Deliberately Delivering a DASH of DSI:  
*Re-Considering RSI for ETI*

Peter Antevy MD
First, the Facts
Coral Springs – Parkland

- 160,000 Residents
- 43 Square Miles
- 15,000 calls/year
RSI Launched 1 Year Ago
Delayed Sequence Intubation

Study Primary Outcome: **Hypoxia** from 1 min pre-paralytic to 1 min post paralytic.

- **DSI**
  - Ketamine
  - Goal Directed Pre-Oxygenation
  - 3 Min of Sats > 93%
  - Rocuronium
  - Intubation

- **RSI**
  - NRB
  - Ketamine + Rocuronium
  - Apneic Oxygenation
  - Intubation

**Figure**. Waterfall plot.

44% 3%
Pre-Course Preparation

Prior to today’s training you should have reviewed the following:

1. EMS World Cover Story - Jan 2019
2. DSI Paper by Dr. Jarvis - Annals of EM
3. DSI talk by Dr. Weingart - YouTube
4. PEEP valve video - YouTube
5. WILCO DSI Video - YouTube
DSI Steps

- Preparation (Gear and Medications)
- DRUG: Pretreatment (Ketamine)
  - EtCO2 must be added here
  3 minute pause – Sats > 93%
- Pre-oxygenation (BVM+PEEP/NRBM/NC)
- DRUG: Paralysis (Rocuronium)
  - If Needed
- Airway Management
# Coral Springs Parkland FD DSI Checklist

**Roles**
- Identify the Lieutenant
- Identify the airway operator
- Identify who will hold the BVM

<table>
<thead>
<tr>
<th>Pre-procedure</th>
<th>Equipment</th>
<th>PROTECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-lead ECG in place</td>
<td>Pre-oxygenation assembly: BVM, HME, ETCO₂, PEEP, CPAP mask (optional)</td>
<td>Pt’s ears to sternal notch</td>
</tr>
<tr>
<td>SPO₂ in place w/good pulse wave</td>
<td>Intubation kit</td>
<td>Raise the mandible</td>
</tr>
<tr>
<td>ETCO₂ w/ every breath</td>
<td>King Vision camera (Test blade &amp; screen before intubation)</td>
<td>OPA/NPA</td>
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<tr>
<td>Accurate blood pressure</td>
<td>Stop watch</td>
<td>Thumbs down masking</td>
</tr>
<tr>
<td>Consider early Ketamine</td>
<td>Suction</td>
<td>ETCO₂ w/ every breath</td>
</tr>
<tr>
<td>PROTECT</td>
<td>C-collar</td>
<td>Check PEEP/Oxygen</td>
</tr>
<tr>
<td></td>
<td>GaU readily available</td>
<td>Tension/Distension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Raise head of bed to be elevated at least 15° and pad under shoulders/neck</td>
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*If Needed*

## Sedation and Pre-oxygenation
- Correct Hypotension with fluids and pressors
- Administer Ketamine 200 mg IVP/IO
  - Pre-intubation ETCO₂
  - Post-ketamine, pre-intubation respiratory rate
- Replace ETCO₂ cannula with standard nasal cannula at max flush rate.
- Perform 2-handed mask seal w/pre-oxygenation assembly & set PEEP to at least 5 cm/H₂O
  - Adequate breathing & SPO₂ > 94%: BVM seal with NO ventilations
  - Adequate breathing & SPO₂ < 94%: BVM seal with NO ventilations AND increase PEEP
  - Inadequate breathing: BVM seal with ventilations
- Maintain SPO₂ > 94% for at least 3 minutes
  - Use stopwatch to record pre-oxygenation duration
  - Time SPO₂ > 94%
- Administer Rocuronium 100 mg IVP/IO & wait at least 90 seconds or until paralysis is achieved
  - Time Rocuronium administered
Step #1 - Positioning
Step #2 – Give Ketamine

1. Administer Ketamine
2. Upon Dissociation apply **BVM + PEEP**
   - Start PEEP at 5 mmHg
3. Use adjunct as needed
4. Crank up the NC as far as it goes
   - “Flush”
The Tower of Power

- PEEP Valve
- Do Not Squeeze Unless Necessary
- Waveform Capnography
- 2-Handed Bag Technique
- Nasal Cannula @flush
Step #3 – Goal-Directed O2 Saturation

1. Obtain O2 saturation of > 93% for minimum of 3 minutes
   – Put O2 sat probe on diff. extremity than the BP cuff

2. Begin stopwatch to ensure full 3 minutes > 93%

Why 3 minutes?
• Adequate pre-oxygenation
• Achieves nitrogen wash-out
Step #4 – Give Rocuronium

1. Gently squeeze BVM 1X every 6 seconds
2. Wait 90 seconds for full relaxation then intubate

What if Sats Drop (<94%) after Paralysis?
- **Abort** tube placement
- Use methods to increase saturation
  1. Gently ventilate (BVM+PEEP)
  2. Airway adjuncts
  3. i-Gel
  4. Cricothyrotomy if needed
Step #5 – Intubate

- 10 YR to Adult – Use Video Laryngoscopy
  – (Review Wilco Video)
- **Maximum** of 2 Attempts – then move to i-gel
Definitive Airway Sans Hypoxia

DASH vs. First Pass Success
This is a post DSI form to be filled out by the Lieutenant on the call. This form is for CQI purposes only.
Summary

• Abandon RSI
• DSI Checklist
• Psychological Barriers
• Follow Your Data

• Thank you Jeff Jarvis!
LIVE UPDATE
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