**Improving Intubation Success**

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**Just Another Airway... Yawn**

- So what if I don't get it on the first pass...
  I can just give it another try!

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**Adverse events with multiple attempts**

- One attempts 14.2%
- Two attempts 47.2%
- Three attempts 63.6%
- Four attempts 70.6%


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**Decision Point**

**Is Airway Management Indicated?**

- Indications for intubation
  - Inadequate oxygenation
  - Inadequate ventilation
  - Unable to protect airway
  - Anticipated clinical course

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**Decision Point**

**Is Noninvasive Ventilation an Option?**

- What is the underlying process?
- Obesity hypoventilation syndrome?
- Congestive heart failure?
- COPD?
- Asthma?
- End of life?
- Is the patient awake enough?
- Can the patient cooperate with NIV?

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**Decision Point**

**Are There Potential Airway Problems?**

- Does this patient have a difficult airway?
  - Difficult BVM?
  - Difficult laryngoscopy?
  - Difficult extraglottic devices?
  - Difficult surgical airway?
Decision Point
Are There Potential Airway Problems?

- Does this patient have a difficult airway?
  - Difficult BVM?
  - M Mask seal / Male / Mallampati
  - O Obstruction / Obesity
  - A Age (over 55 years)
  - N No teeth
  - S Stiff / Snoring

- Does this patient have a difficult airway?
  - Difficult laryngoscopy?
  - L Look externally
  - E Evaluate the 3-3-2 rule
  - M Mallampati
  - O Obstruction / Obesity
  - N Neck mobility

- Does this patient have a difficult airway?
  - Difficult extraglottic devices?
  - R Restricted mouth opening
  - O Obstruction / Obesity
  - D Disrupted or distorted airway
  - S Stiff

- Does this patient have a difficult airway?
  - Difficult surgical airway?
  - S Surgery (recent or remote)
  - M Mass
  - A Access / Anatomy
  - R Radiation (deformity / scarring)
  - T Tumor

Decision Point
Going to Use RSI?

- P = Preparation
- P = Preoxygenation
- P = Pretreatment
- P = Paralysis with induction
- P = Protection
- P = Placement of the tube
- P = Post-intubation management

Using RSI?
The Timeline

- Zero minus 10 minutes Prepare
- Zero minus 5 minutes Preoxygenate
- Zero minus 3 minutes Pretreat
- **Time ZERO** Paralysis with induction
- Zero plus 30 seconds Protection
- Zero plus 45 seconds Placement
- Zero plus 90 seconds Post-intubation management
Decision Point
Can You Optimize RSI?

- P = Preparation
  - The Patient
  - The Equipment
  - The Personnel
  - Yourself

Decision Point
Can You Optimize RSI?

- P = Preparation
  - The Patient
  - Positioning is key

Position
- Alignment of the three axes is critical
- A common problem in missed intubations
- Landmarks: Align external auditory canal with sternal notch
**Decision Point**
**Can You Optimize RSI?**

- **P = Preparation**
  - What is the patient morbidly obese?
  - Ramp 'em up!

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**Before...**

**After.....**

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**Decision Point**
**Can You Optimize RSI?**

- **P = Preparation**
  - The Equipment
  - Know and prepare your own equipment
  - Always have at least one backup ready
    - Bougie
    - Extraglottic device
    - Videoscopic device
    - Surgical/percutaneous airway
<table>
<thead>
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<th>Decision Point</th>
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<td>- Make sure everyone knows what they are doing</td>
<td>- Troubleshoot the intubation</td>
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<td>- Be sure you take charge</td>
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**Diagram:**

- Graph showing the relationship between time and SpO2 levels for different scenarios.
Decision Point
Can You Optimize RSI?

- **P** = Preoxygenation
  - NRB mask on all spontaneously ventilating patients
  - 3-4 minutes - that's all you get
  - Assisted ventilation may maximize oxygen delivery
  - BVM for 8 vital capacity breaths if not breathing spontaneously
  - Can we do anything more?

Decision Point
Can You Optimize RSI?

- **P** = Preoxygenation
  - Positive pressure oxygen delivery?
  - Position during preoxygenation?
  - Apneic oxygenation?

Decision Point
Can You Optimize RSI?

- **P** = Preoxygenation
  - Positive pressure ventilation
    - Consider NIV, CPAP, PEEP on BVM during onset of muscle relaxation if unable to achieve saturation 93-95% without it - but use with care
  - Position
    - Head of bed elevation / reverse Trendelenberg

Decision Point
Can You Optimize RSI?

- **P** = Pretreatment
  - L Lidocaine
  - O Opioids
  - A Atropine
  - D Defasciculation

Decision Point
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Decision Point
Can You Optimize RSI?

- **P** = Preoxygenation
  - Apneic oxygenation
    - Nasal cannula at 15 L/minute
    - Maintains oxygenation better than without it
    - Put nasal cannula on patients from the get go, then turn up rate as patient is induced and paralyzed
    - Note: Highly consider using nasal airways and using jaw thrust as the patient is paralyzed

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Decision Point
Can You Optimize RSI?

- P = Paralysis with induction
  - Succinylcholine vs. rocuronium
  - Bottom line:
    - Sux onset faster, duration shorter
    - Roc in higher doses similar onset, longer duration
    - No concern about serious sux side effects if using roc
    - Studies suggest both have similar first attempt success rates—just make your choice thoughtfully

Decision Point
Can You Optimize RSI?

- P = Protection
  - Everyone should have the Sellick maneuver, right?
  - Not any more.
    - Cricoid pressure may worsen glottic view
    - Especially in women
    - Release of cricoid often improves view (up to 50% of the time)

Decision Point
Can You Optimize RSI?

- P = Placement of the tube
  - BURP
    - Backward, Upward, Rightward Pressure on the thyroid cartilage
    - It works, but can we improve on it?

Decision Point
Can You Optimize RSI?

- P = Placement of the tube
  - Bimanual laryngoscopy
    - Visualize the cords with direct laryngoscopy
    - Reach around and manipulate the thyroid cartilage to maximize visualization of the glottis
    - Have an assistant hold airway in that position
**Decision Point**
Can You Optimize RSI?

- P = Placement of the tube
- Don’t forget the simple stuff
  - Have someone pull the right side of the patient’s mouth open for you
  - Using the straight blade? Consider rotating it counterclockwise a bit to improve room in the mouth

**Decision Point**
Can You Optimize RSI?

- P = Post-intubation management
  - Don’t forget to sedate
  - Consider restraints to prevent extubation
  - Continued paralysis may be necessary in some patients (depending on underlying processes)

**Can We Improve Intubation Success?**

- Meticulously adhere to the steps of intubation
- Know how to
  - Maximize positioning
  - Preoxygenate / denitrogenate
  - Use medications optimally
  - Employ adjunctive devices
  - Prevent extubation

*Thank you for your attention!*

*Any questions?*