

Multiple-Patient Monitoring with a Head-Worn Display: Improving Supervising Anesthetists' Situation Awareness in the Operating Suite

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Abstract

Monitoring the vital signs of unstable patients is an important task of physicians and nurses in intensive care units and operating suites. Frequently, staff need to monitor not one but multiple patients. However, maintaining awareness of patients' status can be challenging when away from bedsides or a central monitoring station. In the project *Multiple-Patient Monitoring with a Head-Worn Display: Improving Supervising Anesthetists' Situation Awareness in the Operating Suite* Paul Schlosser evaluated the potential of a head-worn display that showed multiple patients' vital signs and alarms to allow supervising anesthetists' to continuously monitor their patients' status. In contrast to smartphones and smartwatches, head-worn displays provide two unique features in a clinical multiple-patient monitoring scenario – patient data can be accessed hands-free even in a sterile environment and is continuously available. The head-worn display based multiple-patient monitoring application was developed in a user-centered design process in cooperation with the University Hospital of Würzburg. To evaluate the head-worn display, eight supervising anesthetists monitored the vital signs of patients in six operating rooms, both with and without the head-worn display. The head-worn display helped the supervising anesthetists to perceive and comprehend patients' status and to anticipate future developments. Half of the supervising anesthetists stated explicitly that the head-worn display helped them to understand “what was going on in the unit” and seven of the eight supervising anesthesiologists said that the head-worn display affected their future actions.