**United as One: Collaboration between Virtual and Bedside Clinicians Unite to Liberate ICU Patients from Sedation and Mechanical Ventilation**

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**Project Selection**
- Poor outcomes have been associated with prolonged mechanical ventilation that include increased ventilator days, increased intensive care unit (ICU) and hospital length of stay (LOS), increased cost to patient and health care organization, and an increased risk of disability and death.
- Even with the best critical care clinicians and protocols available to care for our sickest patients, the challenges of managing a complex, multi-disciplinary process can still be difficult. To address these challenges the Critical Care Unit (CCU) team at Atrium Health Union, in collaboration with Virtual Critical Care (VCC), developed an innovative program aimed to liberate patients from the ICU.
- The need to standardize clinical interventions aimed at sedation interruption and ventilator weaning management has been a focus within critical care. Through a collaboration between Union CCU and VCC, improvements in communication, workflow, and adoption of clinical practices led to a reduction in ventilator days and overall ICU LOS.
- This work reduces potential negative clinical outcomes patients may experience related to prolonged mechanical ventilation and ICU stay. The critical care teams’ heightened focus on implementing best practices through teamwork leads to a better care experience for our patients.

**Goals**

1. Establish a consistent and reliable process for spontaneous awakening and breathing trials (SAT/SBT) through collaboration with virtual clinicians.
   - **Process Measure:** Increase in compliance with documenting performance of SAT/SBT trials on all mechanically ventilated patients by 50%.
   - **Outcome Measure:** ICU Liberation compliance by daily lean metric.

2. Decrease Union CCU mechanical ventilator days through the establishment of a process for same-day SAT/SBT retrials.
   - **Process Measure:** Number of patients receiving same-day SAT/SBT retrial.
   - **Clinical Outcome Measure:** Mechanical ventilator days and ICU LOS, both observed to expected (O/E).

   **Counterbalance Measure:** Reintubation rate

**Improve Process**
- Union’s Critical Care Steering committee discussed and approved the initiation of the Atrium Health SAT/SBT protocol on all eligible patients at 0500 daily including weekends. This change required a team commitment to alter unit routines and work hours for a new workflow.
- Data collection tools were created to track daily performance and compliance. The Lean huddle process was enhanced in preparation to discuss issues at 3pm daily huddle.
- VCC RNs focused their early morning work to identify patients eligible for SAT/SBT. The Virtual RNs were available for monitoring and guidance through breathing trial phase. VCC RN and VRT data collection tools were tracked process compliance and patient outcomes.

**Results/Outcomes**

The goal for documenting SAT/SBT compliance is 100%. Baseline compliance for SAT was 19% prior to September. Baseline compliance for SBT was 82%. An overall increase in compliance was achieved, reaching an average of 32% compliance for SAT and 91% compliance for SBT documentation.

**Union ICU LOS O/E** shows overall downward trend in comparison to the prior year. The increase in October 2018 can be attributed to multiple long-term ventilated patients waiting for placement that serve as outliers to the data.

**Union Vent LOS O/E** shows overall downward trend in comparison to the prior year. The increase in October 2018 can be attributed to multiple long-term ventilated patients waiting for placement that serve as outliers to the data.

Fifty-four percent of re-trials resulted in patients being liberated from the ventilator, 38% were extubated and 16% were transitioned to trach collar.

Counterbalance measure on reintubation rates show rates have remained relatively stable.

**Practice Change**

In the first 22 days of the pilot, thirty-five percent of intubated patients were extubated and transitioned to trach collar. The teams began seeing more and more patients extubated between 0500 and 0700 compared to prior experiences. Process compliance measures were collected daily by both Union and VCC teams. The Union team reviewed each mechanically ventilated patient’s chart every 24 hours to ensure an SAT/SBT trial has been considered, performed, and documented. Periodic meetings were held between stakeholders on both teams, including Medical Directors, to evaluate outcomes, review specific case scenarios, and determine the efficacy of data collection. Process and clinical outcome measures, along with lessons learned, were presented in these meetings and monthly at Union’s Critical Care Steering Committee.

**References**


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