Anesthetic Emergency Training: 
In Situ Simulation Training with Staff

Tara Brantley, DMD, MD
Oral & Maxillofacial Surgery Resident, PGY-6
University of California, San Francisco
April 30th, 2023

A word from AAOMS committee on anesthesia member Dr. Deepak Krishnan who is with us this weekend conducting OBEAM training –

“It has been shown that regular practice of simulated emergencies in situ ‘in your own office’ is probably the best thing that you can do to prepare for airway emergencies. When you do a simulated scenario in your own practice, you figure out all kinds of kinks that happen in your practice.”

Dr. Krishnan provides sage advice that we should all heed. So how can you learn to provide effective simulation training in your own office?
**HOW TO BE PREPARED FOR AN EMERGENCY**

1. Develop an emergency preparedness plan, using checklists
2. Use cognitive aids in all protocols
3. Conduct simulations regularly with your entire staff

**EMERGENCY JOB ASSIGNMENTS**

1. Team leader (surgeon): establish a diagnosis, call assistance, manage the airway, oversee the entire team
2. Airway assistant: deliver positive pressure oxygen, assist with placement of airway adjuncts
3. Instrument assistant: pass airway adjuncts to the team leader, retrieve, prepare, and administer medications
4. Circulator: brings the crash cart, AED, etc, perform chest compressions
5. Administrative coordinator: fill out the 911 form and call 911
6. Scribe: record vital signs, events, meds administered, personnel in attendance

*All forms can be downloaded at [https://www.calaoms.org/Robert](https://www.calaoms.org/Robert)*
### EMERGENCY MEDICATION LOG

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>1000</td>
<td>2023-12-31</td>
</tr>
<tr>
<td>Item 2</td>
<td>500</td>
<td>2023-10-15</td>
</tr>
<tr>
<td>Item 3</td>
<td>200</td>
<td>2023-06-30</td>
</tr>
<tr>
<td>Item 4</td>
<td>100</td>
<td>2023-03-15</td>
</tr>
<tr>
<td>Item 5</td>
<td>50</td>
<td>2023-01-10</td>
</tr>
</tbody>
</table>

### MONTHLY CHECKLIST

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 01, 2023</td>
<td>Monthly Review</td>
<td>Completed</td>
</tr>
<tr>
<td>Jan 02, 2023</td>
<td>Equipment Check</td>
<td>Not done</td>
</tr>
<tr>
<td>Jan 03, 2023</td>
<td>Safety Inspection</td>
<td>Completed</td>
</tr>
<tr>
<td>Jan 04, 2023</td>
<td>Emergency Drill</td>
<td>Not done</td>
</tr>
<tr>
<td>Jan 05, 2023</td>
<td>Evacuation Drill</td>
<td>Not done</td>
</tr>
<tr>
<td>Jan 06, 2023</td>
<td>Communication Drill</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Emergency Drills Scheduled For: Familiarity DRILL 1, Familiarity DRILL 2, Scenarios 1-10.
EMERGENCY DRILLS

- **Familiarity drills**: staff members examine emergency equipment to learn how it works, while reading through emergency protocols outlining how it would be used in certain situations.
- **Scenario drills**: staff members simulate emergencies and the corresponding treatment together.

FAMILIARITY DRILLS

- An oropharyngeal airway placed behind the tongue
- An LMA being seated
FAMILIARITY DRILLS
### Familiarity Drills and Proficiency Checklist - Surg

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>01/04/19</td>
<td>BABYLEEN</td>
<td>ALEXIS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>02/08/19</td>
<td>BABYLEEN</td>
<td>JASON</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>04/05/19</td>
<td>BABYLEEN</td>
<td>ALEXIS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>05/05/19</td>
<td>BABYLEEN</td>
<td>JASON</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Tutorials for Emergency Training

#### Table of Contents

**Respiratory**
- Airway Evaluation........................................3
- Mallampati Classification...............................4
- Upper Lip Bite Test.................................6
- Spectrum of Airway Adjuncts..............................7
- Peak Flow Meter........................................9
- Inhaler Spacing Chamber..............................12
- Inhaler Adapter........................................14
- Bag-Valve-Mask........................................16
- Nasopharyngeal Airway.................................18
- Oropharyngeal Airway.................................21
- Laryngeal Mask Airway (LMA)............................24
- King LTD Airway.........................................27
- Esophageal-tracheal Combitube.........................30
- Endotracheal Intubation..................................33
- Management of Foreign Body..........................42
  - Chest Compressions................................43
  - Direct Laryngoscopy..................................44
  - Cricothyrotomy w/ the QuickTrach...................48
  - Cricothyrotomy the MeillerDevice...................49

**Cardiovascular**
- CPR.........................................................4
- Automated Electric Defibrillation....................5
- Dilution of Emergency Cardiovascular Drugs........5
- Preparation of Antiarrhythmic.........................6
- Amiodarone for Ventricular Tachycardia..............7
- Magnesium Sulfate for Torsades de Pointes........8
- Procainamide for V. Tachy

**Other**
- Along with CAB's..........................................9
- Glucometer.............................................10
- Post-Anesthetic Discharge Sy........................11
- Back-up Oxygen and Suction............................12
- Intravenous Access......................................13
- Pocket Mask............................................14
- Brokelow Tape..........................................15
SCENARIO DRILLS

EMERGENCY PREPAREDNESS DRILLS AND CE

<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Drill or CE</th>
<th>Description</th>
<th>In Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wed, May 21, 2023</td>
<td>Drill</td>
<td>Scenario Drill – Respiratory Emergencies</td>
<td>June, Jim, Steve</td>
</tr>
<tr>
<td>1:15pm</td>
<td>Drill</td>
<td>Scenario Drill – Respiratory Emergencies</td>
<td>June, Jim, Steve</td>
</tr>
</tbody>
</table>

Legend: DRILL = Scenario Drill, CE = Continuing Education Course

EMERGENCY ALGORITHM

Algorithms for the Management of Medical and Anesthetic Emergencies

Table of Contents

- Acute Adrenal Insufficiency .................................................. 3
- Acute Coronary Syndrome ....................................................... 5
- Angina .............................................................................. 6
- Myocardial Infarction ............................................................... 8
- Airway Obstruction ................................................................ 10
- The Tongue ......................................................................... 11
- Foreign Body ........................................................................ 13
- Persistent Obstruction.............................................................. 13
- Cricothyrotomy (Cricotom) ...................................................... 14
- Allergic Reaction .................................................................. 15
- Bronchoscopy / Asthma ............................................................ 17
- Cardiac Dysrhythmia ................................................................ 19
- Bradycardia ........................................................................ 20
- Sinus Tachycardia .................................................................. 21
- Tachycardia-Unstable ............................................................. 24
- Tachycardia-Stable ................................................................. 26
- VT/VT : Pulseless V. Tach .......................................................... 28
- Asystole / PEA ...................................................................... 30
- Asystole / CPR ...................................................................... 32
- Delayed Emergence from Anesthesia ....................................... 34
- Emezia and Aspiration .............................................................. 36
- Hypertensive Crisis .................................................................. 38
- Hypoventilation ...................................................................... 40
- Hypotension .......................................................................... 42
- Insulin Shock / Hypoglycemia ............................................... 44
- Intra-Arterial Injection .............................................................. 46
- Laryngospasm ....................................................................... 48
- Local Anesthetic Overdose ...................................................... 50
- Malignant Hyperthermia ........................................................... 52
- Respiratory Depression – Overdose ......................................... 54
- Seizure ............................................................................... 56
- Stroke (CVA) ......................................................................... 58
- Syncope ............................................................................... 60
- Appendix ............................................................................... 62

1. The Autonomic Nervous System ........................................... 63
2. Dilution of Emergency Drugs ............................................... 66
3. Esmolol or Severe Hypertension ............................................ 68
4. Antidote for Ventricular Tachycardia .................................... 70
5. Magnesium Sulfate for Torques de Pointes ......................... 71
6. Procainamide for V. Tachycardia ......................................... 72
7. In-line Inhaler Adapter .......................................................... 73
8. Cricothyrotomy .................................................................... 74
9. In-line Inhaler Adapter .......................................................... 75
10. Quick Trash It .................................................................... 75
11. Mallor Device ..................................................................... 77
12. Safe Doses of Local Anesthetics .......................................... 80
13. Important Drug Interactions of Anaesthetics ...................... 81
14. Important Alternative Herbal Medication ......................... 82
LARYNGOSPASM

DIAGNOSIS:

↑↓ Respiratory effort and ↓↑ exchange, early "crowing", with complete spasm – no sound, suprasternal retraction

POSITION:

Semi-reclining, be prepared to place patient in Trendelenburg

TREATMENT:

1. 100% O₂ – nasal mask
2. Pack surgical site and suction
3. Push on chest and listen,
4. Positive pressure O₂ stimulation in the "laryngospasm-notch"
5. a. Succinylcholine –10 mg IV for partial, 20-40 mg for complete spasm or barrel chest & ventilate, or
   b. Rocuronium – 0.6 – 1.2 mg/kg IV (duration is 20 – 60 min., but it can be reversed within 3 – 5 min. with sugammadex 4 mg/kg).
6. If succinylcholine utilized, monitor for dysrhythmia, bradycardia, pulmonary edema

911 CALL

Date: 6-27-07 Time: 9:31am

Our Address: 123 Fairview Ln.
Omaha, WA 53102

Our Phone #: 402-954-6237

Patient’s Age: 58 M ☐ F ☐

Type of medical emergency: laryngospasm

Patient conscious? Yes ☐ No ☐

Patient breathing? Yes ☐ No ☐ labored

Medications given: intravenous general anesthesia

Pertinent medical history: asthma with bilateral & Singular; smoker, previous MI.

Emergency treatment currently underway: sujidal. Given

Any other questions?:

Come to back door of suite – someone will be waiting to let you in.

Person making call: Copenhagen
DEBRIEFING
QUESTIONS?

THANK YOU

• Special thanks to Dr. Rich Robert for his assistance with the filming and presentation material
• Feel free to email any questions to: tara.brantley@ucsf.edu