

# Multidisciplinary Team Approach Significantly Reduces STAT Calls, ICU Transfers, and Post-Operative Respiratory Failure Rates

Tamera Bird, BSN, RN, CCRN; Kimberly Latham, BSN, RN, CCRN; Brenda Johnson, BSN, RN, CPAN, CPHQ; Victoria Roelker, RRT; Joyce Burke, BSN, BES, RN, CPAN, NE-BC



## Purpose

The purpose of this project was to develop a new process for screening, educating, and monitoring patients with Obstructive Sleep Apnea (OSA) or those at risk for OSA.

## Background

- Nearly 80% of men and 93% of women with moderate to severe sleep apnea are undiagnosed (Chung, 2008).
- Patients with OSA have an increased risk for re-intubations, unexpected ICU transfers, and post-operative infections compared with non-OSA patients (Gammon, 2012).
- Background of the problem: Two post-operative patients had respiratory events which led to ICU admissions. A retrospective chart review revealed that the events were possibly due to undiagnosed Obstructive Sleep Apnea (OSA).

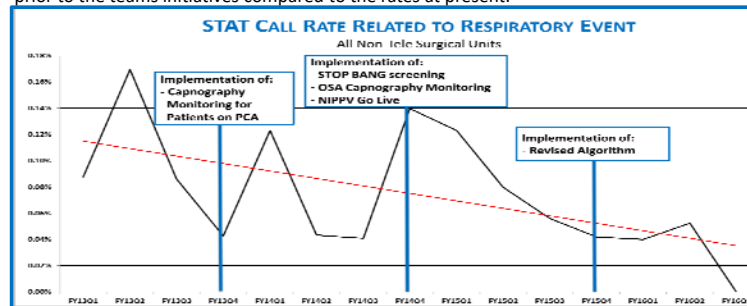
## Methods

A multidisciplinary team was formed to develop an action plan.

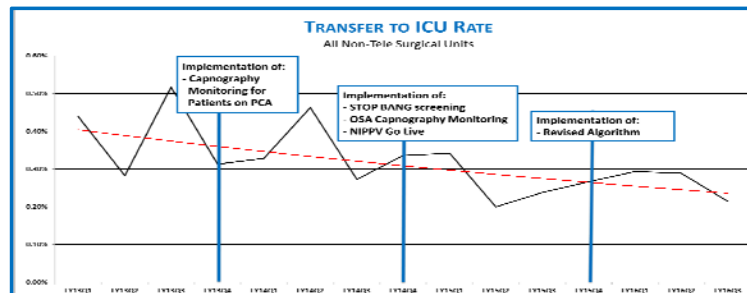
- Patients on patient controlled analgesia (PCA) were placed on capnography and/or oximetry as the first step in addressing the post operative respiratory complications.
- Surgical patients were evaluated pre-operatively using the STOP BANG OSA screening tool followed by an algorithm for monitoring and treatment (see OSA Screening Tool).
  - Patients with a history of, or those found to be at risk for (score 5 or greater), OSA were placed on capnography monitoring in the Post Anesthesia Care Unit (PACU). Admitted patients continued to be monitored with capnography until discharge.
  - Patients with recurrent respiratory events consistent with OSA were placed on Non-Invasive Positive Pressure Ventilation (NIPPV).
  - Patients received OSA education upon discharge and instructions to follow up with the primary care physician, as appropriate.
- After implementation the team improved and revised the algorithm:
  - Consultation and evaluation by the physician prior to placing the patient on NIPPV
  - Changes created a more optimal level of communication and care coordination
  - Standardized order set was created for Respiratory Therapy to assess and treat patients with chronic lung issues.

## Results

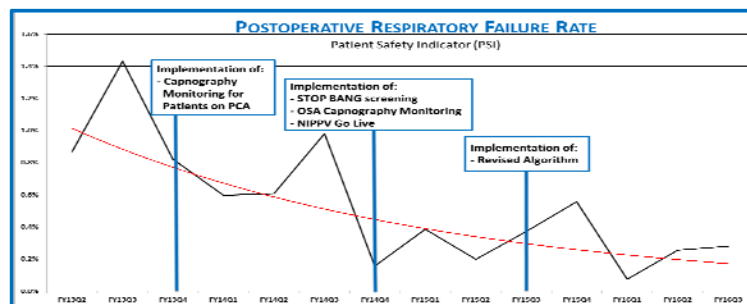
A two-tailed *t*-test with 95% confidence interval was performed to evaluate emergency response calls related to respiratory events, transfers to ICU from non-telemetry surgical floors, and Postoperative Respiratory Failure (as defined by the Patient Safety Indicator) rates prior to the teams initiatives compared to the rates at present.



- Decrease in Postoperative Respiratory Failure rates, 1.6% to 0.28% ( $p < 0.004$ )
- Respiratory Failure Defined: All inpatients who had surgery and a diagnosis of respiratory failure not present on admission



- Variations exist but the overall trend is downward and statistically significant - 0.438% to 0.214% ( $p < 0.01$ )



- Decrease in emergency response call rates related to respiratory events: 0.088% to 0.00% ( $p < 0.01$ )
- Initially upon implementation of capnography monitoring and NIPPV an increase in emergency calls was noted.

## Implications for Quality

Results of this project suggests that a multidisciplinary team approach has the potential to improve the safety and quality of care for patients known or at risk for OSA. This project required the organization and cooperation of multiple departments and multiple disciplines. Every link in the chain was necessary for the project to be a success.

### Next Steps:

- Development of a similar OSA screening process for non-surgical hospitalized patients with known, or those at risk for OSA.
- Ongoing evaluation of the process.
- Opportunities exist to expand the OSA Program. Future research could include: 1) monitoring of women who score 4 or greater on the STOP BANG tool, 2) timing for safe discontinuation of OSA monitoring, and 3) incorporating the screening tool into the Pre-Procedure Navigator.

## OSA SCREENING TOOL

### STOP BANG

Chung, 2008

- S**NORE – Have you been told you snore?
- T**IRED – Are you often tired during the day?
- O**BSTRUCTION – Do you know if you stop breathing or has anyone witnessed you stop breathing while you are asleep?
- P**RESSURE – Do you have high blood pressure or on medication to control high blood pressure?
- B**MI – Is your BMI > 28?
- A**GE – Are you > 50 years old?
- N**ECK CIRCUMFERENCE – Is your neck circumference > 17 (male) or > 16 (female)?
- G**ENDER – Are you Male?

THE MORE QUESTIONS YES – THE GREATER THE RISK