SLEEP IN THE HOSPITALIZED PATIENT

FOCUS Spring 2018

Robyn Woidtke MSN-Ed, RN, RPSGT, CCSH
Alterations in Sleep Health

• Quantity
• Quality
• Timing and Consistency
Patients are admitted already sleep deprived

- CHF
- COPD
- Respiratory Failure
- Hips and Knees
- Diabetes
Factors Contributing to Sleep Loss

- Voluntary curtailment (social)
- Environment (i.e. work, technology, etc)
- Role (new parent, school)
- Sleep Disorders
- Medical and psychiatric disorders

Redeker & McEnany, 2011
Why is sleep important?

• Animal models, sleep loss leads to
  • Failure of body temperature regulation
  • Increased metabolism
  • Deterioration of hypothalamic neurons
  • Progressive breakdown of host defenses
  • Death

Redeker &McEnany, 2011
Functions of Sleep

- Conserve energy and metabolism
- Maintain physiologic systems within proper homeostatic mechanisms
- Maintain host defenses
- Reverse/restore physiologic processes that degrade during wakefulness
- Memory Consolidation
- Learning

Redeker & McEnany, 2011
Effects of Sleep deprivation

- Irritability
- Cognitive impairment
- Memory lapses or loss
- Impaired moral judgement
- Severe yawning
- Hallucinations
- Symptoms similar to ADHD
- Impaired immune system
- Increased heart rate variability
- Risk of heart disease
- Decreased reaction time and accuracy
- Tremors
- Aches

Other:
- Growth suppression
- Risk of obesity
- Decreased temperature
Outcomes of Disturbed Sleep

- Increased stress hormones (catecholamines)
- Insulin and glucose regulation
- Ability to perform activities of daily living
  - Lack of mental processing of self care activities upon discharge
- Decrease in SWS
  - ↓ HGH
  - Alterations in processing and consolidating newly acquired information
Negative effects of **Acute** Sleep Deprivation

- Increased anxiety
- Adverse cardiovascular events
- Increased inflammatory markers
- Declines in neurocognition
Alterations in Sleep/Wake
Failure of physician documentation of sleep complaints in hospitalized patients.

H H Meissner, A Riemer, S M Santiago, M Stein, M D Goldman, and A J Williams

Abstract

Sleep disorders are acknowledged to be common but remain underrecognized by the medical community, often attributed to the failure to question patients about their sleep quality. We examined the prevalence of sleep complaints (insomnia or excessive daytime sleepiness) in a group of general medical patients by administering a questionnaire to hospitalized patients in a Veterans Affairs tertiary care medical center. A total of 222 consecutive adults (215 men, 60 +/- 14 years; body mass index, 24.8 +/- 5.6) completed the questionnaire. Of these, 105 patients (47%) had either insomnia, excessive daytime somnolence, or both; 63 (28%) had excessive daytime somnolence, which was severe in 27 (12%). Of 75 patients (34%) who had insomnia, a third were taking hypnotic medication. Forty patients (18%) had snoring, which was associated with excessive daytime somnolence in 36, whereas 46 patients (21%) had either restless legs or a combination of leg jerks and leg kicking or twitching during sleep, associated with a sleep complaint (insomnia in 32). The medical records were subsequently reviewed to assess the admitting physicians' recognition of these symptoms. No record included mention of any patient symptom related to sleep. We conclude that symptoms related to sleep, some of which may be clinically important, are common, and that none of these complaints appear to be recognized by the physicians of record.
How Do Clinicians Assess, Communicate About, and Manage Patient Sleep in the Hospital?

Ye, Lichuan PhD, RN; Kearie, Kathleen MS, BSN, CNL, CCRN; Johnson, Stacy Hutton MS/MBA, RN, NE-BC; Dykes, Patricia C. DNSc, RN

Abstract

OBJECTIVE: The objective of this study was to characterize how clinicians assess, communicate about, and manage patient sleep, with the focus on identifying existing barriers and facilitators to sleep promotion in clinical practice.

BACKGROUND: Sleep is a critical need for improving for hospitalized patients.

METHODS: Content analysis was used to interpret descriptive data from 4 group interviews with a total of 62 clinicians.

RESULTS: Clinicians reported they did not formally assess for patient sleep, which led to largely unmanaged sleep disruption during hospitalization. Major barriers to effective sleep management were limited understanding of the importance of sleep, lack of a standardized tool for assessment, and inadequate communication. Facilitators included collaborative communication with patients and the healthcare team and customized patient-centered interventions.

CONCLUSIONS: It is critical to inform clinicians on the importance of sleep, to standardize sleep assessment, and to facilitate collaboration among caregivers to promote sleep for hospitalized patients.
Why SHOULD this issue be important?
The Course of Sleep Problems in Patients With Heart Failure and Associations to Rehospitalizations

Johansson, Peter PhD; Broström, Anders PhD; Sanderman, Robbert PhD; Jaarsma, Tiny PhD

Abstract

Introduction: Sleep problems are common in patients with heart failure (HF) and might be associated with patient outcomes.

Aims: The aim of this study was to describe the course of sleep problems in HF patients over 1 year and the association between sleep problems and rehospitalization.

Methods: Data from 499 HF patients (mean age, 70 years) were used in this analysis. Sleep problems were assessed with the item “Was your sleep restless” from the Center for Epidemiological Studies Depression Scale during hospitalization for HF (baseline) and after 1 year.

Results: A total of 43% of patients (n = 215) reported sleep problems at baseline, and 21% of patients (n = 105), after 1 year. Among the 215 patients with problems with sleep at baseline, 30% (n = 65) continued to have sleep problems over time. Among the 284 patients without sleep problems at baseline, 14% (n = 40) reported sleep problems after 1 year. After adjustments for potential confounders, patients with continued sleep problems had an almost 2-fold increased risk for all-cause hospitalizations (hazard ratio, 2.1; P = .002) and cardiovascular hospitalizations (hazard ratio, 2.2; P = .004).

Conclusion: One-third of HF patients with sleep problems at discharge experienced persistent sleep problems at follow-up. Continued sleep problems were associated with all-cause and cardiovascular rehospitalizations.
General Sleep Assessment (1)

- **Challenges**
  - Sleep problems typically occur gradually; patients may not be aware or concerned
  - May attribute daytime symptoms to other causes

- **Assessment**
  - BEARS (all ages)
    - B-bedtime problems
    - E-Excessive Sleepiness
    - A-Awakenings
    - R- Regularity of sleep
    - S-Sleep disordered breathing

Redeker & McEnany, 2011
General Sleep Assessment (2)

- General health
- Specific Conditions
  - Co-morbid/bi-directionality (heart disease, asthma, diabetes, Parkinsons, pain, depression and anxiety)
- Anthropometric data
  - Ht/Wt (BMI >30), neck circumference (17 m, 16 f) correlate with OSA in adults
  - Waist circumference and BMI>95th percentile in children
  - Inspection of the profile, oral and nasal cavities
    - Mallampati
    - Retrognathia
  - Cardiovascular (BP, EKG, heart sounds)
  - Pulmonary system (scoliosis, muscle tone)
  - Neuromuscular (restless legs syndrome)
- Glycemic control

Redeker & McEnany, 2011
Assessment of Sleep in the Hospital

• Scales/Questionnaires
  • Verran and Snyder-Halpern Sleep Scale (VSH)
  • Richards-Campbell Sleep Questionnaire
  • St Mary's Hospital Sleep Questionnaire

• Actigraphy

• HST

• PSG
## Sleep in the ICU

<table>
<thead>
<tr>
<th>Sleep Parameter</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Sleep Time</td>
<td>Unchanged/decreased</td>
</tr>
<tr>
<td>Sleep Latency</td>
<td>Unchanged/increased</td>
</tr>
<tr>
<td>Sleep Efficiency</td>
<td>Decreased</td>
</tr>
<tr>
<td>NREM Stage 1</td>
<td>Increased</td>
</tr>
<tr>
<td>NREM Stage 2</td>
<td>Increased</td>
</tr>
<tr>
<td>NREM Stage 3</td>
<td>Decreased</td>
</tr>
<tr>
<td>REM</td>
<td>Decreased</td>
</tr>
</tbody>
</table>

Environmental and Pathophysiological Factors

- Sleep Deprivation
- Diagnostic Procedures
- Sedatives Analgesics
- Stress
- Organ Dysfunction
- Inflammatory Response
- Patient Care Activities
- Lighting Practices
- Noise
- Pain
- Psychosis

Sleep Deprivation and Delirium

ICU Delirium

CAUSES OF DELIRIUM
- DEPRIVATION STROKE
- ANTI-HYPERTENSIVE
- HYPOXIA
- STEROIDS
- SEPTICAEMIA
- DELIRIUM PROBLEMS
- HEATEN
- MELATONIN
- MINING
- NURSES
- METABOLIC
- SUBSTANCE
- EDATIVES
- ANTI-CHOLINERGIC

60%

Dear Sleep,
I miss you.

1. American Association of Critical Care Nurses, 2014
2. Cavallazzi, et al., 2012 Annals of Intensive Care
3. Flink, et al. 2012 Anesthesiology
Medications

• Opioids
  • Increase arousal
  • Precipitate OSA
  • Worsen hypoxia
  • Ventilator asynchrony

• Benzodiazepines
  • Increase theta; reduce SWS
  • Loss of SWS has been shown to increase delirium

• Dexmedetomidine (Precedex)
  • Reduces ventilator days
  • Reduces delirium

• Propofol
  • Reduces REM sleep and contributes to poor sleep quality in mechanically ventilated patients (Kondili, 2011)

http://www.medscape.com/viewarticle/723907_2?pa=FKay6DydWAoldEOyiMJ7mNUPPP%2BJBMnDcVlg2VcXoz8cg2BFgaJxZUoCbMkbFK5aNUjnN08P2fm2zqEsiufj7A%3D%3D
Interventions

"We haven't recognized the importance of prescribing sleep“ Friese, R 2007

Interventions
Multiple environmental barriers to sleep in the ICU were identified when participants were directly asked about factors affecting sleep. Responses highlighted healthcare system-based barriers related to hospital/ICU policy and workflow. Implicit barriers to sleep were found when participants responded to open-ended questions. These included attitudinal barriers such as the uncertainty about the significance of sleep, the tension between providing protocol-driven ICU care and allowing uninterrupted patient sleep, and lack of consensus regarding interventions to promote sleep.

Conclusions

This qualitative study suggests that health care worker attitudes, methods of sleep promotion, hospital institutional policies and workflow may contribute to sleep disruption in the ICU.

These barriers provide additional targets for intervention in studies designed to improve sleep in the ICU.
Hospitals ditch midnight checks to give sleep-deprived patients more rest

by Zack Budryk | Jul 11, 2016 11:01am
Background: Sleep Apnea

Chronic Disease
• ↑morbidity, mortality
• Economic burden est. $20 billion dollars

1:4 American Adults
• 70-80% undiagnosed
• ↑risk heart disease, hypertension, diabetes, stroke

80% Hospitalized Patients
• Critical safety concern
• <20% with a diagnosis of OSA received therapy during hospitalization (Memtsoudis et al, 2013, NEJM)

2004 National Hospital Discharge Survey
• 6.8% reported SA in discharge data
• 5.8% received continued PAP therapy while hospitalized
OSA in the Hospital

• Estimated 25% of candidates for elective surgery
• OSA undiagnosed in 80% at the time of surgery
• Estimates of OSA in hospitalized patients
  • >50%
• <20% with a diagnosis of OSA received therapy during hospitalization (Premier Inc, database; Memtsoudis et al, 2013, NEJM)
Screening for OSA

• Variety of questionnaires
  • Epworth, Berlin, STOP/STOP BANG, Sleep Apnea Clinical Score, Perioperative Sleep Apnea Prediction (P-SAP, 2010)

• Pulse Oximetry

• Home sleep testing for all elective surgical procedures

• Full polysomnography
## STOP-BANG

<table>
<thead>
<tr>
<th>STOP-BANG</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S</strong> Snoring</td>
<td>Do you snore loudly (louder than talking or loud enough to be heard through closed doors?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>T</strong> Tired</td>
<td>Do you often feel tired, fatigued, or sleepy during the daytime?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>O</strong> Observed</td>
<td>Has anyone observed you stop breathing during your sleep?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P</strong> Blood Pressure</td>
<td>Do you have or are you being treated for high blood pressure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B</strong> BMI</td>
<td>BMI more than 35 kg/m²?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A</strong> Age</td>
<td>Age over 50 years old?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N</strong> Neck Circumference</td>
<td>Neck circumference greater than 40 cm (16 in)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G</strong> Gender</td>
<td>Gender male?</td>
<td></td>
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</tbody>
</table>
OSA in the Hospitalized Patient

- Why OSA is an important assessment
  - Association with MI, arrhythmias, CHF, stroke, sudden cardiac death
    - Sudden death ~ 50% those with OSA compared to 21% without OSA
    - Die during the sleep hours (12-6 AM)
    - Sudden death related to the AHI, the more severe the higher the risk
  - Depressed arousal mechanisms due to sleep fragmentation and deprivation; acquired arousal failure in obese patients
    - Narcotics further delay arousal

Kaw & Mokhlesi (2012) Sleep and Breathing
Types of patients at high risk for OSA

- CHF
- Obese
  - Patients undergoing bariatric surgery
- Atrial Fibrillation
- Refractory Hypertension
- Type 2 diabetes
- Stroke
- Nocturnal cardiac arrhythmia
- Pulmonary Hypertension

AASM Task Force, 2009 JCSM
Patterns of Unexpected Hospital Death

Table 2 The Three Clinical Pattern Types of Unexpected Hospital Death (PUHD)

<table>
<thead>
<tr>
<th>TYPE I</th>
<th>Hyperventilation Compensated Respiratory Distress (e.g. Sepsis, PE, CHF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stable SPO2 with progressively falling PaCO2 eventually yields to slow SPO2 decline (mitigated by respiratory alkalosis) and followed by precipitous SPO2 decline when metabolic acidosis dominates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE II</th>
<th>Progressive Unidirectional Hypoventilation (CO2 Narcosis)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Progressive rise in PaCO2 (and etCO2) and fall in SPO2 over 15 minutes to many hours. (Often due to overdosing of narcotics or sedatives)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE III</th>
<th>Sentinel Rapid Airflow/SPO2 Reductions Followed by Precipitous SPO2 Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A state of &quot;arousal dependent survival&quot; that occurs only during sleep. Arousal failure allows precipitous hypoxemia during apnea causing terminal arousal arrest.</td>
</tr>
</tbody>
</table>
Figure 3 Type III Pattern of Unexpected Hospital Death (Sleep Apnea with Arousal Failure).
Perioperative Environment - OSA

- Difficulty with intubation (8 times as often)
- Unanticipated transfers to ICU
- Overall LOS longer; longer ICU
- 5 fold increase in intubation and mechanical ventilation after surgery

Kaw & Mokhlesi (2012) Sleep and Breathing; Kaw et al., 2012 (CHEST)
Impact of Anesthesia

- Exacerbates the anatomical alterations which result in pharyngeal collapse
- Blunt the arousal mechanisms
- Reduce tone of the upper airway
- Depress ventilation
- Diminish ventilatory response to carbon dioxide

- In children, apneic episodes were increased 50% after modest doses of fentanyl (0.5µg/Kg)
Perioperative Outcomes - Other

• Higher rates of
  • Hypercapnia
  • Oxygen desaturations
  • Cardiac arrhythmias
  • Myocardial injury
  • Delirium

Adesanya, et al. 2012 CHEST
Post Operative

- Postoperative concerns in the management of patients with OSA include (1) analgesia, (2) oxygenation, (3) patient positioning, and (4) monitoring.
- Risk factors for respiratory depression include the systemic and neuraxial administration of opioids, administration of sedatives, site and invasiveness of surgical procedure, and the underlying severity of the sleep apnea.
- Exacerbation of respiratory depression may occur on the third or fourth postoperative day as sleep patterns are reestablished and “REM rebound” occurs.
Practice Guidelines and Recommendations

SPECIAL ARTICLES

Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea

An Updated Report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea

Society for Ambulatory Anesthesia Consensus Statement on Preoperative Selection of Adult Patients with Obstructive Sleep Apnea Scheduled for Ambulatory Surgery

2013

2014

2012
This monograph is an assimilation of material presented at the Challenges in the Perioperative Management of OSA Patients symposium, held in October 2010. Additional contributions have been made by course faculty, and references to recent publications regarding OSA practice guidelines have been included.
Patient Safety Toolkit: Ambulatory Surgery and Obstructive Sleep Apnea (OSA)

PREOPERATIVE CONSIDERATIONS

**Pre-Procedure Screening and Preparedness**
- Assess the existence/severity of OSA pre-procedure to ensure that patient selection is appropriate for the type of procedure and anesthesia planned.
- The Society for Ambulatory Anesthesia (SAMBA) recommends STOP-BANG criteria along with patient comorbidities (e.g., arrhythmias, CHF, cerebrovascular disease, and metabolic syndrome). The American Society of Anesthesiologists (ASA) suggests that positive sleep studies or clinical indicators (e.g., STOP-BANG criteria) be considered, along with:
  - the level of invasiveness of surgery and anesthesia.
  - the potential need for post-procedure opioids.
- Pre-procedure patient and family education should encourage continued use of CPAP (continuous positive airway pressure therapy), sleeping in a semi-upright position postoperatively, and warning about the dangers of need to avoid opioids.

**STOP-BANG screening tool for OSA risk**

- **Snoring**: Do you snore loudly, loudly or loud enough to be heard through closed doors? **Yes** or **No**.
- **Tiredness**: Do you often feel tired, fatigued, or sleepy during the day? **Yes** or **No**.
- **Obstructed apneas**: Has anyone observed you stop breathing during your sleep? **Yes** or **No**.
- **Respiratory effort**: Do you have or have you been treated for high blood pressure? **Yes** or **No**.

**Optimized Comorbid Conditions and Able to use CPAP after discharge**

**Non-Optimized Comorbid Conditions and Postoperative pain can be managed predominately using non-opioid analgesic techniques**

**Optimized Comorbid Conditions**

**Non-Optimized Comorbid Conditions**

**Optimized Comorbid Conditions AND Able to use CPAP after discharge**

**Postoperative Considerations**

**Exercise caution in OSA patients who develop prolonged and frequent severe respiratory events (e.g., sedation analgesic mismatch with opioids, desaturation, and apneic episodes) in the postoperative period.**

**Significant Respiratory Depression**
- Appropriate resuscitation should be initiated—this may include noninvasive positive-pressure ventilation or tracheal intubation as well as appropriate use of opioid reversal agents, if necessary.
- Consider transfer to an inpatient facility for additional monitoring.

**Post Discharge**
- Patients who are suspected of having OSA based on clinical criteria should be encouraged to follow up with their primary care physicians to consider a sleep study.
- Post-discharge patient/family education should include a recommendation to continue use of CPAP (while sleeping, day or night) and a warning about the dangers of need to avoid opioids.
2 Relevant Joint Commission Directives

Characteristics of patients who are at higher risk for oversedation and respiratory depression:

- Sleep apnea or sleep disorder diagnosis
- Morbid obesity with high risk of sleep apnea
- Snoring

The Joint Commission
Sentinel Event Alert

A complimentary publication of The Joint Commission

Safe use of opioids in hospitals

2014 Hospital National Patient Safety Goals

The purpose of the National Patient Safety Goals is to improve patient safety. The goals focus on problems in health care safety and how to solve them.

Use alarms safely

NPSG.06.01.01 Make improvements to ensure that alarms on medical equipment are heard and responded to on time.
Hospital Facts

• 5753 Registered Hospitals
  • < 25% of hospitals in the US and Canada have OSA policies in place (Memtsoudis et al., 2013, NEJM)

• 36,156,245 Annual Admissions
  • 18,078,122 Patient Potentially at Risk
Attitudes regarding perioperative care of patients with OSA: a survey study of four specialties in the United States.

Auckley D, Cox R, Bolden N, Thornton JD.

Abstract

Obstructive sleep apnea (OSA) is a risk factor for significant perioperative complications. This national survey study sought to determine the attitudes of physicians involved in the perioperative care of OSA patients.

METHODS: We modified the perioperative survey used by Turner et al. among Canadian anesthesiologists. We mailed the survey to 3,000 US physicians practicing in the following specialties (750 of each specialty): anesthesia (A), primary care (family practice or internal medicine) (PC), sleep (SM), and general surgery (S). The survey asked questions about attitudes and practice patterns regarding OSA in the perioperative setting.

RESULTS: Of 2,730 eligible subjects, 783 questionnaires (28.7%) were returned. Overall, 94% felt OSA was a risk factor for perioperative complications (no difference by specialty) and 90% felt it was a moderate to major risk factor (A = 91%, PC = 91%, SM = 94%, S = 72%; p < 0.001). Fifty-two percent reported experience with a patient having an adverse outcome related to OSA in the perioperative setting. Despite this, only 71% reported regularly screening for OSA preoperatively, mostly by history and physical examination (A = 89%, PC = 52%, SM = 88%, S = 49%; p < 0.001). If they suspected a patient of having OSA, 32% would delay surgery pending a sleep study (A = 4%, PC = 41%, SM = 54%, S = 27%; p < 0.001), while 20% would proceed with surgery without any special precautions (A = 22%, PC = 21%, SM = 5%, S = 31%; p < 0.001). Only 27% of respondents reported that their hospital had a written policy for perioperative care of OSA patients.

CONCLUSIONS: The majority of physicians in this survey felt OSA was a significant risk factor for perioperative complications and most reported experience with OSA patients having an adverse outcome. Perioperative management guidelines for OSA are not available at most institutions. Further work is needed to help physicians identify and intervene on patients with OSA in the perioperative setting before adverse events develop.
Key Take Away

- OSA patients live in a state of “perpetual arousal dependent survival” (Lynn & Curry, 2011)
- Acquired arousal failure
- Nursing staff may not be educated
- Protocols may/may not be in place or followed
The responsibility for determining whether there are sleep apnea risks for a prospective surgery patient is not clear. The surgeon obviously should take a good history, but many specialist surgeons (e.g., orthopedists or gynecologists) may not focus on issues that seem unrelated to the surgical problem. Some hospitals have pre-op assessments performed by nurses, who may elicit information that raises a concern for sleep apnea. If a hospital does not have a specific protocol or published procedure for dealing with post-op sleep apnea, that may be an initial basis for asserting fault (including a certificate of merit by a hospital administrator expert) and
The Risk of Litigation is Real!

  - Healthcare provider may fail to diagnose and treat sleep apnea, leading to either long-term complications or misdiagnosis and improper treatment.
  - Healthcare provider may fail to take precautions to protect the apneic patient's airway.
Litigation: When your patients are at risk... So are you!

Patient with Sleep Apnea Suffers Respiratory and Cardiac Arrest Following Appendectomy

**Settlement Amount:** $7,000,000.00  
**Settlement Date:** 7/2004  
**Attorney:** Howard D. Meikind

**Description of Case:** Plaintiff, a 45-year-old male, presented to Defendant ABC Hospital for treatment of abdominal pain. During the postoperative period he exhibited signs and symptoms of sleep apnea with abnormalities in his heart rhythm. Despite his clinical course, John Doe was transferred from the PACU to an unmonitored medical floor without an EKG monitor, without pulse oximetry monitoring and without continuous blood pressure monitoring. Less than four hours later he was found in cardiopulmonary arrest. John Doe experienced a cardiorespiratory arrest that has resulted in anoxic encephalopathy. He is described as being in a minimally conscious state.

$1,000,000 Settlement in Medical Malpractice Action Against Physicians for Performing Tonsillectomy on Nine Year Old with Severe Sleep Apnea

**Hospital Nursing Negligence**  
**Salt Lake City Wrongful Death Attorney**  
**Salt Lake City, Tooele and Price, Utah**

20-year-old James was admitted to the hospital for a very simple surgical procedure. Upon admission, the hospital nurses took a detailed history from James and his wife. James indicated on the history form that he had sleep apnea, a respiratory disease that sometimes caused him to stop breathing at night. James’ wife also told the nurses and doctors about this condition before the surgery.

James spent the night in the hospital prior to his surgery. During that night, the nurses saw that he was having a hard time breathing so they kept turning up the oxygen they were giving him through his nose. They never told a doctor he was having a hard time breathing and they never did anything to figure out why this was happening. They also observed times when he would stop breathing altogether.

The next morning James went into surgery. The procedure lasted less than half an hour. James was then sent back to his room. He was given multiple doses of pain medications that the nurses knew would suppress his respiratory abilities. Throughout the next twelve hours the nurses continued to notice that James was having a hard time breathing and was requiring more oxygen. Still, they did not tell a doctor what was going on and they failed to put James on a monitor that would sound an alarm if he quit breathing.

At two o’clock in the morning a nurse walked into James’ room and realized that his face was blue and he was not breathing. James was left behind a wife and 6-year-old triplets.

This wrongful death case was settled for an amount that would take care of James’ family for a very long time.

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**Child Wins Medical Malpractice Suit For Brain Damage After Sleep Study**

*July 23, 2012, by Kroot Law, LLC*

Last month, a Pennsylvanian jury was asked to decide a medical malpractice lawsuit in which an eleven month old boy allegedly suffered brain damage following surgery for sleep apnea. The suit alleged the surgeon failed to properly assess the boy after surgery and order that his oxygen levels be monitored in recovery. The jury agreed and returned a $1.1 million dollar verdict in his favor and against the surgeon.
Failed Physician-Nurse Communication

by Gretchen Flack and Deborah LaValley, BSN, RN, CPHC

Ms. Flack and Ms. LaValley are Program Directors, Loss Prevention and Patient Safety, for CRICO/RMF.

A 48-year-old morbidly obese woman with sleep apnea, on antibiotics for acute bronchitis, suffered cardiac arrest the morning after uncomplicated eye surgery.

**Key Lessons**
- A patient’s overall health status should be taken into consideration when scheduling non-urgent surgeries.
- Failure to make appropriate clinical provisions can lead to inadequate post-operative monitoring.
- Reporting key information about a patient’s medical history from one provider to the next can guide important medical treatment decisions.

**Clinical Sequence**

A 48-year-old morbidly obese woman with diabetes and sleep apnea (treated with nightly nasal CPAP), required surgery for a detached retina. Two days before surgery, during her pre-operative evaluation with a locum tenens physician in her PCP’s office, she reported a 3-4 day history of phlegm-producing cough and intermittent shortness of breath. Her rate was within normal limits with no acute changes. The physician diagnosed her with acute bronchitis and prescribed antibiotics and a bronchodilator. He also sent the patient’s pre-operative report to her surgeon, and discussed all relevant findings. Because the patient’s procedure was scheduled as day surgery, the physician did not order post-op CPAP.

During the patient’s pre-operative interview, the anesthesiologist noted the patient’s acute bronchitis and sleep apnea. No respiratory assessment was documented.

Surgery was performed without complications. Given the patient’s history of sleep apnea and the late afternoon surgery, her daughter requested that the patient be admitted overnight for observation.

- **6:30 p.m.** Stable, alert, and oriented, the patient was transferred to the floor. The floor nurse received the patient without a report or any mention of her sleep apnea.
- **7:00 p.m.** Shift change
- **8:00 p.m.** The patient—one of eight the incoming nurse was responsible for—complained of eye pain and was given Demerol (IV). [Redacted text]
- **8:30 p.m.** The patient vomited and the nurse assumed that the pain medication had been expelled. Despite a clear order to contact the physician for uncontrolled eye pain, the nurse administered an antiemetic and another dose of Demerol (IV)—without notifying the physician.
- **9:30 p.m.** The patient again complained of inadequate pain control. The nurse contacted the physician, who ordered a different antiemetic and pain medication. After receiving both medications and being encouraged to lie down, the patient appeared comfortable and began to fall asleep.
- **11:45 p.m.** Upon checking the patient and finding her to be lethargic with cool, moist skin, the nurse called the lab to draw her blood sugar. While waiting, the nurse gave the patient a glass of orange juice. Her blood sugar was 278 and she seemed more alert.
- **12:45 a.m.** The patient again appeared lethargic but arousable. The nurse, concerned for her patient, asked the charge nurse to assess her. He felt the patient’s pain medications had taken effect and the patient was sleeping comfortably; the physician was not contacted.
- **1:15 a.m.** The nurse found the patient without a pulse or respirations and called a code. The patient was resuscitated, but upon transfer to an ICU at a neighboring hospital, she was declared dead.

**Allegation**

The patient’s daughter filed a suit against her mother’s three anesthesiologists, the attending surgeon, the ophthalmology fellow, the nurse anesthetist, and the nurse caring for her the night after her eye surgery. The suit alleged that 1) performing non-urgent surgical procedures in the presence of acute respiratory infection was negligent, and 2) that failing to note the patient’s sleep apnea led to an improper post-op medication regimen and monitoring.

**Disposition**

After unfavorable expert reviews, the case was settled for more than $1 million, allocated evenly among two physicians and one nurse.

**Analysis**

1. Defense experts agreed that the standard of care was not met when the physicians evaluating this patient did not consider postponing this non-urgent surgical procedure until her respiratory status had improved. Potential risks to a patient's overall health should warrant more consideration when scheduling non-urgent surgeries. Rescheduling may be inconvenient for the patient and the surgical team, but a decision to proceed against the risk of unnecessary harm has to be defensible.

2. The anesthesiologist failed to perform a key element of the pre-operative physical examination. Failure to complete (and document) a pre-operative physical assessment, including cardiac and respiratory status, could be perceived as a gap in diligence and is a hindrance to defending an allegation of malpractice.
ADVOCATE, ADMIT and MONITOR……..

Legge v. Leess

Union County | $2,000,000 Jury Verdict

Twin 3 year-old boys died at home the evening following outpatient tonsillectomy/adenoidectomy, from respiratory depression. The coroner and defendant contended the boys respiratory depression and death were the result of a lethal accumulation of codeine due to a “genetic defect” in the metabolism of codeine to morphine. Plaintiff’s experts testified that the boys had severe obstructive sleep apnea, and developed respiratory depression secondary to physiologic airway collapse, a well known complication following such surgery in young patients and those with obstructive sleep apnea. Plaintiff’s experts testified that the boys should have been admitted, and monitored overnight which would have revealed the developing respiratory depression and resulted in simple lifesaving resuscitative measures. Plaintiff successfully challenged the testimony of Defendant’s toxicology/pharmacology expert and coroner on the “gene defect” theory, which the jury rejected.
Value of a program

- Analysis of the WestLaw Data base on OSA cases
- 54 cases included in analysis
- 61% in favor of defendant
- 12% resolved out of court
- 9% jury award
- most frequent factors in litigation
  - Failure to diagnose OSA; failure to use CPAP postoperatively
    - Failure to use CPAP, all cases resolved with payment > 1 million

Svider, et al., AAO 2013
Another Review of the Legal Literature

- Fauladpour, et. Al (2016), Anesthesia-Analgesia
- 1991-2010, review of multiple law data bases (Westlaw, Westlaw Next, LexisNexis)
- 77,630 cases reviewed, 24 included in final analysis
  - Elective, typically young patients
- 83% of cases were after 2000 and 41% occurred after 2007
- 58% in favor of the plaintiff, avg penalty was 2.5 M
- ~1/2 incidents occurred in unmonitored settings
Sleep Apnea in Hospitalized Patients

Regardless of admission diagnosis

↑ vulnerability to adverse outcomes when left untreated
- Cardiorespiratory failure and unanticipated death
- Falls, HCAP, prolonged intubation, longer ALOS

↑ utilization health care resources

↑ risk hospital litigation

Slide used with permission Dr. Lisa Kuhen
## Care Process Changes

<table>
<thead>
<tr>
<th>Do’s</th>
<th>Don’ts</th>
</tr>
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<tbody>
<tr>
<td>• Always assess your patients sleep health</td>
<td>• Underestimate the consequences of poor sleep</td>
</tr>
<tr>
<td>• Document/communicate alterations in sleep</td>
<td>• Dismiss alarms from oximeters</td>
</tr>
<tr>
<td>• If patients use CPAP at home, have them bring it and use it</td>
<td>• Forget to monitor frequently</td>
</tr>
<tr>
<td>• Create an opportunity for sleep; limit interaction</td>
<td>• Assume the patient is sleeping</td>
</tr>
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</table>
Summary

- Sleep deprivation can be acute or chronic
  - Both have resulting physiological consequences
- Sleep in hospitalized patients is disturbed resulting in sleep deprivation.
- A large proportion of patients who enter the hospital have not been diagnosed with sleep apnea or have CPAP initiated or continued from home
- Increased awareness of sleep deprivation and sleep apnea can provide for improvement in interventions and early recognition of patients with a potential for adverse consequences
- Program implementation can have important financial considerations
"He's resting comfortably."
“... that’s what scares me: to be made helpless before my time.... To be awoken when I wish to sleep”

Don Berwick, MD
What ‘Patient-Centered’ Should Mean: Confessions of an Extremist
Health Affairs, 2009
• Please feel free to contact me!

• Robyn Woidtke

• Robyn.woidtke@gmail.com

• 510-728-0828