THE GROWING PRACTICE OF
DENTAL ANESTHESIOLOGY
AND SAFETY

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OBJECTIVES

• The audience will review the history of dental anesthesia
• The audience will be able to describe the various ways in which anesthesia is currently provided for dental care
• The audience will review safety guidelines for the practice of dental anesthesia
DISCLOSURES

• NO Financial Disclosure

• Have worked closely with American Academy of Pediatrics, California Society of Anesthesiologists, American Society of Dentist Anesthesiologists, California Society of Dentists Anesthesiologists on dental safety
Six-year-old boy dies getting tooth extracted

Posted: 6:48 PM, Mar 30, 2016  Updated: 1:02 PM, Apr 02, 2016
By: Robert Santos

10News Leader Award

• Why the heck was no-one doing anything????
SINGLE OPERATOR MODEL

• One “Anesthesia Permit Holder” directs and anesthesia and performs the surgery/procedure
• Dental assistant “monitors”
• Confusing and variable terminology

Finley dies after “oral moderate sedation”
HISTORY OF DENTAL ANESTHESIA

• 1990’s American Society of Dentist Anesthesiology
• New Dentist Anesthesiology Residency Programs
• OFMS residency now 6 years with 5 months of anesthesia + office based sedation
• Rise of the Single Operator/Surgeon Anesthetist/Anesthesia Team Model
DENTIST ANESTHESIOLOGIST

• 3 years of residency after dental school
• 8 Dental Anesthesia residencies in the USA
• 1 in Toronto
• American Dental Association’s National Commission on Recognition of Dental Specialties and Certifying Boards recognizes dental anesthesiology 2019

https://www.adba.org

https://www.ada.org/~media/CODA/Files/Dental_Anesthesiology_Standards.pdf?la=en
SURGEON/ANESTHETIST MODEL

- Oral surgeon or dentist perform procedure and anesthesia
- Dental assistants watch monitors
- Dental Assistants have minimal medical education and training

Salomen Barthos Jr.
SINGLE OPERATOR MODEL

• Dental Anesthesia Assistant National Certification Examination (DAANCE)

• 36 hours online education
### Table 1: Level of education required in Dental Paraprofessional Positions

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Basic</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Assistant</td>
<td>High School</td>
<td>On-the job</td>
</tr>
<tr>
<td>Dental Anesthesia Assistant (DAANCE)</td>
<td>High School, 6 months practice</td>
<td>On-line education (36 hours), National Examination</td>
</tr>
<tr>
<td>Dental Sedation Assistant (California only)</td>
<td>High School, 12 months practice</td>
<td>On site hands on and online education, (110 hours) State Examination</td>
</tr>
<tr>
<td>Dental Hygienist</td>
<td>2-4-year</td>
<td>Associate or Bachelor’s degree, National Certifying Exam</td>
</tr>
</tbody>
</table>
PROBLEM:

- Different standard of care and practice in dental sedation
- State to State variability
- Excessive morbidity and mortality
- Lack of transparency
CURRENT STATE IN DENTISTRY

• States do not track deaths or adverse events
  • Mandatory Reporting Death or Hospital Transfer, Report to the Dental Board of California within 7 days:
  • "(A) the death ... during the performance of any dental or dental hygiene procedure;
  • (B) the discovery of the death of a patient whose death is related to a dental or dental hygiene ...
  • (C) except for a scheduled hospitalization, the removal to a hospital or emergency center for medical treatment of any patient ...

https://www.saferanesthesia.com/california-dental-sedation-laws BPC Division 2, Chapter 4, Article 1, Section 1601.2
ANESTHESIA PERMIT HOLDERS?

- Oral Maxillofacial Surgeons
- Anesthesiologists, CRNAs, CAAs
- Dentist Anesthesiologist
- Dentist with “Anesthesia Permit”
WHAT IS THE INCIDENCE OF ADVERSE EVENTS?

• NO-ONE knows:
  • Oral and Maxillofacial Surgery National Insurance Company study: death or serious neurologic injury = 1:348,602
  • One death every 4-6 weeks

Pediatrics April 2018, VOLUME 141 / ISSUE 4 Family Partnerships Concerns Regarding the Single Operator Model of Sedation in Young Children

How safe is deep sedation or general anesthesia while providing dental care? J Am Dent Assoc. 2015 Sep;146(9):705-8.

**Table/Fig-1:**
Comparison of dental anaesthesia-related mortality rates since 1955 [2,8-29].

<table>
<thead>
<tr>
<th>Author</th>
<th>Type of anaesthesia</th>
<th>Death: People</th>
<th>Approximate mortality rate</th>
<th>Mortality rate per 100,0000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selkin [12]</td>
<td>General, Local</td>
<td>59:795627</td>
<td>1:124858</td>
<td>7.4</td>
</tr>
<tr>
<td>Lytle [17]</td>
<td>General</td>
<td>0:1285000</td>
<td>0:1285000</td>
<td>-</td>
</tr>
<tr>
<td>Coplasa [18]</td>
<td>General</td>
<td>56:14473000</td>
<td>1:258446</td>
<td>3.9</td>
</tr>
<tr>
<td>Lytle [19]</td>
<td>General</td>
<td>7:4700000</td>
<td>1:672000</td>
<td>1.4</td>
</tr>
<tr>
<td>D’Ermarto [20]</td>
<td>General, Sedation, Local</td>
<td>2:2082805</td>
<td>1:1000000</td>
<td>0.9</td>
</tr>
<tr>
<td>Flick [21]</td>
<td>General, Sedation</td>
<td>1:151355</td>
<td>1:151355</td>
<td>6.6</td>
</tr>
<tr>
<td>Nkansah [22]</td>
<td>General</td>
<td>4:2850000</td>
<td>1:767500</td>
<td>1.4</td>
</tr>
<tr>
<td>Hunter [23]</td>
<td>General</td>
<td>0:1126</td>
<td>0:11226</td>
<td>-</td>
</tr>
<tr>
<td>D’Ermarto [8]</td>
<td>General, Sedation</td>
<td>0:1588365</td>
<td>0:1588365</td>
<td>-</td>
</tr>
<tr>
<td>Lee [25]</td>
<td>General</td>
<td>0:22615</td>
<td>0:22615</td>
<td>-</td>
</tr>
<tr>
<td>Rodgers [26]</td>
<td>Sedation</td>
<td>0:2889</td>
<td>0:2889</td>
<td>-</td>
</tr>
<tr>
<td>Flick [27]</td>
<td>General, Sedation</td>
<td>2:115940</td>
<td>1:579790</td>
<td>17</td>
</tr>
<tr>
<td>D’Ermarto [9]</td>
<td>General, Sedation, Local</td>
<td>1:1723465</td>
<td>1:1733000</td>
<td>0.5</td>
</tr>
<tr>
<td>Brady [28]</td>
<td>Sedation</td>
<td>0:1167</td>
<td>0:1167</td>
<td>-</td>
</tr>
<tr>
<td>Rodgers [29]</td>
<td>Sedation</td>
<td>0:3320</td>
<td>0:3320</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>General, Sedation, Local</td>
<td>218:71435282</td>
<td>1:327684</td>
<td>3</td>
</tr>
</tbody>
</table>
• Started in 2005 as a component of the Society for Pediatric Anesthesia by Don Tyler MD

• The purpose of Wake up Safe is to improve processes of care and outcomes for newborns, infants, and children in the perioperative environment.
  • To define and measure Quality, and develop Quality Improvement Systems in Pediatric Anesthesia to develop ways of measuring quality in pediatric anesthesia care.
  • To provide data to allow research about adverse events in pediatric perioperative care.
  • Develop a registry, analyze and devise strategies to prevent adverse events in pediatric perioperative care.

• **Wake Up Safe estimate: 0 : ~2million**

http://wakeupsafe.org
PEDIATRIC SEDATION RESEARCH CONSORTIUM

• NO anesthesia or sedation related deaths or serious adverse events in 500,000 reported cases
• Adverse events did occur, but were safely managed
CALEB’S LAW

• [http://www.calebslaw.org](http://www.calebslaw.org)

Part 1:

1. Study by California Dental Board on Pediatric Dental Anesthesia Safety
2. Consent re different practice model
3. Epidemiological data collection
1. High quality pediatric outcomes **data**
2. Update definitions to follow ASA
3. Restructure the dental sedation and anesthesia permit system
4. Update equipment and records
5. Collect data that will allow the future study

https://www.dbc.ca.gov/formspubs/pediatric_recommendations.pdf
CALEB’S LAW

- [http://www.calebslaw.org](http://www.calebslaw.org)
- Part 2: Codifying CDB recommendations
  - Separate qualified provider
  - High quality data collection
Part 2: Codifying CDB recommendations

- separate qualified provider
- High quality data collection

Dental lobby prevails again: Grieving parents shelve Caleb’s Law rather than dilute it
WHY DIDN'T CALEB’S LAW PASS?

• Limits Access to Care
• “Oh there’s no proof that having a separate person providing sedation and anesthesia is actually safer in anesthesia “
GUIDELINES CHANGED!

- For Deep Sedation and General Anesthesia there must be one qualified independent anesthesia provider
- At least one other person who is PALS or APLES trained
“overly restrictive guidelines based on hyperbole, opinion, and fueled by emotion......will do significant harm by reducing access to care, by increasing cost, and limiting resources.
THE UNIQUE OMS ANESTHESIA TEAM MODEL HAS CONSISTENTLY BEEN PROVEN AS SAFE, EFFECTIVE AND AFFORDABLE..

- Mortality = 1:327,684
- 1 death every 4-6 weeks
OTHER ISSUES WITH DENTAL ANESTHESIA SEDATION

• Mykel received a “shot” from an anesthesiologist
• Did not wake up
Dental caries in kids are epidemic levels,
AAPD: tooth decay common chronic childhood disease
“the alarm went off an additional three to four times – each time silenced by the Kool Smiles staff member – until the staff member finally removed the monitor from Zion and stated that the device does not work on children,”
DENTAL ANESTHESIA INCIDENT REPORTING SYSTEM - DAIRS

- Voluntary
- “Modeled” on the Anesthesia Incident Reporting System
- No Denominator
- So far no data
“Prior to 2001 there is a strong correlation between the number of GA's per annum and deaths. Since 2001, when the UK government directed that all GAs for dentistry must be administered in a hospital with Intensive Care facilities the number of deaths per annum has reduced to nil.”
SO WHAT CAN WE DO?

• EDUCATE, EDUCATE EDUCATE
• COLLABORATE
• Urge good DATA Collection Tools,
• Strong NROA guidelines that apply to all practitioners and all location
• Use SoMe to spread the word @ritaagarwal6
Dental Sedation Kills 4-Year-Old Who Might Have Been Saved By A Toothbrush

November 10, 2011 By Paul C. McLean

5 y.o Dylan Dill Man
8 y.o Raven
5 y.o Diamond
Maddox 22 mos

5 y.o Jennifer
17 y.o Jennifer
51 y.o Corey
13 y.o Marissa