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Article Critique

A patient-centred care and engagement program in intensive care reduces adverse events and improves patient and care partner satisfaction

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Dykes PC, Rozenblum R, Dalal A, Massaro A, Chang F, Clements M, et al. Prospective Evaluation of a Multifaceted Intervention to Improve Outcomes in Intensive Care: The Promoting Respect and Ongoing Safety through Patient Engagement Communication and Technology Study. Crit Care Med 2017; 45(8):e806–e13.

1. Objective

The objective of this study was to examine the effectiveness of a patient-centred care and engagement program in medical intensive care units (ICUs).[1]

2. Design and setting

The study involved a prospective pre-post design in two medical ICUs situated in a tertiary care hospital in the United States (US).

3. Research process

The baseline period occurred over 11 months in the medical ICUs. During this time, attending physicians, fellows, residents, and nurses participated in daily rounds. In undertaking their work, they used paper-based tools such as a safety checklist, nursing flow sheet, and care plan, as well as electronic tools, including computerised provider order entry, laboratory and test results, and medication administration record.

The Promoting Respect and Ongoing Safety through Patient Engagement Communication and Technology (PROSPECT) intervention, which was implemented and evaluated, comprised four components—a 60-min training package providing an overview of the patient care and training model, a Web-based technology to enable engagement through the care plan, a patient safety checklist, and a messaging platform. Through health information technology, health professionals accessed resources in a provider-focused toolkit using mobile and desktop devices. Patients and care partners accessed resources in a patient-focused toolkit using iPads. The intervention was fully implemented over a three-week period after the baseline period and occurred over 11 months.

The primary outcome was the aggregate rate of adverse events per 1000 patient days. Adverse events involved falls, pressure

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ulcers, catheter-associated urinary tract infections, central catheter-associated bloodstream infections, and ventilator-associated events. Secondary outcomes comprised patient and care partner satisfaction, agreement on the care plan between the patient and health professionals, and healthcare utilisation. Patient satisfaction was measured 6 weeks after discharge from the ICU, whereas patients or care partners, nurses and physicians were interviewed at least 48 h after admission about agreement involving the care plan.

4. Results

There were 2105 patient admissions in total, with 1030 occurring during the baseline phase and 1075 occurring during the intervention phase. The aggregate rate for adverse events reduced from 59.0 per 1000 patient days to 41.9 per 1000 patient days ($p < 0.001$). Patient satisfaction improved significantly from 71.8 to 93.3 ($p < 0.001$), whereas care partner satisfaction improved from 84.3 to 90.0 ($p < 0.001$). Scores for satisfaction ranged from 0 to 100, with higher scores indicating better satisfaction. There were no significant changes found in care plan agreement or healthcare utilisation.

5. Conclusion

Implementation of a structured team communication and patient engagement program in medical ICUs located in a tertiary hospital led to significant reductions in aggregated adverse events and improved patient and care partner satisfaction.

6. Critique

Considerable focus is placed on patient and family engagement in health care.[2] This focus acknowledges that patients have specific needs, which health professionals should address in effort to enable improvements in quality, safety, and delivery of health care. Encouraging patient and family engagement provides the means by which patients' knowledge, values, preferences, and beliefs are incorporated in healthcare decision-making. Within the ICU context, patient and family engagement is particularly challenging due to the complex and dynamic nature of care delivered, the critical nature of the patients' condition, and the lack of decision-making capacity of many patients. The prospective pre-post study by Dykes et al[1] provides important findings on evaluating a patient-centred care model through innovative use of Web-based technology in intensive care.

Past research examining the barriers of patient and family engagement in intensive care has shown that health professionals may deliberately choose to speak in vague terms about treatment regimens that they use in intensive care because of the complex and changing nature of these regimens.[3] Owing to the patients' dependence on life-saving equipment and treatment, health professionals may adopt paternalistic attitudes in the belief that patients and family members would worry excessively. Attempting to facilitate patient and family engagement in the presence of these barriers is therefore very difficult in the ICU context. Dykes et al[1] recognised these potential barriers in devising and implementing their intervention. By having the care plan available electronically through the patient-focused toolkit, patients and families were able to actively submit their questions about medical problems encountered and contribute to establishing goals of care. The intervention was incorporated into interdisciplinary ward rounds, in which patients and families were encouraged to participate. Regular use of Web-based checklists enabled health professionals to review if and how patients' and families' priorities were addressed.

Current moves to introduce electronic medical records in Australian hospitals create enormous opportunities for enhancing patient and family engagement.[4] Major efforts are geared towards ensuring that health professionals are prepared and trained, thereby enabling that the transition from paper-based systems to electronic medical records is a seamless, efficient, and effective process. Placing greater emphasis on how this introduction can promote patient and family engagement is likely to facilitate opportunities for improved patient and family satisfaction with care and reduction in adverse events, as demonstrated in the study by Dykes et al.[1]

In relation to methodological quality of the paper, a number of aspects need to be highlighted. The study was conducted in two medical ICUs within a tertiary care hospital. Both ICUs had a "closed" model of operation, whereby the entire critical care team maintained responsibility for all patients admitted to the unit. The results therefore may be generalisable to Australian ICUs, which also operate according to a closed unit system. The paper provided no information about the various roles undertaken by health professionals of different disciplines in caring for the patients. In the US, intensive care environments have health professionals with roles that are different to those that exist in Australia. For instance, in US ICUs, respiratory therapists have the responsibility of maintaining ventilation equipment and monitoring airway management of critically ill patients, whereas in Australia, this role is generally performed by nurses. Similarly, in the US, physician assistants can work in ICUs under the direction of a physician, performing patient examination and ordering and interpreting clinical tests and imaging. In Australia, these duties tend to be performed by nurses and physicians.[5] In this US study by Dykes et al.,[1] the ways in which various health professionals conducted their clinical work, interacted with each other in interdisciplinary rounds, completed checklists, and operated within workflows could have impacted measured outcomes of the intervention differently to what may occur in Australia.

Patient satisfaction was assessed six weeks after their discharge from intensive care. There may have been problems with patient recall during this period. The fact that patients survived and were able to be discharged from the ICU could have influenced perceptions of patients aside from the effects of the intervention. Furthermore, if there were environmental changes aside from the intervention during the ensuring period, patients' level of satisfaction could have been affected.

The authors acknowledged that the prospective pre-post design of the study may have been affected by the presence of other factors to minimise adverse events. The authors completed a post hoc interrupted time series analysis to control for temporal factors. This time series analysis showed that significant decreases in adverse events occurred during the intervention period. Nevertheless, it is still possible that other factors could have influenced adverse events, such as activities of change champions or the instigation of policy changes for intensive care practices.

Owing to the nature of the study design, a key limitation of the study was that the intervention was not blinded. In an attempt to reduce the impact of this source of bias, the authors did not collect any adverse event data themselves. Instead, they derived data from the hospital's standard adverse event–reporting system. Furthermore, no information was collected on the effects of the intervention on death or readmission after transferring out of the ICU, and no data were collected on the patients' Acute Physiology and Chronic Health Evaluation scores. The authors calculated Charlson Comorbidity Index scores; however, this index provides no information about illness severity.[6]

This article has valuable implications for ICU practices. In developing and implementing electronic medical records in

Australia, attention should be placed on actively incorporating the perspectives of patients and families. Conversations involving health professionals alone should be redirected to include the viewpoints of conscious and alert patients and families. After the establishment of electronic medical records in Australian ICUs, efforts should be exercised in evaluating context-specific training of structured patient-centred materials and Web-based technology to engage patients and care partners.

Supplementary information

Supplementary data to this article can be found online at https://doi.org/10.1016/j.aucc.2018.10.001.

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