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Methods in intervention epidemiology:

(Evidence Based Medicine)

Both master level and PhD level

05.03 - 09.03.2012

**Aim of the course:** The course will cover the areas with the concepts and principles of epidemiological research with a special focus on interventional design, clinical trials, intervention and data analysis. Further more, it **is** also intended to strengthen participants  insight for appraising evidence based literature for Res**ea**rch and decision making. The methodological challenges will be exemplified in the context of developing intervention Epidemiological programme.

**Course contents**: A comprehensive introduction to the process of disease measurement, epidemiological concepts and how to **search the** literature for evidence will be elaborated. Study design in medical research with a focus on intervention strategies by means of controlled clinical trial, and scientific method, and also follow-up studies with health education intervention design for process and outcome evaluation will be addressed in different countries context (developing vs developed). Randomized clinical trial and methods of randomization including sample size determination **will be included as important components of  research design.** Mathematical models for the analysis of cohort **and interventional outcome studies** will be covered.**Control of confounding and bias will be discussed. Methods for measuring the health benefit in an interventional study using concepts of  Attributable risk analysis will be introduces and applied in relevant examples.**

**Course Committee:** Course committee: Akhtar Hussain (AH), Torkel Snellingen (TS), Lien Diep (LD)

**Credit points:** 5,0 (master level)

**Place:** Frederik Holst’s House, Auditorium 124 (lectures)

**Exam information:** A short quiz questionnaire test will be performed at the end of the course (Friday March 9th). A home examination with questions from the statistical part will be given the last day at the course. Deadline for submission will be March 31st. Exam paper has to be submitted on email to Marina Agersborg before 15.00, email: [marina.agersborg@medisin.uio.no](mailto:marina.agersborg@medisin.uio.no).

Attendance registry will be maintained.

**Course description**

**Monday 05. March 2012**

09.00 – 09.15 Course introduction (AH)  
09.15 - 10.00 Evidence Based Medicine (EBM) Concepts - Appraisal of Literature and Concepts of Systematic Review (TS)

10.15 – 11.45: Concepts of Research Design (AH)  
11.45 - 13.00 Lunch

13.00 – 13.45 Undertaking a systematic review (TS)

14.00 – 14.45 Appraising systematic Reviews (TS)

15.00 – 15.45: Group work: Critical appraisal of a systematic review. Division into groups and assignment of group work (systematic review to assess)

**Tuesday 06. March 2012**

09.00 – 10.45 Research design in intervention studies. Methods and types of clinical trials: uncontrolled trials, historical controls, concurrent non-randomized controls, randomized clinical trials cross over trials (AH)

11.00 – 11.45 Diagnosis and its challenges in intervention studies, sensitivity, specificity (PPV and NPV) Agreement and kappa score. Measuring attributable risk for intervention/preventive measures. (AH)

11.45 – 13.00 Lunch

13.00 – 14.45 Group work on critical appraisal of systematic review continued from the day before (TS)

15.00 – 15.45 Presentation and discussion of results of critical appraisal of systematic review (TS)

**Wednesday 07. March 2012**  
  
09.00 - 09.45 Research Confounding and Bias, Sample Selection & sample size (AH)

10.00 – 10.45 The case of an intervention study for changes in lifestyle (Bangladesh, Norway)

11.00 – 11.45 The case of vaccine trials: An efficiacy trial of meningococcal B vaccine in Norwegian teenagers (Gunnar Bjune)  
12.00 -13.00 Lunch

13.00 – 14.45 Clinical trial Protocol (AH)

15.00 Presentation of Intervention Protocols

**Thursday 08. March 2012**  
**Responsible: Lien Diep**

Mathematical models for the analysis of cohort studies and intervention outcomes (Lien)

09.00 Summary statistics, presenting data as graphs and tables.  
10.00 Data lab.  
12.00 Lunch  
13.00 Odds ratio and relative risk revisited. Uncertainties and tests  
15.00 Data lab.  
16.00 End

**Friday 09. March 2012  
Responsible: Lien Diep**

09.00 - 12.00 Logistic regression: confounding and interaction  
12.00 Lunch  
13.00 – 14.00 Self study  
14.00 - 15.30 Quiz questionnaire exam

15.45 – 16.00 Evaluation (Exam task for home exam given)