

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

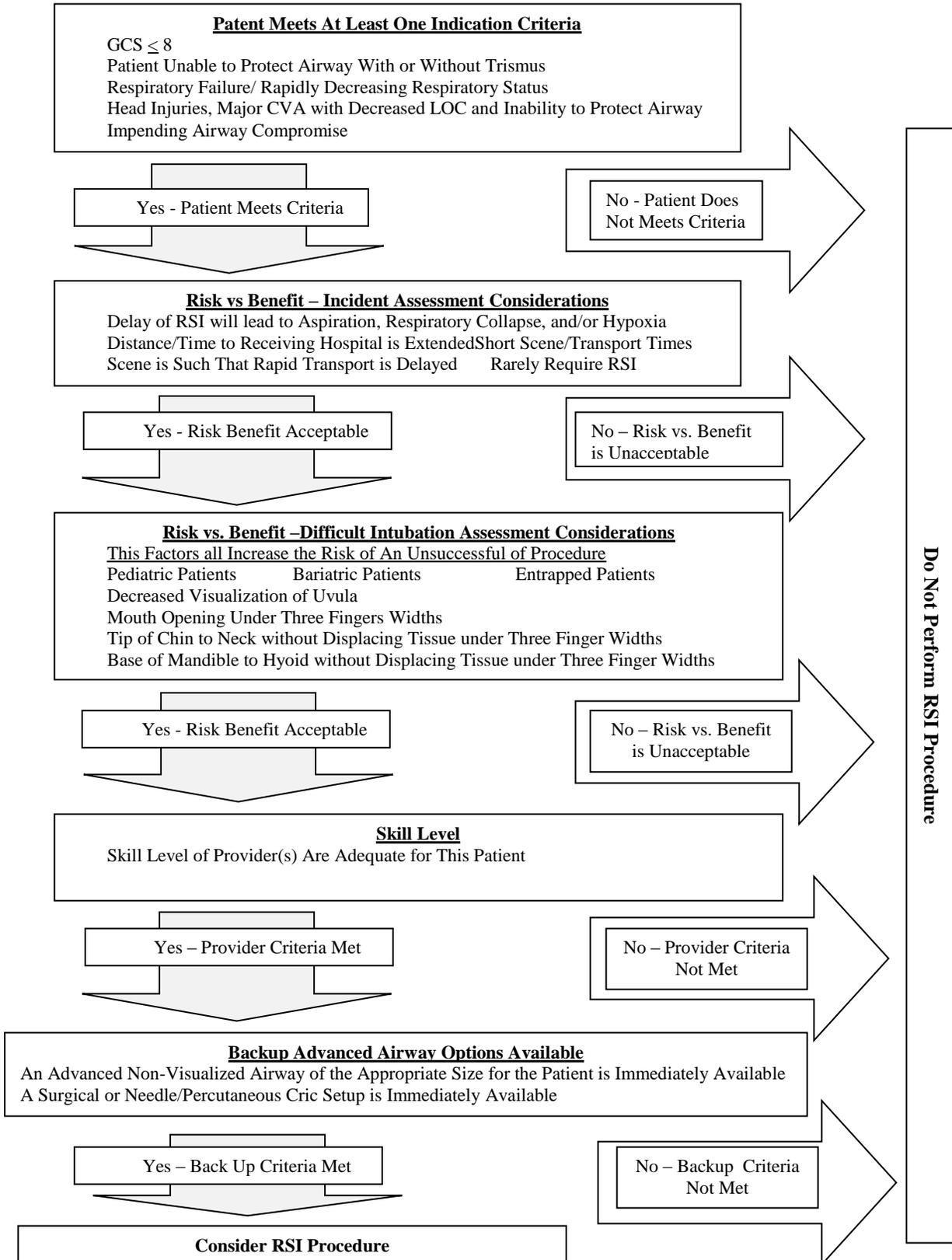
Physician Medical Director

Agency Head

Protocol Addendum Instructions

This Protocol is designed to replace the Rapid Sequence Intubation Protocol (Page AP-50 – AP-60) Dated: 1/22/2007; Revised 2/26/2010, 7/19/2012.

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



Rapid Sequence Intubation Protocol – Paramedic Level Providers Only

Revision July 19, 2012

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 Procedure
<p>Criteria For Procedure</p> <ul style="list-style-type: none"> • GCS \leq 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 –Such as Airway Burns, Edema, Trauma to Larynx
<p>Assess and Monitor</p> <ul style="list-style-type: none"> • For Difficult Airway – Intubation • Risk vs. Benefit of Procedure • Monitor Patient’s Vital Signs <ul style="list-style-type: none"> ○ Pulse, BP, Respiratory Rate ○ Pulse Oximetry, EtCO₂-Capnography, Cardiac Rhythm
<p>Prepare</p> <ul style="list-style-type: none"> • Intubation Equipment and Select Tube Size • Alternate Correctly Sized Non-visualized Advanced Airway Available <ul style="list-style-type: none"> ○ 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
<p>Oxygenation</p> <ul style="list-style-type: none"> • Pre – Oxygenate with 100% FiO₂ for 2-3 minutes By BVM <ul style="list-style-type: none"> ○ Consider Cricoid Pressure – Sellick’s Manuever • OR Pre-Oxygenate with 100%FiO₂ for 5 minutes by Non Rebreather Mask
<p>Pre-Sedation/Induction Medication Considerations</p> <ul style="list-style-type: none"> • For Signs and Symptoms/ High Index of Suspicion of Increased ICP <ul style="list-style-type: none"> ○ Consider Lidocaine 1.0-1.5mg/kg • For Pediatric Patients <ul style="list-style-type: none"> ○ Consider Atropine 0.01 to 0.02mg/Kg to a maximum of 0.5mg • When Using Ketamine as Sedative/Induction Agent <ul style="list-style-type: none"> ○ 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
<p>Administer Sedation/Induction Agent</p> <ul style="list-style-type: none"> • Administer Sedative/Induction Agent – See Chart
<p>Administer Paralytic Agent</p> <ul style="list-style-type: none"> • Administer Succinylcholine <ul style="list-style-type: none"> ○ 1.5 mg/kg IV/IO – Adult ○ 2.0 mg/kg IV/IO – Small Children • May Consider Rocuronium 0.6 – 1.0mg/kg When <ul style="list-style-type: none"> ○ Succinylcholine is Contra-indicated ○ Succinylcholine is Unavailable ○ OR PMD has authorized Rocuronium As Primary Agent
<p>Assess</p> <ul style="list-style-type: none"> • For Jaw Relaxation and Apnea • Decreased Resistance to BVM Ventilations
<p>Intubation</p> <ul style="list-style-type: none"> • Perform Oral Intubation • If NOT Successful in 15 Seconds Perform BVM Ventilation and Reattempt • If Unsuccessful After 3 Attempts Use Alternate Advanced Airway
<p>Confirm Placement</p> <ul style="list-style-type: none"> • Visualized Tube Pass Through Vocal Cords • Observe Chest Rise and Fall • Auscultate For Lung Sounds – No Epigastric Sounds • Secondary Devices <ul style="list-style-type: none"> ○ 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
OR
 - Consider Rocuronium 0.6 – 1.2 mg/kg Initial Dose and Maintain at 0.1 – 0.2 mg/kg
OR
 - 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
OR
 - Consider Vecuronium 0.1mg/kg Initial Dose and Maintain at 0.01 to 0.05mg/kg
OR
 - 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 Antiemetic
- Re-dose Non-Depolarizing Paralytic

Rapid Sequence Intubation Protocol – Paramedic Level Providers Only
Revision July 19, 2012

Approved Sedative/Induction Agents Chart

Medication Name Generic (Brand Name)	Adult Dose **DOSE FOR RSI	Pediatric Dose *Maximum Dose Not to Exceed Adult Dose	Special Information
<i>Benzodiazepine Class</i>			
Midazolam (Versed) *Most Preferred of this Class	2.0mg – 6mg IV/IO May repeat 2mg to maintain sedation	0.1 to 0.2mg/kg (6 Mo and Older) May repeat ½ initial dose to maintain sedation *Max Dose Not to exceed Adult Dose	Reversal Agent – Flumazenil (Romazicon) Use with caution as rapid reverse may lead to seizures especially in patient with history of seizures
Diazepam (Valium)	5 to 10mg IV/IO May repeat 2 to 4mg IV/IO to maintain sedation	0.04 -0.2 mg/kg IV./IO (6 Mo to 12 years) May repeat to maintain sedation	
Lorazepam (Ativan)	2.0- 4.0 mg IV/IO May repeat 1 to 2mg to maintain sedation	0.1 mg/kg to max of 4 mg May repeat ½ initial dose to maintain sedation	
<i>Carboxylated Imidazole Derivative Class</i>			
<i>Most Preferred Alternative to Benzodiazepine Class for Adult Sedative/Induction – Acceptable Alternative to Benzodiazepine Class for Pediatric Sedative/ Induction</i>			
Etomidate	0.3 mg/kg IV/IO May Repeat 0.1 -0.15 mg/kg to maintain sedation		Avoid if patients 10 years old or younger
<i>NMDA Receptor Antagonist Class</i>			
<i>Acceptable Alternative to Benzodiazepine Class for Adult and Pediatric Sedative/Induction</i>			
Ketamine	1.5 – 2.0mg/kg IV/IO 0.25 – 0.5 mg/kg every 5 to 10 minutes to maintain sedation	2 to 4 mg/kg IV/IO/IM (6 Months and Older) 0.25 – 0.5 mg/kg every 5 to 10 minutes to maintain sedation	Consider Atropine for increased secretions 0.02 mg/kg with a minimal dose of 0.1 mg and a maximum of 0.5 mg for Pediatric 0.5mg Single Dose for Adults
<i>General Anesthesia/ Sedative/Hypnotic Class</i>			
<i>Acceptable Alternative to Benzodiazepine Class</i>			
Propofol	1-2 mg/kg IV/IO 0.05mg – 0.1/kg/min infusion to maintain sedation MUST BE ON A PUMP	1 – 2 mg/kg IV/IO 0.05 – 0.1mg /kg/min infusion to maintain sedation	May cause hypotension – Avoid in hypotensive patients or patients with a high risk of developing hypotension
<i>Barbiturate Class</i>			
<i>Acceptable Alternative to Benzodiazepine Class When One of The Above Alternatives Are Not Available</i>			
Methohexital (Brevital)	1 – 1.5 mg/kg IV/IO – 1% Solution 0.5 mg/kg every 4-7 minutes to maintain sedation	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	
<i>Phenothiazine Class</i>			
<i>Least Desirable Alternative- Reserved To Incidents When No Other Alternatives Are Available</i>			
Prochlorperazine (Compazine)	5 – 10mg IV/IO May Repeat Once	Not Approved May cause dystonic reactions	Use Lowest possible dose to prevent extrapyramidal reactions
Promethazine (Phenergan)	25 – 50mg IV/IO May Repeat Once	Not Approved May cause dystonic reactions	For EPR consider Diphenhydramine (Benadryl) 12.5 to 25mg Peds 25 to 50mg Adults

Pediatric Maximum Dose Not to Exceed Adult Dose

Rapid Sequence Intubation Protocol – Paramedic Level Providers Only

Approved Neuromuscular Blocking Agents Chart

Medication Name Generic (Brand Name)	Dosage (Paralytic)	Dosage (defasciculating)	Onset	Duration
<i>Depolarizing Class</i>				
Succinylcholine (Anectine)	RSI: 1 to 2 mg/kg		30 to 60 seconds	4 to 6 minutes
<i>Non-Depolarizing Class</i>				
Rocuronium (Zemuron)	RSI: 0.6 – 1.2 mg/kg M: 0.1 – 0.2 mg/kg		1 – 3 minutes	30 minutes
Vecuronium (Norcuron)	RSI: .1 mg/kg M: 0.01 – .05 mg/kg	0.01 mg/kg	2.5 to 5 minutes	25 to 40 minutes
Pancuronium (Pavulon)	RSI :0.04 – 0.1 mg/kg M: 0.01 mg/kg		3 minutes	30 – 45 minutes

RSI = Rapid Sequence Intubation
M = Maintenance dose

Approved Pain Management Chart for RSI

Medication Name Generic Name (Brand Name)	Adult Dose	Pediatric Dose	Special Information
<i>Opioid Class</i>			
Morphine	2-5mg IV/IO	0.05 – 0.2mg/kg IV/IO	Morphine Is The Most Preferred Opioid for Cardiac Chest Pain
Fentanyl	25 to 100 mcg IV/IO	1.0 – 2.0 mcg/kg IV/IO	
Hydromorphone (Dilaudid)	0.2 -0.6 mg IV/IO	0.03 to 0.08mg/kg IV/IO Over 6 Months	
Nalbuphine (Nubain)	10 to 20mg IV/IO	0.05 to 0.1mg/kg IV/IO	
Butorphanol Tartrate (Stadol)	0.5mg to 2mg IV/IO/MAD	Not Approved Under Age 18	Reversal Agent – Naloxone (Narcan)
<i>Opioid Class Least Desirable Alternative – But Acceptable</i>			
Meperidine (Demerol)	50 – 100mg IV/IO/IM	1mg/kg IV/IO/IM	Reversal Agent – Naloxone (Narcan)

Pediatric Maximum Dose Not to Exceed Adult Dose