Remote Telemonitoring of Patients Improves Safety and Decreases Workload of Nurses

The shortage and heavy workload of nursing staff has become a worldwide issue causing nurse to patient ratios to increase in many organizations. Heavy nursing workload adversely affects patient safety leading to poor patient outcomes and overall higher costs to the system. In addition, nursing job satisfaction is negatively affected, leading to higher turnover rates.

Objective: There is significant interest in exploring new technologies to improve efficiency and work-life quality for nurses. Our objective was to evaluate the impact of a remote video-monitoring (RVM) solution that provides continuous in-hospital patient audio-video (AV) monitoring by technicians.

Methods: The RVM system consists of two-way AV communication and continuous O2 saturation monitoring device that we developed. It has been deployed to all inpatient units within our hospital network, including 3 acute care hospitals and 2 rehabilitation facilities. Data was collected pre- and post-implementation on safety measures including fall rates and adverse events, along with device utilization and number of escalation events requiring nursing intervention. Nurse job satisfaction was assessed with surveys.

Results: Data was collected from April 2020 to May 2022. 2,087 patients were monitored at 5 hospital sites. The technicians identified 54,716 safety concerns that required them to intervene remotely and address with the patient. Of these, 46,289 required escalation to nursing staff, who were called to the bedside through the RVM alerting technology. Importantly, 8,427 safety concerns were managed solely by the technicians without requiring nursing intervention, resulting in 8,427 avoided nursing visits to the bedside. The surveyed nurses reported the RVM technology provided reassurance that there was additional support to assist them in managing their patients. Patients and their families also expressed high degree of satisfaction. Since implementation, fall rates and other adverse events were reduced with the biggest impact in patients on high-flow oxygen. Code blues and mortality rates decreased in incidence from 7% to 1%.

Conclusion: The use of RVM has proven to be a successful innovation at our hospital and has led to an improvement in patient safety. We demonstrated that RVM was able to reduce 8,427 individual nurse visits to the bedside, allowing nurses to manage the care of more patients effectively, while improving both patient and staff satisfaction.

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