Getting evidence into practice

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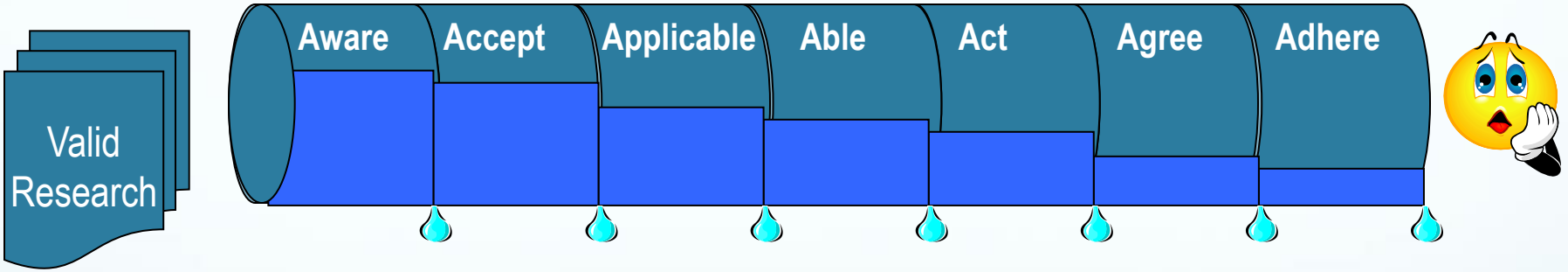
barriers and challenges to getting evidence in to practice

evidence for interventions to promote implementation in dental practice.

“Leaks” between research & practice

The Evidence Pipeline

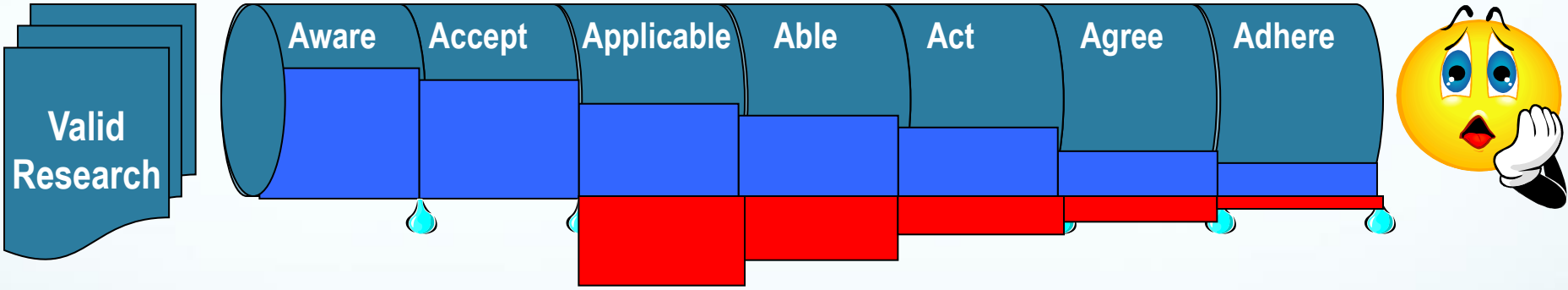


0.8 x 0.8 x 0.8 x 0.8 x 0.8 x 0.8 x 0.8 = 0.21

Glasziou P, Haynes B. The paths from research to improved health outcomes ACP J Club. 2005 Mar-Apr;142(2):A8-10.

“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

Oxman A, Flottrop S. An overview of strategies to promote implementation of evidence based health care. *In* Silagy C andHaines A (eds) *Evidence based practice in primary care.* London: BMJ Books, 1998

Haines A, Donald A. Making better use of research findings. *Br Med J* 1998;**317**: 72-75.

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- Outdated undergraduate education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

Oxman A, Flottrop S. An overview of strategies to promote implementation of evidence based health care. *In* Silagy C andHaines A (eds) *Evidence based practice in primary care.* London: BMJ Books, 1998

Haines A, Donald A. Making better use of research findings. *Br Med J* 1998;**317**: 72-75.

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

Watt R, McGlone P, Evans D, Boulton S, Jacobs J, Graham S, Appleton T, Perry S, Sheiham A. The facilitating factors and barriers influencing change in dental practice in a sample of English general dental practitioners.Br Dent J. 2004 Oct 23;197(8):485-9; discussion 475.

Barriers to Change

Operate at 3 levels

- Individual
- Practice environment
- Health care system

Interventions to promote the implementation

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

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)

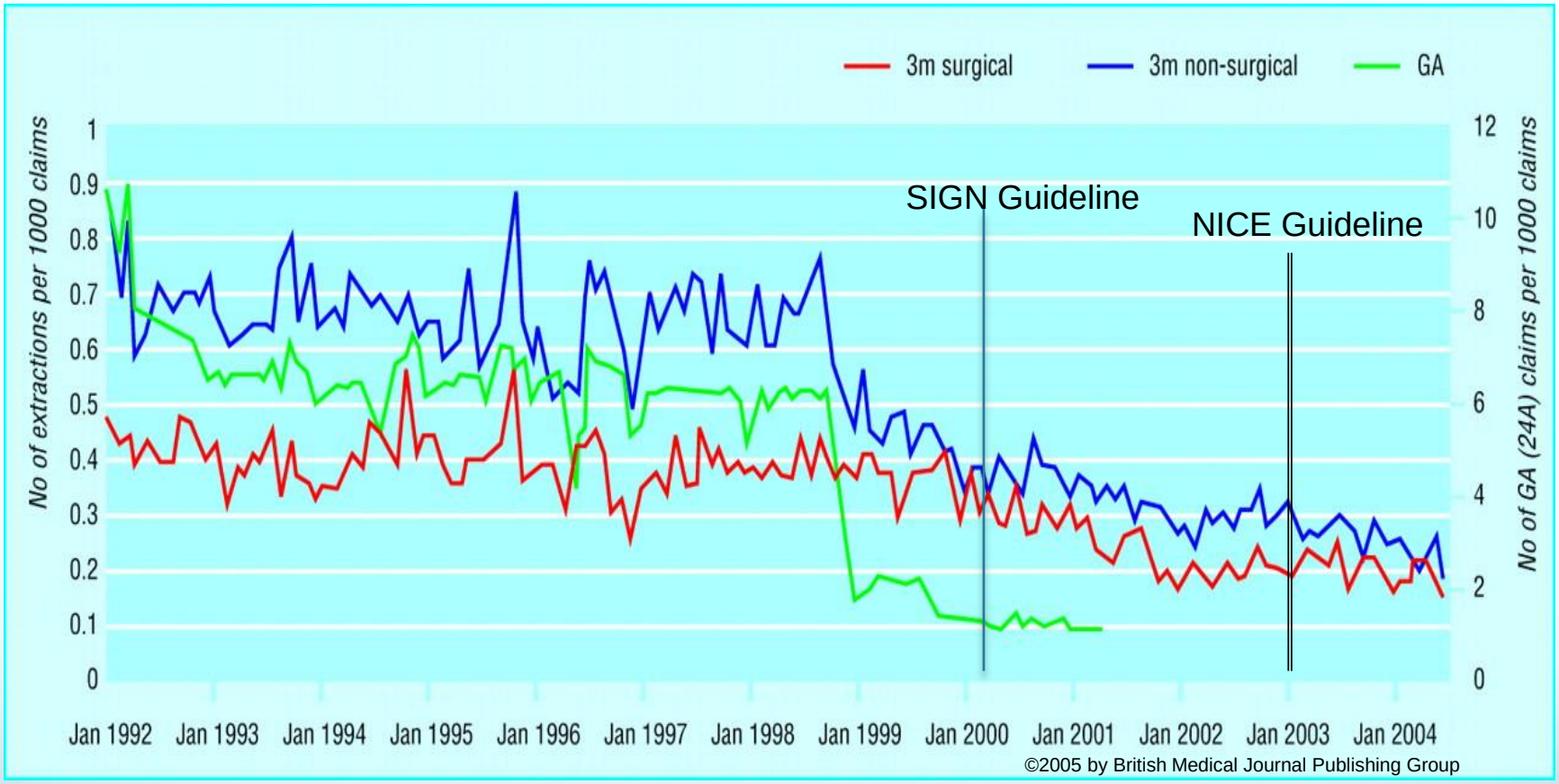
- Conscious Sedation
- Decontamination-Cleaning of Dental Instruments
- Dental Caries in Children
- Drug Prescribing (Second Edition)
- Emergency Dental Care
- Oral Health Assessment and Review
- Oral Health Management of Patients Prescribed Bisphosphonates
- Practice Support Manual

www.sdcep.org.uk

Third Molar Extraction

- Commonly performed operation
- SIGN / NICE guidelines recommend that 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.

www.sign.ac.uk/guidelines/fulltext/138/

Implementation –SIGN

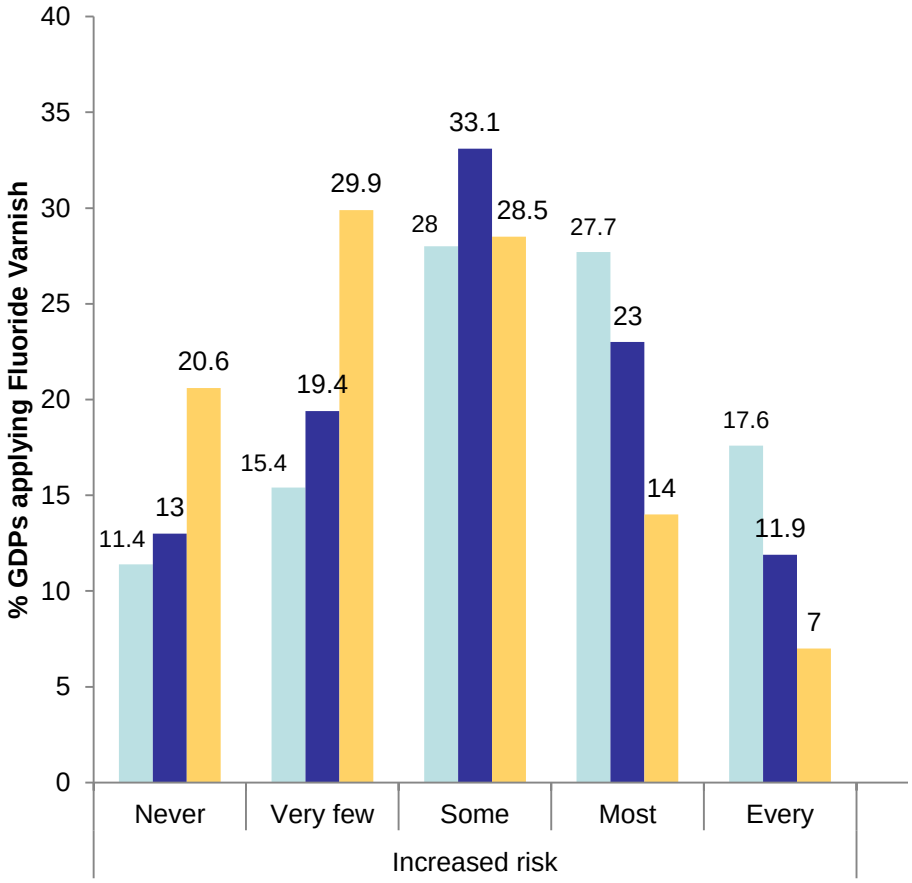
Internal barriers by:

- 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.

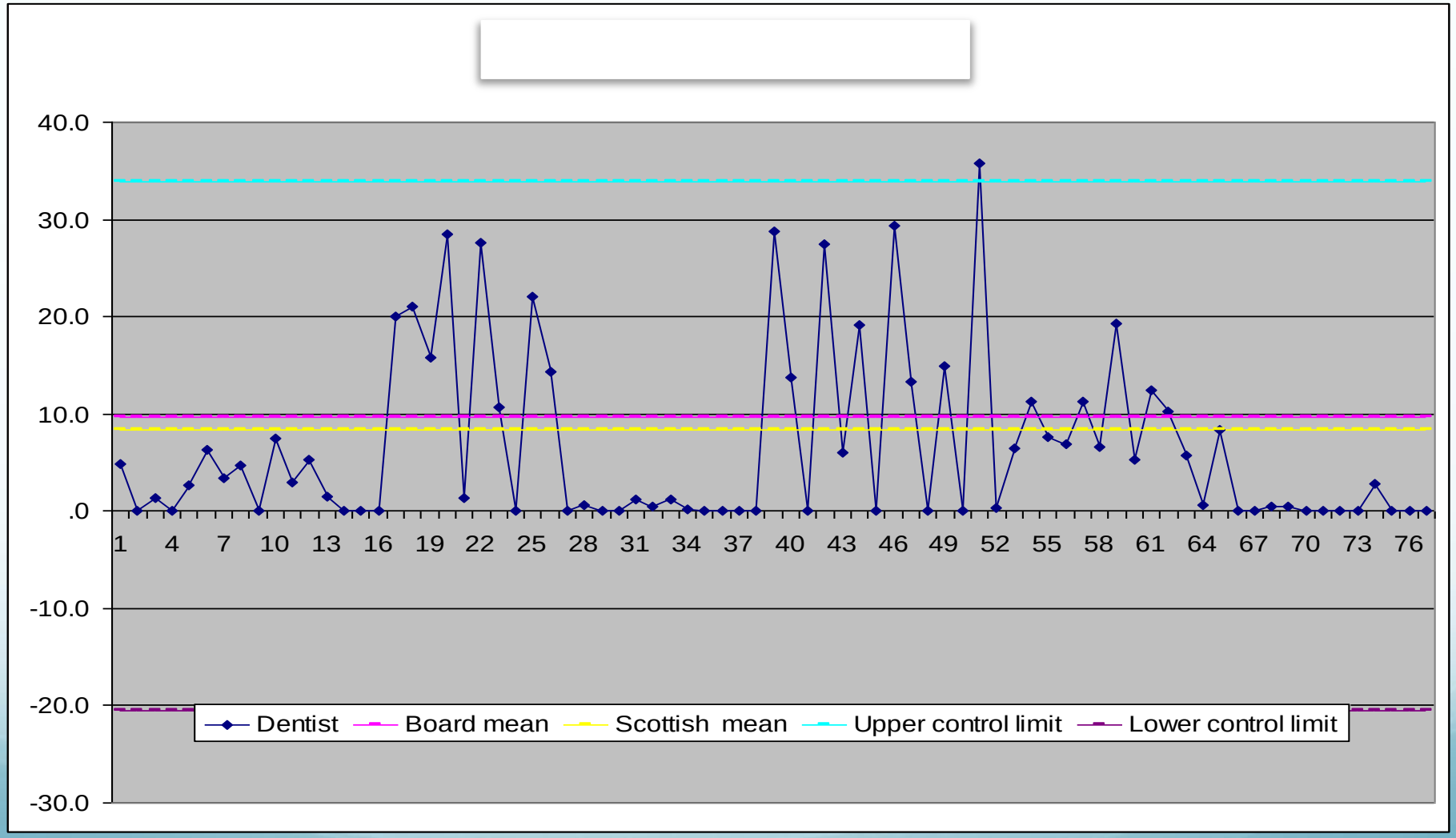
Implementation – SIGN

- 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

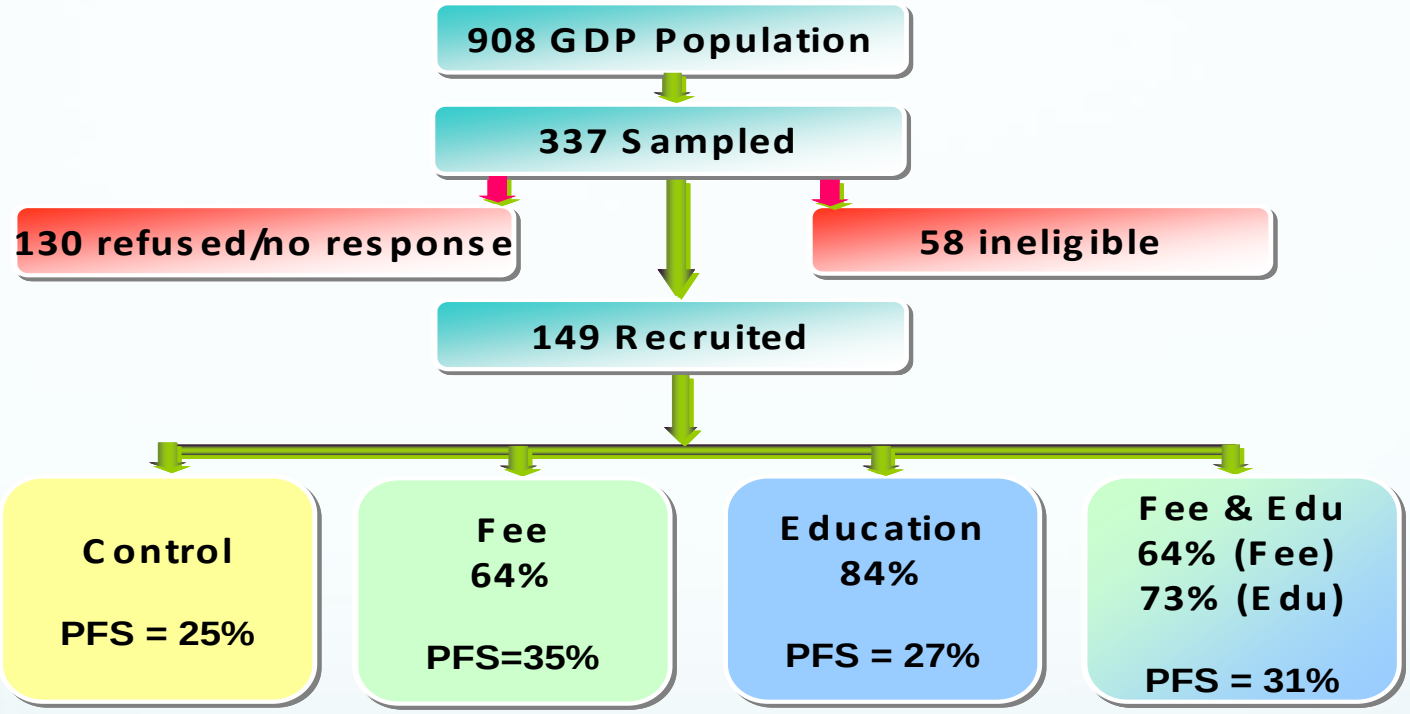
Fluoride varnish applications



Variation in sealant use



ERUPT: Is fee & education more effective than either strategy alone?



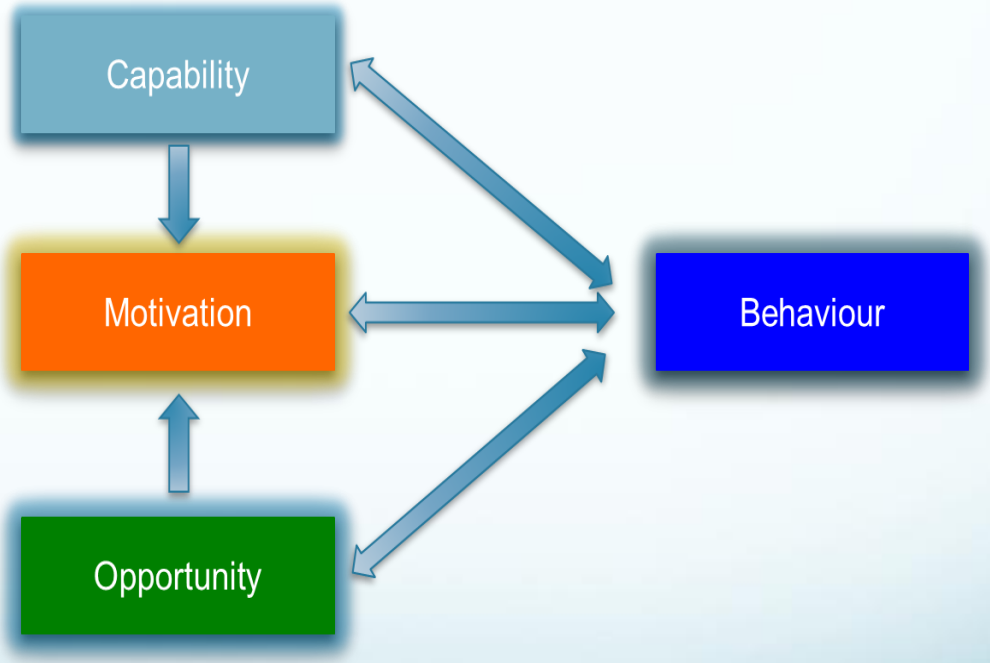
PFS placement fee effect size: 9.8% (CI: 1.8,17.8)

PFS placement education effect size: 4.1% (CI: -3.9,12.2)

Clarkson JE, et al. Changing clinicians' behavior: a randomized controlled trial of fees and education. J Dent Res. 2008 Jul;87(7):640-4.

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

TRiaDS
Translation Research in a Dental Setting

CHILDSMILE

Solutions f

- Adopt and EB Approach
  - Develop Question, Appraisa
- Identify useful journals/inte
- Educational Px
- Personal Development Pla

Patient's Name

Learner:

3-part Clinical

Target Disorder:

Intervention (+/- comparison):

Outcome:

Date and place to be filled:

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.

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

- Clarkson JE, et al The translation research in a dental setting (TRiaDS) programme protocol. Implement Sci. 2010 Jul 20;5:57.
- Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. Implement Sci. 2011 Apr 23;6:42.
- French SD, Green SE, O'Connor DA, et al. Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework. Implement Sci. 2012 Apr 24;7:38.
- Elouafkaoui P, Bonetti D, Clarkson J, Stirling D, Young L, Cassie H. Is further intervention required to translate caries prevention and management recommendations into practice? Br Dent J. 2015 Jan;218
- Gnich W, Bonetti D, Sherriff A, Sharma S, Conway DI, Macpherson LM. Use of the theoretical domains framework to further understanding of what influences application of fluoride varnish to children's teeth: a national survey of general dental practitioners in Scotland. Community Dent Oral Epidemiol. 2015 Jun;43(3):272-81.
- www.triads.org.uk/
- www.child-smile.org

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