Assignment 8

Centralization of hospital data: what are the opportunities for sustainable patient care?

Problem statement

Healthcare professionals and hospitals devote significant attention to the registration of clinical outcome measurements, for instance pain scores or bed stay after surgery. In addition to the difficulty in obtaining reliable and meaningful scores on such measures, it is currently challenging to get insight into how such scores are influenced by procedure or organization-specific parameters. For example, the length of the procedure, the surplus of interventions that may have been taken by the anesthesiologist during the procedure to stabilize the patient, or even the availability of nurses in perioperative processes are likely to affect scores.

Emerging technologies such as artificial intelligence may help in obtaining such insights. However, all the required data is stored in different locations for different purposes. Aggregating and standardizing data points will be a challenge. Furthermore, it is likely to face technical, regulatory, organizational obstacles, and its value to patient care is still unknown. This research assignment is an exploratory study on the challenges and opportunities in centralizing hospital data, and a holistic (i.e. people, planet, profit) examination of what its consequences may be for patient care.

Research question(s)

To what extent could centralization of hospital data facilitate sustainable patient care?
- What are the current limitations (technical, regulatory, organizational) in creating hospital data warehouses?
- What are the drivers and barriers for explorative data science studies into the relationship between clinical outcome measures and interoperative and organizational performance measures for improvement of patient care?

Suggested academic backgrounds

This research assignment is open to any graduating Master students from Leiden University, TU Delft and Erasmus Rotterdam
- MSc Innovation Management
- MSc Health Sciences
- MSc Technical Medicine
- MSc Healthcare Management

Expected type of work

State of the art research in hospital data management (literature, products on the market), interviews to get concrete information on discipline specific clinical outcome measures, how these are registered and how these are used. Needed background/ expertise: As this is a multidisciplinary topic one needs at least a basic understanding of clinical parameters, informatics and computer science.

Deliverables: a concrete proposal for bringing together relevant data sources in a durable manner to facilitate data science on the quality of care.