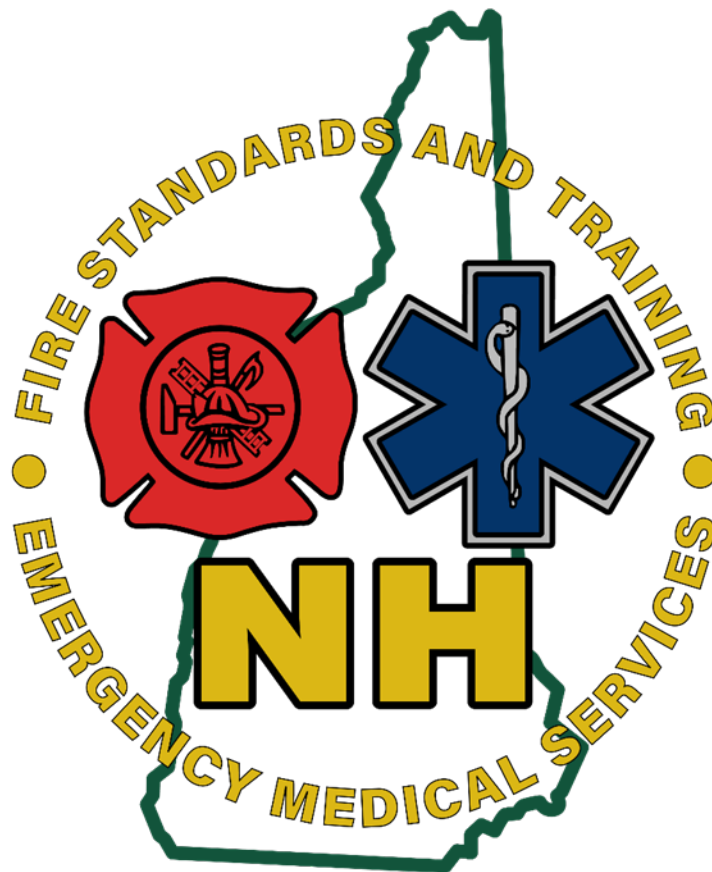


New Hampshire Department of Safety
Division of Fire Standards and Training &
Emergency Medical Services

Rapid Sequence Intubation (RSI)
Prerequisite Protocol
Administrative Packet
2024





NH Department of Safety
Division of Fire Standards and Training &
Emergency Medical Services
Prerequisite Protocol
Application Form

EMS Unit Information

EMS Unit Name:

Address:

Head of Unit:

Title:

Email:

Telephone:

Fax:

Clinical Coordinator (PIFT):

Email:

Telephone:

Medical Direction

Medical Resource Hospital:

Medical Director:

Email:

Telephone:

Prerequisite Protocols (Select all that apply)

- | | |
|---|---|
| <input type="radio"/> Advanced Sepsis, 7.0 | <input type="radio"/> Operational K9, 7.5 |
| <input type="radio"/> Critical Care Transport, 7.1 | <input type="radio"/> Pilot, 7.6 |
| <input type="radio"/> Immunization, 7.2 | <input type="radio"/> Point of Care Ultrasound (POCUS), 7.7 |
| <input type="radio"/> Interfacility Transport (PIFT), 7.3 | <input type="radio"/> Rapid Sequence Intubation (RSI), 7.8 |
| <input type="radio"/> Mobile Integrated Healthcare (MIH), 7.4 | |

Required Documents

1. Written recommendation from the Medical Director.
2. Written recommendation from the EMS Unit leader and testament that the providers completed the required training.
3. Provide list of eligible providers.
4. Provide copy of your Quality Management plan as it pertains to the prerequisite protocol(s) applying for.
5. Any additional documentation required specific to the individual prerequisite protocol.

Unit Head's Signature: _____ Date: _____

Medical Director's Signature: _____ Date: _____

Rapid Sequence Intubation (RSI) Prerequisite Protocol

LICENSURE:

- NH EMS licensed Paramedic.

EXPERIENCE:

- ≥ 2 Years.
- ≥ 5 un-proctored endotracheal intubations on human, non-cadaver tissue.

EDUCATION:

- Education that meets or exceeds the requirements outlined in this prerequisite protocol.

MEDICAL DIRECTION:

- Medical Director approval.

RECOMMENDATION:

- The Medical Director and the EMS Unit leader must mutually agree to participate in the program.
- Written recommendation from the Medical Director.
- Written recommendation from the EMS Unit leader and testament that the providers completed the required training.

QUALITY MANAGEMENT:

- The QM program will incorporate all the components of an EMS QM program as specified in Administrative Rule Saf-C 5921.
- Medical Director to review all calls where RSI was performed or attempted.

REPORTING:

- The EMS Unit will participate in electronic data collection as required by FSTEMS and as specified in Administrative Rule Saf-C 5902.08.
- Units utilizing this prerequisite protocol must document medications and procedures performed in their respective NEMSIS fields I.e. (eMedication.03/eProcedures.03).

RESOURCES:

- MRH agreement with participating hospital which includes access to necessary inter-departments. (example: E.R, IV team, O.R, Respiratory, etc.).
- Medications, as needed.

EXPIRATION:

- 2 years to coincide with the Unit license.

**INITIAL
Rapid Sequence Intubation
(RSI)
Prerequisites Checklist**

- _____ 1. APPLICATION
Provide completed prerequisite application signed by both Medical Director and EMS Unit leader.
- _____ 2. RECOMMENDATIONS
Attach letters of recommendation from Medical Director and Head of EMS Unit.
Provide list of eligible providers and attestation of competencies.
- _____ 3. PROVIDER EXPERIENCE CRITERIA
Provide written proof for each paramedic the following:
- ≥2 years as a paramedic.
 - ≥ 5 un-proctored endotracheal intubations on human, non-cadaver tissue.
- _____ 4. EDUCATION
Attach unit training plan and attestation that course meets all educational and training requirements.
- _____ 5. QUALITY MANAGEMENT
Provide a copy of your RSI Quality Management Plan.
- _____ 6. REPORTING
Complete a NHESR report for each RSI, as required by FSTEMS and as specified in Administrative Rule Saf-C 5902.08
- _____ 7. EQUIPMENT AND STAFF SUPPORT RESOURCES NECESSARY
Provided documentation of MRH agreement with participating hospital which includes access to necessary inter-departments (ED, OR, Respiratory, etc.) and medications.
- Equipment: Provided documentation through appropriate statement and/or purchase receipts including video laryngoscopy.

Questions and completed applications should be directed to clinicalsystems@dos.nh.gov

RENEWAL
Rapid Sequence Intubation
(RSI)
Prerequisite Checklist

- _____ 1. APPLICATION:
Attach a completed prerequisite application signed by both Medical Director and EMS Unit leader.
- _____ 2. RECOMMENDATIONS
Attach letters of recommendation from Medical Director and Head of EMS Unit.
Provide list of eligible providers and attestation of competencies.
- _____ 3. EDUCATION
Provide online RSI module completion certificates.
- Attach unit training plan and attestation that course meets all educational and training requirements. Must include a continuing education plan.
- _____ 4. QUALITY MANAGEMENT
Provide a copy of your RSI Quality Management Plan.
Provide examples of quality management performed for RSI in the most recent cycle.
- _____ 5. REPORTING REQUIREMENTS
Attach a listing of all incidents utilizing RSI in the most recent cycle.
- _____ 6. EQUIPMENT AND STAFF SUPPORT RESOURCES NECESSARY:
Provided documentation of MRH agreement with participating hospital which includes access to necessary inter-departments (ER, OR, Respiratory, etc.) and medications.
- If not provided during in the initial application attach documentation confirming the units purchase of all required equipment, specifically video laryngoscopy.

Questions and completed applications should be directed to clinicalsystems@dos.nh.gov

Instructions for RSI educational program

To prepare for a successful RSI training the following should be reviewed in their entirety:

- The RSI Manual.
- The RSI Checklists.
- The RSI Dosing Charts.
- RSI Prerequisite Protocol.
- Orotracheal Intubation Protocol.
- Surgical Cricothyrotomy – Bougie Assisted Prerequisite Protocol.

Log into NHFA-EMS.com:

- Click “Login to Your Online Classroom” link in upper right corner.
- Create an account or log in if you already have an account.
- Complete the online module: <https://www.nhfaemslearning.org/>.

Competencies

- Attend in person an approved RSI training high fidelity simulation training program provided by the FSTEMS or your Medical Director to include:
 - Classroom training focusing on airway management.
 - Simulation of at least 5 RSI cases with critical evaluation by your medical director.
 - If possible, complete airway training in the operating room with the anesthesia service.

ADDITIONAL CONSIDERATIONS:

Questions and completed applications should be directed to clinicalsystems@dos.nh.gov

Rapid Sequence Intubation (RSI) 7.8

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

PARAMEDIC - PREREQUISITES REQUIRED - ADULT ONLY

This protocol is not comprehensive of the entire RSI procedure. The New Hampshire Prehospital RSI Manual contains comprehensive guidelines that are part of this RSI protocol and are incorporated in this protocol by reference.

Each RSI procedure must be performed in a controlled fashion and must involve careful planning and preparation. RSI requires at least one RSI credentialed paramedic and one credentialed RSI assistant or non-RSI paramedic. Intubation must be performed by the most appropriate provider as determined by the RSI paramedic. After intubation, the RSI paramedic must remain with the patient at all times unless there are extenuating circumstances (mass casualty, etc.) and ensure that adequate staff remain.

Medications

The correct medication regimen should be chosen on a case-by-case basis. Weight-based dosages are listed below. Dosages for all medications are based on actual body weight. Use of a dosing chart with precalculated dosage ranges such as the one reproduced below is recommended; dosing charts reduce cognitive load and risk of error.

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Induction

- Ketamine 2 mg/kg IV (RSI or DSI) or 4 mg/kg IM (max 500 mg) (DSI only).
 - For elderly, shock, or risk of hypotension: 1 mg/kg IV or 2 mg/kg IM.

OR

- Etomidate 0.3 mg/kg IV, maximum single dose 30 mg.
 - For elderly, shock, or risk of hypotension: 0.15 mg/kg IV.

Paralysis

- Rocuronium 1 mg/kg IV.
- OR**
- Succinylcholine 1.5 mg/kg IV, maximum 150.

Sample Dosing Chart:

IMPORTANT: Chart must be recalculated for the medication concentrations used by your service.

Weight (lbs)	Weight (kg)	Ketamine 2 mg/kg		Etomidate 0.3 mg/kg		Rocuronium 1 mg/kg		Succinylcholine 1.5 mg/kg	
		mg	mL	mg	mL	mg	mL	mg	mL
		100	1	2	1	10	1	20	1
		Dose (mg)	Volume (mL)	Dose (mg)	Volume (mL)	Dose (mg)	Volume (mL)	Dose (mg)	Volume (mL)
110 - 120	50 - 55	110	1.1	17	8.5	55	5.5	80	4.0
120 - 145	56 - 66	130	1.3	20	10.0	66	6.6	100	5.0
145 - 175	67 - 80	160	1.6	24	12.0	80	8.0	120	6.0
176 - 220	81 - 100	180	1.8	26	13.0	90	9.0	130	6.5
221 - 250	101 - 114	200	2.0	30	15.0	100	10.0	150	7.5
> 250	> 115	220	2.2	34	17.0	110	11.0	150	7.5

SUCCINYLCHOLINE CONTRAINDICATIONS:

- Extensive recent burns or crush injuries > 24 hours old.
- Known or suspected hyperkalemia.
- History of malignant hyperthermia.

Protocol Continues

7.8 Rapid Sequence Intubation (RSI)

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.

Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

Post-Intubation Analgesia and Sedation

- Target RASS of -3 to -5.

Option 1:

- Ketamine 1 mg/kg IV bolus (max 100 mg) followed by infusion via pump 2 – 5 mg/kg/hr. Initial bolus after intubation not needed if ketamine was used for induction.
 - If infusion not used: 1 mg/kg IV (max 100 mg) every 5 - 15 minutes as needed.

Option 2:

- Fentanyl 0.5 - 1 mcg/kg IV every 5-10 minutes as needed;

AND

- Midazolam 2 - 5 mg IV bolus followed by infusion via pump 1 – 10 mg/hour.
 - If infusion not used or if additional sedation is required: 2-5 mg IV every 5-10 minutes as needed **OR**
- Lorazepam 1 - 2 mg every 15 minutes as needed (maximum total 10 mg).

Hypotension

Consider vasopressors for patients at risk of or in shock:

- Norepinephrine Infusion 1 – 80 microgram/minute via pump. Starting dose 1 - 15 microgram/minute, titrate 2 – 5 microgram/minute every 5 minutes **OR**
- Epinephrine 2 – 10 mcg/min.

Push Dose Epinephrine

May be administered to patients who develop hemodynamic compromise prior to starting infusion.

- Epinephrine by push dose (dilute boluses – see [Medication Formulary](#)) prepare 10 mcg/mL then administer 10 - 20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical).

Video Laryngoscopy Required

Evidence and consensus guidelines suggest it yields higher first pass success.

Ventilator Required

A mechanical ventilator is the preferred over bag valve mask ventilation for providing positive pressure ventilation after intubation, especially for timeframes exceeding a few minutes.



If failed airway and unable to ventilate consider [Cricothyrotomy Protocols 5.6.](#)

Protocol Continues

Rapid Sequence Intubation (RSI) 7.8

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized FSTEMS.

Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

Principles of Effective and Safe RSI

The following key principles are fundamental to achieving effective and safe rapid sequence intubation.

1. Utilize an RSI Checklist.

The following checklist may be used or modified by your agency:

Preparation	Equipment	Airway Plan	Laryngoscopy
Resuscitate B4 Intubate PreOx Sit Upright! NC 15+ lpm for 3+ min Consider: NRB CPAP BVM Target: 98-100%	Intubation <ul style="list-style-type: none">• NC• BVM w/ PEEP• OPA / NPA• CMAC Mac X• D Blade + stylet• ETT• 10mL Syringe• Stylet + Bougie• Tube tamer• Ducanto Suction• ETCO2 Backup <ul style="list-style-type: none">• King / iGel Cric <ul style="list-style-type: none">• Scalpel• 6.0 ETT Post-intubation <ul style="list-style-type: none">• Vent• Neb + Connector• Filter• In-line suction• OG Tube	Timeout! Verbalize Airway Plan First Attempt <ul style="list-style-type: none">• SpO2 Limit Second Attempt Do something different! <ul style="list-style-type: none">• Blade? Stylet? Tube? SGA: King or iGel Cric: Scalpel Bougie 6.0 ETT	Respect SpO2 Threshold Post-Tube Confirm Tube Secure Tube Keep pt @ 30 degrees Mechanical Ventilation <ul style="list-style-type: none">• Set pt height• 100% O2 to start Address Pathology Asthma/COPD: Neb!! CHF/ARDS: ↑ PEEP, Nitro Sedation / Analgesia <ul style="list-style-type: none">• Ketamine -OR- (Bolus 1 mg/kg q5-15)• Versed + Fentanyl OG / NG

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2. Resuscitate before You Intubate

a. Hemodynamics

When shock index (HR / SBP) is ≥ 0.8 :

- Consider fluid bolus.
- Consider vasopressor.

If shock index remains ≥ 0.8 despite treatment RSI is relatively contraindicated.

b. Preoxygenation / De-nitrogenation

- Apply a nasal cannula at 15 + lpm **AND**:
- NRB, CPAP/BiPAP or BVM.

3. Anticipate & Prepare for Post RSI Hypotension

- Ensure adequate IV access.
- Prepare push-dose epinephrine.
- Consider preparing and initiating a low dose vasopressor infusion.



Profound hypotension is a predictor of adverse outcomes of RSI, even patients with apparently "normal" hemodynamics can suffer collapse.



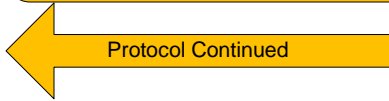
Experience has shown that providers are challenged to initiate adequate vasopressor therapy once hemodynamic collapse has begun to occur.

Protocol Continues

Prerequisite Protocol 7.8

7.8 Rapid Sequence Intubation (RSI)

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.



PARAMEDIC - PREREQUISITES REQUIRED - ADULT ONLY

4. Positioning

Optimize positioning during preoxygenation and laryngoscopy. This includes, if feasible:

- Upright positioning during preoxygenation to optimize lung mechanics.
- During laryngoscopy:
 - Ear-to-sternal notch and face parallel to ceiling.
 - Stretcher up at 30 degrees.
- Post-intubation: maintain stretcher up at 30 degrees.

5. Airway Plan & Timeout

- An RSI airway plan includes plans for an initial attempt at laryngoscopy, backup plans for a second attempt at laryngoscopy, plans for a backup supraglottic airway and plans for surgical cricothyrotomy. All equipment needed for all of these plans should be prepared ahead of time.
- Establish a SpO₂ threshold for each attempt.
- Prior to proceeding, the RSI paramedic should perform an airway timeout during which they articulate to the team the initial and backup airway plans.
- The patient must be appropriately reoxygenated prior to a second attempt.

6. Apneic Oxygenation is Essential

- Maintain a nasal cannula at 15 + lpm throughout.
 - An EtCO₂ nasal cannula will not work for this purpose.

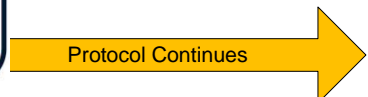
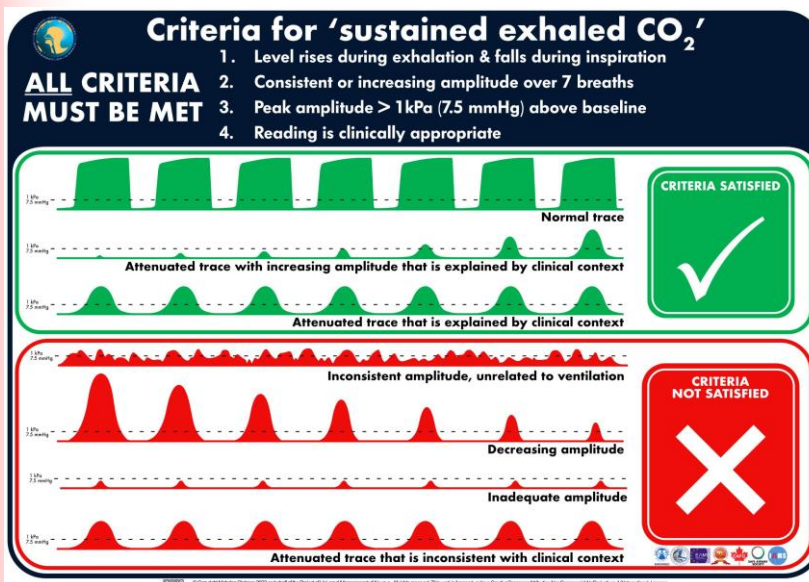
7. Prepare Post Intubation Medications

8. Confirm with Waveform EtCO₂

- Continuous waveform capnography must be used to confirm that the ET tube is in the trachea see [Waveform Capnography Protocol 6.1](#).
- All criteria for sustained EtCO₂ must be met.
- EtCO₂ may be detected for several breaths even when the ET tube is in the esophagus.

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Prerequisite Protocol 7.8



Rapid Sequence Intubation (RSI) 7.8

This prerequisite protocol is only to be used by EMS Units and their affiliated providers who are authorized by FSTEMS.



Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

11. Monitor the Patient & Airway Post-Intubation

- Declining or loss of ETCO₂ may be a sign of a misplaced ET tube, shock or cardiac arrest.
- Declining blood pressure is an ominous sign of hemodynamic collapse/death, which may occur suddenly.

12. Post Intubation Sedation

- Administer post intubation medications, see [Analgesia & Sedation for Invasive Airway Devices 5.2](#).

Delayed Sequence Intubation (DSI):

- May be used to facilitate preoxygenation and preparation for intubation in patients who cannot tolerate it otherwise.
- DSI involves administering ketamine and delaying administration of the paralytic with the intention of sedating the patient and facilitating preoxygenation and IV access.

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Bougie Assisted Surgical Cricothyrotomy:

See [Surgical Cricothyrotomy Bougie Assisted 5.6](#).

Documentation:

- Each attempt at passing an ETT should be documented as a separate procedure of "Rapid Sequence Intubation". The procedure should include the provider and time for each separate attempt. DO NOT also document a second procedure of "orotracheal intubation" as this will constitute double documentation of the intubation process. In this case, the procedure of RSI counts as the passing of the ETT itself.
- All medications administered should be documented, including the time and provider who administered them.

Follow all other required documentation outlined in Procedure: [Orotracheal Intubation 5.10](#)



In multiple deaths involving esophageal intubation, providers detected bilateral breath sounds suggesting tracheal intubation.

PEARL:

Placement of an ET tube does not address the patient's underlying pathophysiology (e.g. bronchospasm) and may worsen it (e.g. asthma). Rapidly address the patient's underlying pathophysiology post-intubation as appropriate (e.g., nebulized bronchodilators, increased PEEP, nitroglycerin).