

Perioperative Management of Obstructive Sleep Apnea Patients

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Chair

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Financial disclosures

- None

- **Clinical Guideline for the Evaluation, Management and Long-term Care of Obstructive Sleep Apnea in Adults**
 - Adult Obstructive Sleep Apnea Task Force of the American Academy of Sleep Medicine, J Clin Sleep Med. 2009 Jun 15; 5(3): 263–276
- **Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea,**
 - Anesthesiology 2006;104:1081-93
- **American Academy of Pediatrics Clinical Practice Guideline: Diagnosis and Management of Childhood obstructive sleep apnea syndrome**
 - Pediatrics 109, 704-712, 2002

Perioperative Guidelines for OSA

- Patients with OSA may be at increased risk for perioperative morbidity and mortality because of potential difficulty in maintaining a patent airway.
 - » Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea, *Anesthesiology* 2006;104:1081-93.

- Preoperative Evaluation
 - Med records, STOP-BANG, Physical exam
- Preoperative Preparation
 - CPAP, BIPAP, weight loss
- Intraoperative
 - Intraoperative concerns in patients at increased perioperative risk from OSA include
 - Choice of anesthetic technique, airway management, and patient monitoring

- Because of their propensity for airway collapse and sleep deprivation, patients at increased perioperative risk from OSA are **especially susceptible to the respiratory depressant and airway effects of sedatives, opioids, and inhaled anesthetics**
- General anesthesia with a **secure airway** is preferable to deep sedation **without a secure airway**, particularly for procedures that may mechanically compromise the airway.
- Major conduction anesthesia (spinal/epidural) should be considered for peripheral procedures.
- Unless there is a medical or surgical contraindication, patients at increased perioperative risk from OSA should be **extubated** while awake.
- Full **reversal** of neuromuscular block should be verified before extubation. When possible, extubation and recovery should be carried out in the lateral, semiupright, or other nonsupine position.

■ Post operative

- Postoperative concerns in the management of patients with OSA include
 - Analgesia, Oxygenation, Patient positioning, 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.
- In addition, exacerbation of respiratory depression may occur on the **third or fourth postoperative day** as sleep patterns are reestablished and “REM rebound” occurs.

IPD vs OPD

- The consultants are **equivocal** regarding whether superficial procedures may be safely performed during general anesthesia in outpatients at increased perioperative risk from OSA
- They **disagree** that airway surgery (e.g., uvulopalatopharyngoplasty) should be performed on an outpatient basis in adults with OSA.
- They also **disagree** that tonsillectomy in children younger than 3 yr with OSA should be performed on an outpatient basis
- They are **equivocal** regarding outpatient tonsillectomy in older children.
- The consultants **strongly agree** that when patients at increased perioperative risk from OSA are anesthetized as outpatients, the facility should have **emergency difficult airway equipment**, and they agree on the availability of respiratory care equipment (nebulizers, CPAP equipment, ventilators), radiology facilities (for portable chest x-ray), clinical laboratory facilities (blood gases, electrolytes).
- They **strongly agree** that a transfer arrangement with an inpatient facility should be in place

But what about?

- Demographic changes create an urgent need
 - The growth in the number and proportion of older adults is unprecedented in the history of the United States.
 - Longer life spans
 - Aging baby boomers

Aging Population

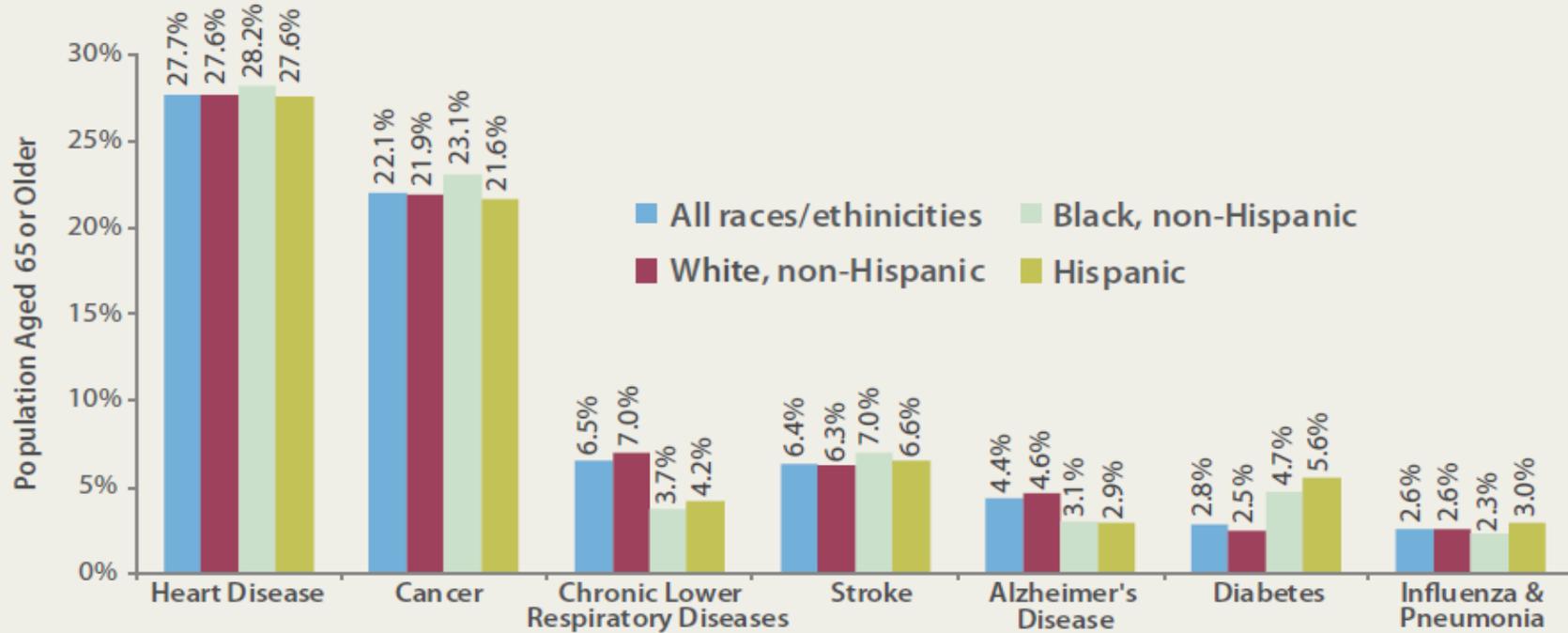
- The population of Americans aged 65 years or older will double during the next 25 years to about 72 million.
- By 2030, older adults will account for roughly 20% of the U.S. population.
- More than a quarter of all Americans and two out of every three older Americans have multiple chronic conditions.

Chronic Conditions

- No leisure time physical activity in past month (31.4%)
- Obesity (24.5%)
- Current smoking (8.4%)
- Taking medications for high blood pressure (94.1%)

Chronic Conditions

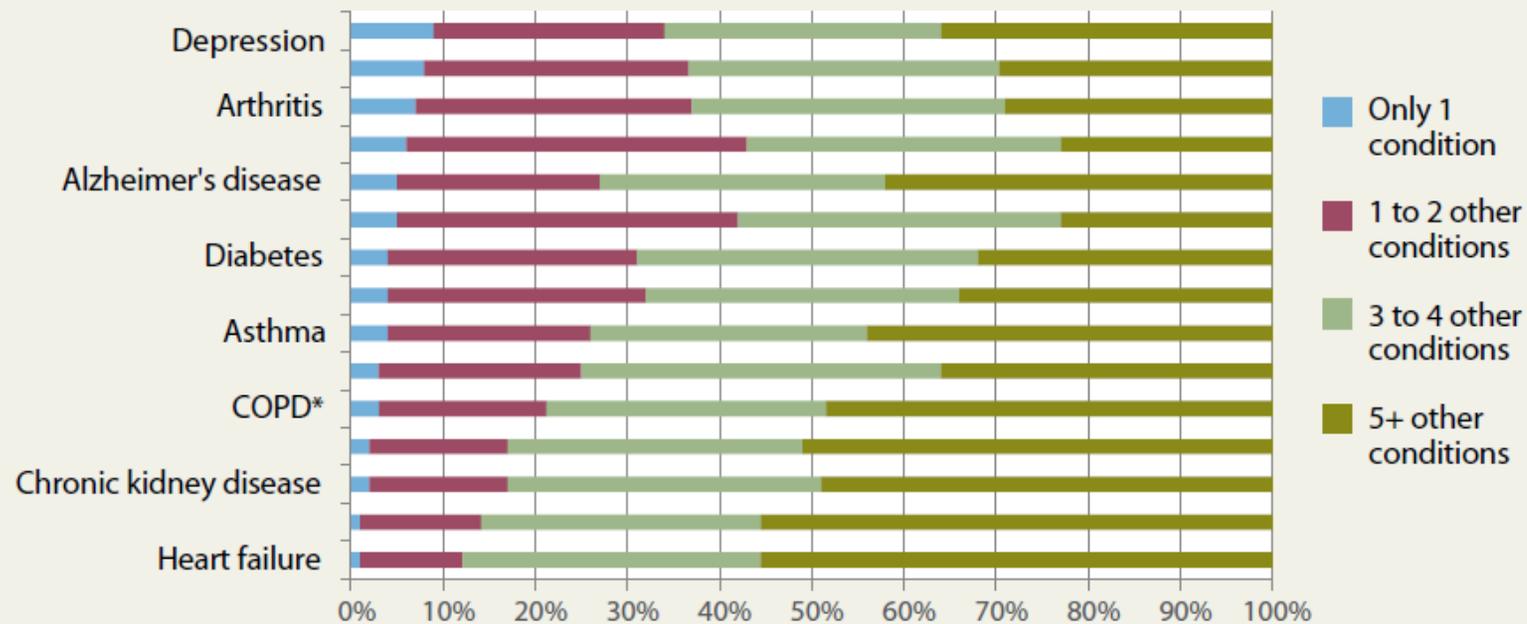
Chronic conditions were the leading causes of death among U.S. adults aged 65 or older in 2007–2009



Source: CDC, National Center for Health Statistics. National Vital Statistics System, 2007–2009.

Multifactorial Causes for Surgical complications

Multiple chronic conditions among Medicare fee-for-service beneficiaries, 2010

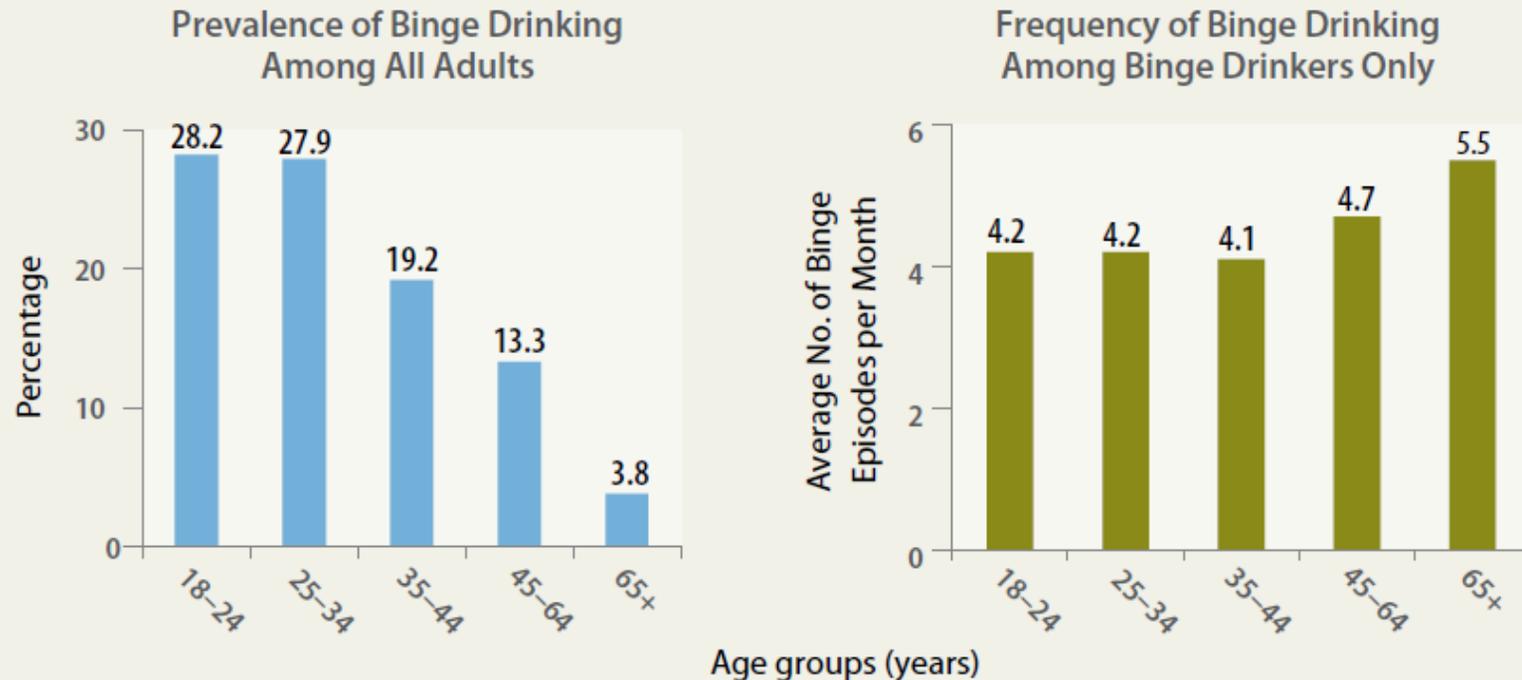


*chronic obstructive pulmonary disease.

Source: Centers for Medicare & Medicaid Services. *Chronic Conditions Among Medicare Beneficiaries*.
<http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf>

Older Adults and Drinking

Binge Drinking Among U.S. Adults, 2010



*Data from states (except South Dakota and Tennessee) and the District of Columbia.

Source: *MMWR* 2012;61:14-19.

www.cdc.gov/mmwr/preview/mmwrhtml/mm6101a4.htm?s_cid=mm6101a4_e%0d%0a.

Frailty in the older surgical patient: a review

- Adverse postoperative outcomes, particularly medical complications are more common than in younger patients
 - Particularly significant is 30 day postoperative complications are more important than preoperative risk factors and intraoperative factors in determining survival
 - Age and pre-existing co-morbidities as the main predictors of adverse outcome

The role of frailty as an independent risk factor for adverse postoperative outcomes

- Frailty can be thought of as a decreased physiological reserve across multiple organ systems.
- The frail person is at increased risk of disability and death from minor external stresses.
- Prevalence rate between 41.8-50.3% for elective surgery

Independent Risk factors for frailty

- Depression
- Individual and neighborhood socioeconomic factors
- Nutritional status
 - You can be obese and malnourished



Pre operative Boot Camp for patients-Optimization

- Replace iron, vitamin b12, and folate at least 28 days before surgery
- Exercise
 - Improvement in muscle mass and pulmonary function
- Stop Smoking
- Improve nutrition
 - Lose weight if overweight
 - Protein

Post operative pain medications

- Drug overdose deaths have tripled since 1990's in the United States.
- Prescription painkillers work by binding to receptors in the brain to decrease the perception of pain.
- Prescription painkillers also cause sedation and slow down a person's breathing.
- The severity of post op pain with opioids or narcotics can result in a reduced respiratory drive in OSA that can result in drug overdose

Black box warning in Children

- February 20, 2013, codeine received an official FDA contraindication for children in this specific post tonsillectomy setting.
- The FDA is aware that several deaths have occurred postoperatively in children with obstructive sleep apnea (OSA) who were prescribed codeine for pain relief after tonsillectomy.
- The actual number of these cases may be increasing because of the increased prevalence of OSA among children and the increased percentage of tonsillectomy cases currently being performed to treat OSA.

Perioperative OSA Summary

- Airway, airway, airway
- Chronic disease
- Older patient population
- Social issues
 - Alcohol, family support
- Frailty
- Post op pain medication
 - Ambulatory, 30 day

