Protocol Name: Delayed Sequence Intubation Respiratory Therapy Urban Central Region Protocol

Procedure Information:

Implements Policy: <Enter Policy Name>

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Date Created:	mm/dd/yy		
Date of Final Draft:	mm/dd/yyyy	**Who will Review?**	
Revision Date:	mm/dd/yyyy		<Committee Name> <Committee Name
Keywords (must have at least 3):		**Who will Approve?**	<Name, Title, Dept>

Purpose

Preoxygenation and prevention of desaturation during emergency airway management.
To allow preoxygenation of a delirious patient from hypoxia and hypercapnia, or difficult airway management patient, prior to intubation.

Final draft of this document must be submitted to a Corporate Policy Consultant:
Cindy Richards – patient care documents;
Sharon Harned – business documents.

Scope

Urban Central Region Facilities

Definitions

Protocol

1. Rationale

    1.1 Allows safety buffer during period of hypoventilation and apnea.

    1.2 Extends the duration time of safe apnea, which is defined as the time until a patient reaches a saturation level of 90 to 95%, to allow the placement of a definitive airway.

2. Potential Complications

    2.1 Aspiration

    2.2 Gastric Distention

3. Exceptions

    3.1 Cardiac or Respiratory Arrest

    3.2 Spinal Cord Injuries

    3.3 Facial Trauma

4. Advantages

    4.1 Allows preoxygenation of a delirious patient from hypoxia and hypercapnia, prior to intubation.

    4.2 Prevents critical tissue hypoxia during tracheal intubation.

5. Equipment

    5.1 Nasal Cannula

    5.2 Non-rebreather mask

5.3 ETCO2 monitor

5.4 Ventilator

5.5 Non-vented mask with straps

5.6 10cc syringe

5.7 Bag Valve Mask (BVM) with adjustable PEEP valve

5.8 2 O2 flow meters or tanks

5.9 Tape and ties

6. Protocol

6.1 Preoxygenation Period

6.1.1 Position the patient in a semi-recumbent position (=20 degrees) or in reverse trendelenberg. Position (ramping) the patient's head in the ear to sternal notch position using padding if necessary.

6.1.2 Place the nasal cannula on the patient with the flow turned to 10 lpm.

6.1.3 Also place the patient on a non-rebreather facemask at maximal flow.

6.1.4 Set ventilator per disease treatment guidelines (found on the ventilator goal card in secondary materials) for both CPAP and Assist Control ventilation modes so transition is made easily.

6.1.5 If the patient is not oxygenating (SpO2>90%), remove the face mask and switch to non-invasive CPAP using the ventilator in invasive CPAP mode, non vented mask and straps, or BVM with PEEP valve.

6.1.6 Patient may require initial dose of Ketamine 1mg/kg IV to tolerate CPAP.

6.1.7 Titrate CPAP between 5-15 cm H2O to achieve an oxygen saturation > 95%. Titrate based on patients hemodynamic status.

6.1.8 Allow patient to breath at tidal volume for 3 minutes or ask the patient to perform 8 maximal exhalations and inhalations.

6.1.9 Attach the BVM to an oxygen source for back up. If the patient required CPAP for preoxygenation, attach the adjustable PEEP valve to the BVM set at the patient's current CPAP level on the ventilator.

6.2 Apneic Period:

6.2.1 Push sedative, hypnotic and paralytic

6.2.2 Remove the face mask from the patient and detach from the oxygen flow meter.

6.2.3 Increase the flow of the nasal cannula to 15 lpm.
6.2.3.1 In settings with one oxygen flow meter, connect cannula at 15 lpm immediately after removing face mask from patient. In settings with two oxygen flow meters, increase the flow to 15 lpm.

6.2.4 Perform a jaw thrust to maintain pharyngeal patency.

6.2.5 If the patient is high risk leave on CPAP.

6.3 Intubation Period:

6.3.1 Leave the nasal cannula on throughout the airway management period to maintain apneic oxygenation.

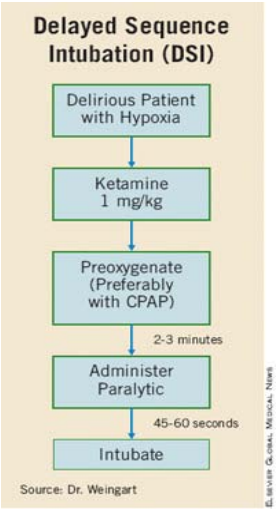
Primary Sources

Secondary Materials

A video demonstrating the above concepts is available online at: http://blog.emcrit.org/misc/preox/.

Weingart SD. Preoxygenation, reoxygenation, and delayed sequence intubation in the emergency department. J. Emerg. Med. 2010 Apr 7.

Recommended Guidelines for Treatment of High Risk Respiratory Patient, Procedure. Link



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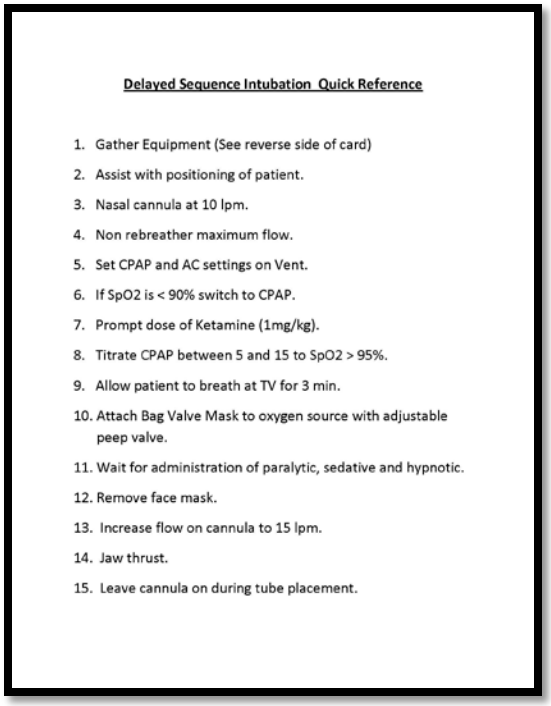
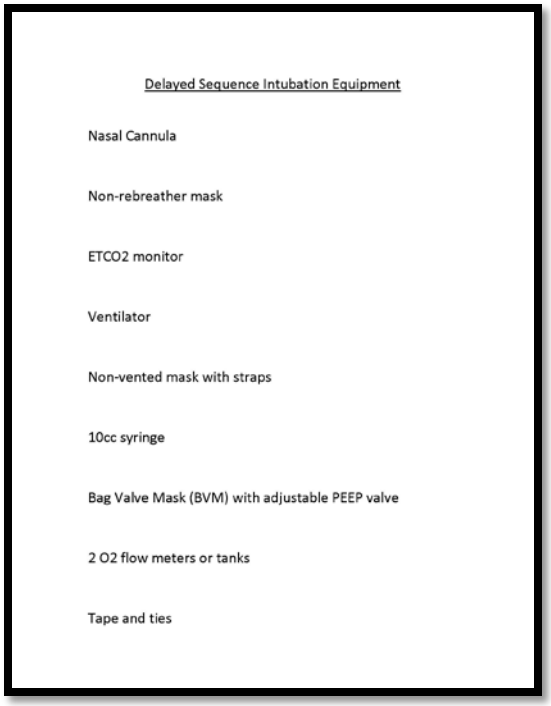
Respiratory Therapy Urban Central Region Protocol

Dlayed Sequence Intubation Quick Reference



Delayed Sequence Intubation Quick Reference

1. Gather Equipment (See reverse side of card)
2. Assist with positioning of patient.
3. Nasal cannula at 10 lpm.
4. Non rebreather maximum flow.
5. Set CPAP and AC settings on Vent.
6. If SpO2 is < 90% switch to CPAP.
7. Prompt dose of Ketamine (1mg/kg).
8. Titrate CPAP between 5 and 15 to SpO2 > 95%.
9. Allow patient to breath at TV for 3 min.
10. Attach Bag Valve Mask to oxygen source with adjustable peep valve.
11. Wait for administration of paralytic, sedative and hypnotic.
12. Remove face mask.
13. Increase flow on cannula to 15 lpm.
14. Jaw thrust.
15. Leave cannula on during tube placement.



Delayed Sequence Intubation Equipment

Nasal Cannula

Non-rebreather mask

ETCO2 monitor

Ventilator

Non-vented mask with straps

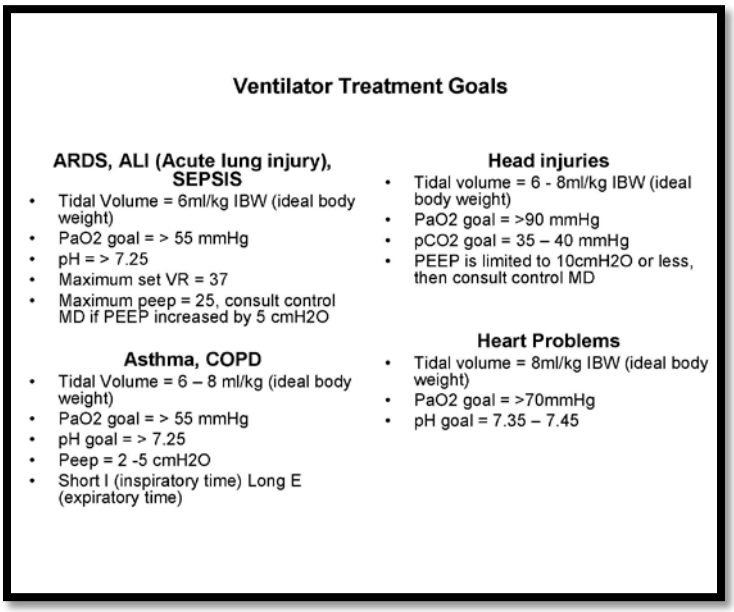
10cc syringe

Bag Valve Mask (BVM) with adjustable PEEP valve

2 O2 flow meters or tanks

Tape and ties

Ventilator Treatment Goals



Ventilator Treatment Goals

ARDS, ALI (Acute lung injury), SEPSIS

- Tidal Volume = 6ml/kg IBW (ideal body weight)
- PaO2 goal = > 55 mmHg
- pH = > 7.25
- Maximum set VR = 37
- Maximum peep = 25, consult control MD if PEEP increased by 5 cmH2O

Asthma, COPD

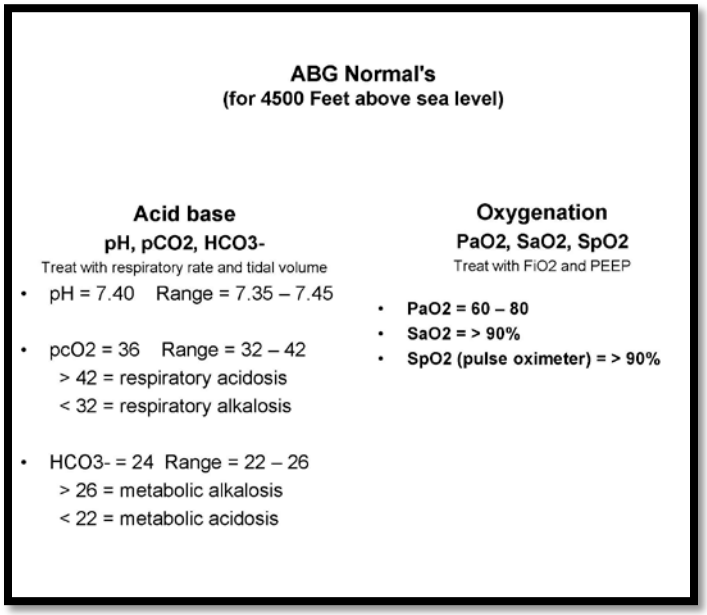
- Tidal Volume = 6 – 8 ml/kg (ideal body weight)
- PaO2 goal = > 55 mmHg
- pH goal = > 7.25
- Peep = 2 -5 cmH2O
- Short I (inspiratory time) Long E (expiratory time)

Head injuries

- Tidal volume = 6 - 8ml/kg IBW (ideal body weight)
- PaO2 goal = >90 mmHg
- pCO2 goal = 35 – 40 mmHg
- PEEP is limited to 10cmH2O or less, then consult control MD

Heart Problems

- Tidal volume = 8ml/kg IBW (ideal body weight)
- PaO2 goal = >70mmHg
- pH goal = 7.35 – 7.45



ABG Normal's
(for 4500 Feet above sea level)

Acid base
pH, pCO2, HCO3-
Treat with respiratory rate and tidal volume

- pH = 7.40 Range = 7.35 – 7.45
- pcO2 = 36 Range = 32 – 42
  > 42 = respiratory acidosis
  < 32 = respiratory alkalosis
- HCO3- = 24 Range = 22 – 26
  > 26 = metabolic alkalosis
  < 22 = metabolic acidosis

Oxygenation
PaO2, SaO2, SpO2
Treat with FiO2 and PEEP

- **PaO2 = 60 – 80**
- **SaO2 = > 90%**
- **SpO2 (pulse oximeter) = > 90%**

*** Use of this protocol does not replace clinical judgment.

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