TAB 10

INTER-FACILITY MEDICATION INFUSION GUIDELINES

PURPOSE:

- The purpose of this section is to provide guidelines for the initiation, titration, adjustment and / or discontinuation of IV drip medications. It is within the Ohio scope of practice for paramedics to transport patients receiving intravenous (IV) drip medications.
- This guideline section is based for departments that perform inter-facility hospital transports. If additional departments require the usage of this guideline for departmental needs, then paramedics need further credentialing through the Northwest Ohio EMS Medical Directors or their designee.

INDICATIONS:

- Paramedics shall follow written guidelines, which have been developed and signed by the Northwest Ohio EMS Medical Directors, for the infusion of medications that are not specifically outlined within the EMS scope of practice as outlined by the State of Ohio.
    a. The training for the infusion of these specific medications shall not be done at the time of the inter-facility transfer of the patient.
    b. This training must be completed well in advance of the transfer.
    c. The completion of the training must be documented and approved by the medical directors
    d. Continuing education and recurrent training on the indications, contraindications, pharmacology, and side effects of these medications is also required.

2. If the medication is addressed by guidelines in the Northwest Ohio EMS operational guidelines and within the Ohio Paramedic scope of practice, the paramedic is permitted to initiate, titrate, adjust or discontinue the medication in accordance with existing guidelines or as provided by the medical director.

- If the medication is not contained within the guidelines, the paramedic may transport the patient, but may not titrate or adjust the medication. The IV drip medication may be discontinued if the patient develops adverse effects from the medication. Discontinuation should be done in consultation with the transferring physician or medical control.

SPECIAL CONSIDERATIONS:

- May monitor the infusion of blood or blood products, but shall not initiate the infusion of blood or blood products.
- Shall not initiate the infusion of intravenous parenteral nutrition.
- Shall not initiate or continue the infusion of chemotherapeutic agents.
- Unless on a critical care unit, paramedics should not initiate thrombolytic agents.

- Paramedics should refuse to initiate a transport for safety reasons, if the EMS provider feels that adequate training on the infusion of a specific intervention has not been provided well in advance of the transfer as outlined above, or if the EMS provider feels uncomfortable with the transport for any reason, including but not exclusive to patient scenario or any requested parameter of patient care delivery ordered during patient transport.

AMIODARONE (CORDARONE)

INDICATION:

- Ventricular fibrillation / Ventricular Tachycardia (with or without pulse)
- Atrial fibrillation / flutter

ACTION:

- Prolongs action potential and refractory period, slows the sinus rate
- Increases PR and QT intervals
- Decreases peripheral vascular resistance
- Onset: 1 – 4 minutes
- Duration: > 24 hours

TREATMENT

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Initial Load 150 mg over 10 min (15 mg/min IV infusion) THEN
- Maintenance
    - 360 mg over the 6 hours (1 mg / min),
        - 900 mg (18 mL) per 500 mL (D5W or NS; concentration = 1.8 mg/mL) and run at 1 mg / min
    - THEN 540 mg over 18 hr (0.5 mg / min)
        - Slow infusion rate of 900 mg amiodarone in 500 mL D5W or NS to 0.5 mg / min

PRECAUTIONS:

- Pregnancy Category D
- Heart Failure

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Severe sinus node dysfunction
- Sinus bradycardia
- Second or Third degree AV block

SIDE EFFECTS:

- Hypotension
- Nausea
- Tremors

Adult			
Indication	**Dose**	**Route (s)**	**Special**
V-fib Pulseless V-tach	300 mg 150 mg	IV / IO bolus	Repeat once @ 150 mg
Atrial Fibrillation PSVT V-tach with pulse	150 mg	IV / IO infusion	Mix with 100 ml NS and administer over 10 minutes
V-fib / V-Tach Maintenance	1 mg / min for 6 hours then 0.5 mg / min for 18 hours	IV / IO	
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
V-fib Pulseless V-tach	5 mg / kg (max 300 mg)	IV / IO bolus	Repeat once @ max 150 mg
V-tach with pulse	5 mg / kg (max 150 mg)	IV / IO infusion	Mix with 2 ml / kg of NS and infuse over 20 minutes

ANTI-INFECTIVE AGENTS

INDICATION:

- Infectious etiology

ACTION:

- Acts against bacterial, viral or fungal infections

TREATMENT:

- Anti-infective agents are a weight based drug for pediatric patients. Crew members must verify an accurate patient weight before treatment
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Additional anti-infective agents may be obtained from the referring hospital and initiated by the nurse after other anti-infective agents have been completed.

PRECAUTIONS:

- Pregnancy Category (Varies depending antibiotic)
- If any adverse reactions are present, discontinue antibiotic drip

CONTRAINDICATIONS:

- Allergic reaction to medication

SIDE EFFECTS:

- Rash
- Wheals
- Airway compromise
- Other severe effects

CONCENTRATION:

- Depends upon medication being administered

CALCIUM CHLORIDE | GLUCONATE

INDICATION:

- Calcium channel blocker Overdose (Calcium Chloride or Calcium Gluconate)
- Hyperkalemia (Calcium Chloride or Calcium Gluconate)
- Hydrofluoric Acid (Calcium Gluconate only)

ACTION:

- Increases Cardiac Contractility
- Onset: 1 – 5 minutes
- Duration: Dose dependent, may persist for 4 hours after IV administration

TREATMENT:

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patient. Goal of SBP > 90 mmHg
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing
    - Adult is 1 gram / hr IV
    - Pediatrics 6 – 16 mg / kg for calcium channel blocker OD (max 1 gram / hr)

PRECAUTIONS:

- Pregnancy Category B
- Flush IV line between the administration of Calcium and Sodium Bicarbonate
- Extravasation may cause necrosis of the tissues

CONTRAINDICATIONS:

- Patients receiving Digitalis

SIDE EFFECTS:

- Arrhythmias – bradycardia, ventricular irritability
- Hypotension
- Acute MI/Stroke

SPECIAL CONSIDERATION:

- Calcium gluconate 2.5 % solution – mix 1 Gram / 10 ml (10 %) with 30 ml NS
- Calcium gluconate 1% solution – mix 1 Gram / 10 ml (10 %) with 90 ml NS

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Hypocalcemia	100 – 1000 mg	IV / IO	Infuse over 10 minutes
Hyperkalemia with wide complex QRS	1000 mg	IV / IO	DO NOT mix with sodium bicarbonate
Calcium Channel Blocker OD	1000 mg	IV / IO	Infuse over 10 minutes May follow with IV infusion of 1 g/hr
Magnesium Sulfate OD	1000 mg	IV / IO	10% solution
Hydrofluoric Acid Dermal Exposure		Topical	Calcium Gluconate 2.5 % Gel
Hydrofluoric Acid Inhalation Exposure		Inhalation	Calcium Gluconate 2.5 % Nebulized
Hydrofluoric Acid Eye Exposure		Topical	Calcium Gluconate 1 % Irrigation
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Hyperkalemia with wide complex QRS	20 mg / kg (Max 1 gram)	IV / IO	DO NOT mix with sodium bicarbonate
Calcium Channel Blocker OD	8 – 16 mg / kg (Max 1 gram)	IV / IO	Infuse over 10 minutes

DILITIAZEM (CARDIZEM)

INDICATION:

- Atrial fibrillation / flutter with rapid ventricular response

ACTION:

- Slows AV conduction
- Decreases rate of ventricular response
- Onset: 2 – 5 minutes
- Duration: 3 – 4 hours

TREATMENT

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing is between 5 – 15 mg / hr and can be increased by 2.5 mg hour until desired effect is reached. Do not exceed maximum dose of 15 mg / hr. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes

PRECAUTIONS:

- Pregnancy Category C
- Watch for hypotension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Sick Sinus Syndrome
- 2^{nd} or 3^{rd} degree AV Block, except with a functioning pacemaker
- Severe hypotension
- Cardiogenic Shock
- A-Fib or A-Flutter associated with accessory bypass tract (WPW or short PR syndrome)
- Ventricular Tachycardia

SIDE EFFECTS:

- Nausea/Vomiting
- Hypotension
- Dizziness

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Atrial fibrillation or Flutter w/ RVR or PSVT	0.25 mg / kg Repeat 0.35 mg / kg	IV / IO	Give over 2 minutes
Pediatric – not indicated			

IV Bolus		
LBS / Kg	**INITIAL BOLUS** **Bolus Dose at 0.25 mg/kg**	**AFTER 15 MINUTES** **Bolus Dose at 0.35 mg/kg**
90 / 41	10	14.5
100 / 45	11	16
110 / 50	12.5	17.5
120 / 55	13.5	19
130 / 59	14.5	20.5
140 / 64	16	22
150 / 68	17	24
160 / 73	18	25.5
170 / 77	19	27
180 / 82	20.5	28.5
190 / 86	21.5	30
200 / 91	22.5	31.5
210 / 95.5	24	33.5
220 / 100	25	35
230 / 104.5	26	36.5
240 / 109	27	38

Diluent Volume	Quantity of diltiazem injection to add	Final Concentration	Administration	
			Dose	Milliliter / Hour
100	100 mg (powder)	1 mg / ml	5	5
			10	10
			15	15
100	125 mg (25 ml)	1 mg / ml	5	5
			10	10
			15	15
250	250 mg (50 ml)	0.83 mg / ml	5	6
			10	12
			15	18
500	250 mg (50 ml)	0.45 mg / ml	5	11
			10	22
			15	33

DOPAMINE (INTROPIN)

INDICATION:

- Hypotension

ACTION:

- Increases cardiac contractility
- Causes peripheral vasoconstriction
- Onset: 2 – 4 minutes
- Duration: 10 – 15 minutes

TREATMENT

- Dopamine is a weight based drug. The transport crew must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- May be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes. If decreasing dose, do not do so suddenly
- Typical dosing is between 2 – 20 mcg / kg / min and can be increased by 2 – 5 mcg / kg / min until desired effect is reached. Do not exceed maximum dose of 20 mcg / kg / min

PRECAUTIONS:

- Pregnancy Category C
- Tachyarrhythmias
- Ventricular irritability

CONTRAINDICATIONS:

- Tachyarrhythmias
- Ventricular Fibrillation

SIDE EFFECTS:

- Tachycardia
- Hypertension
- Increased myocardial oxygen demand

SPECIAL CONSIDERATIONS:

- Consider hypovolemia and treat this with appropriate fluids before administration of Dopamine.

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Hypotension Cardiogenic Shock	2 – 5 mcg / kg / min (Max 20 mcg / kg / min)	IV / IO	Titrate for SBP > 90 mmHg
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Hypotension	2 – 5 mcg / kg / min (Max 20 mcg / kg / min)	IV / IO	Titrate for SBP > 90 mmHg

CONCENTRATION:

- 400 mg / 250 ml

Weight in Kilogram	Micrograms / Minute														
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**14**	**16**	**18**	**20**
25	0.9	1.9	2.8	3.8	4.7	5.6	6.6	7.5	8.4	9.4	11.3	13.1	15.0	16.9	18.8
30	1.1	2.3	3.4	4.5	5.6	6.8	7.9	9.0	10.1	11.3	13.5	15.8	18.0	20.3	22.5
35	1.3	2.6	3.9	5.3	6.6	7.9	9.2	10.5	11.8	13.1	15.8	18.4	21.0	23.6	26.3
40	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	18.0	21.0	24.0	27.0	30.0
45	1.7	3.4	5.1	6.8	8.4	10.1	11.8	13.5	15.2	16.9	20.3	23.6	27.0	30.4	33.8
50	1.9	3.8	5.6	7.5	9.4	11.3	13.1	15.0	16.9	18.8	22.5	26.3	30.0	33.8	37.5
55	2.1	4.1	6.2	8.3	10.3	12.4	14.4	16.5	18.6	20.6	24.8	28.9	33.0	37.1	41.3
60	2.3	4.5	6.8	9.0	11.3	13.5	15.8	18.0	20.3	22.5	27.0	31.5	36.0	40.5	45.0
65	2.4	4.9	7.3	9.8	12.2	14.6	17.1	19.5	21.9	24.4	29.3	34.1	39.0	43.9	48.8
70	2.6	5.3	7.9	10.5	13.1	15.8	18.4	21.0	23.6	26.3	31.5	36.8	42.0	47.3	52.5
75	2.8	5.6	8.4	11.3	14.1	16.9	19.7	22.5	25.3	28.1	33.8	39.4	45.0	50.6	56.3
80	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	36.0	42.0	48.0	54.0	60.0
85	3.2	6.4	9.6	12.8	15.9	19.1	22.3	25.5	28.7	31.9	38.3	44.6	51.0	57.4	63.8
90	3.4	6.8	10.1	13.5	16.9	20.3	23.6	27.0	30.4	33.8	40.5	47.3	54.0	60.8	67.5
95	3.6	7.1	10.7	14.3	17.8	21.4	24.9	28.5	32.1	35.6	42.8	49.9	57.0	64.1	71.3
100	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5	45.0	52.5	60.0	67.5	75.0
105	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.4	39.4	47.3	55.1	63.0	70.9	78.8
110	4.1	8.3	12.4	16.5	20.6	24.8	28.9	33.0	37.1	41.3	49.5	57.8	66.0	74.3	82.5
115	4.3	8.6	12.9	17.3	21.6	25.9	30.2	34.5	38.8	43.1	51.8	60.4	69.0	77.6	86.3
120	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	45.0	54.0	63.0	72.0	81.0	90.0
125	4.7	9.4	14.1	18.8	23.4	28.1	32.8	37.5	42.2	46.9	56.3	65.6	75.0	84.4	93.8
130	4.9	9.8	14.6	19.5	24.4	29.3	34.1	39.0	43.9	48.8	58.5	68.3	78.0	87.8	97.5
135	5.1	10.1	15.2	20.3	25.3	30.4	35.4	40.5	45.6	50.6	60.8	70.9	81.0	91.1	101.3
140	5.3	10.5	15.8	21.0	26.3	31.5	36.8	42.0	47.3	52.5	63.0	73.5	84.0	94.5	105.0
145	5.4	10.9	16.3	21.8	27.2	32.6	38.1	43.5	48.9	54.4	65.3	76.1	87.0	97.9	108.8
150	5.6	11.3	16.9	22.5	28.1	33.8	39.4	45.0	50.6	56.3	67.5	78.8	90.0	101.3	112.5
	Milliliters / Hour														

EPINEPHRINE (ADRENALIN)

INDICATION:

- Anaphylaxis
- Cardiac arrest
- Respiratory distress
- Hypotension

ACTION:

- Increases heart rate and automaticity, systemic vascular resistance
- Increases cardiac contractility and electrical activity
- Onset: Sub-Q: 5 – 10 minutes; IV: 1 – 2 minutes
- Duration: 5 – 10 minutes

TREATMENT

- Epinephrine drip is a weight based drug for pediatrics. Crew members must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing
    - Adult – 0.5 – 10 mcg / min and can be increased by 1 mcg / min until desired effect is reached. Do not exceed maximum dose of 40 mcg / min.
    - Pediatric – 0.01 – 1 mcg / kg / min and can be increased by 0.1 mcg / kg / min until desired effect is reached. Do not exceed maximum dose of 4 mcg / min.
    - When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes

PRECAUTIONS:

- Pregnancy Category C
- Can be deactivated by alkaline solutions

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Hypovolemic shock
- Coronary Insufficiency, and Hypertension

SIDE EFFECTS:

- Nausea / Headache / Anxiety
- Precipitation of angina

- Hypertension, Tachycardia, Palpitations and dysrhythmias

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Asthma Anaphylaxis	0.3 mg (1:1000)	IM	
	1 – 4 mcg / min (1:10,000)	IV / IO	Drip
Asystole / PEA V-Fib / V-Tach	1 mg	IV / IO	Repeat q 3 – 5 min
	1 – 4 mcg / min	IV / IO	Drip
Hypotension	Epi Drip		
Respiratory Distress	0.5 mg	Nebulizer	May repeat after 30 min
	0.5 ml of 2.5% racemic epinephrine	Nebulizer	Mix with 3 ml of NS May repeat after 30 min
Sepsis	1 – 20 mcg / min	IV / IO	Max 40 mcg / min
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Asthma Anaphylaxis	0.01 mg / kg (1:1000)	IM	Max single dose 0.3 mg May repeat q 3 – 5 min
	0.01 mg / kg (1:10,000)	IV / IO	Max single dose 0.3 mg May repeat q 3 – 5 min
	0.1 – 1 mcg / kg / min	IV / IO	Drip
Asystole / PEA V-Fib / V-Tach	0.01 mg / kg (1:10,000)	IV / IO	Repeat q 3- 5 min
	0.1 – 1 mcg / kg / min (1:10,000)	IV / IO	Drip
Hypotension	0.1 – 1 mcg / kg / min	IV	Drip
Respiratory Distress	0.25 ml / KG (1:1000)	Nebulizer	Max 5 ml May repeat after 30 min
	0.5 ml of 2.5% racemic epinephrine	Nebulizer	Mix with 3 ml of NS May repeat after 30 min
Sepsis	0.1 – 1 mcg / kg / min	IV	Drip

Dose in Micrograms / Minute	1 mg / 250 ml (4 mcg / ml)	4 mg / 250 ml (16 mcg / ml)
0.5	7.5	1.875
1	15	3.75
2	30	7.5
3	45	11.25
4	60	15
5	75	18.75
6	90	22.5
7	105	26.25
8	120	30
9	135	33.75
10	150	37.5
12	180	45
14	210	52.5
16	240	60
18	270	67.5
20	300	75
22	330	82.5
24	360	90
26	390	97.5
28	420	105
30	450	112.5
32	480	120
34	510	127.5
36	540	135
38	570	142.5
40	600	150
Milliliters / Hour		

FOSPHENYTOIN (CEREBYX)

INDICATION:

- Seizure

ACTION:

- Limits seizure activity

TREATMENT

- Fosphenytoin is a weight based drug. Crew members must verify an accurate patient weight before treatment
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Patient must be on a cardiac monitor
- Typical dosing is between 4 – 6 mg / kg / min with maximum rate of infusion is 150 mg PE / minute

PRECAUTIONS:

- Pregnancy Category C

CONTRAINDICATIONS:

- Sinus bradycardia
- Sinoatrial block, 2nd or 2rd degree AV block
- Absence seizures or seizures secondary to hypoglycemia or other metabolic disorders

SIDE EFFECTS:

- Hypotension
- Bradycardia
- Cardiac dysrhythmia
- Venous irritation
- Thrombophlebitis
- Blurred vision
- Confusion

CONCENTRATION:

- 100 – 1250 mg PE / 50 ml

GLUCAGON

INDICATION:

- Beta Blocker Overdose
- Hypoglycemia

ACTION:

- Elevates Blood Glucose
- Increases the heart rate and cardiac contractility
- Onset: less than 1 minute
- Duration: 9 – 15 minutes

TREATMENT

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patient. Goal of SBP > 90 mmHg
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing is between 1 – 5 mg / hr and can be increased by1 mg q 20 minutes until desired effect is reached. Do not exceed maximum dose of 5 mg / hr.

PRECAUTIONS:

- Pregnancy Category B
- Only effective if the patient has available glycogen stores
- Airway management with emesis

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Tachycardia
- Hypertension
- Nausea and vomiting

SPECIAL CONSIDERATIONS:

- People with no liver glycogen stores (malnutrition / alcoholism) may not be able to mobilize any glucose in response to glucagon

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Hypoglycemia	1 mg	IM / IN	Without IV access
Beta Blocker OD Calcium Channel OD	1 mg then 1 – 5 mg / hr	IV / IM / IN	Can be given for individuals on beta blocker
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Hypoglycemia	0.05 mg / kg	IV / IM / IN	Max dose 1 mg

HEPARIN

INDICATIONS:

- Acute Coronary Syndrome
- Thromboembolism

ACTION:

- Anticoagulant that blocks the formation of fibrin clots, it will not lyse an existing clot

TREATMENT:

- Drips should be on an IV pump throughout transport and rates should be established before transport
- Infusion therapy is typically started at 800 – 1000 units / hour. The dosage is modified based upon the patient's prothrombin time (PTT)

PRECAUTIONS:

- Severe Hypertension
- Recent Major Surgery
- Recent LP
- Monitor for development of neurological deficits

CONTRAINDICATIONS:

- Hypersensitivity to the Drug
- Uncontrolled active bleeding
- Severe Thrombocytopenia

SIDE EFFECTS:

- Hemorrhage
- Nausea / Vomiting
- Rash
- Fever / Chills

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Acute Coronary Syndrome (ACS)	5000 units IVP followed by an infusion of 1000 units / hour	IV	
Pediatric – not indicated			

LABETALOL (TRANDATE, NORMODYNE)

INDICATION:

- Hypertension

ACTION:

- Selective $alpha_1$ blocker (causes vasodilatation) and non-selective beta blocker
- Onset: 5 minutes
- Duration: 3 – 6 hours

TREATMENT:

- Labetalol is a weight based drug for pediatric patients. Crew members must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport

PRECAUTIONS:

- Pregnancy Category C

CONTRAINDICATIONS:

- Asthma
- Bradycardia
- Congestive Heart Failure
- Cardiogenic shock
- Heart Block

SIDE EFFECTS:

- Bradycardia / Heart block
- Bronchospasm
- Congestive heart failure
- Hypotension

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Hypertension	20 mg, Repeat 20 mg q 10 min	IV / IO	Give over 1 – 2 minutes (Max 300 mg)
	1 – 2 mg / min	IV / IO	Drip
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Hypertension	0.2 – 1 mg / kg q 10 min	IV / IO	Must contact OLMC
	0.4 – 1 mg / kg / hr	IV	

LIDOCAINE (XYLOCAINE)

INDICATION:

- Cardiac arrest - Ventricular fibrillation / Tachycardia / PVC / Wide Complex Tachycardia

ACTION:

- Prevents patient from going into Ventricular Fibrillation or Ventricular Tachycardia by raising the Ventricular Fibrillation threshold, suppressing ventricular irritability and decreasing excitability in ischemic disease by blocking the sodium channel
- Onset: 30 – 90 seconds
- Duration: 2 – 4 hours

TREATMENT

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Lidocaine may be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes
- Typical dosing is between 1 – 3 mg / min and can be increased by 1 mg / min until desired effect is reached. Do not exceed maximum dose of 5 mg / min

PRECAUTIONS:

- Pregnancy Category B
- Watch for CNS toxicity

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Stokes-Adams Syndrome
- Second or Third degree heart block

SIDE EFFECTS:

- Apprehension
- Blurred vision
- Confusion / drowsiness
- Dizziness
- Slurred speech
- Bradycardia
- Cardiac arrest
- Methemoglobinemia
- Hypotension
- Respiratory depression
- Euphoria

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Ventricular Dysrhythmias	Bolus: 1 – 1.5 mg / kg (Max 3 mg / kg)	IV / IO	
	Maintenance: 0.75 mg / kg q 10 min (No Max)	IV / IO	
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Ventricular Dysrhythmias	Bolus: 1 – 1.5 mg / kg (Max 3 mg / kg)	IV / IO	

MAGNESIUM SULFATE

INDICATION:

- Hypomagnesium
- Polymorphic Ventricular Tachycardia (Torsades de Pointes) / Pulseless V-Tach / Ventricular Fibrillation
- Preeclampsia / Eclampsia
- Preterm Labor
- Respiratory distress

ACTION:

- CNS depressant, smooth muscle relaxant, anticonvulsant and antiarrhythmic. Reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction
- Onset: Immediate
- Duration: 3 – 4 hours

TREATMENT

- Magnesium Sulfate is a weight based drug for pediatric patients. Crew members must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patient. Goal of SBP > 90 mmHg
- Drips should be on an IV pump throughout transport and rates should be established before transport

PRECAUTIONS:

- Pregnancy Category B
- Calcium Chloride should be available to counteract if respiratory depression ensues

CONTRAINDICATIONS:

- Heart Block
- Renal Insufficiency/Failure
- Respiratory Depression
- Hypotension

SIDE EFFECTS:

- Respiratory Depression
- Diaphoresis
- Facial flushing
- Hypotension

Reduced Heart Rate

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Preeclampsia / Eclampsia	Bolus: 4 grams over 15 – 30 min	IV / IO	Diluted in 250 mL NS / D5W
	Maintenance: 1 – 2 grams / hour infusion		6 grams Magnesium diluted in 250 mL NS / D5W
Preterm Labor	Bolus: 4 grams over 30 min	IV / IO	Diluted in 250 mL NS / D5W
	Maintenance: 1 – 2 grams / hour infusion		6 grams Magnesium diluted in 250 mL NS / D5W
Polymorphic Ventricular Tachycardia / Pulseless Ventricular Tachycardia / Ventricular Fibrillation	2 grams over 1 – 2 min	IV / IO	
Respiratory Distress	2 grams over 15 min	IV / IO	
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Polymorphic Ventricular Tachycardia / Pulseless Ventricular Tachycardia / Ventricular Fibrillation	25 mg / kg over 1 – 2 min (Max 2 grams)	IV / IO	
Respiratory Distress	25 mg / kg over 15 min (Max 2 grams)	IV / IO	

MIDAZOLAM (VERSED)

INDICATION:

- Anxiety
- Medication Assisted Intubation
- Muscle Spasm
- Nerve agent exposure causing seizures
- Sedation
- Seizures

ACTION:

- Short acting benzodiazepine central nervous system depressant
- Sedative and hypnotic properties
- Onset: 3 – 5 minutes
- Duration: 1 – 8 hours

TREATMENT

- Patient must be intubated and on a ventilator during transport. Waveform capnography must be utilized with a waveform attached to run sheet
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing is between 2 – 10 mg / hr and can be increased by 1 mg / hr until desired effect is reached. Do not exceed maximum dose of 10 mg / hr. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes
- Follow and chart the Ramsay Sedation Scale for sedation scoring
    - (1) Patient is anxious and agitated or restless, or both
    - (2) Patient is cooperative, oriented and tranquil
    - (3) Patient responds to commands only
    - (4) Patient exhibits brisk response to light or loud auditory stimulus
    - (5) Patient exhibits a sluggish response to light or loud auditory stimulus
    - (6) Patient exhibits no response
    - Sedation scoring goal is between 3 – 4

PRECAUTIONS:

- Pregnancy Category D
- Respiratory depression
- Pregnancy (only indicated in life threatening emergencies)
- Ensure venous delivery (contraindicated for arterial injection)

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Acute narrow angle glaucoma

SIDE EFFECTS:

- Hypotension
- Respiratory depression
- Amnesia

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Combative Patients	2 – 5 mg	IV / IO / IM / IN	
Muscle Spasm	2 – 5 mg	IV / IM / IN	
Sedation	2 – 5 mg	IV / IO / IM / IN	May repeat every 5 minutes as needed to maintain sedation
Induction for MAI	0.3 mg / kg (max 10 mg)	IV / IO	
Seizures	2 – 10 mg	IV / IO / IM / IN	
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Anxiety	0.1 mg / kg	IM / IN	
Behavioral Control	0.1 mg / kg	IV / IO / IM / IN	
Sedation	0.1 mg / kg	IV / IO	May repeat every 5
	0.2 mg / kg	IM / IN	minutes as needed to maintain sedation
Induction for MAI	0.3 mg / kg (max 10 mg)	IV / IO	May repeat every 5 minutes as needed to maintain sedation

Seizures	0.1 mg / kg	IV / IO / IM / IN	

NALOXONE (NARCAN)

INDICATION:

- Opiate overdose

INDICATION:

- **Respiratory depression (RR < 8)** with pinpoint pupils, mental status change, GCS < 14 and / or narcotic overdose suspected

ACTION:

- Reverses the effects of narcotics
- Onset: Less than 2 minutes
- Duration: 30 – 60 minutes

TREATMENT

- Naloxone is a weight based drug. Crew members must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patient. Goal of SBP > 90 mmHg
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Maintenance dose is 0.0025 mg / kg / hr

PRECAUTIONS:

- Pregnancy Category C
- May cause a rapid withdrawal
- The medication is short acting
- Induces vomiting / agitation in the rapid withdrawal state

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Rare

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Narcotic OD Coma of unknown etiology	2 – 4 mg	IV / IO / IM / IN	Give 2 mg doses
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Narcotic OD Coma of unknown etiology	0.1 mg / kg (Max 2 mg / dose)	IV / IO / IM / IN	< 20 kg or 5 years Do Not use in neonates
	2 mg	IV / IO / IM / IN	> 5 years

NICARDIPINE (CARDENE)

INDICATION:

- Hypertension
- Primary blood pressure control medication for cerebral hemorrhage
- Blood pressure control medication for AAA or thoracic dissection

ACTION:

- Calcium channel blocker that inhibits transmembrane influx of extracellular Calcium ions across the membrane of the myocardial cells and vascular smooth muscle cells.

TREATMENT:

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- May be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes. If decreasing dose, do not do so suddenly
- Typical dosing is between 5 mg / hr and can be increased by 2.5 mg / hr q 5 – 15 minutes for no more than 25% reduction in MAP **OR** until desired effect is reached. Do not exceed maximum dose of 15 mg / hr. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes

PRECAUTIONS:

- Pregnancy Category C
- Congestive heart failure
- Liver Cirrhosis

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Headache
- Hypotension

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Hypertension	2.5 mg / hr (Max 15 mg / hr)	IV / IO	Titrate 2.5 mg / hr q 5 – 15 minutes for no more than 25% reduction in MAP
Stroke (Embolic)	2.5 mg / hr (Max 15 mg / hr)	IV / IO	Treat SBP > 200 mmHg or DBP > 110 mmHg Titrate 2.5 mg / hr q 5 – 15 minutes
Stroke (Hemorrhagic)	2.5 mg / hr (Max 15 mg / hr)	IV / IO	Titrate 2.5 mg / hr q 5 – 15 minutes for SBP of 140 – 160 mmHg
Acute Abdominal Aneurysm or Aortic Dissection	2.5 mg / hr (Max 15 mg / hr)	IV / IO	Titrate for SBP = 90 mm Hg w/ HR = 60 BPM
Pediatric – not indicated			

CONCENTRATION:

- Mix 25 mg in 250 ml
- 0.1 mg / ml

Mg/Hr	**0.5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
ML/HR	5	10	20	30	40	50	60	70
Mg/Hr	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
ML/HR	80	90	100	110	120	130	140	150

NITROGLYCERIN (TRIDIL | NITROSTAT)

INDICATION:

- Acute coronary syndrome / Chest pain
- Hypertension
- Congestive Heart Failure

ACTION:

- Vasodilator
- Onset: 1 – 3 minutes
- Duration: 20 – 30 minutes

TREATMENT:

- Nitro drips will be in a glass bottle. Care must be taken during transport to avoid breakage. Secure to IV pole with tape or Velcro strap
- If a transfer, check with the transferring institution to see if the drip is maintenance or to be titrated
- For patients with orders for titration
    - BP to be taken and documented every 5 minutes with heart rate and patient response during titration
    - SBP should be maintained at no less than 120 mmHg or as ordered
    - May be increased 10 mcg (3 ml) every 5 minutes provided BP is within normal limits for parameters
    - If BP drops below 100, decreased by half or stop the drip. If BP does not increase to above 90 mmHg within 1 – 2 minutes, bolus patient with 250 ml normal saline if lungs are clear throughout
- For patients without orders for titration
    - On all Nitro drips that are not to be titrated, BP, heart rate, and patient's response must be documented no less than every 15 minutes. Decrease or D/C if BP fails below 100 mmHg

PRECAUTIONS:

- Pregnancy Category C
- Hypotension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Hypotension
- Head Injury

- The patient has taken Any medication for erectile dysfunction within 48 hours such as:
    - Viagra (sildenafil citrate), Levitra (vardenafil HCL), and Cialis (tadalafil) within 48 hours

SIDE EFFECTS:

- Headache
- Tachycardia
- Palpitations and dysrhythmias
- Anxiety
- Hypotension
- Nausea
- Headache

SPECIAL CONSIDERATIONS:

- Do not give in patients with posterior wall MI / use cautiously in patients with inferior wall MI

Adult			
Indication	Dose	Route (s)	Special
Chest Pain	0.4 mg q 5 min for SBP > 90	SL	
Pulmonary Edema	0.4 mg q 5 min for SBP > 90	SL	
	10 mcg / min (Max 200 mcg / min)	IV / IO	Target minimal goal is 40 mcg / min
Pediatric			
Pulmonary Edema	0.25 to 0.5 mcg / Kg / min (Max 200 mcg / min)	IV / IO	Increase 0.5 to 1 mcg / kg / min every 3 to 5 minutes as needed up to 5 mcg / kg / min

CONCENTRATION:

Dose in micrograms / minute	Concentrations (micrograms / minute)		
	100 mcg / ml 25 mg / 250 ml 50 mg / 500 ml	200 mcg / ml 50 mg / 250 ml 100 mg / 500 ml	400 mcg / ml 100 mg / 250 ml 200 mg / 500 ml
5	3	X	1
10	6	3	2
20	12	6	3
30	18	9	5
40	24	12	6
50	30	15	8
60	36	18	9
70	42	21	11
80	48	24	12
90	54	27	14
100	60	30	15
110	66	33	17
120	72	36	18
130	78	39	20
140	84	42	21
150	90	45	23
160	96	48	24
170	102	51	26
180	108	54	27
190	114	57	29
200	120	60	30
	Milliliters / Hour		

NOREPINEPHRINE (LEVOPHED)

INDICATION:

- Hypotension

ACTION:

- Increases cardiac contractility by working as a strong alpha and moderate beta-1 effects
- Increases blood pressure and cardiac output and improves coronary blood flow
- Causes peripheral vasoconstriction

TREATMENT:

- Norepinephrine is a weight based drug for pediatric patients. Crew members must verify an accurate patient weight before treatment Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Infusion should be through a large bore vein, preferably antecubital site. It is ideal to have a secondary IV site established prior to transport
- May be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes. If decreasing dose, do not do so suddenly
- Typical dosing:
    - Adult initial dose is 2 – 4 mcg / min and can be increased by 1 – 2 mcg / min until desired effect is reached. Do not exceed maximum dose of 30 mcg / min
    - Pediatric initial dose is 0.05 mcg / kg / min and can be increased by 1 – 2 mcg / min until desired effect is reached. Do not exceed maximum dose of 30 mcg / min

PRECAUTIONS:

- Pregnancy Category C
- Tachyarrhythmias
- Ventricular irritability
- Blanching along the vein pathway is a sign of extravasation. Norepinephrine causes severe tissue necrosis. If extravasation is noted or suspected, change injection site

CONTRAINDICATIONS:

- Hypersensitivities
- Concurrent use of MOAI or TCA therapies
- Ventricular Fibrillation

SIDE EFFECTS:

- Bradycardia
- Chest pain
- Decreased cardiac output
- Headache
- Ischemia
- Pallor
- Photophobia
- Seizure
- Ventricular tachycardia
- Vomiting

CONCENTRATION:

4 mg / 250 ml D5W		**4 mg / 500 ml D5W**	
Micrograms / Minute	**Milliliters / Hour**	**Micrograms / Minute**	**Milliliters / Hour**
0.5	1.9	0.5	3.8
1	3.8	1	7.2
2	7.5	2	15
3	11.3	3	22.6
4	15.0	4	30
5	**18.8**	**5**	**39.6**
6	22.5	6	45
7	26.3	7	52.6
8	30.0	8	60
9	33.8	9	67.5
10	**37.5**	**10**	**75**
11	41.3	11	82.5
12	45.0	12	90
13	48.8	13	97.5
14	52.5	14	105
15	**56.3**	**15**	**112.5**
16	60.0	16	120
17	63.8	17	127.5
18	67.5	18	135
19	71.3	19	142.5
20	**75.0**	**20**	**150**
21	78.8	21	157.5
22	82.5	22	165
23	86.3	23	172.5
24	90.0	24	180
25	**93.8**	**25**	**187.5**
26	97.5	26	195
27	101.3	27	202.5
28	105.0	28	210
29	108.8	29	217.5
30	**112.5**	**30**	**225**

PHENYLEPHRINE HYDROCHLORIDE (NEO-SYNEPHRINE)

INDICATION:

- Epistaxis
- Nasal intubation
- Hypotension

ACTION:

- Alpha adrenergic agonist
- Onset: Immediate
- Duration: 30 min – 4 hours

TREATMENT

- Phenylephrine Drip
    - Is a weight based drug. The paramedic must verify an accurate patient weight before transport
    - Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
    - Drips should be on an IV pump throughout transport and rates should be established before transport
    - May be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes
    - Typical dosing is between 40 – 60 mcg / kg / min and can be increased by 25 mcg / kg / min until desired effect is reached. Do not exceed maximum dose of 400 mcg / kg / min

PRECAUTIONS:

- Pregnancy Category C
- If foley catheter is inserted, document urine output during transport
- Monitor color and temperature of extremities frequently

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Cardiac disease
- MAO inhibitors

SIDE EFFECTS:

- Bradycardia
- Fullness of head (headache)
- PVC's
- Ventricular tachycardia

- Hypertension
- Tingling of extremities
- Nasal spray can cause rebound nasal congestion and burning
- Vertigo
- Anxiety, restlessness, tremors and sweating

CONCENTRATION:

- Phenylephrine Drip
  - 25 mg / 250 ml
  - 50 mg / 500 ml

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Epistaxis	2 sprays / Nare	Inhaled	1 % Solution
Nasal Intubation	2 sprays / Nare	Inhaled	1 % Solution
Hypotension	Bolus 40 – 100 mcg Drip 0.5 mcg / kg / min	IV / IO	Dose q 1 – 2 min Max 200 mcg / kg / min
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
Epistaxis	1 – 2 Sprays / Nare	Inhaled	0.25% Solution
Hypotension	Bolus 5 – 20 mcg / kg Drip 0.1 – 0.5 mcg / kg / min	IV / IO	Dose q 10 – 15 min Max 200 mcg / kg / min

PHENYTOIN (DILANTIN)

INDICATION:

- Seizure

ACTION:

- Limits seizure activity
- Promotes sodium efflux from motor cortex neurons

TREATMENT

- Phenytoin is a weight based drug (10 – 15 mg / kg). The paramedic must verify an accurate patient weight before transport
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Patient must be on a cardiac monitor
- Typical dosing is between 25 – 50 mg / min

PRECAUTIONS:

- Pregnancy Category C
- Serious dermatological reactions may occur: Toxic Epidermal Necrolysis (TEN), Steven Johnson Syndrome, Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS)

CONTRAINDICATIONS:

- Sinus bradycardia
- Sinoatrial block, 2nd or 2rd degree AV block
- Absence seizures or seizures secondary to hypoglycemia or other metabolic disorders

SIDE EFFECTS:

- Hypotension
- Bradycardia
- Cardiac dysrhythmia
- Venous irritation
- Thrombophlebitis
- Blurred vision
- Confusion

CONCENTRATION:

- 50 mg / ml (2 ml or 5 ml vials)

POTASSIUM CHLORIDE

INDICATION:

- Hypokalemia

ACTION:

- Replacement of potassium

TREATMENT

- These drips are not to be titrated or bloused
- Drips should be on an IV pump throughout transport and rates should be established before transport and drips rate may not exceed 10 meq potassium per hour
- In the event of ventricular arrhythmias, especially idioventricular, multifocal ventricular ectopy, or asystole, MEDICAL CONTROL should be established immediately
- Potassium drips are to be on a pump throughout transport
- Ordered drip rates should be established before transport

PRECAUTIONS:

- Impaired renal failure

CONTRAINDICATIONS:

- Hyperkalemia
- Renal failure
- Untreated Addison's disease

SIDE EFFECTS:

- Large bolus dose – cardiac arrest
- Thrombophlebitis

CONCENTRATION:

- 10 meq / 100 ml
- 20 meq / 250 ml
- 40 meq / 500 ml

PROCAINAMIDE (PRONESTYL)

INDICATION:

- Post cardiac arrest due to ventricular fibrillation / tachycardia

ACTION:

- Decreases atrial rhythmic action of heart, slows rate, slows conduction, reduces myocardial irritability and prolongs refractory period

TREATMENT

- Patient must be on a cardiac monitor
- Drips should be on an IV pump throughout transport and rates should be established before transport
- May be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 - 3 minutes
- Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patients
- Typical dosing is between 2 – 4 mg / min and can be increased by 1 mg / min until desired effect is reached. Do not exceed maximum dose of 5 mg / min
- If foley catheter is in place, document urine output during transport

PRECAUTIONS:

- Monitor for widening QRS complexes
- Treatment of toxicity is symptomatic and supportive

CONTRAINDICATIONS:

- Complete heart block, 2nd / 3rd degree AV block
- SLE
- Torsades de pointes

SIDE EFFECTS:

- Fever / chills
- Flushing
- Hallucinations
- Joint swelling or pain
- Mental confusion
- Nausea / vomiting
- Skin rash
- Weakness
- Ventricular fibrillation
- Ventricular tachycardia

CONCENTRATION:

- 1 – 2 grams / 250 ml

SODIUM BICARBONATE

INDICATION:

- Acidosis
- Hyperkalemia
- Overdose causing QRS widening

ACTION:

- Elevates the pH
- Onset: 2 – 10 minutes
- Duration: 30 – 60 minutes

TREATMENT:

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patient. Goal of SBP > 90 mmHg
- Drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing is between 50 – 150 mEq in D5W at a rate of 100 – 250 ml / hr IV

PRECAUTIONS:

- Pregnancy Category C
- Can deactivate catecholamine activity
- Can precipitate with calcium
- Extravasation may cause necrosis of the tissues
- Renal Impairment
- Congestive Heart Failure

CONTRAINDICATIONS:

- Alkalosis
- Hypocalcemia
- Hypokalemia

SIDE EFFECTS:

- Alkalosis
- Tissue necrosis at the injection site

SPECIAL CONSIDERATIONS:

- Each amp of sodium bicarbonate contains 50 mEq of Na. This may increase intravascular volume and hyperosmolarity conditions which result in cerebral impairment

Adult			
Indication	**Dose**	**Route (s)**	**Special**
Acidosis (PEA arrest)	50 mEq	IV / IO	
Hyperkalemia	50 mEq	IV / IO	
V-Fib / Pulseless VT / Asystole	1 mEq / kg	IV / IO	
ASA / Tricyclic Antidepressant OD	1 mEq / kg	IV / IO	
Pediatric			
Indication	**Dose**	**Route (s)**	**Special**
ASA / Tricyclic Antidepressant OD	1 mEq / kg	IV / IO	