Evidence-based Practice in Dentistry
Why Bother?

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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
  - from where and how can further training be obtained?
- Theoretic knowledge at zenith, from now on less time for reading / question of priorities
- Already from day 1 the science in dentistry advances further - how to stay updated?

Publications in dentistry

- Advertising - producers - colleagues
  - Teachers "Curriculum"
A rapidly changing society

1. There is an Information Explosion in all fields of Biomedicine

Dental Journals in circulation

Source: Ulrich’s International Periodicals Directory
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

Dentists’ daily situation: An information overload

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

Where and by who is new knowledge in oral sciences generated?

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

- General sciences
- Biological sciences
- Oral sciences
- Clinical
- Laboratory

- 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
- 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
Advancements require communication

Different educational backgrounds, evaluation of best practice
Different pressures, priorities, terminologies, preoccupations
BARRIERS: Ignorance-Defensiveness-Arrogance

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?
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 32 y patient calls four hours after a wisdom tooth has been removed and complain about bleeding, pain and severe swelling. She demands immediately some analgetics, some antifebriles and perhaps also antibiotics?

..or 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 when professionally uncertain?

Apply:

- A patho-physiological approach: this makes sense...
What to 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 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?
Dentists’ environment: Overload of information!

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

Dental 'science'
700 journals:
25000 articles/y

Dental literature

6. A paradox
In spite of an information overload... only a small fraction is truly appropriate for direct application... and we are ill equipped to digest and synthesize this information

What to when professionally uncertain?

Apply:
- A patho-physiological approach
- An expert / "how I was trained" approach
- An anecdotal approach
- Colleague consulting approach
- Organised and updated journals and textbooks
- Library approach
- Internet approach
- Confess that you don’t know what to do, or do something and pray... or invent some combination of approaches
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.

Influences on our treatment decisions
- Resources
- The last patient
- Experience
- Evidence
- Payment systems
- Litigation
- Education
- Audit

Dental Practice
Do we today prepare our future colleagues to change behavior, attitude and methods in the lights of new knowledge?

How quickly do dentists change in accordance with new research?
Impacted wisdom teeth?
TMD management?
Restoration replacement needs?
Caries and remineralization potential

Science transfer to dentists seems to be ineffective

...studies ....appear to motivate a more restrictive approach today compared with 10 years ago
Science transfer to dentists seems ineffective...is the problem that...
...research is difficult to access?
Science transfer to dentists seems ineffective. Is the problem that...

research is difficult to access... or understand?

But what about clinical guidelines?

..is the problem that...

research is difficult to access... or understand?

..what about clinical guidelines?

Are the existing guidelines bad or inappropriate?

....yes and no
..is the problem that...
...research is difficult to access or understand?
...clinical guidelines...are they bad or inappropriate?

Are the practicing dental professionals non-receptive?

....if so, who is responsible?
....and can something be done?

Our responsibilities as educators is to generate an ambition of life long learning and prepare them accordingly
Maybe this new “EBM” - thing can be of any help?

Evidence that we do more good than harm needs to be demonstrated using adequate study designs

1. A fundament for life long learning is to possess skills in critical appraisal
2. Critical appraisal of research must be an integral component of student training
3. Curriculums should progress from being PBL- to become EBD-based
All dental students should conduct at least one systematic review according to a PICO question because...

Consequently...

... conduct at least one systematic review because...

The student will

1. Identify differences in conclusions of studies and possibly grasp why

2. Recognize the state of current oral health research
The student will
1. Identify differences in conclusions of studies and possibly grasp why
2. Recognize the state of current oral health research
3. Identify opportunities for research
4. Train to recognize potential bias caused by poorly executed research or due to inadequate reporting

Evidence Based Practice
Practice of a process of life-long problem-based learning in which devoted care for our patients creates a need for evidence about the cutting edge knowledge concerning diagnosis, prognosis, therapy, and other clinical and health care issues.
(Sackett et al., 1995)
Two incentives for practicing Evidence-based Dentistry

• A strategy for solving clinical problems on a daily basis.
  - a practical aspect

Evidence-based Practice:

A strategy for being reasonably certain that my advises and treatment are the best available to my patients.
  - an ethical aspect
Ethical reasons?


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Favours treatment Favours control

0.5 1.0 2.0

0.5 1.0 2.0

0.5 1.0 2.0

P < .01 P < .001 P < .00001

RSE N M

Evidence Based Practice

The aim of evidence-based medicine is to eliminate the use of ineffective, expensive, or even dangerous medical decision-making

(Rosenberg & Donald, BMJ, 1995)

Evidence Based Dentistry?!

An increasingly fashionable tendency of a group of young, confident, and highly numerate medical academics to defame the performance of experienced clinicians by using a combination of epidemiological jargon and statistical manipulation.
Arguments, usually presented with near evangelistic zeal, that no health related action should ever be taken by a doctor, a nurse, a purchaser of health services, or a politician unless and until the results of several large and expensive Randomized Controlled Trials have appeared in print and approved by a committee of experts.

Replaces original findings with subjectively selected, arbitrarily summarised, laundered and biased conclusions of indeterminate validity or completeness. It has been carried out by people of unknown ability, experience, and skills using methods whose opacity prevents assessment of the original data.

How can evidence-based dentistry be integrated in our daily practice?
EBD practice
1. Generate focused clinical questions – On therapy, diagnostic tests, prognosis, harm, etc. (= PBL)
2. Efficiently find the evidence (=PBL)
3. Determine validity, results, applicability of evidence
4. Apply the results of appraisal in clinical practice / teaching
5. Evaluate own performance

How can we apply EBD in our daily practice?
1. By learning how to practice evidence-based dentistry ourselves
   - Books
   - Seminars
   - Internet
     • Courses
     • Articles
     • Link banks

Generating evidence from research
Synthesising the evidence
Making clinical decisions

Modified from Haynes et al.
BMJ 1998;317:273-6
2. By seeking and applying evidence-based dentistry summaries generated by others
   - Journals that critically appraise primary studies
   - Systematic reviews

How can we apply EBD in our daily practice?

Modified from Haynes et al. BMJ 1998;317:273-4
Cochrane Oral Health Group

- 250 members from 25 countries
- Specialist trials register ~14,000 entries
- Systematic reviews: near 90

http://www.cochrane-oral.man.ac.uk
How can we apply EBD in our daily practice?

2. By seeking and applying evidence-based dentistry summaries generated by others
   - Secondary Journals
   - Systematic reviews
   - IADR: International Collaboration for Evidence-based Dentistry

How can we apply EBD in our daily practice?

3. By accepting and applying practice protocols, policies and guidelines based on evidence-based principles

www.fdiworldental.org

Thank you for your kind attention