


**Office Based Anesthesia Update:  
safety and outcomes**

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**Disclosure**

- Consultant- Fresenius-Kabi USA
- GE Healthcare- advisory

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**Objectives**


- Background
- Office Based Surgery literature review
- Educating the next generation
- APSF – Smart Assistant Simulation research
- Future direction

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**Office Based Anesthesia and Surgery (1997)**



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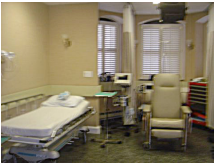


**Office-based setting**




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'Mobile' Office Based Anesthesia (2022)



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The changing 'landscape' of OBA



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Office Based Anesthesia  
Safety Literature- review


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# HMS: Ambulatory Anesthesia Patient Safety Elective

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## HMS Ambulatory Patient Safety Elective

- Expose students to adult and pediatric patients presenting for ambulatory surgical procedures in the **hospital, ambulatory surgery center (ASC) and office-based setting (OBS)**.
- Appreciate **patient and procedure selection**
- Understand **the role of the anesthesiologist and the principles that guide the performance of safe anesthesia care in the pre, intra, and postoperative setting**

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## Learning Objectives

- **Appreciate how the multidisciplinary interaction between the anesthesia care team, surgeons and nursing affects patient safety**
- Participate as a member of the anesthesia care team comprised of physicians and certified nurse anesthetists (CRNAs) helping gather information which will be integrated into the formulation of the anesthetic plan

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## Anesthesia Patient Safety Foundation Grant

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## Anesthesia Patient Safety Foundation Grant



**“Testing a Proof of Concept Model for Real-Time, Dual Interactive Decision Support in the Perioperative Period Using the SMART Assistant Device”**

APSF project on human workflow during perioperative deterioration:

- Making technology a meaningful contribution
- Integrating anticipation and planning for deterioration

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## Anesthesia Patient Safety Foundation Grant Smart Assistant

1. **Artificial Intelligence:** pattern recognition physiologic data+ med hx
2. **Differential dx coupled w best practices** and emergency checklist
3. **Customized:** provider need, clinical situation (OR, ICU, ASC, OBS)
4. SA software system **can be integrated into EMR**
5. **Visual** (glass wear e.g. google glass) or **audio response** (eg SIRI, or ALEXA)
6. **Clinician capture data w/ all senses** while viewing pt or surgical site

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## Anesthesia Patient Safety Foundation Grant



**Anesthesia Patient Safety Foundation**

**Aim 1:** Design a pilot simulation study that uses real time audio and visual cues to provide interactive decision support and provide anesthesia professionals with a faster effective way to treat patients at the bedside before or during patient deterioration.

**Hypothesis:** The Smart Assistant (SA) will aid clinicians in making quicker and more effective decisions at the point of care.

**Action:** Conduct simulation study that compares the present standard of care in clinician decision making for patients with physiologic deterioration vs. the decision making performed by clinicians with the enhanced capability of audio and visual cues.

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**APSF Smart Assistant**

- Induction
- Propofol infusion increased due to moving
- Patient snoring suggesting upper airway obstruction

**Pediatric Dental Case Flow**

**Starting vitals**  
 HR: 100  
 BP: 95/60  
 RR: 18  
 SpO2: 100  
 Temp: 35.8C  
 ETCO2: 38

↓

**PI is induced**  
 HR: 110  
 BP: 90/60  
 RR: 16  
 SpO2: 99  
 Temp: 35.8C  
 ETCO2: 33

↓

**PI loses ETCO2 tracing**  
 HR: 110  
 BP: 90/60  
 RR: 16  
 SpO2: 99  
 Temp: 35.8C  
 ETCO2: Error or 0

↓

**PI starts to de-sat**  
 HR: 110  
 BP: 90/60  
 RR: 16  
 SpO2: 92  
 Temp: 35.8C  
 ETCO2: 30

**Smart Assistant Prompts**

The patient is moving in the chair as the procedure is started. What factors could be contributing to this?

- Light anesthesia
- Inevited analgesic
- Increased anesthetic requirements due to age


There has been a loss of your ETCO2 with 20 minutes upper airway sounds heard. Based on other ongoing patient factors this could be caused by:

- ETCO2 tubing disconnect
- Machine error or calibration of monitor
- Displacement of ETCO2 monitoring of N2
- Mask trapped/engaged
- Airway obstruction
- Most likely dx is: upper airway obstruction

Patient is found to have an upper airway obstruction with a mask placed. Would you like me to provide you with steps to treat an airway obstruction?

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## Future Direction: Develop the highest quality and standard of safe patient care

- 25 years: changing landscape of OBA
- Number and complexity of pts and procedures continues to grow
- Lack of uniform regulation
- Proper patient selection
- **Develop and implement safe and efficient systems to optimize patient outcomes and minimize morbidity**

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## Future research: Develop the highest quality and standard of safe patient care

- Evidence-based review of safety profiles by emerging specialties
- Ongoing quality and safety metrics analysis
- 'Global mobile' office-based anesthesia
- Health care disparities and OBA events? location, gender, ethnicity, socio-economic factors
- Current Opinion –Dec 2023

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