

Ventura County Medical Center/Santa Paula Hospital **ADULT** intravenous medication titration table: **NURSING GUIDELINES**

| Neurologic | | | | | | | | | | | | |
|---------------------------|--|---|--|--|---|--|-----|----|------|----|----------|---|
| Medication | Concentration(s)‡ | Initial rate of infusion* | Titration rate** (Increase/decrease†) | Maximum rate | Order reason/desired patient response | Call physician parameters | | | | | | |
| Cisatracurium | 100 mg/250 mL 400 mcg/mL | Load 100-200 mcg/kg Infusion: 2 mcg/kg/min | 1 mcg/kg/min q 10 min† | 10 mcg/kg/min | Neuromuscular blockade, to achieve 2 twitches on Train of Four test. | Train of 4 not achieved at maximum dose. | | | | | | |
| Dexmedetomidine | 400 mcg/100 mL 4 mcg/mL | DO NOT BOLUS 0.2 mcg/kg/hr | 0.3 mcg/kg/hr q 15 min | 1.4 mcg/kg/hr | RASS as ordered - for ICU sedation. (See MINDS protocol for use in AWS) | Goal RASS not achieved at maximum dose. Hold for SBP <95, pulse <60. | | | | | | |
| FentaNYL | 2,500 mcg/50 mL 50 mcg/mL | Load: 25 - 100 mcg Infusion: 10 - 50 mcg/hr | 20 mcg/hr q 5 min | 600 mcg/hr | Pain <3 using CPOT | CPOT goal not met at maximum dose. Hold for SBP <95. | | | | | | |
| Ketamine | 500 mg/250 mL 2 mg/mL | Load: 0.5 - 1 mg/kg Infusion: 0.25 mg/kg/hr | 0.1 mg/kg/hr q 10 min | 1 mg/kg/hr | RASS as ordered | Goal RASS not achieved at maximum dose. Hold for SBP >180. | | | | | | |
| Lorazepam | 100 mg/500 mL 0.2 mg/mL (D5W only) | Load: up to 8 mg per MINDS protocol Infusion: 10 mg/hr | 5 mg/hr q 15 min | 30 mg/hr | Alcohol withdrawal ONLY: See MINDS protocol | Goal MINDS score not achieved at maximum dose. Hold for osmolar gap > 20. | | | | | | |
| Midazolam | 100 mg/100 mL 1 mg/mL | 1 - 2 mg/hr | 5 mg/hr q 15 min | 20 mg/hr Suggested max duration: 3 days | RASS as ordered | Goal RASS not achieved at maximum dose. Hold for SBP <95. | | | | | | |
| Propofol (Premix) | 1,000 mg/100 mL 10 mg/mL 10,000 mcg/mL | Load: 0.5 mg/kg Infusion: 20 mcg/kg/min | 5 mcg/kg/min q 10 min | 85 mcg/kg/min Suggested max duration: 5 days | RASS as ordered | Goal RASS not achieved at maximum dose. Hold for SBP <95, MAP <65. | | | | | | |
| Vasoactive | | | | | | | | | | | | |
| Medication | Concentration(s)‡ | Initial rate of infusion* | Titration rate** (Increase/decrease†) | Maximum rate and max duration | Order reason/desired patient response | Call physician parameters | | | | | | |
| Angiotensin II (Giapreza) | 2.5 mg/500 mL 0.005 mg/mL 5,000 ng/mL | 20 ng/kg/min (ng = nanogram) | Titrate up 10 ng/kg/min q 5 min if MAP ≤ 59 or q 15 min if MAP 60-64 Titrate downward up to 15 ng/kg/min q 5- 15 minute to maintain MAP goal. | <table border="1"> <thead> <tr> <th>Hour</th> <th>Dose</th> </tr> </thead> <tbody> <tr> <td>0-3</td> <td>80</td> </tr> <tr> <td>3-48</td> <td>40</td> </tr> </tbody> </table> Dosed in ng/kg/min | Hour | Dose | 0-3 | 80 | 3-48 | 40 | MAP ≥ 65 | Goal MAP not achieved at max dose, excessive vasoconstriction (cyanotic extremities). |
| Hour | Dose | | | | | | | | | | | |
| 0-3 | 80 | | | | | | | | | | | |
| 3-48 | 40 | | | | | | | | | | | |
| Diltiazem | 100 mg/100 mL 1 mg/mL | Load: 0.25 mg/kg first dose; may repeat with 0.35 mg/kg as needed. Infusion: 5 mg/hr | 5 mg/hr q 15 min | 15 mg/hr Suggested max duration: 24 hours | Goal pulse and blood pressure as ordered | Pulse or blood pressure out of target range at max dose. Hold for HR < 60 or SBP <95. | | | | | | |
| DOBUTamine | 500 mg/250 mL 2,000 mcg/mL | 2.5 mcg/kg/min | 2.5 mcg/kg/min q 10 min | 20 mcg/kg/min | Cardiac index > 2.5 | Goal CI not achieved, HR > 120, ventricular tachyarrhythmia. Hold for SBP <95 or > 180. | | | | | | |
| DOPamine | 400 mg/250 mL 1,600 mcg/mL | 5 mcg/kg/min | 2.5 mcg/kg/min q 5-10 min | 20 mcg/kg/min | MAP ≥ 65, pulse ≥ 60 | Goal MAP not achieved at max dose, HR > 120 or ventricular tachyarrhythmia. | | | | | | |

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| Vasoactive - continued | | | | | | |
|-------------------------------------|---------------------------------------|--|--|---|--|--|
| Medication | Concentration(s)‡ | Initial rate of infusion* | Titration rate** (Increase/decrease†) | Maximum rate and max duration | Order reason/desired patient response | Call physician parameters |
| EPINEPHrine | 2 mg/250 mL 8 mcg/mL | 1-2 mcg/min | 2 mcg/min q 5 - 15 min | 10 mcg/min | MAP ≥ 65, pulse ≥ 60 | Goal MAP not achieved at max dose, HR > 120 or ventricular tachyarrhythmia. |
| Esmolol | 2500 mg/250 mL 10,000 mcg/mL | Load: 500 mcg/kg over 1 min, repeat prn q 5 min up to 3 doses Infusion: 50 mcg/kg/min | 50 mcg/kg/min q 5 min | 200 mcg/kg/min Suggested max duration: 48 hours | Goal pulse and blood pressure as ordered | Pulse or blood pressure out of target range at max dose. Hold for HR < 60 or SBP < 95. |
| Labetalol | 100 mg/100 mL 1 mg/mL | Load: 5-20 mg, repeat q 10 min prn Infusion: 0.5 mg/min | 0.5 mg/min q 15 min | 8 mg/min | Goal pulse and blood pressure as ordered | Pulse or blood pressure out of target range at max dose. Hold for HR < 60 or SBP < 95. |
| Labetalol (Ischemic stroke only) | 100 mg/100 mL 1 mg/mL (NS only) | Load: 10-20 mg, repeat q 10 min prn Infusion: 2-8 mg/min | 1 mg/min q 15 min | | | |
| Milrinone | 20 mg/100 mL 200 mcg/mL | Load: 50 mcg/kg Infusion: 0.25 mcg/kg/min | 0.01 mcg/kg/min q 30 min | 0.75 mcg/kg/min Suggested max duration: 48 hours | Cardiac index > 2.5 | Goal CI not achieved at max dose. Hold for SBP < 95. |
| NICARDipine | 50 mg/250 mL 0.2 mg/mL | 5 mg/hr | 2.5 mg/hr q 5-15 min | 15 mg/hr | Goal MAP/SBP as ordered | Goal not achieved at max dose. |
| NitroGLYCERIN (Premix) | 50 mg/250 mL 200 mcg/mL | 5 mcg/min | 5 mcg/min q 3-5 min | 200 mcg/min Suggested max duration: 48 hours | Goal MAP/SBP as ordered | Goal not achieved at max dose, continued chest pain, hypotension. Hold for SBP < 95 or MAP < 65. |
| NitroPRUSSide | 50 mg/250 mL 200 mcg/mL | 0.3 mcg/kg/min | 0.3 mcg/kg/min q 10 min | #Max dose: 5 mcg/kg/min Suggested max duration: 48 hours | Goal blood pressure as ordered | Goal BP not achieved at max dose. Hold for SBP < 95 or MAP < 65. |
| | | | | | | |
| Norepinephrine | 4 mg/250 mL 16 mcg/mL | 2-12 mcg/min | 2-4 mcg/min q 2 min | 30 mcg/min | MAP ≥ 65 | Goal MAP not achieved at max dose, excessive vasoconstriction (cyanotic extremities). |
| PHENYLEphrine | 25 mg/250 mL 100 mcg/mL | 100-180 mcg/min | 20 mcg/min q 2 min | 240 mcg/min | MAP ≥ 65 | Goal MAP not achieved at max dose, excessive vasoconstriction (cyanotic extremities). |
| Procainamide | 1,000 mg/500 mL 2 mg/mL | Load: 100 mg Infusion: 2 mg/min | 0.5 mg/min q 20 min | 6 mg/min | Resolution of ventricular arrhythmia | Goal not met at max dose, SBP < 90, drug level goal out of range (goal: 4-12 mcg/mL). Hold for SBP < 95 or MAP < 65. |
| Vasopressin | 50 units/250 mL 0.2 units/mL | Septic shock: 0.03 unit/min | 0.01 units/min q 5 min Septic shock: do not titrate | 0.03 unit/min | MAP ≥ 65 | Goal MAP not achieved at max dose. |

‡ Unless specified, the medication may be compounded in either 0.9% Sodium chloride (NS), Dextrose 5% Water (D5W), or iso-osmotic/isotonic solution as a premix solution from manufacturers. * Specific dose (loading and initial infusion rates) will be written by the physician based on patient's age, height, weight, hemodynamic status, renal function and/or hepatic function. Loading dose will be given via the bolus option of the smart pump system whenever possible. ** Titration (increase or decrease) may be done in smaller increments based on patient's hemodynamics status. Rate increases that are higher in dose and/or more frequent may be done per physician order – updated order is required. † For decreasing pressors, anti-hypertensives and other medications, the rate listed is the maximum rate of decrease; medications are generally weaned slowly over 12 to 48 hours based on the patient's vital signs, level of pain/sedation, etc.