

Prosthetic
Dentistry

Teaching and research

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Aim of presentation – 1/4

- Clinical teaching of future dentists

Aim of presentation – 2/4

- Clinical teaching of future dentists
- Complexities involved in advanced prosthodontic care as a background for recognizing research priorities in prosthetic dentistry

Aim of presentation – 3/4

- Clinical teaching of future dentists
- Complexities involved in advanced prosthodontic care as a background for recognizing research priorities in prosthetic dentistry
- **Practice based research as a meaningful way to generate data for making better treatment decisions**

Aim of presentation – 4/4

- Clinical teaching of future dentists
- Complexities involved in advanced prosthodontic care as a background for recognizing research priorities in prosthetic dentistry
- Practice based research as a meaningful way to generate data for making better treatment decisions
- **Why patient care have the potential to improve when research is conducted trans-disciplinary**

**University of Toronto
Faculty of Dentistry**

Academic Plan
2004-2010

”Best Learning Dental Institute”

Education of health care providers - a three-circle model*

1. What the dentist is able to do
"technical intelligencies"

1. "Practical skills":

- Clinical information gathering
- Treatment planning
- Treatment procedures

*RM Harden, 1999

Health personnel education- three-circle model

2. How the dentist approaches their practice
("intellectual, emotional, analytical & creative intelligencies")

1. What the dentist is able to do
("technical intelligencies")

2. "What they bring to the treatment of each patient"

- Application of basic clinical sciences
- Clinical reasoning and judgment
- Communication
- Health promotion
- Attitudes, ethical stance and legal responsibilities
- Information handling

Health personnel education- three-circle model

3. The dentist as a professional
"personal intelligencies"

2. How the dentist approaches their practice
("intellectual, emotional, analytical & creative intelligencies")

1. What the dentist is able to do
"technical intelligencies"

- Clinical information gathering
- Treatment planning
- Treatment procedures
- Personal development
- The role of the dentist within the health service
- Application of basic clinical sciences
- Clinical reasoning and judgment
- Health promotion
- Information handling
- Attitudes, ethical stance and legal responsibilities
- Communication

Clinical teaching of future dentists

Prosthodontics should be an integral part of comprehensive clinical training involving other clinical disciplines with an aim to...

Clinical teaching of future dentists

Prosthodontics should be an integral part of comprehensive clinical training involving other clinical disciplines with an aim to...

achieve the minimum level of knowledge and skills in applying prosthodontic techniques, procedures and biomaterials to solve patients' oral problems.

However...

Our responsibilities as educators is also to generate an ambition of life long learning and prepare them accordingly

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?

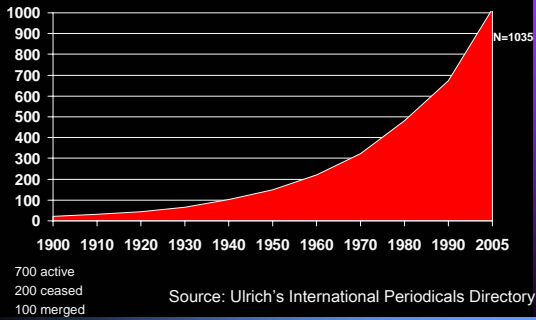
- Impacted wisdom teeth?
- TMD management?
- Restoration replacement needs?
- Caries and remineralization potential
-
- Science transfer to dentists seems to be ineffective

The screenshot shows a web browser displaying a journal article. The article title is "Dentists' decisions on prophylactic removal of mandibular third molars: a 10-year follow-up study". The authors listed are Kerstin Knutsson, Leif Isvall, and Malin Holm. The journal is "COMMUNITY DENTISTRY AND ORAL EPIDEMIOLOGY". A quote from the article is highlighted in a grey box: "...studies appear to motivate a more restrictive approach today compared with 10 years ago". To the right of the quote is a small image of a dental X-ray showing a mandibular third molar.

Science transfer to dentists seems ineffective ..is the problem that...

...research is difficult to access?

Dental Journals in circulation



Science transfer to dentists seems ineffective ..is the problem that...

....research is difficult to access ...or understand?

Effect of selected literature on dentists' decisions to remove asymptomatic, impacted lower third molars

van der Sanden WJM, Meijer DG, Plasschaert AJM, Grof RFGM, van't Hof MA, Knaatzen K, Verdamboet EH. Effect of selected literature on dentists' decisions to remove asymptomatic, impacted lower third molars. *Eur J Oral Sci* 2002; 110: 2-7. © Eur J Oral Sci 2002


The aim of this study was to assess the effect of studying selected literature on dentists' decisions to remove asymptomatic, impacted lower third molars. A pre-test-post-test control group design was used. Given 36 patient cases, two groups of 16 general dental practitioners each were asked to assess the need for removal of asymptomatic impacted lower third molars. The cases were classified by three parameters: 'position of the third molar', 'impaction type' and 'patient age'. After studying selected literature on this subject by the intervention group, both groups were asked to assess the same cases again. Frequencies of decisions to remove the third molars were calculated. For each participant, tables were composed by cross-tabulating the indication to remove a third molar with each of the three parameters. *F*-tests were used to test the significance of the difference between pre-test and post-test decisions. The overall number of indications to remove asymptomatic, impacted lower third molars decreased by 37% in the intervention group. In the control group, the difference between pre- and post-test was not statistically significant. It was concluded that the provision of selected literature significantly influences treatment decision making by dentists in a third molar decision task.

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Key words: decision making, third molar, quality of care


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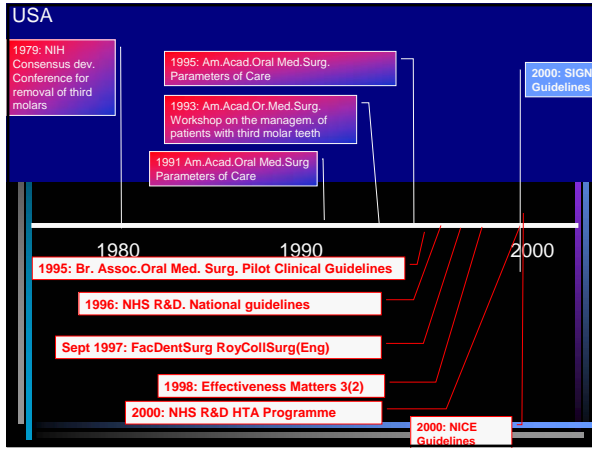


Science transfer to dentists seems ineffective ..is the problem that...

..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

<http://www.agreecollaboration.org>

..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?

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...



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

The student will

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



... 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



... 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
3. Identify opportunities for research



... 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
3. Identify opportunities for research
4. Train to recognize potential bias caused by poorly executed research or due to inadequate reporting



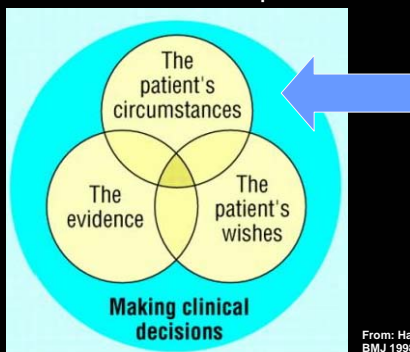
Aim of presentation

- Clinical teaching of future dentists
- Complexities involved in advanced prosthodontic care as a background for recognizing prosthodontic research priorities

The training of prosthodontic specialist aims to:

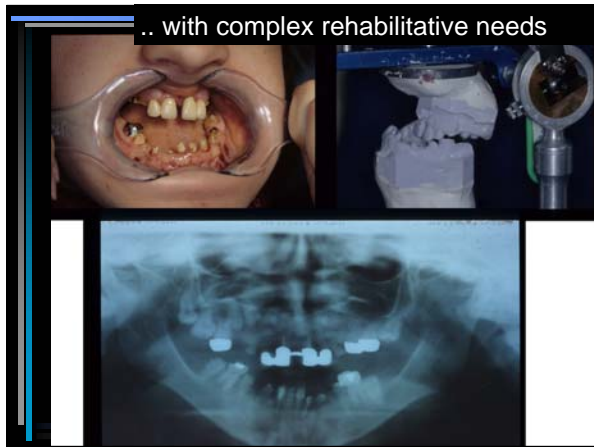
Prepare the clinician how to recognize and solve patients' needs for oral rehabilitation of a complex nature

...rehabilitation of complex situations



From: Haynes et al. BMJ 1998;317:273-6



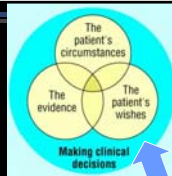




.. with complex rehabilitative needs



Appropriate patient management



1. Patient views and choice of values
2. Patient communication

Appropriate patient management



1. Patient views and choice of values
2. Patient communication
3. Consideration of possible technical solutions

Would these patients be offered and choose similar technical solutions?



Appropriate patient management


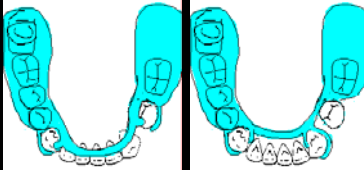
1. Patient views and choice of values
2. Patient communication
3. Possible technical solutions
4. Realistic outcomes with different technical solutions



.. with complex rehabilitative needs




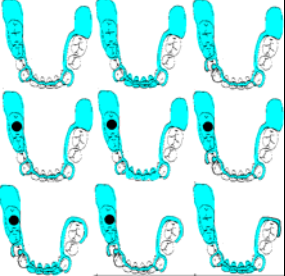
Acrylic partial denture

Clinical knowledge

- Prosthesis design
- Prognosis


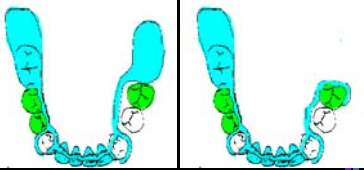
Cast partial denture

Clinical knowledge

- Prosthesis design
- Prognosis
- Retention

Crowns + cast partial denture

Additional clinical knowledge

- 36 extraction or crown?
- Soldered 44 + 45?
- Milled crowns?
- Intra- or extracoronal attachments?

Conus bridge

Clinical knowledge:
 47, 36, 45: extraction ... gold coping ... attachment?
 43/44/45: separation?

Fixed bridge

Clinical knowledge
 Conventional alloy, titanium-ceramic or gold acrylic?
 Zn-phosphate, GIC or resin cement?
 Bridge extension 46? 46+47 ?

Implant retained prosthesis

Clinical knowledge
 One / two implants?
 Wide collar - standard diameter?
 Splinted - non-splinted FPD?
 Cement / screw-retained ?
 Nobelbiocare, AstraTech, 3i, Endopore, Straumann, Friadent...?

More treatment options are available today than ever before

.....and in an aging population

More treatment options are available today than before

Unfortunately, many are on the limit of, or beyond economic realization by patients

More treatment options are available today than before
Unfortunately, many are on the limit or beyond economic realization by many patients

One consequence:
A critical focus on what is achievable by prosthodontic therapy; i.e. Focus on outcomes

Research issues of interest in prosthodontics?

Research issues ...rehabilitation of complex situations

e.g.

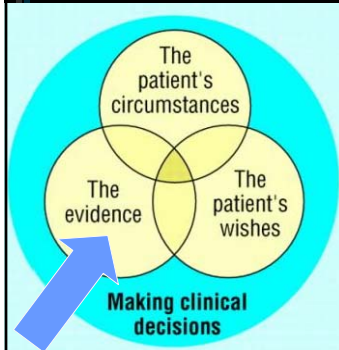
- Understanding of disease processes & organ development
- Diagnostic techniques & procedures
- Pain response, translation & management?

Research issues ...rehabilitation of complex situations

e.g.

- Communication
- Patient behaviour
- Quality of life in societal context
- Patient-centered outcomes in trials
- Qualitative research

Research issues ...rehabilitation of complex situations

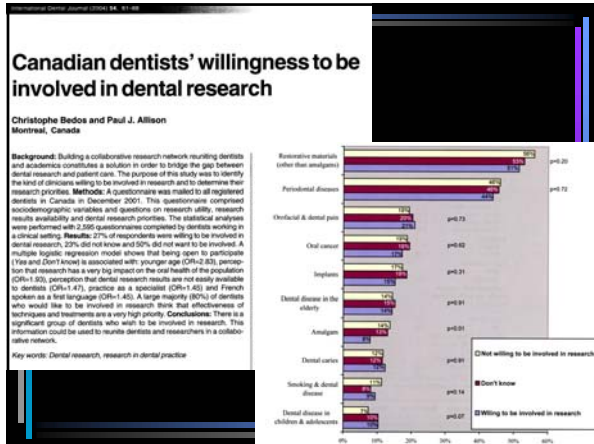


- e.g.
- Development of new preventive techniques, biomaterials and treatments
 - Evaluation of effectiveness of therapies; i.e. doing more good than harm in relevant settings

We have almost no data from clinical studies undertaken in the setting of general practices

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- Practice based research as a meaningful way to generate data for making better treatment decisions



Practice based research challenges

1. Practical
2. Methodological

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

Can Randomised
Controlled Trials be
carried out in practice
based research ?

1. Ethical issue, RCT vs.
uncertainty

- Dentist preference
- Patient preference

1. Ethical issue, RCT vs uncertainty

- Dentist preference
- Patient preference

2. Often complex, and thus
never identical, treatment
managements

1. Ethical issue, RCT vs uncertainty
 - Dentist preference
 - Patient preference
2. Often complex, and thus never identical, treatment managements
3. Operator calibration vs. GLM-statistics

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- Practice based research for making better treatment decisions
- Why patient care have the potential to improve when research is conducted trans-disciplinary



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



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

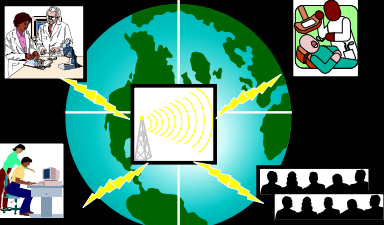


- Creates guidelines, protocols and standards
- Local consensus, sometimes national guidelines; Delphi strategies versus AGREE approach
- Often clinical specialists seeking ways to influence peers

Oral health care can improve when these multi-disciplinary activities are integrated

... and we stop living in separate worlds...

Advancements require communication



Different educational backgrounds, evaluation of best practice

Different pressures, priorities, terminologies, preoccupations

BARRIERS: Ignorance-Defensiveness-Arrogance

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Thank you for
kind attention
