Yes MAAM, No MAAM: Clinical Decision Making for Rapid Sequence Induction Intubation

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MAAM Procedure Defined (Medically Assisted Airway Mgmt)

- Consists of:
  
  - The administration of a neuromuscular blocking agent and an induction agent to facilitate airway management in a controlled manner.
The Purpose of MAAM

• To facilitate endotracheal intubation in specific situations

• To improve ventilation and oxygenation

• Does NOT replace critical attention to the basic ABCs!
WHEN IS MAAM INDICATED?

• Patients with an **intact gag reflex** who are unable to protect their own airway **and** are not ventilating themselves effectively **and** can not be ventilated effectively through BLS skills.

• Patients who are ineffectively ventilating and are combative (typically following an acute traumatic brain injury.)
Combativeness / gag reflex does not necessarily equal inability to ventilate!

- Patient positioning (open the airway)
- High flow oxygen
- Bag valve mask ventilations (PEEP valve)
- OPA/NPA
- NIPPV
- Consider reversible causes of hypoxia
USE YOUR JUDGEMENT…

• Three questions that need to be answered before MAAM:
  – Is there a failure of airway maintenance or protection?
  – Is there a failure of oxygenation or ventilation?
  – Is there an anticipated need for MAAM during the time you are managing the patient?
Medically Assisted Airway Management (MAAM) Clinical Decision Pathway

Clinical decision pathway that is to be used in performing complex airway management, and determining whether a patient is a candidate for MAAM.
USE YOUR JUDGEMENT…

“The first thing they’re going to do in the STAB room is intubate this patient.”

…is not reason alone to perform MAAM on your patient.
USE YOUR JUDGEMENT...

• Unless **severe** airway compromise…

• **Consider** your proximity to **ANY** facility with additional advanced management capabilities…

• **Consider** “scoop and run” while performing BLS airway interventions while enroute to hospital.
  – “scoop and run” does not mean compromising ABC’s
PREPARATION

1. Restraints, if needed
2. IV/IO access
3. EKG monitor
4. SpO2 monitor
5. ETCO2 monitor
6. NIBP
7. Suction
8. BVM
9. Backup airway
10. PPE
PRE-OXYGENATION

NASAL OXYGEN DURING EFFORTS TO SECURE THE AIRWAY

• Apply a nasal cannula at 15 lpm prior to medication administration and maintain the flow at 15 lpm during the entire procedure until the invasive airway is placed and confirmed.
**NO DESAT Principle**

- **Preoxygenation:** Goal is to achieve an SpO2 greater than 98% and displace nitrogen with oxygen prior to attempting invasive airway placement.
- For patients who are breathing adequately, use a high flow partial rebreather mask (15 lpm) or NIPPV (5-15 cm H2O pressure) for 2-5 minutes prior to sedation.
- For apneic patients, use a BVM (15 lpm) for 2-5 minutes prior to sedation. A PEEP valve (5-15 cm H2O pressure) may also be used if available.
- Consider Ketamine (0.5-2.0 mg/kg IV/IO) for dissociation in patients who may not tolerate pre-oxygenation attempts.
PROCEDURE

• Pre-oxygenate
• NO DESAT (nasal oxygen during efforts securing a tube)
• Pre-medicate (if indicated)
• Sedation
• Paralysis
• Insert invasive airway
• Post-intubation care
Manual Ventilation: Dyad of Harm

Hyperventilation

Inadvertant Ventilatory Inattentiveness

Over-ventilation
Manual Ventilation: Dyad of Harm

- Hyperventilation
  - Bagging faster than one breath every six seconds (>10 bpm)

- Over-ventilation
  - Squeezing the bag too hard/too aggressively/too deeply

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<thead>
<tr>
<th>Condition</th>
<th>Effect 1</th>
<th>Effect 2</th>
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<tbody>
<tr>
<td>High airway pressure</td>
<td>↑ JVP</td>
<td>↑ ICP</td>
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<tr>
<td>Decreased venous return</td>
<td>↓ Cardiac output</td>
<td>↓ Cerebral perfusion</td>
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<tr>
<td>Alveolar damage</td>
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<td>↓ ARDS</td>
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Yes MAAM, No MAAM

- Evaluate your patient's airway.
- Exercise situational awareness.
- Remember BLS skills!
- Have a plan (MAAM Decision Pathway)!
- Same preparation/protocol for every patient.
- Continue to oxygenate your patient.
- Beware the dangers of hyperventilation and overventilation.
QUESTIONS?

The King with the King, demonstrating the proper technique

MOST PLACES WOULD CALL THIS A Crippling Snowstorm

IN MINNESOTA WE CALL IT Thursday