

Implementing a Sedation Apnea Management (SAM) Program

Sleep apnea is the most widely known sleep disorder contributing to unrecognized respiratory depression in patients receiving opioid sedation and sedatives. Estimates are that more than 18 million people have sleep apnea, and it is more common in men than women. People of all ages and both sexes can have sleep apnea. Due to apneic events, restful sleep patterns are interrupted resulting in excessive sleepiness and next-day fatigue. Increasing prevalence for sleep apnea requires the integration of a sedation apnea management program (SAM) to reduce the patient risk of experiencing an adverse event after receiving sedation.¹

Failure to recognize respiratory depression in a timely manner in postoperative or postprocedure patients has led to cardiopulmonary arrest resulting in hypoxia or anoxia, even death. Of interest has been the increased incidence of opioid related adverse events after The Joint Commission (TJC) recommended in 2001 more aggressive pain management therapy due to the undertreatment of pain.² Also, many of these patients are recovering in unmonitored beds, which contributes to the added risk for unrecognized respiratory depression. Adding to the problem is the shortage of nurses and therapists and SAM training, which impacts prompt detection of the pending risk.

It is imperative to identify the factors which contribute to an elevated risk for respiratory depression in our postoperative or postprocedure patients: opioid pain medications and sedatives reduce the respiratory rate; anesthetics dampen airway tone, reduce the lung capacity, and affect the sleep cycle; supplemental oxygen may truncate respiratory drive. The challenge for the healthcare team is to appropriately recognize the patients who are at risk and immediately intervene to reverse that risk. Careful monitoring of these patients is an answer to reducing these catastrophic events. In a significant sample of cases in the American Society of Anesthesiologists Closed Claims database, at least half of the adverse respiratory events would have been prevented with better monitoring.³

Effective monitoring such as vital signs, assessment of the level of sedation, oximetry and capnography can reduce the risk for morbidity and mortality from anesthesia, pain medications, and sedation. The challenge is having adequate continuous monitoring on the general care floor (GCF) bedside with an audible alarm triggered by a low threshold value and adequate clinical staff to assess the patient when these alarms are triggered. Vital signs may be assessed infrequently adding to likelihood that a gradual respiratory depression will escape the notice of the care team. Continuous monitoring with trend analyses will protect a patient with respiratory compromise from cardiopulmonary arrest. The combination of monitoring with oximetry and capnography promotes detection of intermittent airway obstruction due to snoring and sleep apnea, thus providing an early warning of patients with reduced ventilation and increasing respiratory decompensation.

Monitoring can be augmented with application of a wireless technology to provide instant, remote notification to the

healthcare team. Plus a centralized monitoring station on the GCF with clinical providers trained to recognize changing respiratory conditions provide the nurses and therapists with clinical information who are away from the patient. Some centralized monitoring systems use a paging system for notification of the nurse or therapist or rapid response team of a critical alarm, which may lead to an adverse clinical event. Monitoring the oxygen and EtCO₂ of patients receiving PCA delivery of pain medications or sedating drugs to protect them from potentially catastrophic events. It is important to have an assessment of the patient's risk for sleep apnea prior to using PCA therapy for management of pain.

Prevention of postoperative or postprocedure risk due to respiratory depression not only requires increased monitoring that uses centralized clinical trending exported to the care team, but education of the care team as well. Standing orders for preoperative assessment of patients at risk for sleep apnea or respiratory depression heighten attention to factors to modify for reduction of risk. Frequent rounding on these patients by specialists such as a Rapid Response team, Respiratory Therapist, and Clinical Specialist can be incorporated to observe the impact of multiple co-morbidities across the patient age continuum. Frequent vital sign monitoring and assessment of sedation levels augment recognition of the clinical condition to reduce the incidence of respiratory adverse events.

Education with the patient and their family about the risks associated with sleep apnea, residual anesthesia, sedating drugs, pain medications, and increased sleep debt is vital to gaining their cooperation for communication of changing clinical signs to the bedside nurse. Taking time to talk with our patients and their family about the role of monitoring improves the patient's tolerance to wear the devices. An educated care team will regard monitoring with oximetry and capnography as a requirement rather than an option to protect the patient at risk for respiratory depression.

Postoperative and post-procedure respiratory depression secondary to opioids, sedatives, and anesthesia cannot be eliminated, but with adequate monitoring devices, education of clinicians and patients, and a comprehensive clinical team conducting regular assessments on each of these patients, we may gain our goal of zero tolerance for adverse events.

The elements in implementing a Sedation Apnea Management (SAM) program are as follows:

1. Creating communication of SAM pathways among the healthcare team.
2. A Readiness Assessment determining what the team already has, needs, leadership designation, including patient screening tools, staff and processes.
3. Training of pre-screen and PACU monitoring/assessment for physicians, nurses and staff.
4. Establishment of Post PACU patient disposition processes, tools and staff designated training.

5. Development of Patient Management program: post disposition for sleep apnea follow-up such as further sleep diagnosis and sleep DME disease management program.

Sedation Apnea Management Programs will reduce patient risk, reduce medical liabilities for physicians and healthcare facilities, and create revenue opportunities to serve newly diagnosed sleep apnea patients.

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