HHS Public Access

Author manuscript

Am J Med Qual. Author manuscript; available in PMC 2019 May 01.

Published in final edited form as:

Am J Med Qual. 2018 ; 33(3): 329. doi:10.1177/1062860618758609.

Assessing Preventable Harms in the Intensive Care Unit: Data From a Tertiary Care Academic Medical Institution

Nina Sung, MD[1], **J. Matthew Aldrich, MD**[2], **David W. Shimabukuro, MD**[2], **Michael A. Matthay, MD**[2], and **Kathleen D. Liu, MD, PhD**[2]

[1]Icahn School of Medicine at Mount Sinai, Mount Sinai Hospital, New York, NY

[2]University of California San Francisco, San Francisco, CA

Numerous evidence-based best practices exist to mitigate preventable harms in the intensive care unit (ICU). These practices include aspects of care such as targeted goals for sedation, performing spontaneous awakening and breathing trials (SAT and SBT, respectively) in patients receiving mechanical ventilation, and routine assessment of delirium.[1] These interventions result in improved clinical outcomes such as shortening the duration of mechanical ventilation and decreasing ICU length of stay.[2] Tracking performance of these elements of care is important so that areas where compliance is low may be identified and can help direct quality improvement efforts.[3]

We retrospectively reviewed charts of patients who received mechanical ventilation from October 1 to December 31, 2015, to characterize utilization of sedation and delirium protocols in the medical/surgical ICU at the University of California, San Francisco Moffitt-Long Hospital. Fifty-six patients were included for analysis. Patients were excluded if they were intubated for less than 24 hours, received neuromuscular blockade or therapeutic hypothermia, were assigned to comfort care, or were admitted with a primary diagnosis of intracranial hemorrhage, head trauma, refractory status epilepticus, or active alcohol withdrawal.

The following parameters were assessed: (1) the ordered sedation level according to the Richmond Agitation-Sedation Scale (RASS), a reliable and commonly used scale from −5 to +4 with more negative numbers indicating deeper sedation; (2) the patient's corresponding achieved RASS as charted by nursing staff; compliance with performance of a daily SAT trial; (3) and daily monitoring for the presence of delirium using the Confusion Assessment Method for the ICU (CAM-ICU).

The RASS level ordered by providers was ≤−2, corresponding to light sedation levels, on 40% (25/63) of orders. The actual RASS level was more negative than the ordered RASS in 44% (162/371), indicating increased patient sedation. The difference between the ordered and achieved RASS was more significant during the evening shift ($P = .02$). Furthermore, RASS was significantly more negative during the evening shift compared with the preceding

Corresponding Author: Nina Sung, MD, Division of Pulmonary, Critical Care, and Sleep Medicine, Icahn School of Medicine, Mount Sinai Hospital, 1468 Madison Avenue, Annenberg Building 5-20, New York, NY 10029. nina.sung@mssm.edu.

day shift (paired *t* test, $P = .003$). Whether an SAT was performed was not documented in 55% (97/177) of eligible days. A CAM-ICU assessment was not recorded in 18% (61/338) of eligible days.

These results highlight potential areas of vulnerability in the care of critically ill patients. They suggest that levels of sedation achieved might be deeper than desired, and more so during evening hours; although there may be clinical justification for the need for deeper sedation, documentation could be strengthened to provide a rationale why the need exists. Similarly, compliance with documentation of SBT/ SAT performance and CAM-ICU assessment could be improved. Quantifying compliance with these measures, or documenting why they were omitted, can aid in identifying areas in which processes of care can be strengthened.

References

1. Barr J, Fraser GL, Puntillo K, et al. Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit. Crit Care Med. 2013; 41:263–306. [PubMed: 23269131]
2. Kress JP, Pohlman AS, O'Connor MF, Hall JB. Daily interruption of sedative infusions in critically ill patients undergoing mechanical ventilation. N Engl J Med. 2000; 342:1471–1477. [PubMed: 10816184]
3. Weiss CH, Moazed F, McEvoy CA, et al. Prompting physicians to address a daily checklist and process of care and clinical outcomes: a single-site study. Am J Respir Crit Care Med. 2011; 184:680–686. [PubMed: 21616996]