Research education

Ethics and science theory in the health professions – odontology

The Faculty of Odontology, Geitmyrsveien 71
September 7th – 11th 1998

Monday, Sept. 7th	
Science theory and ethics in the health professions.	
9.00 - 12.00	
Why science theory for the health professions	Jan Helge Solbakk
Reflective practice in the health disciplines	Reidun Førde
Rational clinic and diagnostic uncertainty	Reidun Førde
13.00 – 16.30	
Myths in medicine	Sigurd Allern
Clinical judgement and risk prediction in dentistry	Harald M Eriksen
"Peer-reviewed" presentation of scientific knowledge	Jan Helge Solbakk
Discussion	

Tuesday, Sept. 8th	
From science theory to health philosophy	
9.00 – 12.00	
What is it to be scientific?	Åge Wifstad
Scientific explanations	Åge Wifstad
Empiricism versus realism in the health disciplines	Åge Wifstad
Discussion	
13.00 – 16.30	
"Explanation" versus "understanding"	Wenche Sørlie
Causality	Dag Thelle
Group work	Jan Helge Solbakk

Wednesday, Sept. 9th	
Ethics in health disciplines	
9.00 – 12.00	
Ethics – the four principles	Jan Helge Solbakk
Utilitarianism and its critics	Jan Helge Solbakk
Case presentations and problem solving	Knut Ruyter
The health/disease concept	Reidun Førde
13.00 – 16.30	
Treatment failures in odontology	Ola Johan Basmo
Patient rights and informed concent	Marit Halvorsen
Clinical communication and ethics	Olav Vassend
Cultural differences and ethics	Sam Selikowitz
The elderly and ethical considerations	Tony Axell
17.00 – 21.00	
Group work and social gathering	

Thursday, Sept. 10th	
Economy and ethics	
9.00 – 12.00	
Priorities – possible conflicts	Jan Helge Solbakk
Ethics and commersialism in odontology	Jostein Grytten
Prevention and ethics	Jan Helge Solbakk
Discussion	
Research ethics	
13.00 – 16.30	
The Helsinki declaration	Knut Ruyter
Biotechnology and ethical considerations	Jan Helge Solbakk
Research ethics and fraud	Dorthe Holst
Publication and ethics	Gudrun Sangnes
The role as research tutor – ethical considerations	Per Seglen
Discussion	

Friday, Sept. 11th	
Quality in dental research	
9.00 – 12.00	
Basic science/clinical science – priorities	Per Gjermo
Aesthetics and ethics in treatment	Arnfinn Bø Rygg
Aesthetics and ethics in odontology	Arild Stenvik
13.00 – 16.00	
"Evidence-based" dentistry; a reality?	Asbjørn Jokstad
Group work	Jan Helge Solbakk
17.00 –22.00	
Conclusion of the course with dinner	

A course in ethics and science theory is mandatory in fulfilling the requirements for the degree Dr. odont. The present course is novel and developed in collaboration with Center for Medical ethics, on the initative of Priority area, Ethics at University of Oslo

Evidence based dentistry; a reality?
Ethics and science theory in the health professions

Sept 11.1998. Asbjørn Jokstad

13.00 --- 13.45

1. **Why can study designs be graded as optimal or less than optimal?**

2. **Ethical reasons for carrying out proper study designs .**

3. **What types of errors are can be identified in papers?**

4. **Which central tasks are most common in the general practice?**

5. **Which design can common for answering specific questions?**

6. **Which types of study designs are most appropriate for showing effects of therapy?**

7. **What is the state of the science in dentistry?**

1. Why is it possible to grade study designs?

You can never prove something with research – however you can make conclusions with more or less certainty (ie probability) and confidence.

All study designs have positive and negative aspects. However, in order to characterize a study as scientific bias must be minimized.

To what extent a study is biased is not measurable. However, some study designs are more associated with the risk of introducing bias than others.

We cannot conclude that results obtained in less-than-optimal studies are wrong. We can, however, say that the evidence is not strong because of a poor study design.

Thus – it is not unscientific to carry out and even publish a single case study. Furthermore, the conclusions from such a study are valid until evidence from a study with better study design appear. What is wrong however- is to believe that what is being observed and reported is proof of something.

2. **Ethical reasons for carrying out proper study designs .**

The ethical implications of poorly designed trials are:

- **the misuse of patients by exposing them to unjustified risk and inconvenience**
- **the misuse of resources, including the researchers´ time, which could be better employed on more valuable activities**
- **if the results go unchallenged the researchers may use the same inferior study design in future research, and others may copy them**
- **misleading results due to poor design may result in:**
    - **the carrying out of unnecessary further work**
    - **it may prove impossible to get ethics committee's approval to carry out further research because a published study has found the experimental intervention beneficial, even though the study was flawed**
    - **leading other scientists to follow false lines of investigation**
    - **future patients may receive an inferior treatment, either as a direct consequence of the results of the study or possibly by the delay in the introduction of a truly effective treatment**

3. What types of errors are can be identified in papers?

Errors in design
Errors in execution
Errors in analysis
Errors in presentation
Errors in interpretation
Errors in omission

4. The central tasks of clinical work - or - where do clinical questions arise from?

1. Clinical findings:
How can we properly gather and interpret findings from the history and physical examination ?

2. Etiology:
How can we identify causes for disease (including its iatrogenic forms) ?

3. Differential diagnosis:
When considering the possible causes of a patient's clinical problem, how can we rank them by likelihood, seriousness and treatability ?

4. Diagnostic tests:
How can we select and interpret diagnostic tests, in order to confirm or exclude a diagnosis, based on considering their precision, accuracy, acceptability, expense, safety etc?

5. Prognosis:
How can we estimate the patient's likely clinical course over time and anticipate likely complications of the disease?

6. Therapy:
How can we select treatments to offer patients that do nore good than harm and that are worth the efforts and costs of using them?

7. Prevention:
How can we reduce the chance of disease by identifying and modifying risk factors and how do we diagnoses disease early by screening?

8. Self-improvement:
How do we keep up to date, improve our clinical skills and run a better, more efficient clinical practice?

5. Appropriate Study Designs for answering specific questions

	Quali-tative	Surveys	Case-control	Cohort	RCT	Systematic Review
Diagnosis				+	++	+++
Treatment				+	++	+++
Screening					++	+++
Managerial innovation	+		+	+	++	+++
Intervention efficiency					++	+++
Health service efficiency	+	+	+	+	++	+++
Safety	+	+			++	+++
Acceptability	+	+			++	+++
Cost-effectiveness					++	+++
Quality of care	+	+	+	+		+++

6. Type and strength of evidence of effects of interventions

I. strong evidence from at least one published systematic review of multiple well designed randomised controlled trials

II. strong evidence from at least one published properly designed randomised controlled trial of appropriate size and in an appropriate clinical setting

III. evidence from published well-designed trials without randomisation, single group pre-post, cohort, time series or matched case controlled studies

IV. evidence from well-designed experimental studies from more than one centre or research group

V. opinions of respected authorities based on clinical evidence, descriptive studies or reports of expert consensus committees

7. Therapeutic alternatives - the state of science in dentistry

Pharmacology	+++
Periodontics	++
TMD	+
Caries prevention	+
Orthodontics	+
Prosthodontics	+
Endodontics	0
Surgery	0