

# Paired Spontaneous Awakening Trial and Spontaneous Breathing Trial Protocol Implementation

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## Problem Statement



**Mechanical Ventilation (MV)** is a life-saving modality commonly used in the Intensive Care Unit (ICU) patients.

**Sedation** used for better patient's MV tolerance.

- Deep sedation occurred in 76% of patients in 4 hours of MV and 68% of patients in 48 hours.
- Delirium occurred in 50.7% within 2 days.

**Utilized together**, it leads to **prolonged MV duration** and **increased risk for MV-associated complications**.

While evidence suggests that

- Can prevent MV-associated complications
- Improve survival rates
- Improve quality of care
- Decrease Length of Stay (LOS) & Costs

## Purpose of the Project

### Implementation of a Paired SAT/STB Protocol

- **Promote Early Extubation**
- **Reduce MV days**
- **Endorse a Practice Change** that includes *sedation guidelines & safety screening* to identify appropriate candidates for extubation

### SAT – Spontaneous Awakening Trial

The stopping of IV sedation for a time period to adequately perform a neurological assessment without causing agitation or accidental extubation.

### SBT – Spontaneous Breathing Trial

The gradual withdrawal of the amount of support the patient receives from the MV so that the patient assumes a greater proportion of respiratory effort to assess the probability of successful extubation. (*Synonymous to MV (vent) weaning*)

## Goals

### Short-term goal

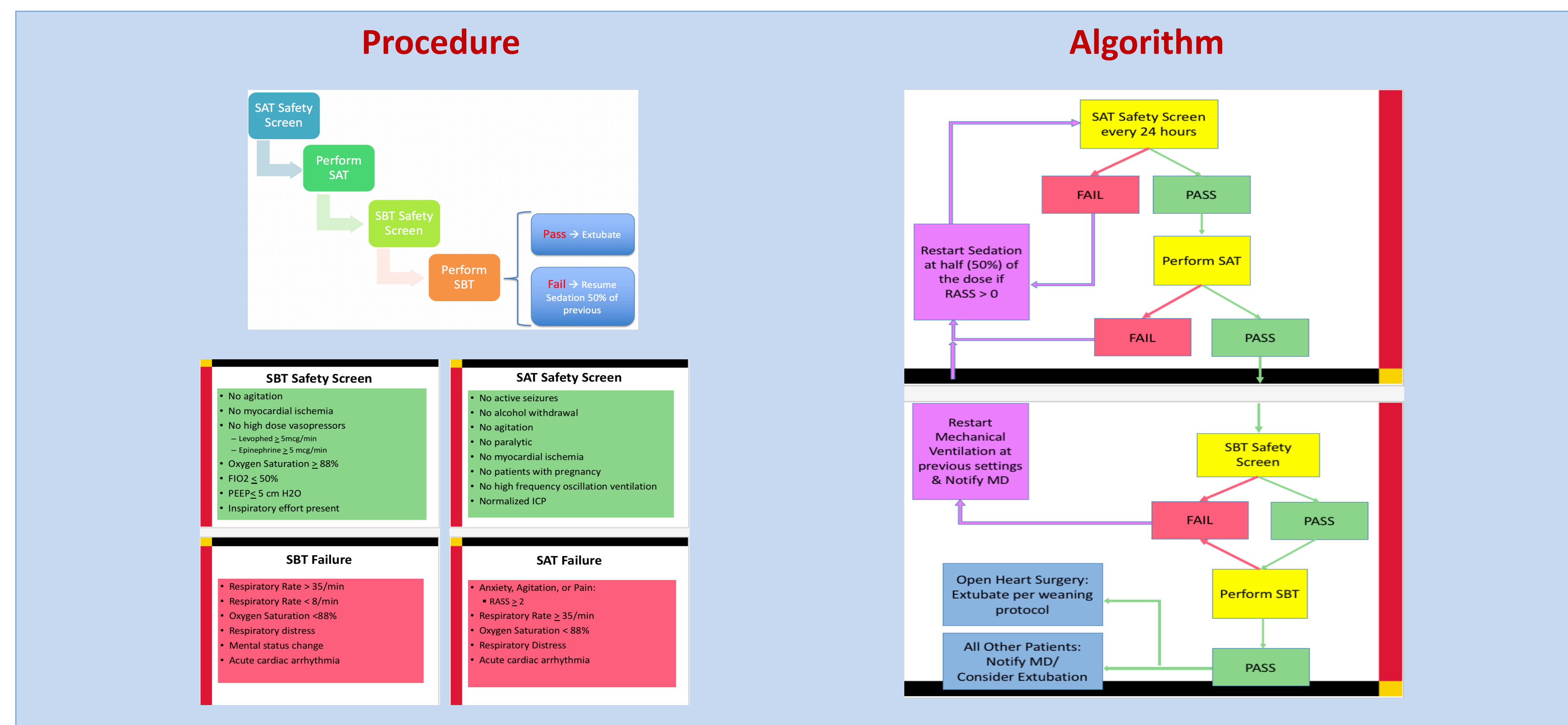
- Full implementation of the paired SAT/STB protocol in the target entity's ICU by 11/30/2019 on 80% of patients on MV and IV sedation, with the goal of early extubation.

### Long-term goals

- Improve quality of care in the target entity ICU by
  - **Decreasing the MV days** and consequently preventing MV-associated complications
  - **Decreasing the Standardized Utilization Ratio (SUR):** A summary measure used to track device use at a national, state, or local, or facility over time.
  - **Maintain ≥ 80% Staff Compliance** with protocol implementation
- Project Sustainability

## Methods

- **Setting:** A 28-bed ICU of a community hospital within the DC Metropolitan Area
- **Population:** All intubated ICU patients ages 18-65 years old who are on sedation and MV support
- **Implementation Procedure:** Implemented over 3-month period from 9/01/2019 – 11/30/2019
  - Daily trials started at 07:30 AM, allowing for sleep, shift change, and timing with multidisciplinary rounds.
  - It starts with a safety screening, followed by SAT, then SBT safety screening, followed by SBT.
  - Follow the algorithm.



## Discussion

### Interpretation

- The staff compliance goal was met.
- The MV data is inconclusive: the SUR decreased but the MV days increased.
- Full adoption of the protocol: The critical care provider team included the SAT/STB in their progress notes' quality measures list.

### Discussion

- Data from the past 24 months have shown a *seasonal variance pattern* in the MV days, and a 3-months worth of data during implementation period is insufficient to fully analyze the impact of the protocol to the target entity.

### Limitations

- Barriers that affected the project implementation includes:
  - The synchronous merging of a Neuro-ICU & CVICU along with the hospital relocation during the implementation month.
  - MV data are computer generated but the staff compliance data are from manual audits from multiple data collectors.

## Conclusions

### Implication for Nursing Practice

- As a nurse-initiated protocol, *nurses are the leaders* that have coordinated the multidisciplinary team of respiratory therapists and intensivists in the protocol's successful implementation.
- Positive Impact on patients
  - Better quality of care and improved outcomes
  - Decreased MV-related complications
  - Shorter ICU LOS

### Future Projects

- Building of the staff compliance audit tracker into the electronic health record will improve data collection
- Work toward the full adoption of the ABCDEF bundle. (*Awakening and Breathing Coordination, Delirium Monitoring/Management, Early Exercise/Mobility, and Family Empowerment*)

## References

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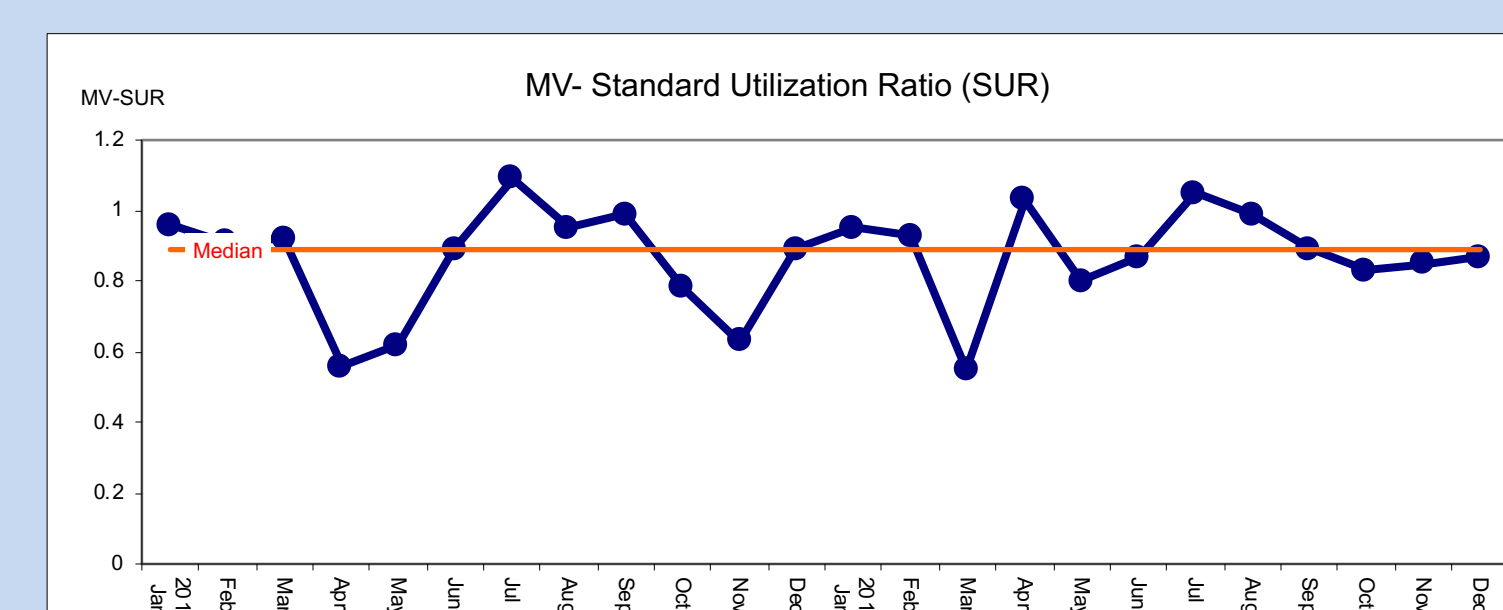
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### Acknowledgment

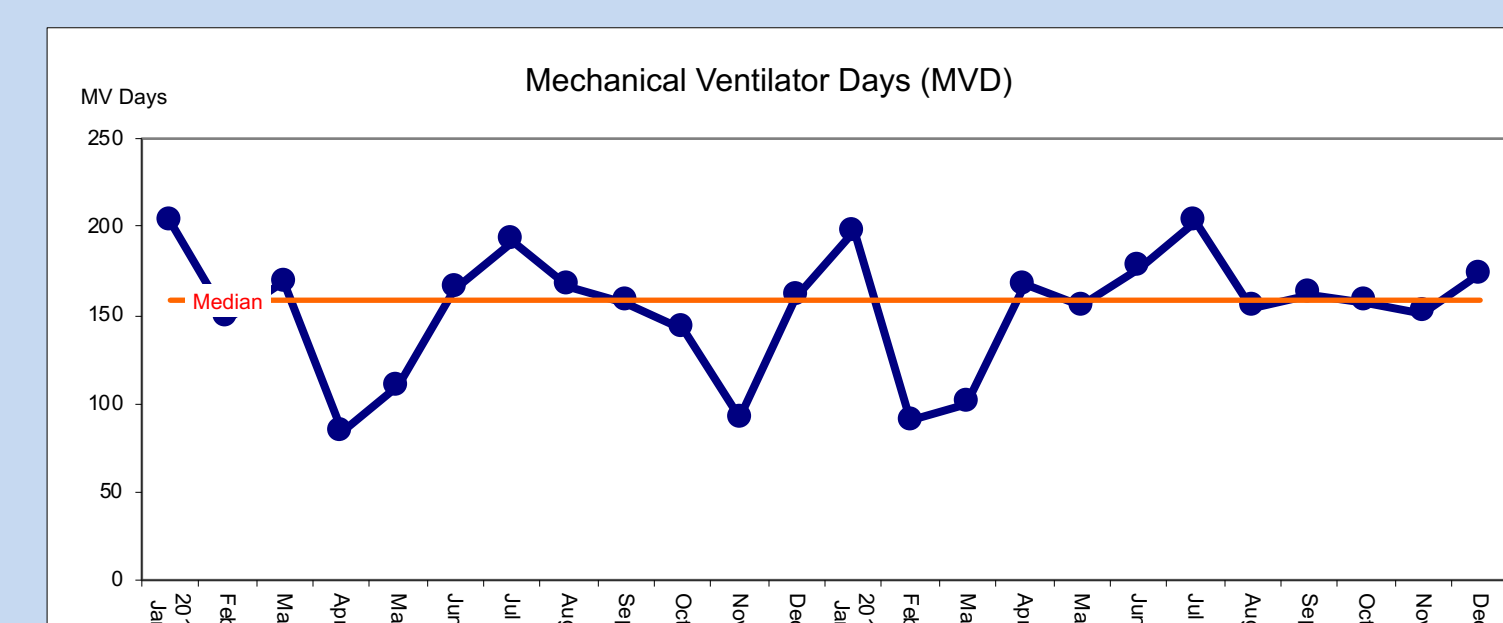
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## Results

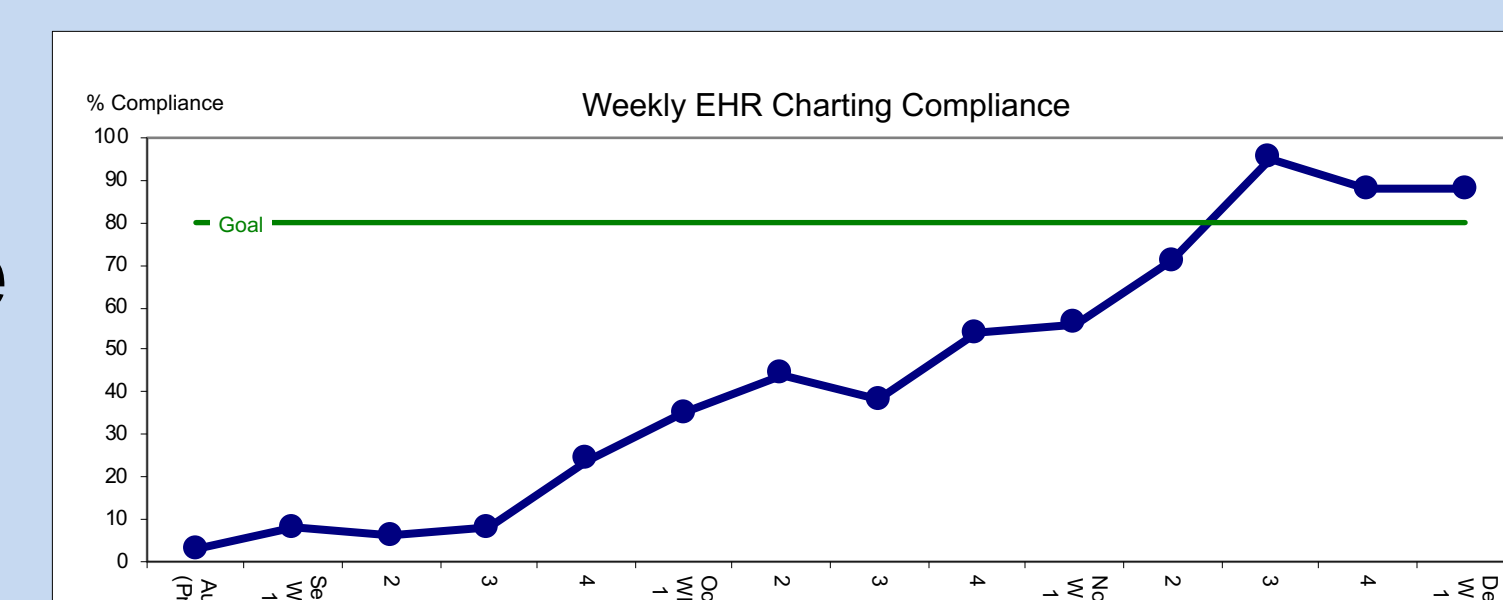
**SUR decreased**  
from 0.99 to 0.89



**MV days increased**  
from 154 to 162



**% of Mean Staff Compliance increased**  
from 3% to 82%



### SUR and MV Days

Date Observed	MVD	SUR
2018 January (pre-implementation)	203	0.96
February	148	0.95
March	169	0.92
April	94	0.56
May	110	0.89
June	165	0.62
July	192	1.09
August	166	0.95
September	157	0.99
October	162	0.78
November	92	0.62
December	160	0.89
2019 January	197	0.95
February	90	0.53
March	100	0.55
April	167	1.01
May	155	0.85
June	137	0.87
July	203	1.05
August	154	0.99
September (implementation)	162	0.89
October	157	0.83
November	151	0.85
December	173	0.87

### % of Mean Staff Compliance

Date Observed	Value	Goal
August (pre-implementation)	3	80
September Wk1 (implementation)	6	80
Wk 2	8	80
Wk 3	8	80
Wk 4	24	80
October Wk 1	35	80
Wk 2	44	80
Wk 3	38	80
Wk 4	54	80
November Wk 1	56	80
Wk 2	71	80
Wk 3	95	80
Wk 4	88	80