Department of Health Management and Health Economics English

Faculty of Medicine

University of Oslo

##### Written Exam, Friday 17th of June 0900-1300

HMM4301-Optimal allocation of health care resources and economic evaluation of health care technologies

(Economic Evaluation for short)

Exam resource: Calculator (only the calculator Citizen SR-270X is allowed or calculator provided by the Department)

Results will posted on the board at the Institute of Health Management and Health Economics, Forskningsveien 3A. The results will also be posted on Studentweb.

The receiving day of the results is the day the results are posted on the board outside the Institute. Appeals must be submitted within three weeks of this date.

The Written Exam consists of **3 pages** including this one.

Remember to write down your candidate number so that you have when the results are made available.

Dictionary and Calculator can be used.

Note that exam question 1 counts 50%, while exam questions 2 and 3 count 25% each.

**1. (counts 50%) QALYs**

Discuss normative issues related to the use of QALYs in priority setting. Which priority relevant issues are included in QALYs, and which are not?

**2. (counts 25%) Costs**

Health economic evaluation is valuation of incremental health benefits and incremental resources of an intervention. Valuation of resources is based on the principle of opportunity cost.

a) Define opportunity cost.

Example:

In project A the incremental use of resources are two full time positions for a year: one nurse and one doctor. The nurse and the doctor are in project A offered a wage rate of NOK 450,000 and NOK 550,000 respectively. Before the start of project A the nurse and the doctor were working full time in project B at a wage rate NOK 400,000 and NOK 700,000 respectively.

b) What is the opportunity cost of using the nurse and the doctor in project A?

Production loss and production gains may be included in the evaluation of the use of resources. Two common approaches can be applied to measure production gains and loss. Define and discuss the following methods:

c) Human capital approach

d) Friction cost approach

**3. (counts 25%) Chest pain treatment**

A 45 year old female patient is admitted to hospital for acute chest pain. Acute myocardial infarction (AMI) is a possible diagnosis, but harmless chest pain is an alternative one. Thrombolysis is the best therapy for AMI, but this therapy entails a risk of fatal stroke. For technical reasons, the AMI diagnosis can not be ascertained sooner than 6 hours from arrival in hospital.

There are two treatment strategies:

1. Immediate thrombolysis
2. Wait 6 hours for the certain diagnosis and start thrombolysis in patients with AMI.

The probability that the patient has AMI is 20%. The mortality is 10% in patients with AMI when thrombolysis is not given.

The probability of fatal stroke complications from thrombolysis is 4 per 1000 patients.

A large clinical trial indicates that thrombolysis reduces the mortality risk by 50 per 1000 AMI patients when it is given immediately, and this measure of benefit accounts for the risk of stroke complications. The risk reduction is only 30 per 1000 patients when thrombolysis is given later than 6 hours after onset of symptoms.

Which treatment strategy entails the lowest short term mortality? State explicitly any assumption you make in your analysis.