

Ambulatory Surgery : Who Should? Who Shouldn't?



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Objectives:

After participating in this session, the audience will:

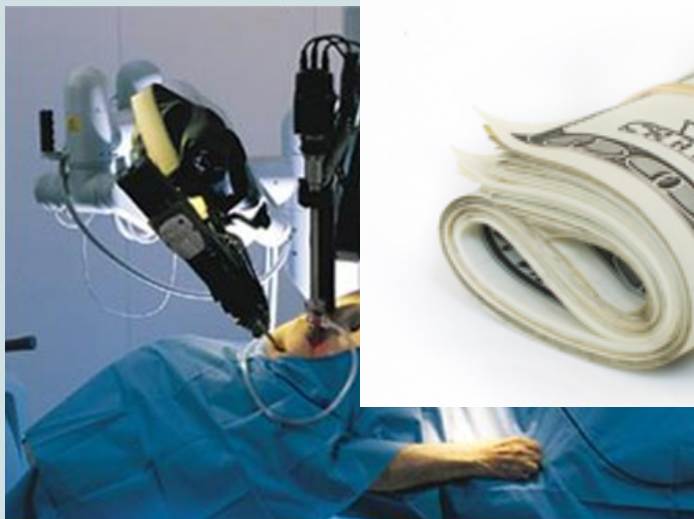
- Understand the complex interplay of patient selection with facility limitations, surgery type and anesthetic choices
- Describe patient characteristics that may increase risks of surgery at an Ambulatory Surgical Center (ASC)
- Discuss specific processes that can help guide patient selection

Growth in Outpatient Surgical Centers

- Outpatient surgeries increased 300% between 1992 and 2006
- Most widely practiced anesthesia subspecialty in the US
- > 70% of all anesthetics administered

What Has Changed?

- Improvements in **Surgical Techniques**
- Improvement and growth of **Facilities**
- Improvements in **Anesthetic Techniques**
 - Pharmacologic, pain management
- **Outcomes data** of safety in patients with comorbidities
- Patient Preferences
- **Financial Incentives**



How do we Create a Successful Ambulatory Surgical Center (ASC)?

- Safe, Quality Care
- Efficiency
- Cost of Care

Outcome Measures at ASCs

- Morbidity
- Mortality
- Unplanned hospital admission
- Readmissions
- Same day cancellations
- Case Delays
- PACU length of stay
- Patient reported outcomes
- Post-operative Nausea and Vomiting (PONV)
- Pain
- Efficiency

Mortality

- The 30 day mortality rate of patients undergoing surgery at ASCs may be less than that in the general population....

1/22,000

1/49,000

1/57,000

1/128,000

Vila 2003, Keyes 2004, Keyes 2008, Majholm 2012, Warner 1993

Mortality in Outpatient Surgery

- 38,598 ambulatory patients followed for 30 days after surgery
- 2 deaths from myocardial infarctions (>1 week after surgery)
- 2 deaths from MVCs
- Non-accidental mortality rate was **1:22,545**
- Epidemiological data indicates that this incidence is lower than that expected in the general population.

Mortality in Outpatient Surgery

- European multicenter study 57,709 procedures (including ASA III patients) undergoing “Day Surgery”
- Followed 30 days
- 24 deaths
- All deaths >7 days post-operative
- 3 likely related to surgery and 2 possibly related to surgery
- Expected 30 day mortality in matched population is 40; in study 24

Outcome Measures at ASCs

- ~~Mortality~~
- Morbidity
- Unplanned hospital admission
- Readmissions
- Cancellations
- Case Delays
- Post-operative Nausea and Vomiting (PONV)
- Pain
- PACU length of stay
- Patient reported outcomes - Satisfaction
- Efficiency

Morbidity in ASCs

- Most studies look at all cause morbidity including:
- Intra-operative events
- Post-operative events
 - Pneumonia
 - Myocardial Infarction
 - Surgical Site infection
 - Pulmonary Embolism

Outcome Measures at ASCs

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Ambulatory Surgery : Who Should? Who Shouldn't?

History of Ambulatory Surgical Centers

- 1970 first ASC in Pheonix Arizona – Drs. Reed and Ford-Anesthesiologists

Five physicians perform five procedures on opening day (4 required GA)



- Patient selection
- Surgical selection
- Anesthetic type options
- Facility limitations



John Ford, MD, giving anesthesia, 1970

Facility Considerations

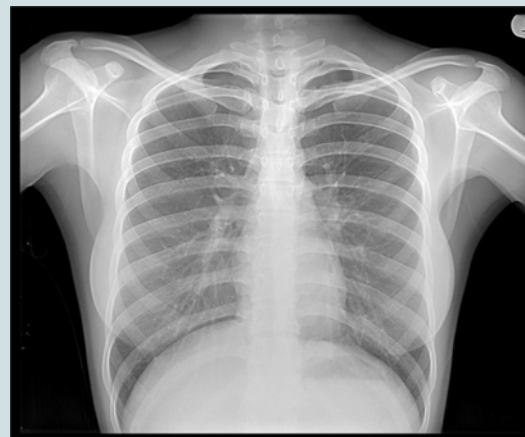
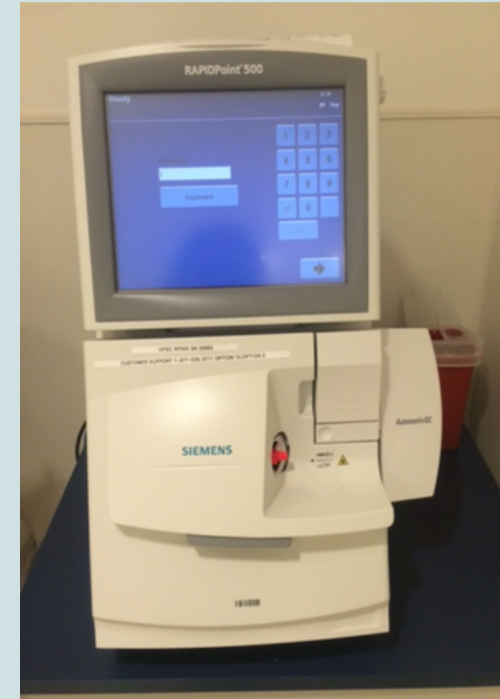
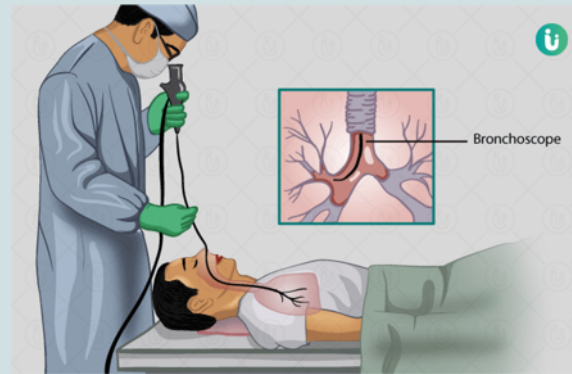
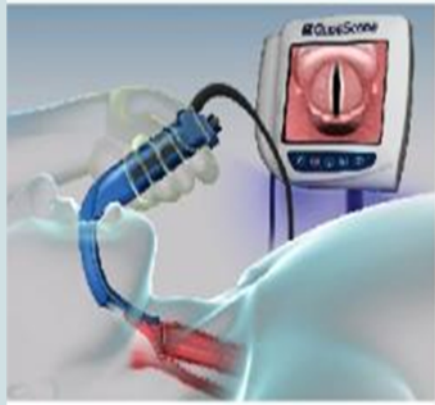
- Equipment: airway (video laryngoscopes, jet ventilation, bronchoscopes)
- Staff availability and training
- Size of facility (number of recovery room beds)
- Location to hospital
- Blood bank
- Labs
- Surgical Pathology
- Pacemaker/Defibrillator concerns
- X-Ray



The Facility: UVA's Outpatient Surgical Center (OPSC)







Difficult Airway Cart



Surgical Considerations

- Type of Surgery
- Blood Loss > 500 cc in adult
- Invasive monitoring needs
- Length of planned procedure > 6 hours (>3 hours) (>2 hours)
- Post-op pain concerns
- Most common reason for unplanned admissions are surgical: 38-79%

Unplanned Admission

- Incidence of unanticipated admission following ambulatory surgery 0.64-6%

Reason for admission	Percentage
Surgical	40%
Anesthetic	20%
Medical	20%
Social	12%
Miscellaneous	8%

Table 4 Risk factors for unanticipated hospital admission

Surgical

Pain
Bleeding
Extensive surgery
Surgical complications
Abdominal surgery
ENT and urological surgery

Anesthesia

Nausea and vomiting
Sedation
Aspiration

Social

Discharge without escort

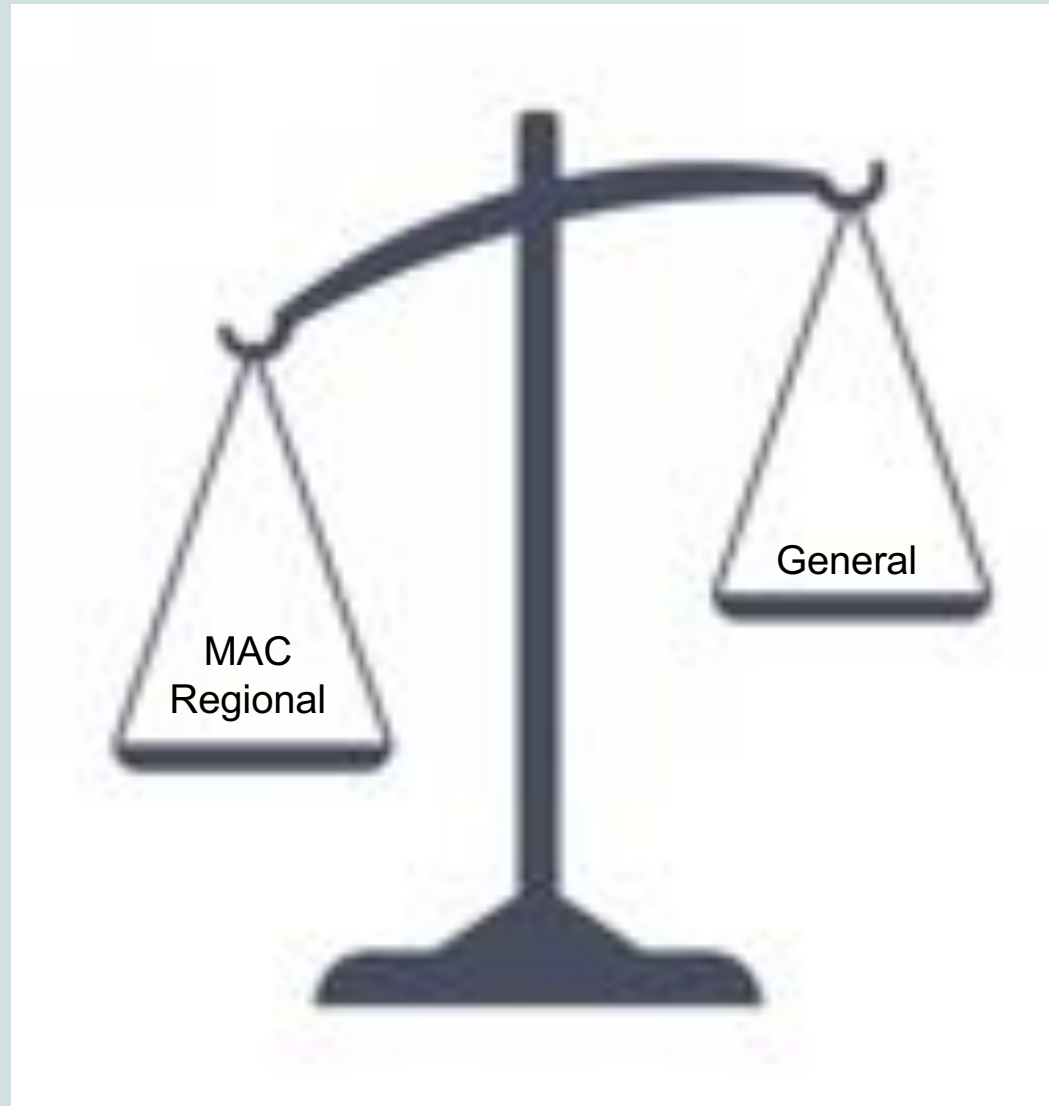
Medical

Medical complications related to DM, IHD, and sleep apnea
Medication error

ENT, ear-nose-throat; DM, diabetes mellitus; IHD, ischemic heart disease.

Whippey 2013, Schnaeder 2006

Anesthesia Considerations



Anesthetic Considerations Unplanned Admissions

Age (yr)	18-40	Reference		Reference	
	41-60	1.16 (0.59 to 2.27)	0.662	1.22 (0.64 to 2.35)	0.545
	61-80	1.60 (0.73 to 3.52)	0.241	1.65 (0.75 to 3.64)	0.216
	> 80	5.41 (1.54 to 19.01)	0.008	6.04 (1.77 to 20.62)	0.004
BMI score	< 25	Reference		Reference	
	25-29.9	1.05 (0.56 to 1.99)	0.874	1.17 (0.62 to 2.19)	0.624
	30-34.9	2.81 (1.31 to 6.04)	0.008	2.70 (1.27 to 5.75)	0.010
	35-39.9	0.66 (0.25 to 1.75)	0.401	0.64 (0.25 to 1.67)	0.365
	≥ 40	1.15 (0.32 to 4.21)	0.829	1.36 (0.37 to 5.05)	0.647
Smoking status	Non-smoker	Reference		Reference	
	Ex-smoker	0.57 (0.25 to 1.27)	0.169	0.56 (0.25 to 1.25)	0.155
	Current smoker	0.44 (0.23 to 0.83)	0.011	0.48 (0.26 to 0.89)	0.020
Type of anesthesia	General	Reference		Reference	
	MAC	0.17 (0.04 to 0.68)	0.012	0.87 (0.05 to 0.70)	0.014
	Regional	1.85 (0.63 to 5.46)	0.265	1.52 (0.53 to 4.30)	0.434

Whippey 2013

Anesthesia Considerations

Unplanned Admissions

Table 2. Logistic Regression Model for Discharge to Short-term Hospitalization Using the Analysis Half of the Data Set

Risk Factor	OR (95% CI)
Age ≥ 65 y	1.58 (1.42-1.77)
Operating time, min	
60-120	2.63 (2.37-2.92)
>120	4.34 (3.86-4.88)
Cardiac	0.74 (0.53-1.04)
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CVD	3.73 (1.83-7.64)
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≥ 85	1.64 (1.13-2.38)
≥ 80	1.80 (1.45-2.24)
≥ 75	1.78 (1.52-2.07)
≥ 70	1.74 (1.53-1.97)
≥ 65	1.58 (1.50-1.77)

Weighing all of these factors

- ➔ Patient Comorbidities and Concerns
 - Medical/Social
- Type of Surgery
 - High risk/Intermediate risk/Low risk
- Type of Anesthesia
 - General anesthetic/Regional anesthetic/MAC/Bier Block/Local Only
- Facility Resources
 - Equipment/Staff/Distance to Hospital

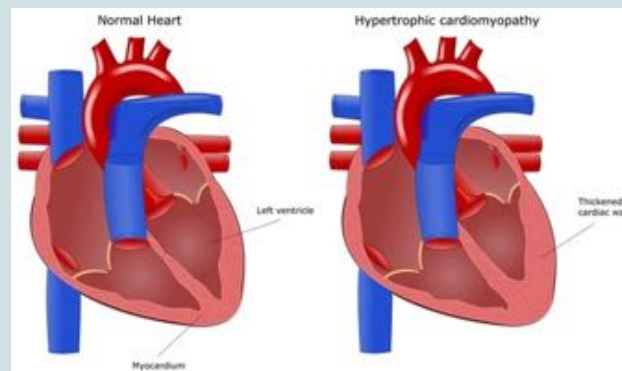
This is What We are Working With at the University of Virginia's Outpatient Surgical Center (OPSC)



A Sampling of our Patients....

- Email received 8/29
- DOS 8/31
- Patient is scheduled for urologic procedure under General anesthesia and is on continuous O₂ (4 Liters)
- COVID test from 8/24 is positive
- The Skilled Nursing Facility is repeating test prior to surgery

- 50 year-old with Hypertrophic Cardiomyopathy (HCM) for knee meniscectomy
 - ICD for Ventricular Tachycardia
 - On B-Blocker and Ca Channel blocker
 - Preserved Ejection Fraction



- Phone call nurse discovered during pre-operative phone call that patient is coming alone via medical transport
- He lives with his grandparents and they cannot transport him to or from surgery
- Patient requires General Anesthesia for hernia surgery

- 17 year-old male for shoulder arthroscopy
- Patient with history of Pierre-Robin syndrome
- Underwent mandibular distraction as a child
- Father with Malignant Hyperthermia

- 59 year-old female with morbid obesity, BMI 67
- IDDM
- OSA Non-compliant
- HTN
- Asthma
- Claustrophobia



BUT, CATARACT SURGERY

BUT....

- Seen < 2 weeks in ED for light-headedness
 - Tracheal deviation
 - CT = large multi-nodular goiter 5 x 4.5 x 9
 - Mass effect on cervical and thoracic trachea
 - Luminal narrowing as narrow as 3 mm
 - Sent home for ENT evaluation

WHAT TO DO....???

Sicker Patients

2016

ASA 1	ASA 2	ASA 3	ASA 4
23%	68%	9%	0.2%

2020

ASA 1	ASA 2	ASA 3	ASA 4
21.5%	60.5%	17.4%	0.4%



<https://www.minnpost.com/second-opinion/2015/10/hospital-practices-withhold-food-and-interrupt-sleep-make-patients-sicker-sur/>

Aging Patient

	Number	Percentage
8 and Under	1137	9.7%
9-18	1063	9.0%
19-65	6586	55.9%
Over 65	2958	25.1%
Over 90	38	0.3%

Patient Factors that Influence Best Location for Surgery

Patient Safety = Patient Optimization/Selection

- “Most ASC tragedies occur not from error, but from faulty patient selection”



Patient Safety = Patient Selection / Optimization

Age

Comorbidities

Cardiac Disease

Respiratory Disease

Diabetes

Cardiac Implanted Electronic Device

Dialysis-dependent

MH

Obstructive Sleep Apnea

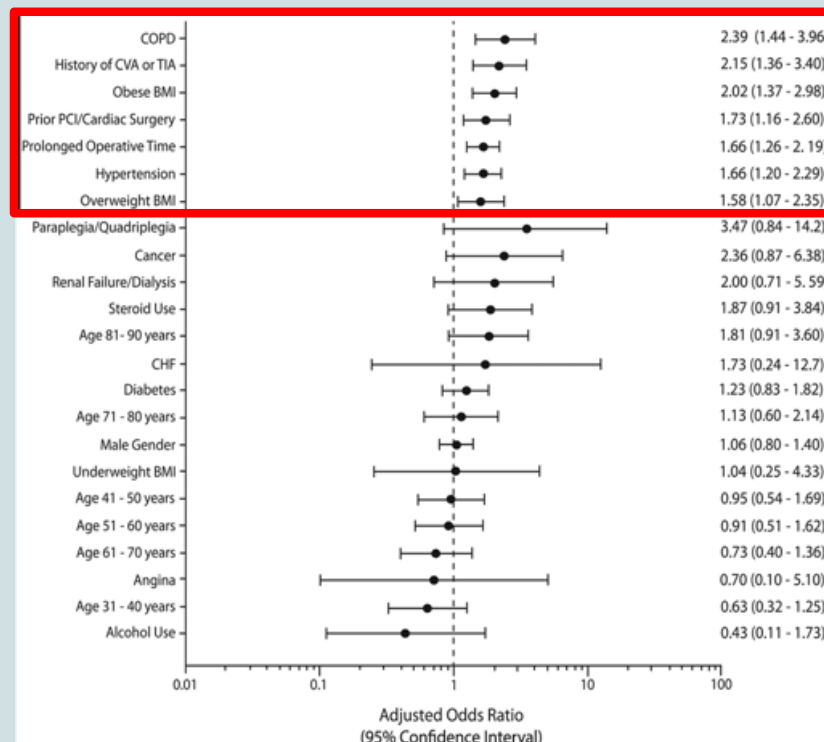
Social Concerns

Classification	Description
ASA 1	Healthy patients
ASA 2	Mild to moderate systemic disease caused by the surgical condition or by other pathological processes, and medically well controlled
ASA 3	Severe disease process which limits activity but is not incapacitating
ASA 4	Severe incapacitating disease process that is a constant threat to life
ASA 5	Moribund patient not expected to survive 24 hours with or without an operation
ASA 6	Declared brain-dead patient whose organs are being removed for donor purposes



Patient Selection: Morbidity and Mortality

- 244,397 surgeries; 2005-2010
- 72 hours of surgery



Patient Selection: Morbidity and Mortality

- 7 independent predictors of perioperative morbidity or mortality when controlled for surgical complexity:
- COPD
- Overweight BMI
- Obese BMI
- Prolonged operative time
- Hypertension
- Previous PCI/cardiac surgery
- History of TIA/CVA

Patient Selection: Morbidity and Mortality

- Variables *not* independently associated with an increased risk of perioperative morbidity/mortality:
 - Advanced age
 - Paraplegia
 - Cancer
 - Renal failure
 - Congestive heart failure
 - Diabetes mellitus

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Patient Selection: Unplanned Admission

- Incidence of unanticipated admission following ambulatory surgery was 2.67%.

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Sex	Male	Reference		Reference	
	Female	1.08 (0.59 to 1.98)	0.801	1.12 (0.62 to 2.00)	0.712
ASA class	I	Reference		Reference	
	II	2.61 (1.13 to 6.03)	0.025	2.74 (1.19 to 6.28)	0.017
	III	4.60 (1.81 to 11.68)	0.001	4.37 (1.76 to 10.87)	0.002
	IV	6.51 (1.66 to 25.59)	0.007	5.34 (1.43 to 19.94)	0.013

Whippey 2013

Patient Selection: Unplanned Admissions

- Increased risk of unanticipated admission:
 - ASA class III (OR 4.60; 95% CI 1.81 to 11.68)
 - ASA class IV (OR 6.51; 95% CI 1.66 to 25.59)
 - Advanced age (> 80 yr) (OR 5.41; 95% CI 1.54 to 19.01)
 - Body mass index (BMI) of 30-35 (OR 2.81; 95% CI 1.31 to 6.04) BUT not >35

Patient Selection: Decreased Risk of Unplanned Admissions

- Current smoking status associated with a **decreased** likelihood of unanticipated admission (OR 0.44; 95% CI 0.23 to 0.83)



Outpatient Surgery Admission Index: Independent Predictors of Hospital Admission

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Outpatient Surgery Admission Index: Independent Predictors of Hospital Admission

★	65 years or older	1
	Operating time > than 120 minutes	1
★	Cardiac diagnosis	1
★	Peripheral vascular disease	1
★	Cerebrovascular disease	1
★	Malignancy	1
★	Seropositive HIV	1
	Regional anesthesia	1
	General anesthesia	2

Outpatient Surgery Admission Index: Independent Predictors of Hospital Admission

- ≥ 4 or higher, the odds ratio was 31.96 (95% confidence interval, 26.29-38.86)

Table 3. Odds Ratios for Short-term Hospitalization Based on the OSAI, Comparing the Analysis and Holdout Data Sets*

OSAI	Analysis Data Set			Holdout Data Set	
	Sample, No. (%)	Short-term Hospitalization, No. (%)	OR (95% CI)	Sample, No. (%)	OR (95% CI)
0 and 1	217 377 (55.4)	196 (0.9)		216 712 (55.4)	
2	131 355 (33.5)	1116 (8.5)	9.50 (8.16-11.05)	131 297 (33.5)	9.46 (8.12-11.03)
3	35 770 (9.1)	653 (18.3)	20.60 (17.56-24.18)	35 819 (9.2)	20.50 (17.45-24.08)
4, 5, and 6	7597 (1.9)	213 (2.8)	31.96 (26.29-38.86)	7612 (1.9)	34.62 (28.55-41.97)
All scores	392 099† (100.0)	2178 (0.6)		391 440 (100.0)	

Abbreviations: CI, confidence interval; OR, odds ratio; OSAI, outpatient surgery admission index.

*The ORs compare each level to 0 or 1. One point is given for each of the following risk factors: operating time longer than 120 minutes, each of the medical comorbidities (cardiac, peripheral vascular disease, cerebrovascular disease, malignancy, and seropositive human immunodeficiency virus status), regional anesthesia, and 65 years or older. Two points are given for general anesthesia.

†Total sample includes 19 deaths; final total N = 783 539.

Patient Selection Unplanned Admission

- Age greater than 85 is strong predictor of postoperative admission (OR 1.89) and admission within one week of outpatient surgery
- History of inpatient hospital admission within 6 months increases risk hospital admission (OR 1.4)

Awareness of Specific Patient Characteristics: ABC's

- ASA increase
- Age increase
- Airway Reactivity/ Asthma Apnea (Obstructive Sleep Apnea)

Optimize Co-Morbidities

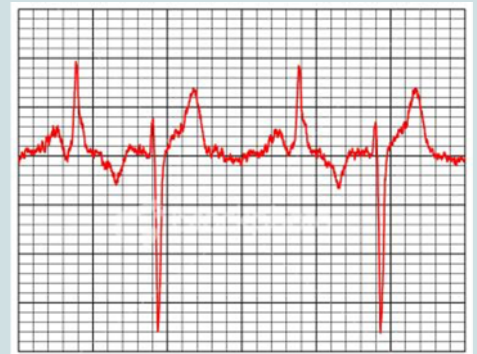
- Cardiac history
- COPD history
- Cerebrovascular disease

Age

- Increasing age associated with increased intra-operative events (cardiac) but not post-operative events
- Age > 85 (and hospitalization within 6 months) increased rate of readmission after ambulatory surgery

Hypertension

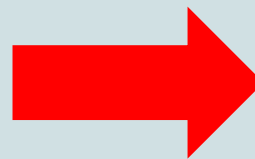
- Cardiac complications most common peri-operative complication with incidence of 3-16%
- HTN, hypotension, arrhythmias, ischemia, bradycardia, tachycardia
- Increased cardiovascular complications in patient with pre-existing hypertension (OR 2.5)



Hypertension

PERIOPERATIVE HYPERTENSION DIFFERS:

- Mechanism (anxiety, holding medications)
- Consequences (patient characteristics and invasiveness of surgical procedure)

 Controversies with regards to perioperative targets for blood pressure

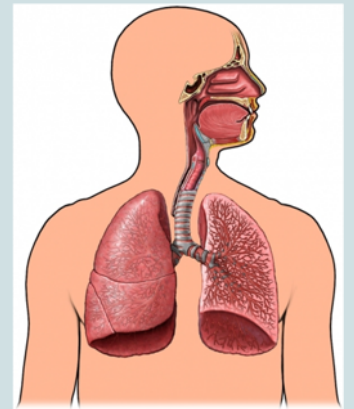
Hypertension

- General recommendation that elective surgery be delayed if hypertension is **severe**: diastolic BP greater than 115 mm Hg or systolic BP greater than 200 mm Hg
- Unclear whether delay improves outcomes

Howell 2004, Weksler 2003

Respiratory Disease

- Second most common event—1% patients
- Most commonly laryngospasm and bronchospasm
- Patient co-morbidities are strongly related to respiratory complications
 - Reactive Airway Disease (5-fold increase)
 - Smoking (4-fold increase)
- COPD linked to increased morbidity



Diabetes Mellitus

- Diabetes has not been routinely linked with significant adverse events following ambulatory surgery
- Keep in mind surgical complications (infection)
- The **Society for Ambulatory Anesthesia** recommends delaying surgery only if there is evidence of severe dehydration, ketoacidosis, or hyperosmolar non-ketotic state, but not for a specific blood glucose level



Obesity

- The literature lacks adequate information to make strong recommendations regarding appropriate selection of the obese patients scheduled for ambulatory surgery
- Increased intra-operative (OR 3.9) and postoperative respiratory events in obese patients (OR 3.87)
- No strong evidence of increased cardiovascular events
- Literature indicates the super obese (BMI >50 kg/ m²) **do** present an increased risk for perioperative complications
- Patient with lower BMIs (<50) do not seem to present increased risk if co-morbidities are minimal or optimized

Obesity

- Ambulatory surgery is not contra-indicated in obese patients with few or optimized co-morbidities
- Be aware of bed size limits (1000 pounds!!)
(and other concerns: AIRWAY, OSA)



Obstructive Sleep Apnea (OSA)

- Difficult intubation, increased post-operative complications
- Screening important as most OSA is undiagnosed
- Caution with opioid use, general anesthetics
- Optimization of co-morbidity

Cardiac Implantable Electronic Device (CIED) Patients

- Electrocautery and Electromagnetic interference effects on a CIED
- Surgical Site and cautery type are critical
- Only select patients require device reprogramming and many are safely managed with no device modification or the use of a magnet to temporarily alter functions
- Interrogation:
 - ICD within 6 months
 - Pacemaker within 12 months

Dialysis Patients

- Significant comorbidities (eg, anemia, DM, hypertension, HF, CAD, electrolyte abnormalities, fluid overload, dialysis access site complications)
- Increased rates of unplanned admission following elective outpatient orthopedic surgery
- Elective surgery scheduled within 24 hours of dialysis for acceptable volume status, normal electrolytes, and acid/base status
- Recommendations are to proceed with procedures with mild (<5.7 mEq/L) potassium elevations and delay surgery to treat patients with moderate to severe elevations

Malignant Hyperthermia

- MH Association of the United States (MHAUS) states: MH patients can safely undergo ambulatory surgery
- Society for Ambulatory Anesthesia states that MH is not a contraindication to outpatient surgery



Social Concerns

ASA Guidelines for Ambulatory Anesthesia and Surgery

Developed By: Committee on Ambulatory Surgical Care

Reaffirmed: October 17, 2018 (original approval: October 15, 2003)

Minimal patient care should include:

- Preoperative instructions and preparation.

- An appropriate pre-anesthesia evaluation and examination by an anesthesiologist, prior to anesthesia and surgery. In the event that nonphysician personnel are utilized in the process, the anesthesiologist must verify the information and repeat and record essential key elements of the evaluation.

- Preoperative studies and consultations as medically indicated.

- An anesthesia plan developed by an anesthesiologist, discussed with and accepted by the patient and documented.

Administration of anesthesia by anesthesiologists, other qualified physicians or nonphysician anesthesia personnel - medically directed by an anesthesiologist. Non-anesthesiologist physicians who are administering or supervising the administration of the continuum of anesthesia must be qualified by education, training, licensure, and appropriately credentialed by the facility.

- Discharge of the patient is a physician responsibility.

- Patients who receive other than unsupplemented local anesthesia must be discharged with _____ a responsible adult.

- Written postoperative and follow-up care instructions.

- Accurate, confidential and current medical records.

Social Concerns

- Local?
- MAC?
- Regional?



Social Concerns

cms.gov

The ASC must -

(3) Ensure all patients are discharged in the company of a responsible adult, except those patients exempted by the attending physician.

Interpretive Guidelines: §416.52(c)(3)

Unless the physician who is responsible for the patient's care in the ASC has exempted the patient, the ASC may not discharge any patient who is not accompanied by a responsible adult who will go with the patient after discharge. ASCs would be well-advised to develop policies that address what criteria a physician should consider when deciding a patient does not need to be discharged in the company of a responsible adult. Exemptions must be specific to individual patients, not blanket exemptions to a whole class of patients.

Social Concerns

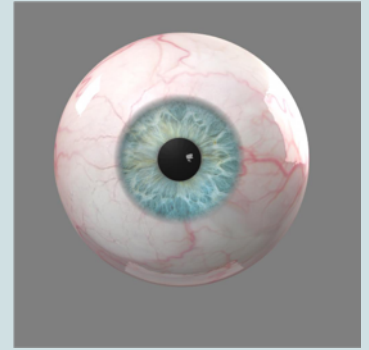
- Three cases of patients discharged home without escort, all drove
 - One patient killed in MVA
 - One patient in MVA and quadriplegic
 - Another injured in MVA and injured others
- Anesthesiologists found guilty in all three cases



Cataract Surgery

- Most common surgery in the United States
- Low morbidity
- Minimal physiologic stress
- No blood loss or fluid shifts
- No need to interrupt routine medications

Cataract Surgery



- Exception between comorbidity and adverse outcomes in cataract surgery
- Clinical trials unable to document routine preoperative testing for patients undergoing cataract surgery
- Presence of significant co-morbidity does not influence the need for hospital admission or the risk of death
- Tests are indicated ONLY if the patient presents with a severe medical problem that warrants evaluation even without planned surgery

Cataract Surgery

- Before delaying cataract surgery, consider vision loss, increased rates of falls/hip fractures, and reduced quality of life
- If the patient is able to
 - lie flat
 - stay still
 - communicate
 - follow simple commands, and
 - local or regional anesthesia

There are very few conditions that preclude surgery

Taking what (little) we know about patient selection, how do we actually implement and enforce?



Patient Selection and Optimization

- Early pre-operative assessment has been shown to reduce cancellations
- Cancellations attributable to medical reasons decreased from 2.0% to 0.9% for patients who had attended a pre-assessment clinic
- Cancellations more than halved from 13% to 5.3% among patients who visited an anesthesia preoperative medicine clinic versus those who did not

Fersch 2005, van Klei WA, 2002, Rai MR, 2003, O'Regan 2008

Patient Selection and Optimization

- Pre-Anesthesia Evaluation and Testing Center (PETC)
- Exclusion Criteria for ASC
- Guidelines and Policies
- Pre-Operative Phone Call Final Screening

Pre-Anesthesia Evaluation and Testing Center (PETC)

- Phone Call
- Walk-in Clinic (nursing or MD)
- Official Consult (MD staffing)

Pre-Anesthesia Evaluation and Testing Center (PETC)

- History and physical
- Vital signs
- STOP-Bang
- Labs, urine samples, ECGs, additional tests
- Notify services of requirement for further evaluation or testing and assist with coordinating
- Gather and review outside medical records

Guidelines and Policies

- Pregnant patients
- Obstructive Sleep Apnea
- Cardiovascular Implantable Electronic Devices
- Local Only
- Responsible Adult

Exclusion List

- Respiratory Disease and Airway Concern Exclusions
- Cardiac and Circulatory System Exclusions
- Hematologic Disease Related Exclusions
- Muscular Disease Exclusions
- End-stage Renal Disease Exclusions
- Obesity-Related Exclusions
- Infections and Communicable Disease Related Exclusions
- New/Unstable Disease Concerns
- Pregnancy
- Procedure Specific Exclusions

EXCLUSION LIST

Guideline of Exclusions for Adult Surgery at the UVA OPSC

The following list describes patients who may NOT be appropriate for surgery at the OPSC if general anesthesia (GA), Regional Anesthesia or Neuraxial Anesthesia is planned:

Respiratory Disease/Airway Related Exclusions:

1. **Diagnosed OSA, refusing or unable to use prescribed CPAP (SEE SEPARATE POLICY FOR FULL DETAILS) UNLESS pain managed primary with non-opioid analgesics**
2. **Diagnosed OSA and compliant with CPAP, BUT:**
 - Comorbid conditions are not optimized*
 - **Planned procedure is:**
 - Invasive abdominal surgery
 - Airway surgery other than tonsillectomy and adenoidectomy**
 - Surgery anticipated to require GA in excess of 4 hours
 - Surgery scheduled to conclude after 15:00
3. **STOPBANG ≥ 5 , AND**
 - Comorbid conditions are not optimized*
 - **Anticipated opioid-based postoperative pain control**
(e.g. ≥ 2 doses of oral opioids per 24 hours)
4. **Tonsillectomy, if:**
 - Severe OSA by polysomnography
 - BMI > 40
 - Any genetic syndrome (unless cleared by an anesthesiologist)
 - Craniofacial dysmorphology
 - Cerebral palsy of any degree
 - Patient has Cystic Fibrosis and OSA is known or suspected
5. **Severe respiratory disease, including patients on/with:**
 - Home oxygen
 - Portable ventilator
 - **Persistent asthma patients are excluded if:**
 - **Poorly Controlled Asthma**
(Assessment of asthma control should be discussed with PETC/anesthesia)
 - On maintenance **oral steroids** or has required oral steroids in the 4 weeks prior to the planned procedure
 - Admission to the **ICU in the three months** prior to the planned procedure
 - **Cystic fibrosis patients are excluded if:**
 - **Reactive airways are not well controlled**
(FEV1, FEV1/FVC, and peak flow of 70% or greater acceptable in CF patients)
 - **Condition not optimized according to UVA pulmonology**

▪ **Poorly Controlled Asthma**

(Assessment of asthma control should be discussed with PETC/anesthesia)

- On maintenance **oral steroids** or has required oral steroids in the 4 weeks prior to the planned procedure

- Admission to the **ICU in the three months** prior to the planned procedure

- **Cystic fibrosis patients are excluded if:**

- **Reactive airways are not well controlled**

(FEV1, FEV1/FVC, and peak flow of 70% or greater acceptable in CF patients)

- **Condition not optimized according to UVA pulmonology**

- **Surgery is tonsillectomy for suspected OSA**

EXCLUSION LIST

6. Difficult airway known or expected:

- Will require or likely to require fiberoptic scope for intubation (decision based on records from most recent intubations or physical exam)
- Highly likely to be BOTH a difficult mask airway (risk factors include BMI over 30, history of OSA, facial hair, Mallampati class 4, airway tumors) AND be a difficult intubation (based on history or exam)

Cardiac/Circulatory Disease Exclusions:

1. Unstable angina or myocardium at risk by cardiac stress testing
2. Complex circulation such as patients with Fontan circulation, or other residual issues related to congenital heart defects or cardiomyopathy (including myocarditis) requiring cardiology follow up
3. Likely to require invasive monitoring, such as:
 - Compromised myocardial function (EF < 30%-40% depending on procedure), LVAD
 - Pulmonary hypertension under treatment
 - Cardiac valvular disease graded as severe, or causing symptoms
4. Any dysrhythmia syndrome associated with sudden death (LQTS, Brugada Syndrome, catecholaminergic polymorphic ventricular tachycardia)
5. History of PSVT (WPW or otherwise), UNLESS pharmacologic management has allowed no sustained SVT requiring cardioversion or pharmacologic termination during the prior 12 months, or a successful ablation has been performed
6. Cardiovascular Implantable Electronic Device (CIED) excluded if: (SEE SEPARATE POLICY FOR FULL DETAILS)
 - Implanted in last 3 months
 - Surgery is within 15 cm of the CIED or its wires (even if no cautery will be used)
 - Surgery is between umbilicus and chin and will require monopolar cautery or radiofrequency ablation (RFA) or anything with grounding pad

- EXCEPTION is surgery above the chin when there is either NO ELECTROCAUTERY or CAUTERY DOES NOT HAVE RETURN PAD

*Acceptable scenarios for OPSC include device and wires 3+ mos old, 15 cm margin, AND:
Above chin with no cautery for PM/ICD
Above chin with no bipolar cautery/battery powered ophthalmic (NO RETURN PAD) for PM/ICD
Between chin and umbilicus with no cautery for PM/ICD
Between chin and umbilicus with no monopolar/RFS for PM
Below umbilicus with any cautery type*

Hematologic Disease Related Exclusions:

1. Patients with Sickle Cell Disease (Hb SS, SC, or S-beta-thalassemia) who have had vaso-occlusive crisis, acute chest syndrome, or are scheduled for any type of airway surgery including T&A are excluded. Those with milder Sickle Cell Disease are also excluded UNLESS they have been optimized by a member of the UVA Hematology Department, and have a perioperative plan coordinated with that physician and discussed with PETC/anesthesia. Patients with sickle trait are not excluded.
2. Patients with coagulation disorders that will require postoperative infusion of clotting factors and/or procoagulant medications are excluded. Patients with coagulation disorders may have surgery at OPSC if cleared by a UVA hematologist and have a perioperative plan coordinated by that physician.
3. Pregnancy Exclusions: (SEE SEPARATE POLICY FOR FULL DETAILS)
 - ☐ Complicated pregnancy
 - ☐ Laparoscopic procedures
 - ☐ Fetus > 21 weeks gestational age

Muscular Disease Exclusions:

EXCLUSION LIST

- ☐ Patients with muscular dystrophy or myopathy are excluded, with the exception of patients with early myopathic symptoms coming for muscle biopsy, and patients with well controlled mild or moderate Myasthenia Gravis

End Stage Renal Disease (ESRD) Exclusions:

- ☐ Planned procedure has potential for large absorption of irrigation fluid, e.g. cystoscopy, hysteroscopy
- ☐ Comorbid conditions are NOT well controlled*
- ☐ Additional organ system failing or marginal
- ☐ On hemodialysis and last dialysis > 2 days*** or < 6 hours prior to procedure
- ☐ Unable to obtain preoperative potassium level on day of procedure, or day-of-procedure potassium level of > 5.5 mEq/L

Obesity Related Exclusions:

- ☐ BMI > 40 without optimized comorbid conditions*
- ☐ BMI > 50 excluded if:
 - *Comorbid conditions not optimized*
 - *Comorbid condition that would by itself cause ASA Physical Status score of 3 or higher
 - *Airway surgery
- ☐ BMI > 60

Communicable Infectious Exclusion:

- ☐ Highly contagious airborne infectious processes (such as active tuberculosis)

New Unstable Medical Process Exclusion:

- ☐ New diagnosis of disease without preoperative lab work or treatment
- ☐ New onset of abnormal vital signs or clinical symptoms yet to be evaluated, such as new onset wheezing, syncope, unilateral weakness, or untreated hypertension

Procedure Specific Exclusions:

- ☐ Expected need for perioperative blood products
- ☐ Chance of surgical complications greater than minimal (e.g. intracranial and intrathoracic procedures are exclusions)

- ☐ Need for invasive monitoring or a central line

Patients receiving Monitored Anesthetic Care (MAC)[†] with no plan for GA backup may be scheduled for surgery at the OPSC with few restrictions. Restrictions for MAC without GA backup include some patients with a CIED or ESRD (specifics regarding these exclusions are the same as above), and all patients with unstable angina, a "Communicable Infectious Process" (described above) or a "New Unstable Medical Process" (described above).

*Optimized implies values for BP or glucose are typically normal or near normal (A1C < 8.5 if available, and elevated BP on day of surgery OK if most other BP measurements normal or near normal) and implies no serious comorbid conditions that are problematic even when well managed (e.g. severe lung disease, pulmonary hypertension, etc.)

**Nasal surgeries are acceptable as long as nasal packing will not be required for more than 30 minutes postoperatively

***Hemodialysis on Saturday for a Monday procedure is satisfactory.

†MAC includes procedures such as cataract extraction/lens placement, carpal tunnel, battery change for vagal stimulators, etc., in which a deeply sedating dose of propofol is given to blunt pain associated with local anesthetic infiltration, and the patient is thereafter given conscious sedation or no sedation.

Pre-Operative Nursing Phone Call

- **Three days** prior to surgery
- Arrival time and instructions
- Confirm responsible adult accompanying patient
- Obstructive Sleep Apnea (OSA)
- Cardiac Device
- Medication instructions
- NPO instructions
- COVID screening

Surgery Cancellations

- Evidence suggests that 86.5% of cancellations are preventable



Patient Factors

Anesthetic Options

Facility Characteristics

Surgical Factors

- Email received 8/29
- DOS 8/31
- Patient is scheduled for urologic procedure under GA and is on continuous O2 (4 Liters)
- COVID test from 8/24 is positive
- The Skilled Nursing Facility is doing another test on her today



50 year-old with HCM for knee meniscectomy.

ICD for VTach

On B-blocker and Ca Channel blocker

Normal EF



- Discovered during pre-operative phone call that patient is coming alone via medical transport
- He lives with his grandparents and they can't come with him
- Patient requires General Anesthesia for hernia surgery



- 17 year-old male for shoulder arthroscopy
- Patient with history of Pierre-Robin syndrome
- Underwent mandibular distraction as a child
- Father with Malignant Hyperthermia



- 59 year-old female with morbid obesity, BMI 67
- IDDM
- OSA Non-compliant
- HTN
- Asthma
- Claustrophobia

BUT, CATARACT SURGERY

BUT....

- Seen < 2 weeks in ED for light-headedness
- Tracheal deviation
- CT = large multi-nodular goiter
5 x 4.5 x 9
- Mass effect on cervical and thoracic trachea
- Luminal narrowing as narrow as 3 mm
- Sent home for ENT evaluation



Source: Usatine RP, Smith MA, Mayeaux EJ, Chumley HS: *The Color Atlas of Family Medicine, Second Edition*: www.accessmedicine.com
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Improving Outpatient Surgery Outcomes

- Better Outcomes Data
- Better Risk Stratification
- Healthier Patients....

Classification	Description
ASA 1	Healthy patients
ASA 2	Mild to moderate systemic disease caused by the surgical condition or by other pathological processes, and medically well controlled
ASA 3	Severe disease process which limits activity but is not incapacitating
ASA 4	Severe incapacitating disease process that is a constant threat to life
ASA 5	Moribund patient not expected to survive 24 hours with or without an operation
ASA 6	Declared brain-dead patient whose organs are being removed for donor purposes



Thank you...

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