Abstract

Proper and timely diagnosis and management of diabetic foot has major clinical and economic impact. Recently, we have developed a DSS [1] for diabetic foot care based on written guidelines for diabetic foot disorders developed by the American College of Foot and Ankle Surgeons [2]. The encoded guideline, in the GLIF3 [3] format, was linked with an electronic medical record (EMR) system, developed by EK, which clinicians used to collect data for diabetes patients’ foot care. The encoded guideline could be interpreted by GLEE [4] - GLIF3’s execution engine. Since, successful usage of Decision-support systems depends on local adaptation and efficient physicians’ interaction with the system, our present study aimed at examining and improving the interaction of clinicians with the system and the front-end design of the user-interface for better implementation of the system.

To design and implement the front-end of the guideline-based clinical decision support system for diabetic foot care, we used multi-perspective methodologies to study user interactions with the proposed system. For this purpose, we conducted field observations, structured interviews, and document analyses to collect and analyze user needs and workflow. We then aligned requirements with sequence diagrams to develop a prototype that follows Nielsen’s heuristics. To evaluate the system design, we performed think-aloud analyses and used the Technology Acceptance Model to direct the evaluation of user perception of the prototype. The results show that multi-perspective methodologies can be used effectively to study and design user interactions with the front-end of a guideline-based clinical decision support system.

Keywords: clinical guidelines, decision-support, usability heuristics, Technology Acceptance, sequence diagrams

References


[5]