"...As serious as a heart attack...." In the operating room of any U.S. hospital you will find a defibrillator, a ventilator, and a crash cart. Increasingly, you will also find a protocol in place for assessing patients for perioperative risks related to sleep-disordered breathing (SDB). Why is this so important?

Obstructive sleep apnea (OSA) places patients at a significantly increased risk for post-operative respiratory complications after receiving centrally acting anesthesia and/or analgesia, as central nervous system depressants alter the normal ventilation/oxygenation response.1 By screening patients for OSA or SDB, organizations will very likely reduce the occurrence of perioperative respiratory complications in at-risk patients. This will decrease the incidence of Sentinel Events, cardiac and/or respiratory arrests, unforeseen tracheotomy, unplanned ICU days, and/or prolonged length of stay.

Prevalence
We've all heard OSA is a very common and treatable condition that affects an estimated 2–4% of men and women in the United States. This number is virtually the same as asthma and diabetes. However, investigators also suggest that the affected population may be as high as 24% of men and 9% of women.2 It is estimated that 1–3% of children suffer from SDB. Additionally, it has been estimated that 80–90% of patients with OSA are undiagnosed.3

OSA occurs when the airway of a person becomes occluded or obstructed upon itself while a patient is asleep. While the patient makes efforts to breathe, the obstruction does not permit the movement of air, resulting in apnea (or the cessation of breath). Hypopneas result when the airway is partially obstructed. The severity of SDB is quantified via the apnea/hypopnea index: the average number of events occurring per hour of sleep. Symptoms include snoring, falling asleep at inappropriate times, gasping/choking while sleeping, driving or workplace accidents, excessive daytime sleepiness, irritability, mood disorders, morning headaches, and dry mouth. As an apnea episode leads to asphyxia and/or arousal, the autonomic nervous system is activated. This activation triggers a cascade of events including systemic and pulmonary vasoconstriction that leads to systemic/pulmonary hypertension, cardiac arrhythmias, and occasionally sudden death.2 Cardiac conditions associated with OSA include hypertension, coronary artery disease, congestive heart failure, and stroke (see Figure 1).

Surgical risks
OSA patients are often those who present with difficult airways in the first place. With the delivery of anesthesia/analgesia, autonomic reflexes are blunted so that not only are patients non-responsive, their airways collapse to such an extent that ventilation/oxygenation cannot maintain physiologic homeostasis. Surgery of the thorax, upper abdomen, or upper airway increase perioperative risks associated with OSA.3 The critical time periods include induction (when the patient begins anesthesia) and emergence (when the patient is brought out from anesthesia). It is not uncommon for difficulty with mask ventilation to occur at these times. When paralytic agents are used, the results are compounded as dilator muscles of the airway and the diaphragm are completely atonic. Cardiac arrhythmias are most common during induction and emergence, with the majority of the arrhythmias belonging in the sinus arrhythmia class. During these periods, the anesthesiologist is responsible for monitoring the patient.
In the post-anesthesia care units (PACUs), as well as the general patient-care floors, not only are patients recuperating in the supine position, but they are often given narcotic analgesics to control pain postoperatively. They are often sent home completely unmonitored with these analgesics. Should an obstructive apneic event occur in these unmonitored conditions, the narcotic analgesic may leave the patient unable to arouse enough to resume breathing. Other PACU complications include hypoxemia, high or low blood pressure, aspiration, and atelectasis.

**Patient safety goals**

All health care providers recognize the importance of reducing the risk of post-operative complications for patients. Due to this recognition, there fortunately is a growing recognition of potential risks to patients with known or unknown OSA in the perioperative setting. The American Society of Anesthesiologists’ guidelines support the routine screening of OSA during preoperative assessment. Respiratory therapists should take a leading role in improving recognition and response to changes in a patient’s condition regardless of whether we are in the operating room, the PACU, or by simply educating our peers to the risks for this patient population and ascertaining that these guidelines are in place. This is exemplified by the fact that The Joint Commission is also taking an active role in this important concern by refining its standards:

“Furthermore, The Joint Commission has also highlighted the importance of ensuring the safety of sleep apnea patients in the perioperative setting. The Joint Commission released for review a list of DRAFT Goals and Requirements that were considered for potential inclusion in the 2008 National Patient Safety Goals. One of the draft goals included requiring organizations to reduce the risk of postoperative complications for patients with obstructive sleep apnea. In the future it is believed The Joint Commission will introduce National Patient Safety Goals regarding the perioperative management of OSA patients.”

**How to screen**

What should we use? The Berlin Questionnaire? The Epworth Sleepiness Scale? The STOP? The Sleep-Wake Activity Inventory? Outpatient equipment (overnight screening devices used in the home)? There is no clear, evidence-based consensus as to what constitutes an optimal screening system. The American Society for Anesthesiologists has issued a practice guideline on screening and perioperative management of OSA pa-
Some patients with sleep apnea can receive pain medicines and sedatives safely at home. Other patients need to have their breathing monitored in the hospital. The decision about our care will be made by your physician. If you are not currently under the care of a physician, Edward Hospital can assist you in choosing a primary physician by using our referral line.

If you are taking pain medicines at home, here are a few things you can do to be safe:

1. Do not mix different pain medicines with sedatives/sleeping pills unless directed by your physician.
2. Do not drink alcohol while you’re taking these medications.
3. If possible, use non-narcotic pain medicines instead of narcotics.
4. Try not to take your pain medicines right before going to sleep.
5. Take only the minimum amount of narcotic medicines to relieve pain and only when needed.
6. Let your physician know you are at risk for sleep apnea before you ask for pain medicine.

There is no one best way to treat people with sleep apnea. Remember, pain medicines and sedatives can be used at home safely in people with sleep apnea. Please follow the simple steps above to help keep you safe.

Medical executives
Departments of medicine and family practice
Nurse executives
Risk management
Nurse managers
Quality excellence/information technologies
Physicians
Anesthesiologists
Sleep specialists
Primary care physicians.

It is important to keep physicians in the loop. Figures 2 and 3 are examples of communication media for physicians, stakeholders, and patients (courtesy of Evans Castor, MBA, RRT, director of pulmonary services at Edward Hospital in Naperville, IL). Edward Hospital instituted their OSA screening program in 2004 with surgical patients and has expanded to include general medicine patients and out-patient testing as well.

Another option would be to include a special section on the pre-surgical paperwork that the patient completes...
prior to both out-patient and in-patient surgery. This way the patients do the “legwork” and the intake personnel can simply highlight this section for the operating physician and anesthesiologist if the results are positive. Also check with your hospital’s anesthesiology chief as they may have a screening tool in place already.

**RTs should screen for OSA/SDB**

Remember, OSA patients are at a significantly increased risk for complications associated with anesthesia/analgesia in the perioperative arena, including conscious sedation associated with routine diagnostic procedures. All health care personnel, especially respiratory therapists who have developed advanced respiratory assessment skills and are familiar with OSA and other breathing disorders, should incorporate screening for OSA and SDB into their patient assessments for the good of the patient and the health care organization.

**REFERENCES**


**ADDITIONAL READING**


