Evidence-based practice is here to stay - it’s time to empower dentists to implement the concept

Asbjørn Jokstad
Prosthodontics
Faculty of Dentistry, University of Toronto
The graduate

Head/ Staff/ Demonstrator
-filtered

“Curriculum”

”The Classic literature”

Publications in dentistry
The graduate

- Has been taught and can perform many basic procedures - not necessarily the most modern
- No hands-on experience with many procedures common in modern dental clinics
A rapidly changing society
A rapidly changing society

1. There is an Information Explosion in all fields of Biomedicine
A rapidly changing society

The production of new knowledge in biomedicine is at maximum in historical context

- Tremendous growth in publications
- Related to numbers of physicians and scientists
- Infomercial publications
Dental journals in circulation

Source: Ulrich’s International Periodicals Directory
The Information Overload

- Advertising
  - producers
  - colleagues
- Meetings/courses
- Colleagues
- WWW
- Patients & (-groups)
- Popular magazines & Media

Dental ‘science’
25 000 articles/yr
2. We need to consider not only the amount of information, but also the quality of this information.
There is an Information Explosion in all fields of Biomedicine

New knowledge in oral sciences is today generated by different experts
Clinical practitioners

- Pragmatists: what works - what creates problems?
- Great diversity of experience, interest and capacity
- Reporting draw on a panoply of experience
- GPs/specialists; single/teams; secondary/tertiary care
Scientists

• Creates “scientific evidence”
• Formulation of ideas, hypotheses, study design, data collection
• Peer review, internal/external validity, debates within paradigms
• Findings are reported in probabilities, not absolutes
Critical appraisers

- Epidemiologists
- Statisticians
- Social scientists
- Health economists
- Clinicians

- Appraise the evidence for clinical care and practice
- Collect, abstract and evaluate publications
- Debates about values and balance between consensus and evidence, rigour of data and application of statistics
Guideline developers

- Creates guidelines, protocols, and standards
- Local consensus, sometimes national guidelines; Delphi strategies versus AGREE approach
- Often clinical specialists seeking ways to influence peers
A rapidly changing society

1. The information production is at maximum in historical context

2. The quality of this information varies

3. Established ideas and concepts are constantly being replaced
A rapidly changing society

1. The production of new knowledge is at maximum in historical context
2. The quality of information varies
3. Incessant replacements of established ideas and concepts
4. Information technology has improved the potential for information transfer to everybody
New patients?

Realistic white shades for special cosmetic needs

SYNERGY® Super White shades are ideal for restoring whitened teeth and deciduous teeth.

Only SYNERGY® offers three different bright white shades selected by dentists:

- Super White N (neutral)
- Super White O (opaque)
- Super White P (pearl)

Let SYNERGY® Super White assist you with your cosmetic needs.

Before veneer

After SYNERGY® Super White veneer
Patient access to Information

✓ Wish to remain sound, look healthy, different? .... young!!!
✓ Competitive health providers and information sources
✓ Patient information and communication
5. General practitioners need new knowledge to meet the expectations of educated patients in this information age.
Are their needs met?
What would you answer be if ... a 66 year old woman comes to your clinic because she feels she hasn’t received any help from her former dentist about oral lichen planus. She wants to confer with you about a new Herbal Tea treatment described in the latest issue of ‘Health & Fitness’
What to do when professionally uncertain?

Apply:

• A patho-physiological approach: this makes sense...
What to do when professionally uncertain?

Apply:

- A patho-physiological approach: this makes sense..
- An expert / “how I was trained” approach: I learned this worked / didn't work...
What to do when professionally uncertain?

Apply:
- A patho-physiological approach: this makes sense
- An expert / “how I was trained” approach: I learned this worked / didn't work...
- An anecdotal approach.: this didn't work last time..
What to do when professionally uncertain?

- Can I consult a colleague?
- Are my journals and textbooks organised and updated?
- Is a relevant library nearby?
- Can I find the answers on the Internet?
"oral lichen planus" - Google Search - Microsoft Internet Explorer provided by Faculty of Dentistry

Lichen Planus Treatment
LP-tab.com - A herbal remedy to treat Lichen Planus! Guaranteed to work.

Refine results for "oral lichen planus":
Treatment Tests/diagnosis For patients From medical authorities
Symptoms Causes/risk factors For health professionals Alternative medicine

Oral lichen planus - MayoClinic.com
Lichen planus — Comprehensive overview covers causes, symptoms and treatments. Includes picture
www.mayoclinic.com/health/oral-lichen-planus/DS00784 - 26k - Cached - Similar pages

eMedicine - Oral Lichen Planus - Article by Philip Sugerman, MDSc...
Oral Lichen Planus - Oral lichen planus (OLP) is a chronic inflammatory disease that causes bilateral white striations, papules, or plaques on the buccal...
www.emedicine.com/derm/topic863.htm - 112k - Cached - Similar pages

MedlinePlus Medical Encyclopedia: Lichen planus
Call for an appointment with your health care provider if oral lichen planus persists or worsens despite treatment, or if your dentist recommends adjustment...
www.nlm.nih.gov/medlineplus/ency/article/000867.htm - 26k - Cached - Similar pages

International Lichen Planus Self Help Web Site
Welcome to the Oral Lichen Planus Support Web site at Baylor College of Dentistry, a component of The Texas A&M University System Health Science Center...
www.tamccd.edu/lichen/ - 35k - Cached - Similar pages

Lichen planus - Wikipedia, the free encyclopedia
Oral lichen planus may present in one of three forms. The reticular form is the most...
1357 articles
179 Reviews
6. A paradigm shift in dental education

In spite of an overload of information:

- only a small fraction is truly appropriate for direct application.
- and we are ill equipped to digest and synthesize this information.

Busy practice + reimbursement pressure
1. Information explosion
2. Quality of information
3. No theories are constant
4. Educated patients with access to information
5. Daily information needs
6. Paradox
The situation for many dentists today

1. We need new information every day, but most of our needs are never met.

2. Consequently, our clinical knowledge and performance in the clinic deteriorates.

3. And traditional instructional continuing education courses do not improve our performance.
Longevity

Risk factors

Outcomes probabilities

Coming to a correct treatment decision

QOL

Incremental Cost

Worst Case Scenario
Influences on our treatment decisions

- Resources
- The last patient
- Experience
- Evidence
- Litigation
- Education
- Audit
- Payment systems

Dental Practice
Can future clinicians be taught a strategy for how to cope with changes?
Evidence-Based Medicine

A New Approach to Teaching the Practice of Medicine

Evidence-Based Medicine Working Group

A NEW paradigm for medical practice is emerging. Evidence-based medicine de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision making and stresses the examination of evidence from clinical research. Evidence-based medicine requires new skills of the physician, including efficient literature searching and the application of formal rules of evidence evaluating the clinical literature.

An important goal of our medical residency program is to educate physicians in the practice of evidence-based medicine. Strategies include a weekly, formal academic half-day for residents, devoted to learning the necessary skills; recruitment into teaching roles of physicians who practice evidence-based medicine; sharing among faculty of adverse events of common practice; and, most importantly, improving the literature skills of the faculty itself.

A patient with a 12-year history of seizures is admitted for a head CT scan. On examination, only a single left temporal lobe focus is present, and there is no edema. She is 37 years old, and her past medical history includes status epilepticus on the left side. The patient is taken to the operating room, and a craniotomy is performed. The specimen is sent for histopathologic examination. The patient is alert and oriented after surgery. The postoperative course is uneventful.

The specimen shows a small lesion of low-grade glioma. The patient is discharged home on the 3rd postoperative day with instructions to continue taking phenytoin. She is seen in follow-up 1 week later. The patient’s head CT scan shows no change. She is discharged home on the 3rd postoperative day with instructions to continue taking phenytoin.

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Evidence-Based Practice:

Making clinical decisions

The patient's circumstances
The patient's wishes
The evidence

Primary research papers

Modified from Haynes et al.
BMJ 1998;317:273-6
How many in the audience here can comfortably state that they were adequately trained to critically appraise research papers?
Flexner Report, 1910

- Accounts of all medical schools throughout the US and Canada
- General plan for reconstruction
- Pathophysiological rationale
- Foundation for all medical and dental curriculums until recently
Dental journals in circulation

Source: Ulrich's International Periodicals Directory
Because of the volume and time constraint....

Perhaps we can stick to read only review papers?
Generating evidence from research

Synthesising the evidence

Appraise for reliability validity and results

Making clinical decisions

The patient's circumstances

The evidence

The patient's wishes

Reviews in Dentistry (n=12,367) (2007: 191)

(Source: Medline. OVID search strategy: review.pt + exp dentistry)
Reviews - problems

Usually:

- written by a single topic expert
- based on their understanding of the literature
- no methodology is given
- a broad based subject is addressed
- the conclusions and advises differ
Example: Are splints an efficacious intervention for patients with TMD?
Oral splints: the crutches for temporomandibular disorders and bruxism?

T. T. Dao and G. J. Lavigne
Faculty of Dentistry, University of Toronto, Ontario, Canada.

Despite the extensive use of oral splints in the treatment of temporomandibular disorders (TMD) and bruxism, their mechanisms of action remain controversial. Various hypotheses have been proposed to explain their apparent efficacy (i.e., true therapeutic value), including the repositioning of condyle and/or the articular disc, reduction in the electromyographic activity of the masticatory muscles, modification of the patient's "harmful" oral behavior, and changes in the patient's occlusion. Following a comprehensive review of the literature, it is concluded that any of these theories is either poor or inconsistent, while the issue of true efficacy for oral splints remains unsettled. However, the results of a controlled clinical trial lend support to the effectiveness (i.e., the patient's appreciation of the positive changes which are perceived to have occurred during the trial) of the stabilizing splint in the control of myofascial pain. In light of the data supporting their effectiveness but not their efficacy, oral splints should be used as an adjunct for pain management rather than a definitive treatment. For sleep bruxism, it is prudent to limit their use as a habit management aid and to prevent/limit dental damage potentially induced by the disorder. Future research should study the natural history and etiologies of TMD and bruxism, so that specific treatments for these disorders can be developed.

..the true efficacy for oral splints remains unsettled.
Occlusal treatments in temporomandibular disorders: a qualitative systematic review of randomized controlled trials

Heli Forssell, Eija Kalso, Pirkko Koskela, Raili Vehmanen, Pauli Puukka, Pentti Alalen

Abstract

To investigate whether studies are in agreement with current clinical practices, a systematic review of randomized controlled trials (RCTs) of occlusal treatment studies from the period 1966 to March 1999 was undertaken. Eighteen studies met the inclusion criteria, 14 on splint therapy, and 4 on occlusal adjustment. The trials were scored using the quality scale presented by Antczak et al., 1986a (A.A. Antczak, J. Tang, T.C. Chalmers, Quality assessment of randomized control trials in dental research. J. Methods. J. Periodontal Res. 1986a;21:305–314). The overall quality of the trials was fairly low, the mean quality score was 0.43/1.00 (range 0.12-0.78). The most obvious methodological shortcomings were inadequate blinding, small sample sizes, short follow-up times, great diversity of outcome measures and numerous control treatments, some of unknown effectiveness. Splint therapy was found superior to 3, and comparable to 12 control treatments, and superior or comparable to 4 passive controls, respectively. Occlusal adjustment was found comparable to 2 and inferior to one control treatment and comparable to passive control in one study. Because of the methodological problems, only suggestive conclusions can be drawn. The use of occlusal splints may be of some benefit in the treatment of TMD. Evidence for the use of occlusal adjustment is lacking. There is an obvious need for welldesigned controlled studies to analyse the current clinical practices. © 1999 International Association for the Study of Pain. Published by Elsevier Science B.V.
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12 refs appear in both papers

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SRs can show:

A review being published in a highly reputable journal does not necessarily mean it can’t be biased.
Therefore, the reviews should be "Systematic"
Systematic review

"Systematic reviews" appearing 1971, 1972, 1973?
"Systematic" review?

Is just a word!

Learn how to recognize one...
How many in the audience here can comfortably state that they were adequately trained to critically appraise secondary research papers?
Information is not synonymous to knowledge and even less so to clinical competence
How quickly do dentists adopt to new research information?

Impacted wisdom teeth?
TMD management?
Need for restoration replacement?
Caries and remineralization potential

Why does the science transfer to dentists seem to be ineffective?
SIGN Publication Number 43

Management of Unerupted and Impacted Third Molar Teeth

Scottish Intercollegiate Guidelines Network

A National Clinical Guideline

please note:

This guideline was issued in 2000 and will be reviewed in 2002 or sooner if new evidence becomes available. Any updates to the guideline in the interim period will be noted on the SIGN website. Comments are invited to assist the review process. All correspondence and comments for the guideline should be addressed to the SIGN Secretariat.
1979: NIH Consensus dev. Conference for removal of third molars


1996: NHS R&D. National guidelines

Sept 1997: FacDentSurg RoyCollSurg(Eng)

1998: Effectiveness Matters 3(2)

2000: NHS R&D HTA Programme

2000: SIGN Guidelines

2000: NICE Guidelines
...studies ....appear to motivate a more restrictive approach today compared with 10 years ago
Even if we have new research,

This is not necessarily known amongst the dental clinical practitioners.
Are dentists worse or better than other health professions?
The Cochrane Collaboration

- 1972: 1st trial
- 1972-1987: +6 trials
- 1989: 1st SR

From 1992
Even if we have new research,

Who should be responsible for disseminating (new) research results that impact directly on patient care?
Cutting edge research that will impact future oral health care

A Jokstad, FDI Scientific Affairs Manager
Ferney-Voltaire, France

Key words: Science, natural sciences, dentistry, oral medicine, stomatognathic diseases

This paper has been approved by the FDI Science Committee, comprising Professor LP Samaranayake (Chair), Professor Martin Tyas (Vice-Chair), Professor R Bliffar, Professor J Clarkson (IADR), Dr PL Fan, Professor A Jokstad Professor H Magloire and Professor H Suda.

The views expressed in this article are those of the authors and/or presenters and do not necessarily represent any policy positions of the IADR or the FDI.

One of the four missions of the FDI World Dental Federation is “to advance and promote the art, science and practice of dentistry”. Although FDI does not undertake any research on its own, the federation engages in the evaluation and synthesis of ongoing oral health research in order to present new and important findings to the practising dental community. The FDI has had a long working relationship with the International...
National and International Guidelines & Statements, Position papers and Proceedings

Patient issues
- Endocarditis
- Dental erosion
- Disabled patients
- Emergency treatment
- Neuralgia
- Sport
- Odontophobia, psychology, fear
- Oral mucosal problems
- Saliva and oral health
- Temporomandibular dysfunction

Public health issues
National and International Guidelines, Statements, Position papers & Proceedings. Meta-analyses

Patient issues
Public health issues
Precautions in the dental office
Materials, techniques & procedures
Specialised procedures
Education & Scientific issues
Dentists' world

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National and International Guidelines, Statements, Position papers, Proceedings & Meta-analyses

The oral health topics component of the Resources section is composed of a database, which contains scientific papers, publications, including Cochrane reviews, meta-analyses and review papers. The list is not comprehensive and by no means exhaustive, but hopefully it will lead you in the right direction.
The Canadian Collaboration on Clinical Practice Guidelines (CPGs) in Dentistry is the national, autonomous organization responsible for the development and maintenance of CPGs for Canadian dental practitioners. The collaboration was conceived and created by Canadian dentists with the support of both organized and academic dentistry. The unique structure of the CCCD builds on the strengths of its multiple stakeholders. Through their stakeholder groups, all members of the profession have a voice in the activities and direction of the CCCD.
Who should be responsible?

Who should be responsible?:
The state of research on oral implants
Thank you for your kind attention