Disclosure

• Consultant- Fresenius-Kabi USA
The Institute for Safety in Office-Based Surgery

• Non-profit organization established 2009

• Purpose:
  – Promote patient safety and outcomes research
  – Design tools for advanced detection and prevention of adverse events
  – Collaborate across ALL subspecialties
  – Educate physicians and patients
  – Generate evidence-based standard of care for safer office based practice

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“to promote patient safety in office-based surgery and to encourage collaboration, scholarship, physician and patient education”
Objectives

- Safety and Outcomes Research
- APSF grant: Smart Assistant technology
- HMS: Patient Safety Elective
- Future direction – OBA safety
Exponential growth

• Office-based surgery (OBS) has grown significantly in the last 30 years.

• Outpatient procedures (USA) expected to increase:
  - 129 million (2018) → 144 million (2023)
  - offices ~ 24-35% of the volume. (1,2)

• ~3x growth from 2005, ASA estimated 10 million office procedures. (3)


Safety and Outcomes Research
Office-Based Anesthesia: Safety and Outcomes

Fred E. Shapiro, DO,* Nathan Punwani, MD,† Noah M. Rosenberg, MD,‡ Arnaldo Valedon, MD,§ Rebecca Twersky, MD, MPH,∥ and Richard D. Urman, MD, MBA¶ (Anesth Analg 2014;119:276–85)

• Lack of randomized controlled trials
• Enhanced quality of care:
  – proper procedure and patient selection
  – provider credentialing
  – facility accreditation
  – patient safety checklists (cognitive aids)
  – professional society guidelines
Ambulatory Surgical Risk

A Comparison between office and other ambulatory practices: Analysis from the National Anesthesia Clinical Outcomes Registry

- 23 million Anesthesia cases, 2010 - 2014
- 180,000 office vs 4.6 million ASC
- Statistically significant differences in patient demographics, procedure types, and reported events
A Comparison Between Office and Ambulatory Practices: Analysis from the National Anesthesia Clinical Outcomes Registry
Samir R. Jani, MD, MPH, Fred E. Shapiro, DO, Hubert Kordylewski, James H. Diaz, MD, MPH, Alan D. Kaye, MD, PhD, Richard P. Dutton, MD, MBA, Richard D. Urman, MD, MBA

Most active specialties (2013)

Office-Based Cases

- Dental
- General
- OB/GYN
- Otolaryngol
- Ortho
- Anesth/Pain
- Eye
- GI

Ambulatory Cases

- Dental
- General Surg
- OB/GYN
- Otolaryngol
- Ortho
- Anesth/Pain
- Eye
- GI
The assessment of a growing mobile anesthesia practice from 2016 to 2019: A retrospective observational cohort study of 89,999 cases comparing ambulatory surgery (ASC) and office-based surgery (OBS) centers using a high-fidelity, anesthesia-specific electronic medical record (EMR)

Fred E. Shapiro DO, FASA1 | Brian H. Park MD2 | Tal S. Levy MD3 | Brian M. Osman MD4

- Retrospective data ~90,000 patients in growing anesthesia practice from 2016-2019
- Data extracted from administrative claims and electronic medical records
- Segregated into ASC and OBS

## ASC and OBS 2019 (Annualized)

<table>
<thead>
<tr>
<th>Volume</th>
<th>ASC</th>
<th>OBS</th>
<th>Total</th>
<th>% OBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Procedures</td>
<td>31,428</td>
<td>8,954</td>
<td>40,382</td>
<td>22.2%</td>
</tr>
<tr>
<td>Complication Rate</td>
<td>0.0727%</td>
<td>0.1268%</td>
<td>0.0847%</td>
<td></td>
</tr>
</tbody>
</table>
# ASC and OBS 2019 (Annualized)

<table>
<thead>
<tr>
<th></th>
<th>ASC</th>
<th>OBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td>52.6</td>
<td>58.5</td>
</tr>
<tr>
<td>Average ASA Status</td>
<td>2.10</td>
<td>2.24</td>
</tr>
<tr>
<td>Average Number of Procedures per MD per Year</td>
<td>661</td>
<td>167</td>
</tr>
<tr>
<td>Average Number of Procedures per Office per Year</td>
<td>4,490</td>
<td>176</td>
</tr>
</tbody>
</table>
# Most Common Procedures

## ASC vs OBS 2019

<table>
<thead>
<tr>
<th>Procedure Name</th>
<th>ASC</th>
<th>% of 2019 annualized Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract removal</td>
<td>38.9%</td>
<td></td>
</tr>
<tr>
<td>Epidural Steroid Injection (lumbar)</td>
<td>20.1%</td>
<td></td>
</tr>
<tr>
<td>Arthroscopy (shoulder)</td>
<td>13.8%</td>
<td></td>
</tr>
<tr>
<td>Arthroscopy (knee)</td>
<td>11.4%</td>
<td></td>
</tr>
<tr>
<td>Microdiscectomy (lumbar)</td>
<td>5.2%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedure Name</th>
<th>OBS</th>
<th>% of 2019 annualized Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonoscopy</td>
<td>17.3%</td>
<td></td>
</tr>
<tr>
<td>Prostate Biopsy</td>
<td>15.5%</td>
<td></td>
</tr>
<tr>
<td>Angiogram (upper extremity)</td>
<td>13.4%</td>
<td></td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>8.8%</td>
<td></td>
</tr>
<tr>
<td>Uterine Fibroid Embolization</td>
<td>7.8%</td>
<td></td>
</tr>
</tbody>
</table>
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”

- video /audio system to aid in real time decision making
- prevent and treat patient deterioration
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
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
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
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
- **Suggestion:** Field would benefit if everyone undertakes similar research
- **Develop and implement safe and efficient systems to optimize patient outcomes and minimize morbidity**