

PROMs – What are the Dos and Don'ts when Designing Clinical Dashboards?

Background and research topic

A clinical dashboard is a data-driven clinical decision support tool capable of querying multiple databases and providing a visual representation of key performance indicators in a single report. The utility of a dashboard comes from its ability to provide a concise overview of key information. Using clinical dashboards decreases time spent on data gathering and improves situation awareness and compliance with evidence-based safety guidelines.

Recent research on medical outcome quality recommends patient-reported outcomes (PROs) as relevant indicators of medical quality for a variety of procedures. Thus, PROs should be integrated into clinical dashboards supporting clinicians' understanding of how treatments impact outcomes. Moreover, this would enable the identification of health-related quality of life (HRQoL) deterioration or improvement at an early stage. In the previous literature, mostly the benefit of using disease-specific PROs in combination with clinical dashboards has been highlighted. In the context of this research area, the EQ-5D has only rarely been used, despite the fact that it provides great potential for the comparison of the general health conditions across different patient groups.

To fill this gap, we are currently investigating design principles for clinical dashboards. Our project aims to evaluate the success factors of the design principles concerning clinical dashboards including generic – i.e., the EQ-5D – and disease-specific PROMs. The investigation of the clinical dashboard's potential is focused on a one-time intervention (i.e., hip and knee arthroplasty) and the long-term management of a chronic disease (i.e., COPD). For measuring patients' HRQoL with hip and knee arthroplasty, the Western Ontario and McMaster Universities Arthritis Index (WOMAC) will be used as PRO, COPD patients' health status will be measured using the COPD Assessment Test (CAT) and the health literacy questionnaire.

Methods and research goal

A literature review on design principles and success factors of clinical dashboards should be conducted first. Furthermore, expert interviews with clinical specialists, experts in design and visualization tools and service providers should be conducted. Generated insights should be used to list the design principles and to apply the paradigm of Design Science Research (DSR) to develop an own recommendation for the visualization of a clinical dashboard including PROs.

If you are interested in and/or have questions about the above-mentioned topic and you would like to write your thesis with our chair, we look forward to hearing from you (please contact Anja.Bischof@unisg.ch and Justus.Vogel@unisg.ch). You can also propose your own research topic, and we will be happy to advise you. We can supervise all students of medicine (Joint Medical Master), business administration, economics, and international affairs.

We look forward to receiving your exposé with a proposal for a concrete research question, methodology and approach!