

The Faculty of Dentistry Khon Kaen University

Presents this Certificate of Appreciation To Associate Professor dr.odont Asbjørn Jokstad

In Recognition of the Contributions as a Speaker in

Evidence-Based Dentistry and Problem - Based Learning

October 11, 2001

Assistant Prof.Napa Sukjai

Chairman

1 An

(Assistant Prof.Niwut Juntavee)

Dean

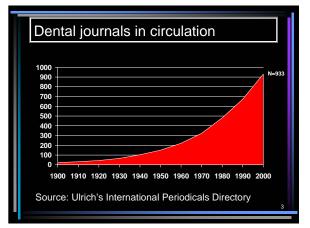
Oral sciences in the rapidly changing society in an age of information

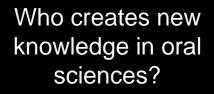
Asbjørn Jokstad Institute of Clinical Dentistry University of Oslo

10.11.2001 http://www.odont.uio.no/protetikk/khonkaen

A rapidly changing society

- The production of new knowledge is at maximum in historical context Rapid changes of new ideas and
- paradigms
- The <u>potential</u> for information transfer to everyone has improved by the information technology
- Affects us all
- -Students and teachers
- Patients
- -Researchers





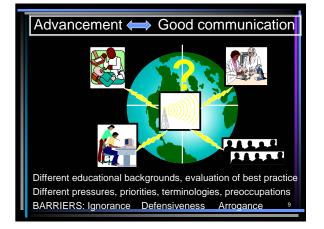
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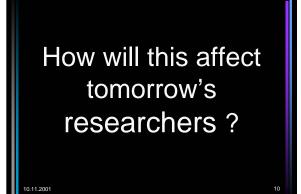














GTR Attachment gain -traditional reviews

Compared to open flap debridement = 2.7mm Laurell L. Gottlow J, Zybutz M, Persson R. Treatment of intrabony defects by different surgical procedures. A literature review. J Periodontology

by different surgical procedures. A literature review. J Periodontology 1998;69:303-313

Incorporation of uncontrolled and unblinded studies

Compared to open flap debridement = 1.6mm Cortellini P, Tonetti M. Focus on intrabony defects: guided tissue regeneration. Periodontology 2000 2000;22:104-132.

Unclear selection criteria for studies Inclusion of studies of short duration

GTR Attachment gain - systematic reviews

- A small benefit is apparent
- Results of clinical trials are not consistent
- Technically demanding treatment
- Local biological factors uncertain – e.g. "critical size", endotoxin remnants, etc. Jokstad. Norwegian Periodontal Society. Oslo, Nov 1999.

Needleman et al. Cochrane Library 2001;3.

Compared to open flap debridement = 1.1mm (Needleman et al. Cochrane Library 2001;3)

Suggestion: Attention to methodological rigorousness of primary and secondary research

- CONSORT statement for RCT
- 75/318/EEC: Good Clinical Practice for trials
- ISO TC194: Biological evaluation of medical devices
- CEN TC055 / DIN: Clinical investigation standards
- Cochrane Collaboration Handbook

Example 1: Diagnostics

Rapid developments of emerging technologies –e.g. caries diagnosis

Caries diagnosis

Traditional techniques

Visual Tactile

Radiological

Recently developed technologies Digital radiography - expert systems Laser fluorescence Electrical conductivity (EC)

Fibre optic (FOTI)

Emerging technologies

Quantitative laser-light induced fluorescence

Ultrasonography Alternating current impedance spectroscopy

Example 1: Diagnostics

 Rapid developments of emerging technologies

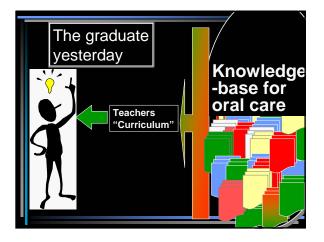
-e.g. caries diagnosis

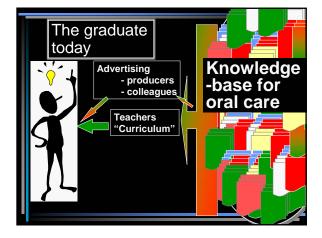
- Danger of blinding by technology
- Validation in appropriate settings and populations?

Example 2: Therapy

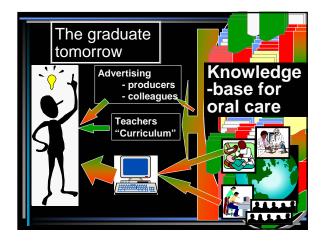
- Only small improvements can be anticipated
- Adequate study design, sample sizes and settings
- Need for RCTs, power calculations, international cooperation and multicentre studies

How will this affect tomorrow's teaching of dental students?









The graduate today and tomorrow
 Has been taught and can perform many
basic clinical procedures - not necessarily
the most modern
• No hands-on experience with many
procedures common in modern dental
L - How and from where should further
professional training be obtained?
 Theoretic knowledge at zenith, from now on
1 less time for reading / question of priorities
Already from day 1 the oral sciences
advances further - how to stay updated? 23

Suggestion: Educational strategy

Premise: Politically difficult to expand curriculum and length of study

- Problem based learning PBL
- Focus on "why"s instead of "how to"s
- Motivate on need for life-long learning
- Teach critical appraisal of new information
- Prepare how to meet tomorrow's knowledgeable patients' needs and requests
 - chowledgeable patients needs and requests

PBL- Problem based learning and teaching dentistry

10.11.2001

10.11.2001

I hear and I forget; I see and I remember; I do and I understand

Schools of Dentistry applying a PBL approach

U. Liverpool, England; U. Malmö, Sweden; U. Oslo, Norway; Trinity U., Dublin, Ireland Hong Kong U.; National U. Singapore; U Thammasat, Thailand;

U. of Adelaide, Queensland U.

U. California, Colorado, Columbia, Harvard School of Dental Medicine, Indiana, Pennsylvania , U. Southern California, U. Southern Illinois,

MEETINGS

- 1st. International Symposium on Problem-Based Learning in Dental Education. Lake Arrowhead, USA, April 1998. J Dental Education 1998; 62: 629-732.
- 2nd. Int. Symposium on Problem-Based Learning in Dental Education. Malmö, Sweden, September 2000
- Asian-Pacific Conference on PBL
- South-East Asian Assoc for Dental Education

WEB-RESOURCES:

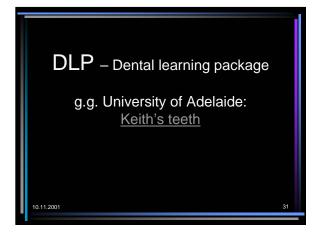
http://www.usc.edu/hsc/dental/ccmb

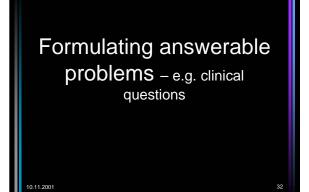
http://meds.queensu.ca/medicine/pbl/PBLTitle s.htm

http://www.samford.edu/pbl/how2.html

Barriers

- Resources required
- First line teachers are instructors = GPs!
- Compartmentalisation
- Clinical disciplines versus basic sciences
- Clinical discipline





Problems? ...

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? ..

Problems? ...

A 66 year old woman comes to your clinic due to oral lichen planus. She wants to confer with you about a new treatment option described in the latest issue of 'Health & Fitness'



Problems? ...

Tooth coloured materials are acceptable alternatives for amalgam.



Where do clinical questions arise from?

- 1. Clinical findings Gather and interpret findings
- 2. Etiology Identify causes for disease
- 3. Differential diagnosis Causes of patients' problem
- 4. Diagnostic tests Select and interpret diagnostic tests
- Prognosis estimate clinical course and complications
- 6. Therapy- treatments that do more good than harm
- 7. Prevention reduce the chance of disease
- 8. Self-improvement keep up to date, improve skills

Why train students to form clearly formulated questions

- Train to focus scarce learning time on evidence that is directly relevant to our patients' clinical needs
- Focus scarce learning time on evidence that directly addresses our particular knowledge needs
- 3. Suggest high-yield search strategies
- Suggest the forms that useful answers might take

Why train students to form clearly formulated questions

- 5. Can help us to communicate clearly when referring a patient (e.g. presenting patient situations)
- 6. Can help students to better understand the content of what we teach, while also modelling adaptive processes for lifelong learning.
- When we answer our questions, our curiosity is reinforced, our cognitive resonance is restored.

Example: Problem / hypothesis

"Tooth coloured materials are acceptable alternatives for amalgam in the posterior teeth"

What is being discussed?

- Caries / Replacement ?
 - primary/secondary?
 - large/small?
 - proximal / gingival / occlusal?

Intraoral location:

- premolars /molars?
- Patient:

adults/children
 » deciduous/permanent?

"Tooth coloured materials "

Composite resin (macrofill, microfill, hybrid, "flowables" ?) Composite resin with glassionomer addition? Composite resin, cemented inlay (clinic, laboratory?)

Ceramic, cemented inlay (sintered, cast, grinded?) Glassionomer (metal-reinforced, conventional?)

Glassionomer with resin?

"Polyglass", "ceromer", "crystal polymer", "polymer ceramic"?

Ormocer? - "The flowable ceramic"

Doxadent? - "The ceramic restoration that can be formed directly in the tooth"

For adults with large primary caries cavities in the occlusal surface of molars is xxxxxxxxx an acceptable alternative for amalgam

	adults with large primary caries cavities in the occlusal surface of molars is xxxxx an acceptable alternative for amalgam adults with small primary caries cavities in the occlusal surface of molars is xxxxx an acceptable alternative for amalgam
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	adults with small primary caries cavities in the buccal surface of molars is xxxxx an acceptable alternative for amalgam
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For	adults with small primary caries cavities in the approximal surface of premolars is xxxxx an acceptable alternative for amalga
For	adults with large secondary caries cavities in the approximal surface of premolars is xxxxx an acceptable alternative for ama
For	adults with small secondary caries cavities in the approximal surface of premolars is xxxxx an acceptable alternative for ama
For	

"Polyglass", "ceromer", "crystal polymer", "polymer ceramic", Ormocer, Doxadent

Formulating good and clinically relevant questions

- ... that can be answered by searching the literature...
- 1. Needs to be directly relevant for the actual problem;
- 2. Must be formulated in a way that facilitates the search for precise answers;
- 3. Should focus on and precisely describe four essential components

Four essential components

1. <u>The patient and / or problem that is addressed</u>: How do I describe a patient group similar to mine? 2. <u>The main intervention or exposure considered</u>: Which treatment, diagnostic test, prognosis-factor or exposure am I contemplating?

- 3. <u>Comparable intervention, if relevant</u>: Which main alternative can be used for comparison with the intervention?
- 4. The clinical outcome(s) of interest:

What do I hope to achieve, measure, improve or influence?

Example: Problem / hypothesis

- "Tooth coloured materials are acceptable alternatives for amalgam in the posterior teeth"
 - 1. Patient or problem that is addressed?
 - 2. <u>Intervention considered?</u>
 3. <u>Comparable intervention considered?</u>
 - 4. The clinical outcome of interest

Tooth coloured materials are acceptable alternatives for amalgam in the posterior teeth.

For adults with small primary caries cavities in the approximal surface of premolars are (hybrid) composite resins acceptable alternatives for amalgam

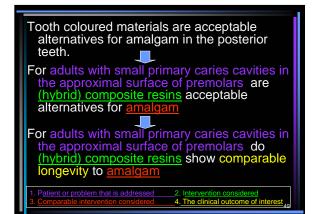
Patient or problem that is addressed
 Intervention considered
 Comparable intervention considered

Tooth coloured materials are acceptable alternatives for amalgam in the posterior teeth.

For adults with small primary caries cavities in the approximal surface of premolars are <u>(hybrid) composite resins</u> acceptable alternatives for <u>amalgam</u>

What is meant by "<u>acceptable</u>"? Patient criteria?

Dentist criteria? / caries? / longevity? / fracture risk? / prognosis? / etc.



Formulating questions

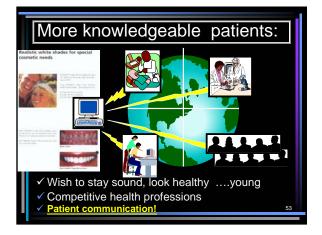
- 1. Patient or problem that is addressed
- 2. Intervention considered
- 3. Comparable intervention
- 4. The outcome of interest

Problem-solving clinical experience =/= problem based learning

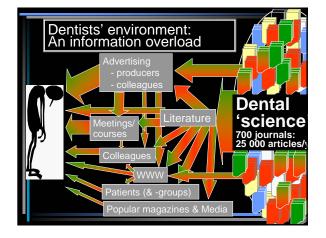
- Goal is to arrive at an effective solution to a problem
- Learning process in which the answer or solution to the problem is largely irrelevant and the problem is used solely to provide the stimulus for selfmotivating learning

How will this affect tomorrow's clinical practitioners ?

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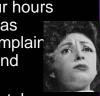
We need to consider not only the amount of information, but also the quality of this information

Suggestion: Integrate best evidence-based practice in the clinic

- A practical aspect
 - –A strategy for solving clinical problems on a daily basis.
- An ethical aspect
- -A strategy for being reasonably certain that advises and treatment are the best available to patients.

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.



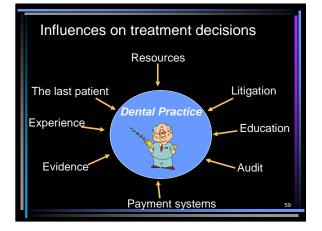
She demands immediately some analgetics, some antifebriles and perhaps also antibiotics?

...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 treatment option described in the

latest issue of 'Health & Fitness'







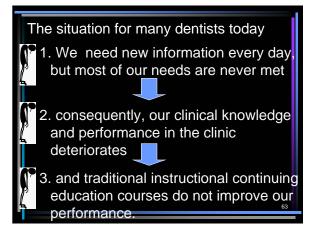
Approaches when we're uncertain

- A patho-physiological appr.: this makes sense... An expert / "how I was trained" approach: I learned this worked / didn't work...
- An anecdotal appr.: this didn't work last time..
- A consultant approach: maybe I can ask a few colleagues I work with....
- A textbook approach: often outdated and no strong support.
- Confess that you don't know or do something and pray...
- or invent some combination of approaches

Where can I find relevant clinical information when I need it fast?

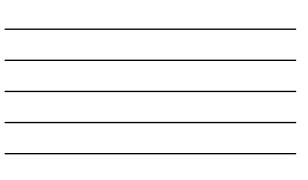
Can I consult a colleague?
Are my journals and textbooks organised and updated?
Is a library nearby?
Can answers be found on the Internet?





Maybe this new thing EBM can be of any help?





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.

Evidence Based Dentistry?!

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 research trials have appeared in print and approved by a committee of experts

Evidence Based Dentistry?!

Replaces original findings with subjectively selected, arbitrarily summarised, laundered and biased conclusions of indeterminate validity or completeness.

t has been carried out by people of unknown ability, experience, and skills using methods whose opacity prevents assessment of the original data.

Evidence Based Dentistry?!

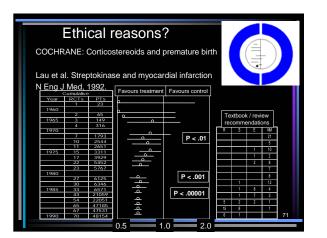
A strategy for how to cope with changes - not about knowing all the answers. It is not so much what you have read in the past, but about how you go about identifying and meeting your ongoing learning needs, and applying the new knowledge appropriately and consistently in new clinical settings.

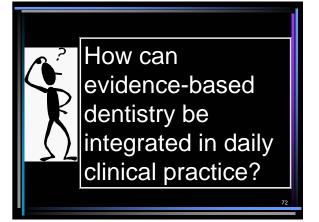
Evidence Based Dentistry?!

The <u>practice</u> of a process of <u>life-</u> <u>long</u>, <u>problem-based learning</u> in which caring for our own patients creates the <u>need for evidence</u> <u>about the cutting edge knowledge</u> concerning diagnosis, prognosis, therapy, and other clinical and health care issues.

Evidence Based Dentistry?!

The aim of evidence-based medicine is to eliminate the use of ineffective, expensive, or even dangerous medical decision-making (Rosenberg & Donald, BMJ, 1995)

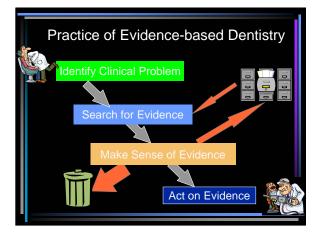




How is EBD practiced?

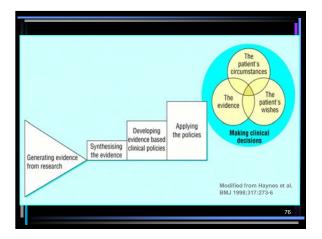
- 1. Generate focused clinical questions
 - Questions for articles on therapy, diagnostic tests, prognosis, harm, etc.
- 2. Efficiently find the evidence
 - Database searching: tools and techniques
 - Locating appropriately focused clinical studies
- 3. Determine validity, results, applicability

 User's Guide to the Medical Literature
- 4. Apply the results of appraisal in clinical practice / teaching
- 5. Evaluate performance



How can we apply EBD in our daily practice?

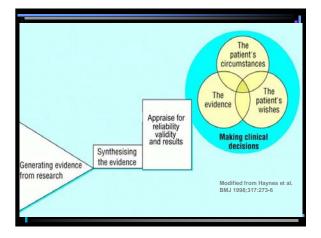
1. By accepting and applying practice protocols, policies and guidelines based on evidencebased principles



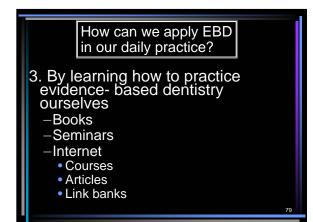


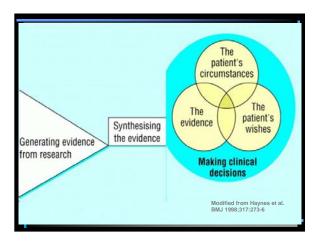
How can we apply EBD in our daily practice?

- 2. By seeking and applying evidence-based dentistry summaries generated by others
- Journals that critically appraise primary studies
- Systematic reviews











Where to look for best evidencebased practice?

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