IMPLEMENTING AN AWAKENING, BREATHING, DELIRIUM SCREENING, AND MOBILITY PROGRAM FOR MECHANICALLY VENTILATED PATIENTS

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BACKGROUND
Survivors of critical illness experience high rates of physical, cognitive, and emotional impairments.1,2
- Can last months to years post-discharge.3,4
Sedation minimization, spontaneous breathing trials, delirium screening & management, and early mobilization can combat these effects.5,6

Use of endotracheal tubes with subglottic suction ports ("subG ETTs") and elevating patients’ head of bed ≥30° can ↓ rates of ventilator-associated events.7

Bundled approaches have been reported to ↓ duration of mechanical ventilation, ↓ delirium, ↓ ICU length of stay, and ↓ mortality without ↑ in adverse effects.8,9

AIM
To increase performance of 6 daily process measures in two medical-surgical ICUs by the end of the 18 month implementation period:
1. Spontaneous awakening trials (SATs) by 20%
2. Spontaneous breathing trials (SBTs) by 20%
3. Delirium screening via CAM-ICU to >90%
4. Mobilization by 20%
5. Use of subG ETTs to >70%
6. Head of bed ≥30° compliance to >90%

Balance measure: adverse events during patient mobilization.

Ultimately, we hope to improve patient outcomes including duration of mechanical ventilation, delirium, ventilator-associated events, ICU & hospital length of stay and mortality.

METHODS
Design: Prospective quality improvement project in two adult medical-surgical ICUs at a academic hospital from 1/1/15-10/31/16.

Overall Process
- Multidisciplinary group (physicians, MDs, RNs, EMTs) met on a monthly basis to guide project & disseminate information to their respective groups.
- Collected & reviewed baseline data.
- Brainstormed potential barriers & possible interventions.
- Conducted biweekly educational sessions with providers.
- Routinely performed intermittent audits throughout implementation period for review and adaptation of interventions.
- Coordinated with overseeing entity (CUSP/MVP Program at Johns Hopkins University).

Process Measure
- Baseline: No formal protocol
- Changes Made: Formal safety screen developed, RN to perform

Delirium screening
- Baseline: No formal protocol
- Changes Made: Formal daily delirium screen added to bedside shift report

Early mobility
- Baseline: No formal protocol
- Changes Made: Early mobilization order set added to SATS & SBTs

Subglottic ETT
- Baseline: No formal protocol
- Changes Made: SubG ETTs with suction equipment available

Head of bed ≥30°
- Baseline: No formal protocol
- Changes Made: SubG ETTs with suction equipment

Perceived Barriers to Mobilization

• Achieved implementation goals for all 6 daily process measures.
• Potential issue of sustainability with SBTs.
• 3 adverse events (out of 1,783 patient-days with mobilization) reported over implementation period.
• Still significant room to improve (especially SATs, SBTs, mobility).

OUTCOMES
Multidisciplinary involvement of all stakeholders is key to obtaining buy-in.

Changes take time, especially with more complex interventions (e.g. SAT/SBTs, early mobility as compared to delirium screening, use of subG ETTs, HOB ≥30°).

EMR can be leveraged to streamline workflow and enhance change.

Coordination amongst many teams is critical.
- e.g. Increase in performance of SAT/SBTs, but still delay to extubation after successful SAT → overnight residents often uncomfortable extubating patients, but still limiting impede performance during day shift.

LESSONS LEARNED
Ongoing assessment of process measures, including efforts to maintain sustainability and further increase performance.

Addition of assessment of effects on patient outcomes, ultimately hoping to show meaningful improvements.

REFERENCES