

Ventura County Medical Center **ADULT IV Medication Titration Table NURSING GUIDELINES**

Medication	Concentration(s)	Initial Rate of Infusion (unless MD orders rate)	Titration Rate (Increase/Decrease †)	Maximum Rate and Max Duration	Order Reason/Desired Patient Response	Call Physician Parameters
Cisatracurium (Nimbex ®)	100mg/250 mL Conc: 0.4 mg/mL = 400 mcg/mL	Load 100-200 mcg/kg. (Physician to specify loading dose) then Infusion: 2 mcg/kg/min	Titrate by: 1 mcg/kg/min q 10 mins †	Max rate: 10 mcg/kg/min	Neuromuscular blockade, to achieve 2 twitches on Train of Four test.	Train of 4 not achieved at maximum dose
Dexmedetomidine (Precedex ®)	400 mcg/100 mL Conc: 4 mcg/mL	DO NOT BOLUS Start drip at 0.2 mcg/kg/hr	Titrate by: 0.3 mcg/kg/hr q 30 minutes Minimum infusion rate: 0.2 mcg/kg/hr Maximum infusion rate: 1.4 mcg/kg/hr †	Max rate: 1.4 mcg/kg/hr	RASS as ordered	Goal RASS not achieved at maximum dose. Hold for SBP < 95 pulse < 60
Diltiazem (Cardizem ®)	100 mg/100 mL D5W Conc: 1 mg/mL	Bolus 20 mg (10 mg if elderly or marginal BP) Infusion: 5 mg/hr	Titrate by: 5 mg/hr q 60 min †	Max rate: 15 mg/hr	Goal pulse and blood pressure specified by physician order	Pulse/Blood pressure out of target range
DoBUTamine	500 mg/250 mL D5W Conc: 2 mg/mL = 2000 mcg/mL	2.5 mcg/kg/min	Titrate by: 2.5 mcg/kg/min q 10min †	Max Rate: 20 mcg/kg/min	Goal Cardiac Index > 2.5	Goal CI not achieved; HR > 120 or Ventricular Tachyarrhythmias SBP < 95 or > 180
DOPamine	400 mg/250 mL D5W Conc: 1.6 mg/mL = 1600 mcg/mL	5 mcg/kg/min	Titrate by: 1- 2.5 mcg/kg/min q 5-10 min †	Max rate: 20 mcg/kg/min	Goal : MAP≥65 or pulse ≥60	Goal MAP not achieved at max dose; HR > 120 or Ventricular tachyarrhythmias
EPinephrine	2 mg/250 ml D5W Conc: 8 mcg/mL	1-2 mcg/min	Titrate by: 2 mcg/min q 5-15 min †	Max rate: 10 mcg/min	Goal : MAP≥65 : pulse ≥60	Goal MAP not achieved at max dose; HR > 120 or Ventricular arrhythmia
Esmolol	2500 mg/250 mL NS Conc: 10 mg/mL = 10,000 mcg/mL	Load: 500 mcg/kg over 1 min, & repeat prn q 5 mins for total of 3 boluses; Infusion: 50 mcg/kg/min	Titrate by: 50 mcg/kg/min q 5 min	Max rate: 200 mcg/kg/min Max duration for 48 hrs	Tachycardia/HTN: goal HR/BP to be specified in physician order	Pulse/blood pressure out of target range at max dose HR < 60 or SBP < 95
Fentanyl (pain)	2000 mcg/100 mL NS Conc: 20 mcg/mL	Load: 25 to 100 mcg Infusion: 10 – 50 mcg/hr	Titrate by: 5-25 mcg Q 5 min	Max rate: 600 mcg/hr	Goal: Pain <3 using VOPS, or goal pain using VOPS determined by MD orders	VOPS goal not met at maximum dose or SBP < 95
Ketamine	1000 mg / 250 mL Conc: 4mg/mL D5W or 1000 mg/500 mL Conc: 2 mg/mL	Load: 1mg/kg IV bolus over 2 min then Infusion: 0.25mg/kg/hr	Titrate by: 0.05-0.1 mg/kg/hr q 10 minutes prn to achieve target pain score and target RASS score †	Max rate: 1 mg/kg/hr	Goal RASS as ordered	RASS score not achieved with maximum dose or SBP> 180
Labetalol	100 mg/100 mL Conc: 1 mg/mL	Load: 5-20 mg May repeat q 10 minutes, then	Titrate by: 0.5 mg/min q 15 min †	Max rate: 8 mg/min	Tachycardia/HTN: goal HR/BP to be specified in	SB < 95 or HR < 60

Medication shaded in BLUE must have specific loading dose ordered by physician

† 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.

Revised: 6/24/15

Approved by P&T 12/2014, Approved by ICU Committee 3/2015

	400 mg/200 mL Conc: 2mg/mL	Infusion: 0.5 mg/min			physician order	
Lorazepam	100mg/500 mL D5W Conc: 0.2 mg/mL	Load 4-8 mg per physician order using MINDS Protocol, then Infuse 10 mg/hr	Titrate by: 5 mg/hr q 15 min †	Max rate: 30 mg/hr Max duration is 24 hrs	Alcohol withdrawal ONLY: See MINDS protocol	Symptoms of alcohol withdrawal uncontrolled at maximum rate; serum osmolality ≥ 350
Midazolam	100 mg/100 mL D5W Conc: 1 mg/mL	1-2 mg/hr	Titrate by: 1-5 mg/hr Q 15 minutes	Max rate: 20 mg/hr Max duration 72 hours if hepatic failure, renal failure, or BMI>30	RASS as ordered	Target RASS score not achieved at max dose or SBP < 95
Milrinone	20mg/100 mL D5W Conc: 200 mcg/mL = 0.2 mg/mL	0.25 mcg/kg/min	Titrate by: 0.005 mcg/kg/min every 30 minutes until desired effect †	Max rate: 0.75 mcg/kg/min Max duration: 48 hrs	Goal Cardiac Index > 2.5 and/or SvO2 ≥ 70	Goal CI or SvO2 not achieved at maximum dose or SBP < 95
Nicardipine	40 mg/200 mL NS Conc: 0.2 mg/mL	5 mg/hr	Titrate by: 2.5 mg/hr q 5-15 min†	15 mg/hr	Stroke/HTN: Goal MAP/SBP specified by physician order	Blood pressure out of target range at max dose
Nitroglycerin	50 mg/250mL D5W Conc: 200 mcg/mL = 0.2mg/mL	5 mcg/min	Titrate by: 5 mcg/min q 3-5 min †	Max rate: 200 mcg/min Max duration: 48 hrs	Reduction of chest pain, preload in fluid overload states +/- HTN	Chest pain unrelieved, hypotension SBP < 95 or MAP < 65
Nitroprusside (Nipride®) (cardiac output)	50 mg/250 mL D5W Conc: 200 mcg/mL = 0.2mg/mL	0.3 mcg/kg/min	Titrate by: 0.3 mcg/kg/min q 10 min †	Max rate: 5 mcg/kg/min (1 mcg/kg/min if CrCl < 30) Max duration: 48 hrs (24 hrs if severe renal insufficiency or rate > 3 mcg/kg/min)	Reduction of HTN	Blood pressure out of target range at max dose
Norepinephrine (Levophed®)	4 mg/250 mL D5W Conc: 16 mcg/mL 8 mg/250 mL Conc: 32 mcg/mL	2-12 mcg/min	Titrate by: 2-4 mcg/min q 2 min †	30 mcg/min	Goal : MAP ≥ 65	Blood pressure out of target range at max dose; Excessive vasoconstriction (cyanotic extremities)
Phenylephrine	25 mg/250 mL NS Conc: 100 mcg/mL = 0.1mg/mL	100-180 mcg/min	Titrate by: 20 mcg/min q 2 min to 240 mcg/min † Once at goal, decrease dose to 40-60 mcg/min	240 mcg/min	Goal : MAP ≥ 65	Blood pressure out of target range at max dose; Excessive vasoconstriction (cyanotic extremities)
Propofol (Sedation)	1000 mg/100 mL 500 mg/50mL Conc: 10 mg/mL 10,000 mcg/mL	Load: 0.5 mg/kg Infusion: 20 mcg/kg/min	Titrate by: increase drip 5 mcg/kg/min every 10 min until target RASS score †	Max rate: 85 mcg/kg/min Max duration: 5 days	RASS as ordered	Target RASS score not achieved at max dose, SPB < 95 MAP < 65
Vasopressin (shock)	20 units/100 mL D5W Conc: 0.2 Units/mL	Septic Shock: 0.01 Units/min	Titrate by: 0.01 Units/min q 5 min †	0.04 Units/min	Goal : MAP ≥ 65	Blood pressure out of target range at max dose

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