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Introduction

Sedation is routinely used to facilitate treatment of many patients within ICU. Commonly a combination of propofol and an opioid is used to maintain sedation. Sedation is not without risk, one of the most significant being prolongation of mechanical ventilation and thus length of stay. Other risks include increased risk of critical illness myopathy and muscle wasting, increased incidence of delirium, increased risk of nosocomial pneumonia, immunosuppression and VTEs.¹

Due to the risks, the minimum amount of sedation to facilitate treatment should be used. Patients should be kept lightly sedated as this reduces ICU length of stay, iatrogenic harm and morbidity.² Sedation depth should be reviewed on a regular basis and the depth of sedation be specified by the daily prescribing of a Richmond Agitation Sedation Scale (RASS) level.³

In addition to the targeting of light levels of sedation, patients should also have daily spontaneous awakening trials (SATs) if this is clinically appropriate to assess their suitability for extubation.⁴

Table 1. Richmond Agitation Sedation Scale.

Score	Term	Description
+4	Combative	Overtly combative, violent, immediate danger to staff
+3	Very agitated	Pulls or removes tubes(s) or catheter(s), aggressive
+2	Agitated	Frequent non-purposeful movement, fights ventilator
+1	Restless	Anxious but not movements not aggressively vigorous
0	Alert and calm	
-1	Drowsy	Not fully alert but has sustained awakening (eye opening / eye contact to voice >10 seconds)
-2	Light sedation	Briefly awakens to voice with eye contact (<10 seconds)
-3	Moderate sedation	Movement or eye opening to voice (but no eye contact)
-4	Deep sedation	No response to voice but movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

Objectives

To assess the current sedation practices within a large ICU. Data was collected to inform a quality improvement project as part of implementation of ICU Liberation guidelines.

Methods

A retrospective case note review was carried out
Inclusion criteria:

- Invasive positive pressure ventilation >72h
- Sedated with propofol and opioid
- Surgical or medical

Exclusion criteria:

- FiO₂ > 0.6
- Recent muscle relaxation
- Concern around brain injury
- Concern around airway or plan for tracheostomy

22 sets of patient notes were reviewed. 11 patients were eligible for data collection. Data was collected for 7 days for each eligible patient, therefore 77 patient days were reviewed.

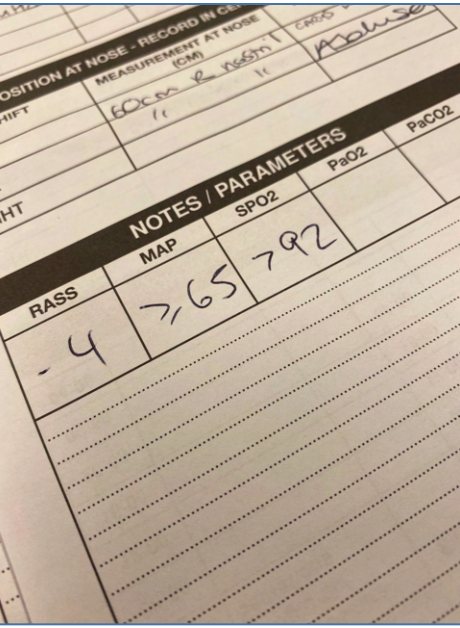


Figure 2. Targets set daily on ICU observation chart.



Figure 3. Stacker system with IV infusions

Results

Patient days and prescribing of target RASS

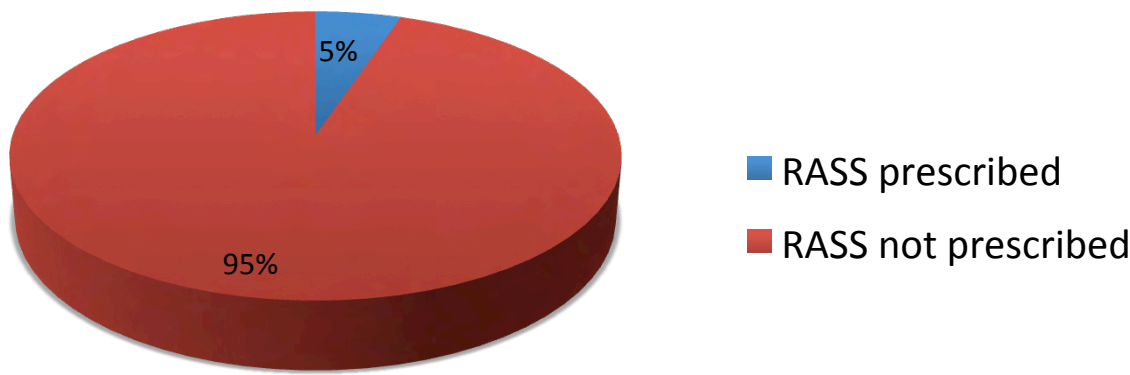


Chart 1. Pie chart demonstrating proportion of patient days with RASS targets prescribed.

Patient days with Spontaneous Awakening Trials

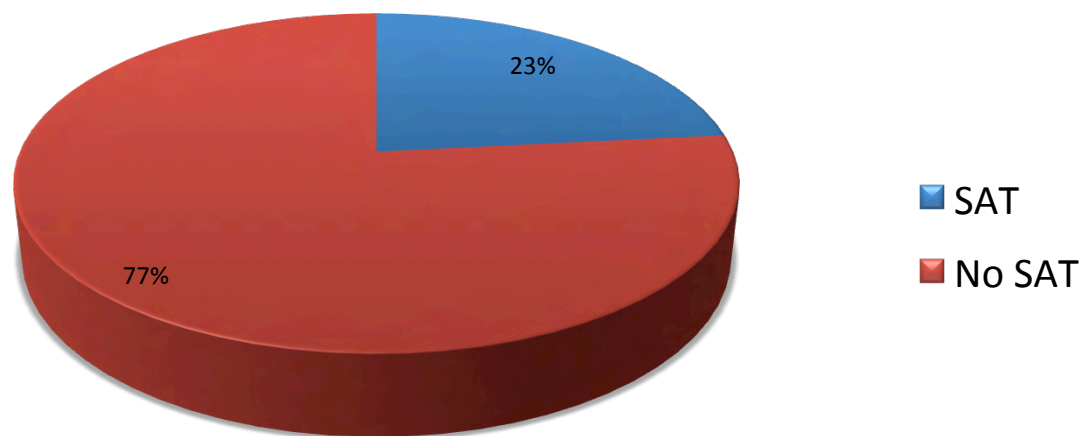


Chart 2. Pie chart demonstrating proportion of patient days SATs.

Of the 77 patient days reviewed, a target RASS was only prescribed on 4 (5%). 18 (23%) included a SAT where all sedation was stopped. On in depth analysis of day 4’s data, the modal level of sedation achieved was RASS of -4 (range +2 to -5); none of the patients had a target RASS prescribed.

Discussion

The expected standard is that all patients should have their RASS level prescribed on a daily basis; only 5% met this target. Patients received larger doses of sedative medicines than were clinically necessary and kept sedated to a deeper level than required. There may be a lack of understanding of the importance of prescribing and regularly reviewing sedation level.

The frequency of daily SATs also fell below the expected standard at 23% of patient days. The literature suggests that this should be a nursing led initiative however SATs can be associated with an increased nursing workload and therefore may not be done as often as optimal.⁵



Figure 3, 4, 5. Screen shots of educational YouTube video to encourage RASS prescription, assessment and sedation titration.<https://youtu.be/-OizBQmZAas>

Conclusions

In order to improve the level of sedation that is received by patients on ICU an education video was designed, filmed and shared on YouTube and Facebook on assessing levels of sedation using RASS. In addition results of this audit were shared at departmental audit meeting and a teaching programme designed to encourage medical staff to set targets, empower nursing staff to ask for target levels of sedation and encourage the closer titration of sedative medications.

References

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