Standardizing Spontaneous Awakening and Breathing Trials in Critical Care: A Pilot Project

Lynzy Elzinga
Deirdre McNally
Eddie Montes

Follow this and additional works at: https://digitalcommons.psjhealth.org/other_pubs

Part of the Nursing Commons
Standardizing Spontaneous Awakening and Breathing Trials in Critical Care: A Pilot Project
Lynzy Elzinga, BSN, RN, Deirdre McNally, BSN, RN, CCRN, Eddie Montes, BSN, RN, CCRN
September 30, 2020

Background
- The ABCDEF Bundle (2017) is an evidence-based guide for clinicians working with critically ill patients to coordinate multidisciplinary care in the intensive care unit.
- The “B” of the ABCDEF Bundle represents both spontaneous awakening trials (SATs) and spontaneous breathing trials (SBTs).
- During an SAT, patients are slowly weaned off sedation to determine if they are capable of tolerating a smaller amount of sedating medications.
- In an SBT, ventilator settings are weaned on qualifying patients to determine readiness to extubate. A pairing of these trials is now the standard of care.
- Other bundle topics include: adequate pain control, properly choosing analgesia and sedation, monitoring and managing delirium, early mobility, and family engagement (Marra, Ely, Pandharipande, et al., 2017).
- Nearly all patients who are mechanically ventilated receive continuous intravenous sedation.
- In one study, researchers demonstrated that daily interruption of sedation shortened the duration of mechanical ventilation by over 2 days and ICU length of stay by 3.5 days (Kress, Pohlman, O’Conner, et al., 2000).
- Eligible individuals included mechanically ventilated patients ages 18 and over, exclusive of tracheostomy patients.
- Nurses with a qualifying mechanically ventilated patient completed an audit form in order to ensure protocol adherence.
- It was assumed patients did not have an SBT, SAT, NMB, sedation, or were prone if an audit sheet was not collected demonstrating this.
- Study groups were compared using the two-sample t-test assuming unequal variances.

Methods
- The Institutional Review Board (IRB) waived approval for this evidence based project as no changes to the standard of care were implemented.
- All patients were sourced from the Providence Portland Intensive Care Unit between July and August of 2020.
- Prior to the implementation phase, staff nurses in the ICU were educated on proper use of spontaneous awakening and breathing trials.
- Education included information on the signs and symptoms that indicate a “fail” or a “pass” on the trials (Girard, Kress, Fuchs, et al., 2008). The flowchart below was edited based on the recommendations of pulmonologists in the PPMC critical care unit.
- The remaining 149 audit sheets represented 36 discrete patients.
- Analysis of the data demonstrated that patients with less ventilator hours are less likely to:
  - Need a neuromuscular blockade (NMB)
  - Be proned
  - Need an SBT
  - Or need an SAT, \( t(35) = 4.35, p < 0.05 \)
- Additionally, there was a significant relationship between age and length of stay.

Results
- 163 audit sheets were turned during the data collection phase. 15 of these sheets were unusable because they lacked patient labels.
- The remaining 149 audit sheets represented 36 discrete patients.
- A major limitation of this pilot project is that audit sheets demonstrating an SBT, SAT, proning, NMB, or use of sedation may not have been turned in.
- Furthermore, the number of audit sheets did not match the number of shifts each of these patients was ventilated.
- Audit sheets demonstrated a great variability in knowledge surrounding spontaneous awakening and breathing trials in our unit.
- Education on this topic, as well as updates in Epic, would be helpful in addressing issues with the audit forms.
- In the future, we plan to simplify the audit form and collect data only related to the project at hand. This may eliminate the number of incomplete audit forms we receive.
- Future iterations of this project could involve a control and test group to evaluate whether changes to our SAT/SBT protocol decreases ventilator time.

Discussion/Conclusions
- This data appears to represent the population of patients who are mechanically ventilated in our ICU.
- A major limitation of this pilot project is that audit sheets demonstrating an SBT, SAT, proning, NMB, or use of sedation may not have been turned in.
- Furthermore, the number of audit sheets did not match the number of shifts each of these patients was ventilated.
- Audit sheets demonstrated a great variability in knowledge surrounding spontaneous awakening and breathing trials in our unit.
- Education on this topic, as well as updates in Epic, would be helpful in addressing issues with the audit forms.
- In the future, we plan to simplify the audit form and collect data only related to the project at hand. This may eliminate the number of incomplete audit forms we receive.
- Future iterations of this project could involve a control and test group to evaluate whether changes to our SAT/SBT protocol decreases ventilator time.

References