

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	25 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, Hold for SBP <95.						
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	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	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 minute to maintain MAP goal.	<table border="1"> <tr> <td>Hour</td> <td>Dose</td> </tr> <tr> <td>0-3</td> <td>40-80</td> </tr> <tr> <td>3-48</td> <td>40</td> </tr> </table> Dosed in ng/kg/min Max duration: 48 hours	Hour	Dose	0-3	40-80	3-48	40	MAP ≥ 65	Goal MAP not achieved at max dose, excessive vasoconstriction (cyanotic extremities).
Hour	Dose											
0-3	40-80											
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 or	If goal parameter 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 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 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	300 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.
Isoproterenol	1 mg/500 mL 2 mcg/mL	2 mcg/min	1 mcg/min q 3 min	10 mcg/min	Return to normal sinus rhythm	Goal not achieved at max dose. SBP < 95 or > 160, HR > 120
Restricted for use in refractory Torsades de Pointe ONLY						
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	0.1 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	40 mg/200 mL 0.2 mg/mL	5 mg/hr	2.5 mg/hr q 5 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 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.
#: If CrCL < 30 mL/min: Max dose = 1 mcg/kg/min. If severe renal insufficiency or rate > 3 mcg/kg/min, max duration: 24 hours						
Norepinephrine	4 mg/250 mL 16 mcg/mL	2-12 mcg/min	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).
Vasopressin	20 units/100 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 (highlighted in blue) 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 within block charting for life threatening urgent and/or emergent situations. † 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.