

Study: Do Checklists Improve Care in the ICU?



Use of an electronic "process-of-care" checklist during medical ward rounds was effective in improving daily care delivery in the intensive care unit, according to a study carried out in New South Wales (NSW). In addition to having clinical utility, researchers said the e-checklist also functioned effectively as an audit tool. The findings are published in the journal *Annals of Intensive Care*. And the research has informed incorporation of a checklist into an electronic record for intensive care that is currently being developed in NSW, lead author Karena M. Conroy told *ICU Management*.

The study was conducted by Conroy, Research Project Officer at the New South Wales (NSW) Intensive Care Coordination and Monitoring Unit, Agency for Clinical Innovation, Australia, with colleagues from the Faculty of Health, University of Technology Sydney. The focus was on compliance with care processes and concordance between respondents to the checklist implemented in an ICU within a tertiary hospital. The e-checklist was used during morning ward rounds to document either the delivery or clinical reasons for non-delivery of cares.

A retrospective audit of a random selection of patient medical records was undertaken to compare with checklist data completed during the same time frame. Documentation in the patients' medical records was used as a proxy measure for actual completion of care. A specific audit tool extracted information from both the checklist and the medical record on the following processes of care: nutrition, pain, weaning from ventilation, glucose control, head-of-bed elevation, sedation management, deep vein thrombosis, stress ulcer prophylaxis, and medication review. To test validity of the e-checklist, established measures of concordance (agreement between two observation sets) were used to compare physician and audit responses.

Results showed that compliance with each care component improved significantly over time: the largest improvement was for pain management (42% increase; adjusted odds ratio = 23, $p < 0.001$); followed by glucose management (22% increase, $p < 0.001$) and head-of-bed elevation (19% increase, $p < 0.001$), both with odds ratios greater than 10.

In addition, most detected omissions were corrected by the following day. Control charts illustrated reduced variability in care compliance over time. There was good concordance between physician and auditor e-checklist responses — seven out of nine cares had kappa values above 0.8.

Conroy noted in an email that a clinical information system for intensive care units — [electronic Record for Intensive Care \(eRIC\)](#) — is currently being developed and a process-of-care checklist will be integrated. "Given the plan is to implement eRIC widely across the state, this is our current strategy for broader checklist implementation."

She thinks further research is needed to evaluate delivery of routine care before and after implementation of the clinical information system. "This is complex and requires more thought and planning as there is a lot more to the clinical information system(s) than just the checklist that could impact on changes in care delivery," she said. We are therefore in the early stages of planning future directions."

Claire Pillar, Managing Editor, *HealthManagement.org*

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