



# YUKON-KUSKOKWIM HEALTH CORPORATION

## Pediatric Critical Care Guide

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## Medication and Dosing Guidelines

### MIXING

#### Fentanyl (10mcg/mL):

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

#### Midazolam for > 5kg (1mg/mL):

1. Remove 10mg/2mL vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

#### Dosing Reference:

Fentanyl (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. Midazolam (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

### PROVIDER DOSING GUIDELINES

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

#### REMEMBER:

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		3 kg	4 kg	5 kg	6-7 kg	8-9 kg	10-11 kg	12-13 kg	14 kg	15-16 kg	17-18 kg	19-20 kg	21-23 kg	24-29 kg	30-36 kg	>36 kg
FENTANYL 10 mcg/mL	Bolus	3 mcg 0.3 mL	4 mcg 0.4 mL	5 mcg 0.5 mL	6 mcg 0.6 mL	8 mcg 0.8 mL	10 mcg 1 mL	12 mcg 1.2 mL	14 mcg 1.4 mL	15 mcg 1.5 mL	17 mcg 1.7 mL	20 mcg 2 mL	22 mcg 2.2 mL	30 mcg 3 mL	33 mcg 3.3 mL	50-100 mcg 5 mL
	Infusion	3-9 mcg/hr 0.3-0.9 mL/hr	4-12 mcg/hr 0.4-1.2 mL/hr	5-15 mcg/hr 0.5-1.5 mL/hr	6-21 mcg/hr 0.6-2.1 mL/hr	8-27 mcg/hr 0.8-2.7 mL/hr	10-33 mcg/hr 1-3.3 mL/hr	12-39 mcg/hr 1.2-3.9 mL/hr	14-45 mcg/hr 1.4-4.5 mL/hr	15-45 mcg/hr 1.5-4.5 mL/hr	17-50 mcg/hr 1.7-5 mL/hr	20-60 mcg/hr 2-6 mL/hr	20-70 mcg/hr 2-7 mL/hr	25-75 mcg/hr 2.5-7.5 mL/hr	30-90 mcg/hr 3-9 mL/hr	50-100 mcg/hr 5-10 mL/hr
MIDAZOLAM 1 mg/mL	Bolus	See Page 4 (back of gray resuscitation sheet)			0.3 mg 0.3 mL	0.4 mg 0.4 mL	0.5 mg 0.5 mL	0.6 mg 0.6 mL	0.7 mg 0.7 mL	0.8 mg 0.8 mL	0.9 mg 0.9 mL	1 mg 1 mL	1 mg 1 mL	1.5 mg 1.5 mL	2 mg 2 mL	2 mg 2 mL
	Infusion	See Page 4 (back of gray resuscitation sheet)			0.3-1.2 mg/hr 0.3-1.2 mL/hr	0.4-1.6 mg/hr 0.4-1.6 mL/hr	0.5-2 mg/hr 0.5-2 mL/hr	0.6-2 mg/hr 0.6-2 mL/hr	0.7-2.8 mg/hr 0.7-2.8 mL/hr	0.8-2.8 mg/hr 0.8-2.8 mL/hr	0.9-3 mg/hr 0.9-3 mL/hr	1-3 mg/hr 1-3 mL/hr	1-3 mg/hr 1-3 mL/hr	1-4 mg/hr 1-4 mL/hr	1.5-4 mg/hr 1.5-4 mL/hr	2-4 mg/hr 2-4 mL/hr

# Pediatric Critical Care Guide

Call ANMC PICU Accepting and Consult Physician 907-297-8809  
LifeMed 800-478-5433 (\*96)

## GRAY

### 3 kg — 4 kg — 5 kg

Patient's Admission weight \_\_\_\_\_ kg

#### RESUSCITATION

	3 kg	4 kg	5 kg
<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.03 mg (0.3 mL)	0.04mg (0.4 mL)	0.05mg (0.5mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	0.3 mg (3 mL)	0.4 mg (4 mL)	0.5mg (5 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.1 mg (1 mL)	0.1 mg (1 mL)	0.1mg (1 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	0.15 mg (0.38 mL)	0.20 mg (0.5 mL)	0.25 mg (0.63 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	3 mEq (6 mL)	4 mEq (8 mL)	5 mEq (10 mL)
<input type="checkbox"/> Lidocaine 2%	3 mg (0.15 mL)	4 mg (0.2 mL)	5 mg (0.25 mL)
<input type="checkbox"/> Lidocaine 2% ET	9 mg (0.45 mL)	12 mg (0.6 mL)	15 mg (0.75 mL)
<input type="checkbox"/> Defibrillation			
1st dose	6 J	8 J	10 J
2nd dose	12 J	16 J	20 J
3rd dose	12-30 J	16-40 J	20-50 J
<input type="checkbox"/> Cardioversion			
1st Dose	2 J	2 J	3 J
2nd Dose	4 J	4 J	6 J
<input type="checkbox"/> Adenosine (3 mg/mL)			
1st dose	0.3mg (0.1 mL)	0.4mg (0.13 mL)	0.5 mg (0.17 mL)
2nd dose if needed	0.6mg (0.2 mL)	0.8 mg (0.27 mL)	1 mg (0.33 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	15 mg (0.3 mL)	20 mg (0.4 mL)	25 mg (0.5 mL)
<input type="checkbox"/> Calcium Chloride 10%	60 mg (0.6 mL)	80 mg (0.8 mL)	100 mg (1 mL)
<input type="checkbox"/> Magnesium Sulfate (1gm/2mL)	150 mg (0.3 mL)	200 mg (0.4 mL)	250 mg (0.5 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	6 mL D25	8 mL D25	10 mL D25

#### SEIZURE

	3 kg	4 kg	5 kg
<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	0.3 mg	0.4 mg	0.5 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	0.6 mg	0.8 mg	1 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	60 mg	80 mg	100 mg
<input type="checkbox"/> Fosphenytoin Load	60 mg PE	80 mg PE	100 mg PE
<input type="checkbox"/> Phenobarbital Load	60 mg	80 mg	100 mg

#### Alternative agents

<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	1.5 mg	2 mg	2.5 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	0.6 mg	0.8 mg	1 mg

#### OVERDOSE

	3 kg	4 kg	5 kg
<input type="checkbox"/> Dextrose (infuse over 3 min.)	6 mL D25	8 mL D25	10 mL D25
<input type="checkbox"/> Naloxone	0.3 mg	0.4 mg	0.5 mg
<input type="checkbox"/> Flumazenil	0.03 mg	0.04 mg	0.05 mg
<input type="checkbox"/> Glucagon	0.5 mg	0.5 mg	0.5 mg

#### ICP

	3 kg	4 kg	5 kg
<input type="checkbox"/> Hypertonic Saline 3%	12 mL	16 mL	20 mL
<input type="checkbox"/> Mannitol 20% IV sol. (1gm/kg) ( <b>must filter</b> )	15 mL	20 mL	25 mL

#### FLUIDS

##### Volume Expansion

<input type="checkbox"/> Crystalloid (NS or LR)	60 mL	80 mL	100 mL
<input type="checkbox"/> Blood (PRBC)	30 mL	40 mL	50 mL

##### Maintenance

<input type="checkbox"/> D5NS + 20 mEq KCl/L	12mL/HR	16mL/HR	21 mL/HR
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#### INTUBATION

##### PREMEDICATIONS

<input type="checkbox"/> Atropine (<1 year or bradycardia)	3 kg 0.1 mg	4 kg 0.1 mg	5 kg 0.1 mg
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##### INDUCTION AGENTS (*must use both medications together*)

<input type="checkbox"/> Midazolam	3 kg 0.3 mg	4 kg 0.4 mg	5 kg 0.5 mg
<b>AND</b>			
<input type="checkbox"/> Fentanyl	9 mcg	12 mcg	15 mcg

##### PARALYTIC AGENTS

<input type="checkbox"/> Rocuronium	3 kg 3 mg	4 kg 4 mg	5 kg 5 mg
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#### POST INTUBATION SEDATION

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

#### ANTIBIOTICS

	3 kg	4 kg	5 kg
<input type="checkbox"/> Ceftriaxone (100 mg/kg)	300 mg	400 mg	500 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	60 mg	80 mg	100 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	60 mg	80 mg	100 mg

#### STEROIDS

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 10 mg
- Dexamethasone for upper airway edema 2.5 mg
- Dexamethasone for suspected bacterial meningitis. 0.6 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.**

#### PRESSOR DRIPS

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

#### EQUIPMENT

E.T Tube .....	3.5 Cuffed	*ETCO2 .....	Pediatric
E.T Insertion Length .....	3kg 9-9.5 cm	*Urinary Catheter.....	5 French
	4kg 9.5-10 cm	*Chest Tube.....	10 - 12 French
	5kg 10-10.5 cm	NG Tube .....	5 - 8 French
Stylet.....	6 French	Vascular Access .....	22 - 24 Ga
Suction Catheter.....	8 French	Intraosseous .....	18 Ga
Laryngoscope .....	1 Straight	BP Cuff .....	Infant/Child
BVM.....	Infant/Child		
Oral Airway .....	50 mm		
Glidescope.....	GVL 1–2		
*Nasopharyngeal Airway .....	14 French		
*LMA.....	1.0		
O2 Mask .....	Pediatric NRB		

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

**MIXING****Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for ≤ 5kg (0.5mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 5mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 5mL (25mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (0.5mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.1-0.2mg/kg/hr.

**PROVIDER DOSING GUIDELINES**

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		3 kg	4 kg	5 kg
<b>FENTANYL</b> 10 mcg/mL	Bolus	3 mcg 0.3 mL	4 mcg 0.4 mL	5 mcg 0.5 mL
	Infusion	3–9 mcg/hr 0.3–0.9 mL/hr	4–12 mcg/hr 0.4–1.2 mL/hr	5–15 mcg/hr 0.5–1.5 mL/hr
<b>MIDAZOLAM</b> 0.5 mg/mL	Bolus	0.5 mg 1 mL	0.5 mg 1 mL	0.6 mg 1.2 mL
	Infusion	0.5–1.2 mg/hr 1–2.4 mL/hr	0.5–1.6 mg/hr 1–3.2 mL/hr	0.6–2 mg/hr 1.2–4 mL/hr

# Pediatric Critical Care Guide

Call ANMC PICU Accepting and Consult Physician 907-297-8809  
LifeMed 800-478-5433 (\*96)

**Pink**

**6 kg ————— 7 kg**

Patient's Admission weight \_\_\_\_\_ kg

## RESUSCITATION

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.065 mg (0.65mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	0.65 mg (6.5 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.13 mg (1.3 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	0.35 mg (0.9 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	6.5 mEq (13 mL)
<input type="checkbox"/> Lidocaine 2%	6.5 mg (0.33 mL)
<input type="checkbox"/> Lidocaine 2% ET	20 mg (1 mL)
<input type="checkbox"/> Defibrillation	
1st dose	14 Joules
2nd dose	28 Joules
3rd dose	28-60 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	4J / 8J
<input type="checkbox"/> Adenosine (3mg/mL)	
1st dose	0.65 mg (0.22 mL)
2nd dose if needed	1.3 mg (0.43 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	32 mg (0.64 mL)
<input type="checkbox"/> Calcium Chloride 10%	130 mg (1.3 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	325 mg (0.65 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	13 mL D25

## SEIZURE

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	0.7 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	1.3 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	130 mg
<input type="checkbox"/> Fosphenytoin Load	130 mg-PE
<input type="checkbox"/> Phenobarbital Load	130 mg

### Alternative agents

<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	3.2 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	1.3 mg

## OVERDOSE

<input type="checkbox"/> Dextrose (infuse over 3 min.)	13 mL D25
<input type="checkbox"/> Naloxone	0.65 mg
<input type="checkbox"/> Flumazenil	0.065 mg
<input type="checkbox"/> Glucagon	0.5 mg

## ICP

<input type="checkbox"/> Hypertonic Saline 3%	26 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	33 mL

## FLUIDS

### Volume Expansion

<input type="checkbox"/> Crystalloid (NS or LR)	130 mL
<input type="checkbox"/> Blood (PRBC)	65 mL

### Maintenance

<input type="checkbox"/> D5NS +20 mEq KCl/L	27 mL/HR
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## INTUBATION

### PREMEDICATIONS

<input type="checkbox"/> Atropine 0.14 mg	(For under 1 year old or as needed for bradycardia)
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### INDUCTION AGENTS (*must use both medications together*)

<input type="checkbox"/> Midazolam: 0.7 mg
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### AND

<input type="checkbox"/> Fentanyl: 20 mcg
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### PARALYTIC AGENTS

<input type="checkbox"/> Rocuronium: 7 mg
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### POST INTUBATION SEDATION

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

## ANTIBIOTICS

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	650 mg	<input type="checkbox"/> Meropenem	280mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	130 mg	<input type="checkbox"/> Cefepime	350 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	130 mg		

## STEROIDS

<input type="checkbox"/> Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock	14 mg
<input type="checkbox"/> Dexamethasone for upper airway edema.	3.5 mg
<input type="checkbox"/> Dexamethasone for suspected bacterial meningitis.	1 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.**

## PRESSOR DRIPS

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

## EQUIPMENT

E.T Tube .....	3.5 Cuffed	*LMA.....	1.5
E.T Insertion Length .....	10.5 – 11 cm	O2 Mask .....	Pediatric NRB
Stylet.....	6 French	*ETCO2 .....	Pediatric
Suction Catheter.....	8 French	*Urinary Catheter.....	8 French
Laryngoscope.....	1 Straight	*Chest Tube.....	10 – 12 French
BVM.....	Infant/Child	NG Tube .....	5 – 8 French
Oral Airway .....	50 mm	Vascular Access .....	22 - 24 Ga
Glidescope.....	GVL 1–2	Intraosseous .....	15 Ga
*Nasopharyngeal Airway	14 French	BP Cuff .....	Infant/child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

**MIXING****Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

**PROVIDER DOSING GUIDELINES**

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		6-7 kg
FENTANYL 10 mcg/mL	Bolus	6 mcg 0.6 mL
	Infusion	6–21 mcg/hr 0.6–2.1 mL/hr
MIDAZOLAM 1 mg/mL	Bolus	0.3 mg 0.3 mL
	Infusion	0.3–1.2 mg/hr 0.3–1.2 mL/hr

# Pediatric Critical Care Guide

Call ANMC PICU Accepting and Consult Physician 907-297-8809  
LifeMed 800-478-5433 (\*96)

Red

8 kg ————— 9 kg

Patient's Admission weight \_\_\_\_\_ kg

## RESUSCITATION

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.085 mg (0.85mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	0.85 mg (8.5 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.17 mg (1.7 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	0.45 mg (1.1 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	8.5 mEq (17 mL)
<input type="checkbox"/> Lidocaine 2%	8.5 mg (0.43 mL)
<input type="checkbox"/> Lidocaine 2% ET	26 mg (1.3 mL)
<input type="checkbox"/> Defibrillation	
1st dose	17 Joules
2nd dose	33 Joules
3rd dose	33 - 80 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	5J / 10J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	0.85 mg (0.28 mL)
2nd dose if needed	1.7 mg (0.56 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	42 mg (0.84 mL)
<input type="checkbox"/> Calcium Chloride 10%	170 mg (1.7 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	425 mg (0.85 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	17 mL D25

## SEIZURE

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	0.9 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	1.7 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	170 mg
<input type="checkbox"/> Fosphenytoin Load	170 mg-PE
<input type="checkbox"/> Phenobarbital Load	170 mg

### Alternative agents

<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	2 mg = 0.4 mL (0.2 mL / naris)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	4.2 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	2 mg

## OVERDOSE

<input type="checkbox"/> Dextrose (infuse over 3 min.)	17 mL D25
<input type="checkbox"/> Naloxone	0.85 mg
<input type="checkbox"/> Flumazenil	0.085 mg
<input type="checkbox"/> Glucagon	0.5 mg

## ICP

<input type="checkbox"/> Hypertonic Saline 3%	34 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	43 mL

## FLUIDS

### Volume Expansion

<input type="checkbox"/> Crystalloid (NS or LR)	170 mL
<input type="checkbox"/> Blood (PRBC)	85 mL

### Maintenance

<input type="checkbox"/> D5NS +20 mEq KCl/L	35 mL/HR
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## INTUBATION

### PREMEDICATIONS

Atropine 0.18 mg (*For under 1 year old or as needed for bradycardia*)

### INDUCTION AGENTS (*must use both medications together*)

Midazolam: 0.9 mg

#### AND

Fentanyl: 25 mcg

### PARALYTIC AGENTS

Rocuronium 9 mg

### POST INTUBATION SEDATION

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

## ANTIBIOTICS

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	850 mg	<input type="checkbox"/> Meropenem	360 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	170 mg	<input type="checkbox"/> Cefepime	450 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	170 mg		

## STEROIDS

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 18 mg
- Dexamethasone for upper airway edema 4.5 mg
- Dexamethasone for suspected bacterial meningitis. 1.3 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.**

## PRESSOR DRIPS

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

## EQUIPMENT

E.T Tube .....	3.5 Cuffed	*LMA .....	1.5
E.T Insertion Length .....	10.5 – 11 cm	O2 Mask .....	Pediatric NRB
Stylet .....	6 French	*ETCO2 .....	Pediatric
Suction Catheter .....	8 French	*Urinary Catheter .....	8 French
Laryngoscope .....	1 Straight	*Chest Tube .....	10 – 12 French
BVM .....	Child	NG Tube .....	5 – 8 French
Oral Airway .....	50 mm	Vascular Access .....	22 - 24 Ga
Glidescope .....	GVL 2	Intraosseous .....	15 or 18 Ga
*Nasopharyngeal Airway	14 French	BP Cuff .....	Infant/Child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

**MIXING****Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

DRUG		8-9 kg
FENTANYL 10 mcg/mL	Bolus	8 mcg 0.8 mL
	Infusion	8–27 mcg/hr 0.8–2.7 mL/hr
MIDAZOLAM 1 mg/mL	Bolus	0.4 mg 0.4 mL
	Infusion	0.4–1.6 mg/hr 0.4–1.6 mL/hr

**PROVIDER DOSING GUIDELINES**

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.



Patient's Admission weight \_\_\_\_\_ kg

**RESUSCITATION**

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.1 mg (1mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	1 mg (10 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.21mg (2.1 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	0.5 mg (1.3 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	10 mEq (20 mL)
<input type="checkbox"/> Lidocaine 2%	10 mg (0.5 mL)
<input type="checkbox"/> Lidocaine 2% ET	30 mg (1.5 mL)
<input type="checkbox"/> Defibrillation	
1st dose	20 Joules
2nd dose	40 Joules
3rd dose	40-100 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	5J / 10J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	1 mg (0.33 mL)
2nd dose if needed	2.1 mg (0.7 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	50 mg (1 mL)
<input type="checkbox"/> Calcium Chloride 10%	210 mg (2.1 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	550 mg (1.1 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	21 mL D25

**SEIZURE**

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	1 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	2 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	210 mg
<input type="checkbox"/> Fosphenytoin Load	210 mg-PE
<input type="checkbox"/> Phenobarbital Load	210 mg

**Alternative agents**

<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	2.5 mg = 0.5 mL (0.3 mL first naris, 0.2 to other)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	5 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	2.5 mg

**OVERDOSE**

<input type="checkbox"/> Dextrose (infuse over 3 min.)	21 mL D25
<input type="checkbox"/> Naloxone	1 mg
<input type="checkbox"/> Flumazenil	0.1 mg
<input type="checkbox"/> Glucagon	0.5 mg

**ICP**

<input type="checkbox"/> Hypertonic Saline 3%	42 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	53 mL

**FLUIDS****Volume Expansion**

<input type="checkbox"/> Crystalloid (NS or LR)	210 mL
<input type="checkbox"/> Blood (PRBC)	105 mL

**Maintenance**

<input type="checkbox"/> D5NS +20 mEq KCl/L	43 mL/HR
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**INTUBATION****PREMEDICATIONS** Atropine 0.2 mg (*For under 1 year old or as needed for bradycardia*)**INDUCTION AGENTS (*must use both medications together*)** Midazolam: 1 mg**AND** Fentanyl: 30 mcg**PARALYTIC AGENTS** Rocuronium: 11 mg**POST INTUBATION SEDATION**

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

**ANTIBIOTICS**

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	1000 mg	<input type="checkbox"/> Meropenem	440 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	210 mg	<input type="checkbox"/> Cefepime	550 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	210 mg		

**STEROIDS**

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 22 mg
- Dexamethasone for upper airway edema 6 mg
- Dexamethasone for suspected bacterial meningitis. 1.6 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.****PRESSOR DRIPS**

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

**EQUIPMENT**

E.T Tube .....	4.0 cuffed	*LMA.....	2
E.T Insertion Length .....	11-12 cm	O <sub>2</sub> Mask.....	Pediatric NRB
Stylet.....	10 French	*ETCO <sub>2</sub> .....	Pediatric
Suction Catheter.....	10 French	*Urinary Catheter.....	8 – 10 French
Laryngoscope.....	1-1.5 Straight	*Chest Tube.....	16 – 20 French
BVM.....	Child	NG Tube .....	8 – 10 French
Oral Airway .....	60 mm	Vascular Access .....	20 – 24 Ga
Glidescope.....	GVL 2–2.5	Intraosseous .....	15 Ga
*Nasopharyngeal Airway	18 French	BP Cuff .....	Child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

## MIXING

**Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

## PROVIDER DOSING GUIDELINES

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		10-11 kg
FENTANYL 10 mcg/mL	Bolus	10 mcg 1 mL
	Infusion	10–33 mcg/hr 1–3.3 mL/hr
MIDAZOLAM 1 mg/mL	Bolus	0.5 mg 0.5 mL
	Infusion	0.5–2 mg/hr 0.5–2 mL/hr

Patient's Admission weight \_\_\_\_\_ kg

**RESUSCITATION**

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.13mg (1.3 mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	1.3 mg (13 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.26 mg (2.6 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	0.65 mg (1.7 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	13 mEq (26 mL)
<input type="checkbox"/> Lidocaine 2%	13 mg (0.65 mL)
<input type="checkbox"/> Lidocaine 2% ET	40 mg (2 mL)
<input type="checkbox"/> Defibrillation	
1st dose	26 Joules
2nd dose	52 Joules
3rd dose	52-130 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	7 J / 14 J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	1.3 mg (0.43 mL)
2nd dose if needed	2.6 mg (0.86 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	65 mg (1.3 mL)
<input type="checkbox"/> Calcium Chloride 10%	260 mg (2.6 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	650 mg (1.3 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	26 mL D25

**SEIZURE**

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	1.3 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	2.6 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	260 mg
<input type="checkbox"/> Fosphenytoin Load	260 mg-PE
<input type="checkbox"/> Phenobarbital Load	260 mg
<b>Alternative agents</b>	
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	3 mg = 0.6 mL (0.3 mL / naris)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	6.5 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	3 mg

**OVERDOSE**

<input type="checkbox"/> Dextrose (infuse over 3 min.)	26 mL D25
<input type="checkbox"/> Naloxone	1.3 mg
<input type="checkbox"/> Flumazenil	0.13 mg
<input type="checkbox"/> Glucagon	0.5 mg

**ICP**

<input type="checkbox"/> Hypertonic Saline 3%	52 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	65 mL

**FLUIDS****Volume Expansion**

<input type="checkbox"/> Crystalloid (NS or LR)	260 mL
<input type="checkbox"/> Blood (PRBC)	130 mL

**Maintenance**

<input type="checkbox"/> D5NS +20 mEq KCl/L	48 mL/HR
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**INTUBATION****PREMEDICATION**

Atropine 0.25 mg (*For under 1 year old or as needed for bradycardia*)

**INDUCTION AGENTS (must use both medications together)**

Midazolam: 1.4 mg

**AND**

Fentanyl: 40 mcg

**PARALYTIC AGENTS**

Rocuronium 14 mg

**POST INTUBATION SEDATION**

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

**ANTIBIOTICS**

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	1300 mg	<input type="checkbox"/> Meropenem	560 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	260 mg	<input type="checkbox"/> Cefepime	700 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	260 mg		

**STEROIDS**

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 26 mg
- Dexamethasone for upper airway edema 7 mg
- Dexamethasone for suspected bacterial meningitis. 2 mg

Recommendation is due to the high incidence of Hib/HIA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.**

**PRESSOR DRIPS**

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

**EQUIPMENT**

E.T Tube .....	4.0 cuffed	*LMA .....	2
E.T Insertion Length .....	13.5 cm	O <sub>2</sub> Mask .....	Pediatric NRB
Stylet .....	10 French	*ETCO <sub>2</sub> .....	Pediatric
Suction Catheter .....	10 French	*Urinary Catheter .....	10 French
Laryngoscope .....	2 Straight	*Chest Tube .....	20-24 French
BVM .....	Child	NG Tube .....	10 French
Oral Airway .....	60 mm	Vascular Access .....	18-22 Ga
Glidescope .....	GVL 2.5–3	Intraosseous .....	15 Ga
*Nasopharyngeal Airway	20 French	BP Cuff .....	Child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

## MIXING

**Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

## PROVIDER DOSING GUIDELINES

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		12-13 kg	14 kg
<b>FENTANYL</b> 10 mcg/mL	Bolus	12 mcg 1.2 mL	14 mcg 1.4 mL
	Infusion	12–39 mcg/hr 1.2–3.9 mL/hr	14–45 mcg/hr 1.4–4.5 mL/hr
<b>MIDAZOLAM</b> 1 mg/mL	Bolus	0.6 mg 0.6 mL	0.7 mg 0.7 mL
	Infusion	0.6–2 mg/hr 0.6–2 mL/hr	0.7–2.8 mg/hr 0.7–2.8 mL/hr

# Pediatric Critical Care Guide

Call ANMC PICU Accepting and Consult Physician 907-297-8809  
LifeMed 800-478-5433 (\*96)

**White**

**15 kg** ————— **18 kg**

Patient's Admission weight \_\_\_\_\_ kg

## RESUSCITATION

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.17 mg (1.7mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	1.7 mg (17 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.33 mg (3.3 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	0.85 mg (2.1 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	16.5 mEq (33 mL)
<input type="checkbox"/> Lidocaine 2%	17 mg (0.85 mL)
<input type="checkbox"/> Lidocaine 2% ET	50 mg (2.5 mL)
<input type="checkbox"/> Defibrillation	
1st dose	33 Joules
2nd dose	66 Joules
3rd dose	66-160 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	8 J / 16 J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	1.7 mg (0.56 mL)
2nd dose if needed	3.3 mg (1.1 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	80 mg (1.6 mL)
<input type="checkbox"/> Calcium Chloride 10%	330 mg (3.3 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	850 mg (1.7 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	33 mL D25

## SEIZURE

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	1.7 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	3.3 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	330 mg
<input type="checkbox"/> Fosphenytoin Load	330 mg-PE
<input type="checkbox"/> Phenobarbital Load	330 mg

### Alternative agents

<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	4 mg = 0.8 mL (0.4 mL / naris)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	8 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	4 mg

## OVERDOSE

<input type="checkbox"/> Dextrose (infuse over 3 min.)	33 mL D25
<input type="checkbox"/> Naloxone	1.6 mg
<input type="checkbox"/> Flumazenil	0.16 mg
<input type="checkbox"/> Glucagon	0.5 mg

## ICP

<input type="checkbox"/> Hypertonic Saline 3%	68 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	85 mL

## FLUIDS

### Volume Expansion

<input type="checkbox"/> Crystalloid (NS or LR)	325 mL
<input type="checkbox"/> Blood (PRBC)	165 mL

### Maintenance

<input type="checkbox"/> D5NS +20 mEq KCl/L	55 mL/HR
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## INTUBATION

### PREMEDICATIONS

Atropine 0.35 mg (*For under 1 year old or as needed for bradycardia*)

### INDUCTION AGENTS (*must use both medications together*)

Midazolam: 1.8 mg

#### AND

Fentanyl: 50 mcg

### PARALYTIC AGENTS

Rocuronium: 18 mg

### POST INTUBATION SEDATION

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

## ANTIBIOTICS

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	1700 mg	<input type="checkbox"/> Meropenem	720 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	340 mg	<input type="checkbox"/> Cefepime	900 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	340 mg		

## STEROIDS

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 34 mg
- Dexamethasone for upper airway edema 9 mg
- Dexamethasone for suspected bacterial meningitis. 2.7 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.**

## PRESSOR DRIPS

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

## EQUIPMENT

E.T Tube .....	4.5 - 5.0 Cuffed	*LMA.....	2
E.T Insertion Length .....	14 - 15 cm	O <sub>2</sub> Mask.....	Pediatric NRB
Stylet.....	10 French	*ETCO <sub>2</sub> .....	Adult
Suction Catheter.....	10 French	*Urinary Catheter.....	10 - 12 French
Laryngoscope.....	2 Straight	*Chest Tube.....	20 - 24 French
BVM.....	Child	NG Tube .....	10 French
Oral Airway .....	60 mm	Vascular Access .....	18 - 22 Ga
Glidescope.....	GVL 2.5-3	Intraosseous .....	15 Ga
*Nasopharyngeal Airway	22 French	BP Cuff .....	Child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

**MIXING****Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

**PROVIDER DOSING GUIDELINES**

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		15-16 kg	17-18 kg
<b>FENTANYL</b> 10 mcg/mL	Bolus	15 mcg 1.5 mL	17 mcg 1.7 mL
	Infusion	15–45 mcg/hr 1.5–4.5 mL/hr	17–50 mcg/hr 1.7–5 mL/hr
<b>MIDAZOLAM</b> 1 mg/mL	Bolus	0.8 mg 0.8 mL	0.9 mg 0.9 mL
	Infusion	0.8–2.8 mg/hr 0.8–2.8 mL/hr	0.9–3 mg/hr 0.9–3 mL/hr

Patient's Admission weight \_\_\_\_\_ kg

**RESUSCITATION**

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.21 mg (2.1mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	2.1 mg (21 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.42 mg (4.2 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	1.0 mg (2.5 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	21 mEq (42 mL)
<input type="checkbox"/> Lidocaine 2%	20 mg (1 mL)
<input type="checkbox"/> Lidocaine 2% ET	60 mg (3 mL)
<input type="checkbox"/> Defibrillation	
1st dose	40 Joules
2nd dose	80 Joules
3rd dose	80-200 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	11 J / 22 J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	2.1 mg (0.7 mL)
2nd dose if needed	4.2 mg (1.4 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	105 mg (2.1 mL)
<input type="checkbox"/> Calcium Chloride 10%	420 mg (4.2 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	1050 mg (2.1 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	21 mL <b>D50</b>

**SEIZURE**

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	2 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	4.2 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	420 mg
<input type="checkbox"/> Fosphenytoin Load	420 mg-PE
<input type="checkbox"/> Phenobarbital Load	420 mg
<b>Alternative agents</b>	
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	4.5 mg = 0.9 mL (0.5 mL to first naris, 0.4 to other)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	10 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	4.5 mg

**OVERDOSE**

<input type="checkbox"/> Dextrose (infuse over 3 min.)	21 mL D50
<input type="checkbox"/> Naloxone	2 mg
<input type="checkbox"/> Flumazenil	0.2 mg
<input type="checkbox"/> Glucagon	1 mg

**ICP**

<input type="checkbox"/> Hypertonic Saline 3%	84 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	105 mL

**FLUIDS****Volume Expansion**

<input type="checkbox"/> Crystalloid (NS or LR)	420 mL
<input type="checkbox"/> Blood (PRBC)	210 mL

**Maintenance**

<input type="checkbox"/> D5NS +20 mEq KCl/L	63 mL/HR
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**INTUBATION****PREMEDICATIONS** Atropine 0.4 mg (*For under 1 year old or as needed for bradycardia*)**INDUCTION AGENTS (*must use both medications together*)** Midazolam: 2.3 mg**AND** Fentanyl: 55 mcg**PARALYTIC AGENTS** Rocuronium: 23 mg**POST INTUBATION SEDATION**

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

**ANTIBIOTICS**

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	2000 mg	<input type="checkbox"/> Meropenem	920 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	420 mg	<input type="checkbox"/> Cefepime	1150 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	420 mg		

**STEROIDS**

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 42 mg
- Dexamethasone for upper airway edema 11 mg
- Dexamethasone for suspected bacterial meningitis. 3.4 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.****PRESSOR DRIPS**

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

**EQUIPMENT**

E.T Tube .....	5.0 - 5.5 cuffed	*LMA.....	2 - 2.5
E.T Insertion Length .....	16.5 cm	O <sub>2</sub> Mask .....	Pediatric NRB
Stylet.....	10 French	*ETCO <sub>2</sub> .....	Adult
Suction Catheter.....	10 French	*Urinary Catheter.....	10-12 French
Laryngoscope .....	2 Straight or Curved	*Chest Tube.....	24-32 French
BVM.....	Child	NG Tube .....	12-14 French
Oral Airway .....	70 mm	Vascular Access .....	18-20 Ga
Glidescope.....	GVL 2.5–3	Intraosseous .....	15 Ga
*Nasopharyngeal Airway	24 French	BP Cuff .....	Child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

## MIXING

**Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

DRUG		19-20 kg	21-23 kg
<b>FENTANYL</b> 10 mcg/mL	Bolus	20 mcg 2 mL	22 mcg 2.2 mL
	Infusion	20–60 mcg/hr 2–6 mL/hr	20–70 mcg/hr 2–7 mL/hr
<b>MIDAZOLAM</b> 1 mg/mL	Bolus	1 mg 1 mL	1 mg 1 mL
	Infusion	1–3 mg/hr 1–3 mL/hr	1–3 mg/hr 1–3 mL/hr

## PROVIDER DOSING GUIDELINES

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.



Patient's Admission weight \_\_\_\_\_ kg

**RESUSCITATION**

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.27 mg (2.7mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	2.7 mg (27 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.5 mg (5 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	1 mg (2.5 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	27 mEq (54 mL)
<input type="checkbox"/> Lidocaine 2%	27 mg (1.35 mL)
<input type="checkbox"/> Lidocaine 2% ET	80 mg (4 mL)
<input type="checkbox"/> Defibrillation	
1st dose	53 Joules
2nd dose	106 Joules
3rd dose	106-250 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	13 J/ 26 J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	2.7 mg (0.9 mL)
2nd dose if needed	5.4 mg (1.8 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	130 mg (2.6 mL)
<input type="checkbox"/> Calcium Chloride 10%	530 mg (5.3 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	1350 mg (2.7 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	27 mL <b>D50</b>

**SEIZURE**

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	2.7 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	5.3 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	530 mg
<input type="checkbox"/> Fosphenytoin Load	530 mg-PE
<input type="checkbox"/> Phenobarbital Load	530 mg

**Alternative agents**

<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	5.5 mg = 1.1 mL (0.6 mL to first naris, 0.5 to other)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	10 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	5.5 mg

**OVERDOSE**

<input type="checkbox"/> Dextrose (infuse over 3 min.)	27 mL D50
<input type="checkbox"/> Naloxone	2 mg
<input type="checkbox"/> Flumazenil	0.2 mg
<input type="checkbox"/> Glucagon	1 mg

**ICP**

<input type="checkbox"/> Hypertonic Saline 3%	108 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	135 mL

**FLUIDS****Volume Expansion**

<input type="checkbox"/> Crystalloid (NS or LR)	530 mL
<input type="checkbox"/> Blood (PRBC)	270 mL

**Maintenance**

<input type="checkbox"/> D5NS +20 mEq KCl/L	68 mL/HR
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**INTUBATION****PREMEDICATIONS** Atropine 0.5 mg (*For under 1 year old or as needed for bradycardia*)**INDUCTION AGENTS (*must use both medications together*)** Midazolam: 2.9 mg**AND** Fentanyl: 85 mcg**PARALYTIC AGENTS** Rocuronium: 29 mg**POST INTUBATION SEDATION**

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

**ANTIBIOTICS**

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	2000 mg	<input type="checkbox"/> Meropenem	1160 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	540 mg	<input type="checkbox"/> Cefepime	1450 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	540 mg		

**STEROIDS**

- Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 58 mg
- Dexamethasone for upper airway edema 14 mg
- Dexamethasone for suspected bacterial meningitis. 4 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.****PRESSOR DRIPS**

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

**EQUIPMENT**

E.T Tube .....	5.5 Cuffed	*LMA.....	2.5
E.T Insertion Length .....	17-18 cm	O <sub>2</sub> Mask.....	Pediatric NRB
Stylet.....	14 French	*ETCO <sub>2</sub> .....	Adult
Suction Catheter.....	10 French	*Urinary Catheter.....	12 French
Laryngoscope.....	2 Straight or Curved	*Chest Tube.....	28-32 French
BVM.....	Child	NG Tube .....	14-18 French
Oral Airway .....	80 mm	Vascular Access .....	18 - 20 Ga
Glidescope.....	GVL 2.5-3	Intraosseous .....	15 Ga
*Nasopharyngeal Airway	26 French	BP Cuff .....	Child

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

## MIXING

**Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

DRUG		24-29 kg
FENTANYL 10 mcg/mL	Bolus	30 mcg 3 mL
	Infusion	25–75 mcg/hr 2.5–7.5 mL/hr
MIDAZOLAM 1 mg/mL	Bolus	1.5 mg 1.5 mL
	Infusion	1–4 mg/hr 1–4 mL/hr

## PROVIDER DOSING GUIDELINES

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

## REMEMBER:

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

Patient's Admission weight \_\_\_\_\_ kg

**RESUSCITATION**

<input type="checkbox"/> Epinephrine IV/IO 0.1mg/mL	0.33 mg (3.3mL)
<input type="checkbox"/> Epinephrine ET 0.1mg/mL	3.3 mg (33 mL)
<input type="checkbox"/> Atropine (0.1 mg/mL)	0.5 mg (5 mL)
<input type="checkbox"/> Atropine <b>ET (0.4 mg/mL)</b>	1 mg (2.5 mL)
<input type="checkbox"/> Sodium Bicarbonate 4.2%	33 mEq (66 mL)
<input type="checkbox"/> Lidocaine 2%	33 mg (1.65 mL)
<input type="checkbox"/> Lidocaine 2% ET	100 mg (5 mL)
<input type="checkbox"/> Defibrillation	
1st dose	66 Joules
2nd dose	130 Joules
3rd dose	130-300 Joules
<input type="checkbox"/> Cardioversion	
1st / 2nd Dose	17 J / 34 J
<input type="checkbox"/> Adenosine (3 mg/mL)	
1st dose	3.3 mg (1.1 mL)
2nd dose if needed	6.6 mg (2.2 mL)
<input type="checkbox"/> Amiodarone (50 mg/mL)	165 mg (3.3 mL)
<input type="checkbox"/> Calcium Chloride 10%	660 mg (6.6 mL)
<input type="checkbox"/> Magnesium Sulfate (1 gm/2 mL)	1650 mg (3.3 mL)
<input type="checkbox"/> Dextrose (infuse over 3 min with fluids)	33 mL <b>D50</b>

**SEIZURE**

<input type="checkbox"/> Lorazepam ( <i>Ativan</i> )	3.3 mg
<input type="checkbox"/> Diazepam ( <i>Valium</i> )	6.6 mg
<input type="checkbox"/> Levetiracetam ( <i>Keppra</i> )	660 mg
<input type="checkbox"/> Fosphenytoin Load	660 mg-PE
<input type="checkbox"/> Phenobarbital Load	660 mg
<b>Alternative agents</b>	
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) Intranasal	6.5 mg = 1.3 mL (0.7 mL to first naris, 0.6 to other)
<input type="checkbox"/> Diazepam ( <i>Valium</i> ) – RECTAL	10 mg
<input type="checkbox"/> Midazolam ( <i>Versed</i> ) IM	6.5 mg

**OVERDOSE**

<input type="checkbox"/> Dextrose (infuse over 3 min.)	33 mL D50
<input type="checkbox"/> Naloxone	2 mg
<input type="checkbox"/> Flumazenil	0.2 mg
<input type="checkbox"/> Glucagon	1 mg

**ICP**

<input type="checkbox"/> Hypertonic Saline 3%	132 mL
<input type="checkbox"/> Mannitol 20% IV Solution (1gm/kg) ( <b>must filter</b> )	165 mL

**FLUIDS****Volume Expansion**

<input type="checkbox"/> Crystalloid (NS or LR)	660 mL
<input type="checkbox"/> Blood (PRBC)	330 mL

**Maintenance**

<input type="checkbox"/> D5NS +20 mEq KCl/L	73 mL/HR
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**INTUBATION****PREMEDICATIONS**

Atropine 0.5 mg (*For under 1 year old or as needed for bradycardia*)

**INDUCTION AGENTS (must use both medications together)**

Midazolam: 3.6 mg

**AND**

Fentanyl: 100 mcg

**PARALYTIC AGENTS**

Rocuronium: 36 mg

**POST INTUBATION SEDATION**

See Table "Sedation of The Intubated Pediatric Patient" reverse side (printed) or next page (PDF)

**ANTIBIOTICS**

<input type="checkbox"/> Ceftriaxone (100 mg/kg)	2000 mg	<input type="checkbox"/> Meropenem	1440 mg
<input type="checkbox"/> Vancomycin (20 mg/kg)	660 mg	<input type="checkbox"/> Cefepime	1800 mg
<input type="checkbox"/> Acyclovir (20 mg/kg)	660 mg		

**STEROIDS**

Solumedrol for bronchospasm/anaphylaxis/fluid & catacholamine resistant shock 70 mg

Dexamethasone for upper airway edema 18 mg

Dexamethasone for suspected bacterial meningitis. 5 mg

Recommendation is due to the high incidence of HiB/HiA infection in this region.

**IT MUST BE GIVEN BEFORE OR CONCURRENT WITH THE FIRST DOSE OF ANTIBIOTICS.**

**PRESSOR DRIPS**

Dose	Mixing Instructions
Norepinephrine 0.1–2 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min
Epinephrine 0.1–1 mcg/kg/min	0.6 x Wt in kg = # mg to add to 100 mL D5W 1 mL/hr of this concentration = 0.1 mcg/kg/min

**EQUIPMENT**

E.T Tube .....	6 - 6.5 Cuffed	*LMA.....	3
E.T Insertion Length .....	18.5-19.5 cm	O <sub>2</sub> Mask .....	Pediatric/Adult
Stylet.....	14 French		NRB
Suction Catheter.....	10-12 French	*ETCO <sub>2</sub> .....	Adult
Laryngoscope.....	3 Straight or	*Urinary Catheter.....	12 French
	Curved	*Chest Tube.....	32-38 French
BVM.....	Adult	NG Tube .....	16-18 French
Oral Airway .....	80 mm	Vascular Access .....	16 -20 Ga
Glidescope.....	GVL 3	Intraosseous.....	15 Ga
*Nasopharyngeal Airway	26 French	BP Cuff .....	Small Adult

\*May not be included in weight-based cart, but available in ER supplies and emergency airway red box.

**MIXING****Fentanyl (10mcg/mL):**

1. Remove 250mcg/5mL ampules of Fentanyl and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST must be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50 mL 0.9% Sodium Chloride Bag, leaving 40 mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Using a Filter Needle, draw 10mL (500mcg) from the Fentanyl ampules. DO NOT INJECT INTO BAG USING FILTER NEEDLE.
4. Remove and discard the filter needle, replace with a regular needle, and inject the 10mL (500mcg) Fentanyl into the 0.9% Sodium Chloride Bag.
5. Pull Boluses from this infusion bag NOT from Fentanyl vials/ampules.

**Midazolam for > 5kg (1mg/mL):**

1. Remove **10mg/2mL** vials of Midazolam and one 50mL bag of 0.9% Sodium Chloride from the Pyxis machine. PHARMACIST MUST be called if this concentration is not available.
2. Withdraw and discard 10mL from the 50mL 0.9% Sodium Chloride Bag and discard, leaving 40mL in the bag. (This is a crucial step for achieving an accurate concentration.)
3. Withdraw 10mL (50mg) from the Midazolam vials and inject into the 0.9% Sodium Chloride Bag.
4. Pull Boluses from this infusion bag NOT from Midazolam vials/ampules.

**Dosing Reference:**

**Fentanyl** (10mcg/ml) – bolus dose 1-2 mcg/kg (max dose 50 mcg/bolus); infusion dose range 1-3 mcg/kg/hr. **Midazolam** (1mg/ml) – bolus dose 0.05-0.1 mg/kg (max dose 2 mg/bolus); infusion dose range 0.05-0.2mg/kg/hr.

**PROVIDER DOSING GUIDELINES**

All dose adjustments must be ordered by the provider.

Titrate infusions and dosing to meet patient sedation needs as follows:

- Start with boluses post-intubation and also begin fentanyl infusion followed by midazolam if needed.
- After an infusion has been started and several boluses have been given, reassess the level of sedation.
- If the level of sedation is not adequate after 3 boluses, the rate of the infusion can be increased by 25–50% within the dosing range on the table. This will not have an immediate effect; give a bolus at the same time.
- May give Fentanyl and Midazolam boluses every 10-15 minutes (or sooner) as needed.
- If **hypotension is a concern**, hold or lower the Midazolam dose. Fentanyl is less likely to cause hemodynamic changes.
- Boluses should be drawn up or bolused on the pump from pre-mixed bags so the same concentration is ALWAYS used.

**REMEMBER:**

- Use boluses to rapidly increase the level of sedation.
- Patient will not have an immediate response to infusion rate changes; infusions are meant to maintain a level of sedation.
- May use lower doses of either medication if sedation is adequate.
- Fentanyl, Midazolam, and pressors may be run together in the same line. However, DO NOT give a bolus in the same line as a pressor, as this would bolus the pressor as well.
- Fentanyl and Midazolam are NOT compatible with Bicarbonate.

DRUG		30-36 kg
<b>FENTANYL</b> 10 mcg/mL	Bolus	33 mcg 3.3 mL
	Infusion	30–90 mcg/hr 3–9 mL/hr
<b>MIDAZOLAM</b> 1 mg/mL	Bolus	2 mg 2 mL
	Infusion	1.5–4 mg/hr 1.5–4 mL/hr