation in sealant use with data points and control limits.](chart.png)
ERUPT: Is fee & education more effective than either strategy alone?

- 908 GDP Population
- 337 Sampled
- 149 Recruited
- 58 ineligible
- 130 refused/no response

Control
- PFS = 25%

Fee
- 64%
- PFS = 35%

Education
- 84%
- PFS = 27%

Fee & Edu
- 64% (Fee)
- 73% (Edu)
- PFS = 31%

PFS placement fee effect size: 9.8% (CI: 1.8, 17.8)
PFS placement education effect size: 4.1% (CI: -3.9, 12.2)

Behaviour Change

- Research in Scotland using theoretical domains framework by Childsmile group and TRiADs
- COM-B System
Findings

- Gap between current practice and guidance recommended practice
- No difference observed following the publication of the SDCEP guidance
- Motivation and capabilities predict best practice
- Underscores the need to further intervene to promote FVA in dental practice in line with guidance.
- Interventions most likely to succeed increase:
  - Dentists knowledge of the guidance,
  - Dentists beliefs that ensuring varnish is applied is their responsibility
  - parental desire for FVA
Solutions for individuals

- Adopt and EB Approach
- Develop Question, Appraisal and Searching Skills
- Identify useful journals/internet resources
- Educational Px
- Personal Development Plans

Presentations will cover:
1. search strategy;
2. search results;
3. the validity of this evidence;
4. the importance of this valid evidence;
5. can this valid, important evidence be applied to your patient;
6. your evaluation of this process.

3-part Clinical

Target Disorder:

Intervention (+/- comparison):

Outcome:

Date and place to be filled:
Solutions for Practice & Systems

- Practices
  - Changes within smaller practice environments should be more easily achieved.
  - The bigger the establishment the bigger the challenge.
  - CATS / DEBTs Critically Appraised Topics / Dental Evidence –based Topics

- Systems
  - The biggest challenge?
CATS / DEBTs

- Structure
  - Question
  - Clinical bottom line
- Intro
- PICO question
- Search strategy
- Findings
- Discussion

Creating a DEBT

Derek Richards
Editor, Evidence-based Dentistry

*Evidence-Based Dentistry* (2007) 8, 2. doi: 10.1038/sj.ebd.6400484
Behaviour changes references


- www.triads.org.uk/

- www.child-smile.org