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INTRODUCTION TO MEDICAL-DECISION ANALYSIS (DECISION-ANALYTIC MODELING) – A HANDS ON WORKSHOP

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Background

Medical-decision making is an essential part of health care. It involves choosing an action after weighing the risks and benefits of the options available to the individual patient or the patient population. While all decisions in health care are made under conditions of uncertainty, the degree of uncertainty depends on the availability, validity, and generalizability of clinical data. Medical-decision analysis (or decision-analytic modeling) is a systematic approach to decision making under uncertainty that is used widely in medical-decision making, clinical guideline development, and health technology assessment of preventive, diagnostic or therapeutic procedures.

Course Description

In the current pandemic, decision making based on modeling results has a prominent role in the public discussion. But what can we really learn from models and how much can we trust the results? This half day course provides an introduction into medical-decision analysis, a tool for clinical evaluation, benefit-harm analysis and medical-decision making. During the course, participants will develop a basic understanding of:

- Key concepts, definitions, and goals of medical-decision analysis
- Creating the structure of a decision-analytic model
- Measuring benefits, harms, and patient preferences
- Application of modeling techniques such as decision trees and Markov models

- Performing a medical-decision analysis with uncertainty/sensitivity analyses
- Translating the results from decision analysis into medical-decision making and clinical guidelines

Using practical examples, participants will be guided through the main modeling steps. Examples from the published literature including models supporting COVID-19-related decisions will be discussed to understand the application of modeling techniques to specific decision problems and research questions. Modeling recommendations of the ISPOR-SMDM Joint Modeling Good Research Practices Task Force will be presented allowing participants to assess and judge the quality and validity of decision models. Strengths and limitations of medical-decision analysis will be discussed at the end of the course.

Format:

This course consists of lectures, interactive group exercises and discussions. Examples of published medical-decision analyses will be used to illustrate the fields of application, methodologies, results and implications of medical-decision analysis. This is an introductory course (1-3.5h); there are no prerequisites.

Hauptaussage (max. 200 characters): Participants gain substantial insights into decision analysis to systematically analyze healthcare technologies by weighing the risks, benefits, costs, and health equity of alternative options.