NEBRASKA
EMERGENCY MEDICAL SERVICES
MODEL PROTOCOLS
Rapid Sequence Intubation Protocol Revision

SERVICE NAME

With the approval of the Physician Medical Director, the service has adopted the following protocols

____________________
Date Approved

____________________
Physician Medical Director

____________________
Agency Head

Protocol Addendum Instructions

Rapid Sequence Intubation Protocol – Paramedic Level Providers Only
Revision July 19, 2012
RSI Decision Making Algorithm

**Patient Meets At Least One Indication Criteria**
- GCS ≤ 8
- Patient Unable to Protect Airway With or Without Trismus
- Respiratory Failure/ Rapidly Decreasing Respiratory Status
- Head Injuries, Major CVA with Decreased LOC and Inability to Protect Airway
- Impending Airway Compromise

**Risk vs Benefit – Incident Assessment Considerations**
- Delay of RSI will lead to Aspiration, Respiratory Collapse, and/or Hypoxia
- Distance/Time to Receiving Hospital is Extended/Short Scene/Transport Times
- Scene is Such That Rapid Transport is Delayed  Rarely Require RSI

**Risk vs Benefit – Difficult Intubation Assessment Considerations**
- This Factors all Increase the Risk of An Unsuccessful of Procedure
- Pediatric Patients  Bariatric Patients  Entrapped Patients
- Decreased Visualization of Uvula
- Mouth Opening Under Three Fingers Widths
- Tip of Chin to Neck without Displacing Tissue under Three Finger Widths
- Base of Mandible to Hyoid without Displacing Tissue under Three Finger Widths

**Skill Level**
- Skill Level of Provider(s) Are Adequate for This Patient

**Backup Advanced Airway Options Available**
- An Advanced Non-Visualized Airway of the Appropriate Size for the Patient is Immediately Available
- A Surgical or Needle/Percutaneous Cric Setup is Immediately Available

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Yes - Patient Meets Criteria  No - Patient Does Not Meet Criteria

Yes - Risk Benefit Acceptable  No – Risk vs. Benefit is Unacceptable

Yes - Risk Benefit Acceptable  No – Risk vs. Benefit is Unacceptable

Yes – Provider Criteria Met  No – Provider Criteria Not Met

Yes – Back Up Criteria Met  No – Backup Criteria Not Met

Consider RSI Procedure  Do Not Perform RSI Procedure
The paramedic may consider RSI for patients of sufficient size and/or age in which the paramedic has immediately available a correctly sized advanced non-visualized airway to be used in event the intubation procedure fails.

### Rapid Sequence Intubation Protocol

**Rapid Sequence Intubation – Paramedic Level Providers Only**

**Revision** July 19, 2012

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**Rapid Sequence Intubation Procedure**

<table>
<thead>
<tr>
<th>Criteria For Procedure</th>
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<tbody>
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<td>• GCS ≤ 8</td>
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<td>• Head Injuries, Major CVA with Decreased LOC and Inability to Protect Airway</td>
</tr>
<tr>
<td>• Impending Airway Compromise – Such as Airway Burns, Edema, Trauma to Larynx</td>
</tr>
</tbody>
</table>

**Assess and Monitor**

- For Difficult Airway – Intubation
- Risk vs. Benefit of Procedure
- Monitor Patient’s Vital Signs
  - Pulse, BP, Respiratory Rate
  - Pulse Oximetry, EtCO2-Capnography, Cardiac Rhythm

**Prepare**

- Intubation Equipment and Select Tube Size
- Alternate Correctly Sized Non-visualized Advanced Airway Available
  - If Alternate Advanced Airway is Not Available – DO NOT Attempt Procedure
- Surgical or Needle Cricothyrotomy Equipment Available
- At Least Two Intubation Qualified Persons Are Available
- Suction Available
- Establish IV or IO Access

**Oxygenation**

- Pre – Oxygenate with 100% FiO2 for 2-3 minutes By BVM
  - Consider Cricoid Pressure – Sellick’s Maneuver
- OR Pre-Oxygenate with 100% FiO2 for 5 minutes by Non Rebreather Mask

**Pre-Sedation/Induction Medication Considerations**

- For Signs and Symptoms/ High Index of Suspicion of Increased ICP
  - Consider Lidocaine 1.0-1.5mg/kg
- For Pediatric Patients
  - Consider Atropine 0.01 to 0.02mg/Kg to a maximum of 0.5mg
- When Using Ketamine as Sedative/Induction Agent
  - Consider Atropine 0.01 to 0.02mg/Kg to a maximum of 0.5mg for Pediatric Patients
  - Consider Atropine 0.5 mg for Adult Patients

**Administer Sedation/Induction Agent**

- Administer Sedative/Induction Agent – See Chart

**Administer Paralytic Agent**

- Administer Succinylcholine
  - 1.5 mg/kg IV/IO – Adult
  - 2.0 mg/kg IV/IO – Small Children
- May Consider Rocuronium 0.6 – 1.0mg/kg When
  - Succinylcholine is Contra-indicated
  - Succinylcholine is Unavailable
  - OR PMD has authorized Rocuronium As Primary Agent

**Assess**

- For Jaw Relaxation and Apnea
- Decreased Resistance to BVM Ventilations

**Intubation**

- Perform Oral Intubation
- If NOT Successful in 15 Seconds Perform BVM Ventilation and Reattempt
- If Unsuccessful After 3 Attempts Use Alternate Advanced Airway

**Confirm Placement**

- Visualized Tube Pass Through Vocal Cords
- Observe Chest Rise and Fall
- Ausculta For Lung Sounds – No Epigastric Sounds
- Secondary Devices
  - Free Air Pull/Inflate on Esophageal Detector Device (EDD)
  - Positive EtCO2
**Rapid Sequence Intubation Procedure**

**Ventilate and Secure Tube**
- Ventilate Patient At Appropriate Rate and Depth
  - Goals – O2 Sat 94 to 99% and EtCO2 35 to 45
  - Consider Use of PEEP and PIP If Available
- Secure Tube with Commercial Device or Other Method
- Place Rigid C-Collar Even If No Trauma to Assist in Maintaining Neutral Position
- Consider Soft Restraints to Patient’s Arms to Prevent Unplanned Extubation

**Reassess**
- Vital Signs
- Adjust Rate and Depth of Ventilations as Needed
  - Goals – O2 Sat 94 to 99% and EtCO2 35 to 45
  - Consider Use of PEEP and PIP If Available
- Tube Placement after Each Patient Move

**Administer Paralytic**
- If Succinylcholine Used As Initial Paralytic Agent
  - Consider Vecuronium 0.1mg/kg Initial Dose and Maintain at 0.01 to 0.05mg/kg
  - Consider Rocuronium 0.6 – 1.2 mg/kg Initial Dose and Maintain at 0.1 – 0.2 mg/kg
  - Consider Pancuronium 0.04 - 0.1 mg/kg
- If Rocuronium Used As Initial Paralytic Agent
  - Consider Rocuronium 0.6 – 1.2 mg/kg Initial Dose and Maintain at 0.1 – 0.2 mg/kg
  - Consider Vecuronium 0.1mg/kg Initial Dose and Maintain at 0.01 to 0.05mg/kg
  - Consider Pancuronium 0.04 - 0.1 mg/kg

**Reassess and Maintain**
- Reassess Vitals
- Titrate to Maintain Sedation
- Consider Pain Management See Chart
- Consider Bronchodilator Medication For Bronchospasms/Exacerbation of COPD/Anaphylaxis
- Consider Anitmetic
- Re-dose Non-Depolarizing Paralytic
Rapid Sequence Intubation Protocol – Paramedic Level Providers Only
Revision July 19, 2012

Approved Sedative/Induction Agents Chart

<table>
<thead>
<tr>
<th>Medication Name</th>
<th>Generic (Brand Name)</th>
<th>Adult Dose</th>
<th>Pediatric Dose</th>
<th>Special Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzodiazepine Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>*Most Preferred of this Class</td>
<td>2.0mg – 6mg IV/IO</td>
<td>0.1 to 0.2mg/kg (6 Mo and Older)</td>
<td>Reversal Agent – Flumazenil (Romazicon) Use with caution as rapid reverse may lead to seizures especially in patient with history of seizures</td>
</tr>
<tr>
<td>Diazepam (Valium)</td>
<td></td>
<td>5 to 10mg IV/IO</td>
<td>0.04 -0.2 mg/kg IV/Io (6 Mo to 12 years)</td>
<td></td>
</tr>
<tr>
<td>Lorazepam (Ativan)</td>
<td></td>
<td>2.0–4.0 mg IV/IO</td>
<td>0.1 mg/kg to max of 4 mg</td>
<td></td>
</tr>
<tr>
<td><strong>Carboxylated Imidazole Derivative Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etomidate</td>
<td></td>
<td>0.3 mg/kg IV/IO</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NMDA Receptor Antagonist Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketamine</td>
<td></td>
<td>1.5 – 2.0mg/kg IV/IO</td>
<td>2 to 4 mg/kg IV/Io/IM (6 Months and Older)</td>
<td></td>
</tr>
<tr>
<td><strong>General Anesthesia/ Sedative/Hypnotic Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propofol</td>
<td>1-2 mg/kg IV/IO</td>
<td>1 – 2 mg/kg IV/IO</td>
<td>May cause hypotension – Avoid in hypotensive patients or patients with a high risk of developing hypotension</td>
<td></td>
</tr>
<tr>
<td><strong>Barbiturate Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methohexital (Brevital)</td>
<td></td>
<td>1 – 1.5 mg/kg IV/IO – 1% Solution 0.5 mg/kg every 4-7 minutes to maintain sedation</td>
<td>Over 1 Month of Age 6.6 to 10 mg/kg IM 5% Solution 25MG/Kg Rectal 1% Solution *Consider another agent to maintain sedation</td>
<td></td>
</tr>
<tr>
<td><strong>Phenothiazine Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promethazine (Phenergan)</td>
<td></td>
<td>25 – 50mg IV/IO</td>
<td>Not Approved May cause dystonic reactions</td>
<td></td>
</tr>
</tbody>
</table>

Pediatric Maximum Dose Not to Exceed Adult Dose
## Rapid Sequence Intubation Protocol – Paramedic Level Providers Only

### Approved Neuromuscular Blocking Agents Chart

<table>
<thead>
<tr>
<th>Medication Name (Brand Name)</th>
<th>Dosage (Paralytic)</th>
<th>Dosage (defasciculating)</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depolarizing Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Succinylcholine (Anectine)</td>
<td>RSI: 1 to 2 mg/kg</td>
<td></td>
<td>30 to 60 seconds</td>
<td>4 to 6 minutes</td>
</tr>
<tr>
<td><strong>Non-Depolarizing Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rocuronium (Zemuron)</td>
<td>RSI: 0.6 – 1.2 mg/kg M: 0.1 – 0.2 mg/kg</td>
<td>1 – 3 minutes</td>
<td>30 minutes</td>
<td></td>
</tr>
<tr>
<td>Vecuronium (Norcuron)</td>
<td>RSI: 0.1 mg/kg M: 0.01 – 0.05 mg/kg</td>
<td>0.01 mg/kg</td>
<td>2.5 to 5 minutes</td>
<td>25 to 40 minutes</td>
</tr>
<tr>
<td>Pancuronium (Pavulon)</td>
<td>RSI: 0.04 – 0.1 mg/kg M: 0.01 mg/kg</td>
<td>3 minutes</td>
<td>30 – 45 minutes</td>
<td></td>
</tr>
</tbody>
</table>

RSI = Rapid Sequence Intubation  
M = Maintenance dose

### Approved Pain Management Chart for RSI

<table>
<thead>
<tr>
<th>Medication Name (Brand Name)</th>
<th>Adult Dose</th>
<th>Pediatric Dose</th>
<th>Special Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opioid Class</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td>2-5mg IV/IO</td>
<td>0.05 – 0.2mg/kg IV/IO</td>
<td>Morphine Is The Most Preferred Opioid for Cardiac Chest Pain</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>25 to 100 mcg IV/IO</td>
<td>1.0 – 2.0 mcg/kg IV/IO</td>
<td></td>
</tr>
<tr>
<td>Hydromorphone (Dilaudid)</td>
<td>0.2 -0.6 mg IV/IO</td>
<td>0.03 to 0.08mg/kg IV/IO Over 6 Months</td>
<td></td>
</tr>
<tr>
<td>Nalbuphine (Nubain)</td>
<td>10 to 20mg IV/IO</td>
<td>0.05 to 0.1mg/kg IV/IO</td>
<td>Reversal Agent – Naloxone (Narcan)</td>
</tr>
<tr>
<td>Butorphanol Tartrate (Stadol)</td>
<td>0.5mg to 2mg IV/IO/MAD</td>
<td>Not Approved Under Age 18</td>
<td></td>
</tr>
</tbody>
</table>

**Least Desirable Alternative – But Acceptable**

<table>
<thead>
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<th>Medication Name (Brand Name)</th>
<th>Adult Dose</th>
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<th>Special Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meperidine (Demerol)</td>
<td>50 – 100mg IV/IO/IM</td>
<td>1mg/kg IV/IO/IM</td>
<td>Reversal Agent – Naloxone (Narcan)</td>
</tr>
</tbody>
</table>

**Pediatric Maximum Dose Not to Exceed Adult Dose**