Purpose:

For use in the patient that requires additional sedation, analgesia, and/or neuromuscular blockade during interfacility transports; especially in order to maintain ETT placement and pain management in the critically injured patient.

Procedure:

Medications administered at doses outside the parameters listed below MUST BE ADMINISTERED UNDER THE DIRECTION OF MEDICAL CONTROL, as outlined in the Medical Control Protocol.

During a Critical Care Interfacility Transport and in the absence of direct or specific written medical control orders, the ECP should consider the use of the following medications and their dosing guidelines.

During continued sedation and pain management all patients must be continuously monitored; at a minimum this should include blood pressure, heart monitor, pulse oximetry, and capnography. Serial vital signs should be assessed every 15 minutes, or sooner as condition warrants, in patients receiving continuous pain management and/or sedation; these should include heart rate & rhythm, blood pressure, pulse oximetry, capnography, pain or sedation score, respirations, and as needed lung sounds & mechanical vent settings.

For patients who are alert, oriented and have the ability to communicate, the Universal Pain Assessment Chart should be used to assess pain levels. This assessment should be completed with serial vital signs, sooner as conditions warrant, or as indicated by the administration of analgesia.

For patients that are sedated, not alert, or do not have the ability to communicate, the Riker Sedation-Agitation Scale should be used to assess sedation levels. This assessment should be completed with serial vital signs, sooner as conditions warrant, or as indicated by the administration of analgesia.
Riker Sedation-Agitation Scale:

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Dangerous Agitation</td>
<td>Pulling at ETT, Trying to remove catheters, climbing over bed-rail, striking at staff, thrashing side-side</td>
</tr>
<tr>
<td>6</td>
<td>Very Agitated</td>
<td>Requiring restraint and frequent verbal reminding of limits, biting ETT.</td>
</tr>
<tr>
<td>5</td>
<td>Agitated</td>
<td>Anxious or physically agitated, calms to verbal instructions.</td>
</tr>
<tr>
<td>4</td>
<td>Calm and Cooperative</td>
<td>Calm, Easily Arousable, Follows Commands.</td>
</tr>
<tr>
<td>3</td>
<td>Sedated</td>
<td>Difficult to arouse but awakens to verbal stimuli or gentle shaking, follows simple commands, may move spontaneously.</td>
</tr>
<tr>
<td>2</td>
<td>Very Sedated</td>
<td>Arouses to physical stimuli but does not communicate or follow commands, may move spontaneously.</td>
</tr>
<tr>
<td>1</td>
<td>Unarousable</td>
<td>Minimal or no response to noxious stimuli, does not communicate or follow commands.</td>
</tr>
</tbody>
</table>

**Indications:**

- Patients awakening from medications used for drug assisted intubation
- Comatose patients recovering from paralytic drugs used for rapid sequence intubation
- Patients initially intubated without pharmacologic assistance but are now recovering due to improved oxygenation and ventilation
- Patients that require frequent management or a higher degree of pain control; specifically when caused by trauma

Appropriate pain control will facilitate ventilation and oxygenation; allowing the use of smaller doses of sedatives and may avoid the need for pharmacologic paralysis with neuromuscular blockers. However, in the RSI patient, additional Neuromuscular Blocking agents may have to be administered quickly as the effects of the initial Succinylcholine will begin to wear off in approximately 5 minutes.
Narcotics alone should be the primary medications used for analgesia.

**Medications:**

All should be administered IV or IO; using smaller, titrated doses in the elderly, debilitated or unstable patient.

**Sedation**

Midazolam (Versed): Adult and Peds dose: 0.05-0.1 mg/Kg IV, repeat every 5 min PRN

Diazepam (Valium): Adult: 1-5 mg IV, repeat every 5 min PRN Peds: 0.1-0.5 mg/kg IV, repeat every 5 min PRN to a total dose of 5 mg in child < 5 y/o or 10 mg in child > 5 y/o

Lorazepam (Ativan): Adult: 1-2 mg IV, repeat X 1 PRN Peds: 0.05 mg/kg IV, repeat X 1 PRN

Propofol (Diprovan): –**MUST BE ADMINISTERED BY AN INFUSION PUMP, BOLUS DOSING IS NOT AUTHORIZED** –

1. Initiate at 10-20 mcg/kg/min
2. Increase infusion by 5-10 mcg/kg/min within a rage of 5 – 80 mcg/kg/min every 5-10 minutes to achieve Riker scale of 2-3
3. If infusion is already started, titrate to achieve Riker scale of 2-3
4. If hypotension occurs, consider IV fluids or decreasing Propofol infusion.

**Analgesia**

Fentanyl: Adult and Peds: 1-2 mcg/kg IV, may repeat every 15-20 minutes PRN

Morphine: Adults: 2-5 mg IV every 10-15 min PRN Peds: 0.1 mg/kg IV every 10-15 min PRN

Dilaudid: Adults: 0.5-1 mg IV every 30 minutes.

**Nausea and Vomiting**

If nausea and vomiting persists, administer Zofran 4-8mg every 15 minutes PRN.