

### Overview

In this course, students learn how to

- Plan and conduct a within-trial health economic evaluation
- Analyse within-trial economic evaluations
- Apply simulation models to understand long-term economic intervention effects

### Offered By

- TUM Professorship of Public Health & Prevention (Prof. Dr. Michael Laxy)

### Lecturers

- Prof. Dr. Michael Laxy
- Dr. Michael Hanselmann
- Dr. Anna-Janina Stephan



### Cooperation Partners

- TUM Chair of Health Economics (Prof. Dr. Leonie Sundmacher)

### Contact Person

- Dr. Michael Hanselmann

### Learning Objectives

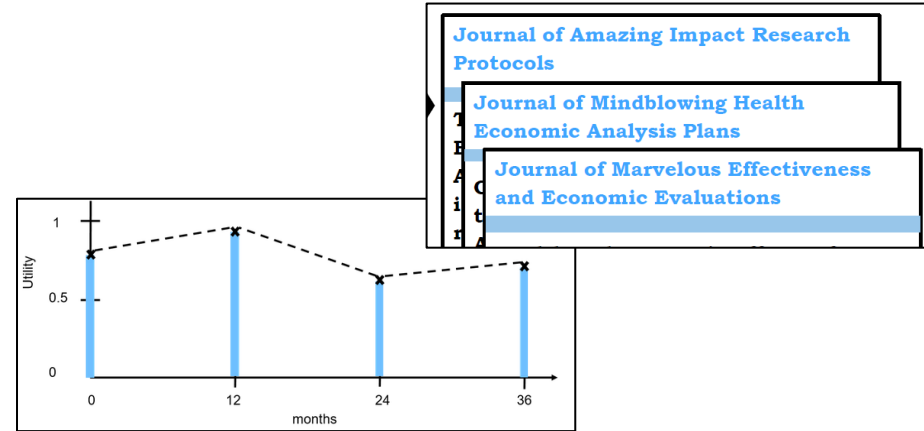
- Understand & critically discuss scientific reports on the topic
- Develop your own health economic analysis plan (HEAP) based on a clinical trial protocol
- Explain (dis-)advantages of different approaches to health economic data collection within a trial
- Explain assumptions behind different valuation approaches for costs & benefits
- Perform the necessary analytical steps and calculations in R and interpret the respective estimates and graphical illustrations

### Learning Objectives (c'td)

- Understand the value and principle of simulation models and the structure of a Markov model
- Understand and identify the inputs necessary for a simulation model;
- Develop and implement a simple simulation model for the assessment of long-term health economic intervention effects in R

### Structure

- Block 1: Design of an Economic Evaluation
- Block 2: Empirical Within-Trial Economic Evaluation
- Block 3: Model-Based Economic Evaluation
- Each block is structured as follows:
  - Step 1: A lecturer illustrates the required methods based on an exemplary published economic evaluation.
  - Step 2: Students apply what they learned to solve a realistic case study.



Cycle	Healthy	Sick	Death
0	$P_{0H} = 1$	$P_{0S} = 0$	$P_{0D} = 0$
1	$P_{1H} = P_{0 \rightarrow 1HH} = 0.7$	$P_{1S} = P_{0 \rightarrow 1HS} = 0.25$	$P_{1D} = P_{0 \rightarrow 1HD} = 0.05$
2	$P_{2H} = P_{1 \rightarrow 2HH} = 0.49$	$P_{2S} = P_{1 \rightarrow 2HS} + P_{1 \rightarrow 2SS} = 0.375$	$P_{2D} = P_{1 \rightarrow 2HD} + P_{1 \rightarrow 2SD} + P_{1 \rightarrow 2DD} = 0.135$

Transitions between states:

- $P_{0 \rightarrow 1HH} = P_{0H} \cdot P_{0 \rightarrow 1H} = 1 \cdot 0.7 = 0.7$
- $P_{0 \rightarrow 1HS} = P_{0H} \cdot P_{0 \rightarrow 1S} = 1 \cdot 0.25 = 0.25$
- $P_{0 \rightarrow 1HD} = P_{0H} \cdot P_{0 \rightarrow 1D} = 1 \cdot 0.05 = 0.05$
- $P_{1 \rightarrow 2HH} = P_{1H} \cdot P_{1 \rightarrow 2H} = 0.7 \cdot 0.7 = 0.49$
- $P_{1 \rightarrow 2HS} = P_{1H} \cdot P_{1 \rightarrow 2S} = 0.7 \cdot 0.5 = 0.35$
- $P_{1 \rightarrow 2SS} = P_{1S} \cdot P_{1 \rightarrow 2S} = 0.25 \cdot 0.5 = 0.125$
- $P_{1 \rightarrow 2SD} = P_{1S} \cdot P_{1 \rightarrow 2D} = 0.25 \cdot 0.05 = 0.0125$
- $P_{1 \rightarrow 2HD} = P_{1H} \cdot P_{1 \rightarrow 2D} = 0.7 \cdot 0.05 = 0.035$
- $P_{1 \rightarrow 2DD} = P_{1D} \cdot P_{1 \rightarrow 2D} = 0.05 \cdot 0.05 = 0.0025$

### Prerequisites

- Participation in the 1<sup>st</sup> part (lecture & exercise) of the module *Economic Evaluations of Health Care Programmes* (summer term, 2<sup>nd</sup> semester)
- Interest in R programming
- Interest in economic evaluations

### ECTS & SWS

- 6 ECTS
- 4 SWS

### Course Language

- English

### Examination Format

- Group presentation (Block 1)
- Two individual project reports (Block 2 & 3)

### Position in the Program

- Elective area “Applied Research”
- 3<sup>rd</sup> semester, Winter Term
- 2<sup>nd</sup> part of the 2-semester module *Economic Evaluations of Health Care Programmes*