

St. Michael's Hospital

Standard Concentrations for Parenteral Drugs in Critical Care Areas

Note: All of the following are located in BD Alaris Guardrails Library

Drug	Diluents	Standard	Concentrated	Usual Dose*
Amiodarone 0.22 micron filter	D5W	450 mg/250 mL = 1.8 mg/mL (C/P) (non-PVC container)	900 mg/250 mL = 3.6 mg/mL (C) (non-PVC container)	<ul style="list-style-type: none"> • Bolus: 150 – 300 mg 150 mg in 100 mL D5W (50 mL if severe fluid restriction) over 10 – 30 min • Maintenance: 900 mg/day = 37.5 mg/hour
Cisatracurium [in fridge]	D5W or NS	20mg/100mL=0.2mg/mL (C/P) (remove 10 mL from 100 mL minibag)	100mg/100 mL = 1 mg/mL (C/P) (remove 50 mL from 100 mL minibag)	<ul style="list-style-type: none"> • Bolus: 0.1 – 0.2 mg/kg • Maintenance: 1 – 3 mcg/kg/min per TOF
dexmedetomidine	NS (premixed)	Non-formulary – restricted 200 mcg/50 mL = 4 mcg/mL (C/P)		<ul style="list-style-type: none"> • 0.2 – 1 mcg/kg/hour
ditiazem [in fridge]	D5W or NS	125 mg/100 mL (C/P) =125 mg/125 mL final volume = 1 mg/mL		<ul style="list-style-type: none"> • Bolus: 0.25 mg/kg (over 2 min), followed by 0.35 mg/kg (over 2 min) after 15 min if needed • Maintenance: 5 – 10 mg/hour
DOBUTamine	D5W or NS	250 mg/250 mL = 1 mg/mL (C preferred)	500 mg/250 mL = 2 mg/mL (C preferred)	<ul style="list-style-type: none"> • 0.5 – 20 mcg/kg/min
DOPamine	D5W (premixed)	400 mg/250 mL = 1.6 mg/mL (C)		<ul style="list-style-type: none"> • Dopaminergic: 0.5 – 3 mcg/kg/min • Inotropic: 3 – 10 mcg/kg/min • Vasopressor: 10 – 20 mcg/kg/min
Epinephrine	D5W or NS	4 mg/250 mL = 0.016 mg/mL (C preferred) 8 mg/250 mL = 0.032 mg/mL (C preferred)	16 mg/250 mL = 0.064 mg/mL (C preferred) 32 mg/250 mL = 0.128 mg/mL (C preferred)	<ul style="list-style-type: none"> • 0.01 – 0.5 mcg/kg/min
Esmolol	D5W or NS (premixed)	2500 mg/250 mL = 10 mg/mL (C/P)		<ul style="list-style-type: none"> • Bolus: 0.5 <u>mg</u>/kg over 1 min • Maintenance: 50 <u>mcg</u>/kg/min; may titrate up to 200 <u>mcg</u>/kg/min
Fentanyl	D5W or NS	2000 mcg/100 mL = 20 mcg/mL (C/P)		<ul style="list-style-type: none"> • Bolus: 25 – 100 mcg over 1-2 min • Maintenance: 25 – 200 mcg/hour

Drug	Diluents	Standard	Concentrated	Usual Dose*
Furosemide	NS	100 mg/100 mL = 1 mg/mL (C/P) 250 mg/250 mL = 1 mg/mL (C/P)	200 mg/100 mL = 2 mg/mL (C/P)	<ul style="list-style-type: none"> • Bolus: Do not exceed 4 mg/min for doses greater than 100 mg. • Maintenance: 1 – 20 mg/hour
HYDROMorphone	D5W or NS	20 mg/100 mL = 0.2 mg/mL (C/P) 50 mg/50 mL = 1 mg/mL (C/P)	100 mg/50 mL = 2 mg/mL (C/P)	<ul style="list-style-type: none"> • Bolus: 0.2 – 2 mg over at least 2-3 min • Maintenance: 0.2 – 4 mg/hour
Insulin [in fridge]	D5W	50 units/100 mL = 0.5 unit/mL (C/P)	For beta blocker or calcium channel blocker overdose: 100 units/100 mL = 1 unit/mL (C/P)	0.5 – 5 units/hour (In DKA: 0.1 unit/kg/hour) Repeated gentle inversion of bag needed for thorough mixing. Prior to initial use and at each IV tubing set change, flush the IV tubing with 20-25 mL of insulin solution and waste this quantity before connecting tubing to patient.
Isoproterenol	D5W or NS	1 mg/250 mL = 0.004 mg/mL (C/P)	2 mg/250 mL = 0.008 mg/mL (C/P)	<ul style="list-style-type: none"> • 2 – 10 mcg/min
Ketamine Refer to protocol Prescriber must order at fixed rate Protect from light	NS preferred	500 mg/500 mL = 1 mg/mL (C/P)	500 mg/250 mL = 2 mg/mL (C/P)	<p>Analgesia:</p> <ul style="list-style-type: none"> • Bolus: 0.1 – 0.5 mg/kg • Maintenance: 0.05 – 0.4 mg/kg/hour (3 – 30 mg/hour) <p>Status epilepticus:</p> <ul style="list-style-type: none"> • Bolus: 0.9 – 3 mg/kg (usual 1 – 1.5 mg/kg) • Maintenance: 0.3 – 7.5 mg/kg/hour (5 – 200 mg/hour)
Labetalol Refer to protocol	D5W or NS	200 mg/200 mL = 1 mg/mL (C/P) (Remove 90 mL from 250 mL bag, and add 2 x 100 mg/20 mL vials)	5 mg/mL (C/P) (Add undiluted drug to empty bag)	<ul style="list-style-type: none"> • Bolus: 10 – 20 mg over 2 min (prescriber) or over 5 – 10 min (RN) • Gradual load until hemodynamic target achieved: 0.5 – 2 mg/min • Consider reducing dose and/or transitioning to oral agents when target achieved • Reassess and consider alternative agents when hemodynamic target not reached after usual max of 300 mg/24 hours

D5W = dextrose 5% water; NS = sodium chloride 0.9%; C = central; P = peripheral

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*Usual dose for certain drugs may be exceeded for some patients with prescriber reassessment. See IV manual for personnel authorized to administer bolus doses.

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Lidocaine	D5W (premixed)	1000 mg/250 mL = 4 mg/mL (C/P)		<ul style="list-style-type: none"> • Bolus: 100 mg over 2 min • Maintenance: 1 – 4 mg/min Dose reduction required for CHF, shock, or hepatic disease
Lorazepam [in fridge]	D5W	24 mg/240 mL = 0.1 mg/mL (non-PVC container and tubing) (C/P)	96 mg/48 mL = 2 mg/mL (non-PVC container and tubing) (C/P)	<ul style="list-style-type: none"> • Bolus: 0.5 – 4 mg, max rate 2 mg/min • Maintenance: 0.5 – 10 mg/hour
Midazolam	D5W or NS	50 mg/50 mL = 1 mg/mL (C/P) 100 mg/100 mL = 1 mg/mL (C/P)	100 mg/50 mL = 2 mg/mL (C/P)	<ul style="list-style-type: none"> • Bolus: 1 – 5 mg over 2-3 min • Maintenance: 1 – 20 mg/hour
Milrinone	D5W or NS	10 mg/100 mL = 0.1 mg/mL (C/P)	20 mg/100 mL = 0.2 mg/mL (C/P)	<ul style="list-style-type: none"> • 0.1 – 0.75 mcg/kg/min Renal dose reduction needed
Morphine	D5W or NS	100 mg/100 mL = 1 mg/mL (C/P) 200 mg/100 mL = 2 mg/mL (C/P)	500 mg/100 mL = 5 mg/mL (C/P)	<ul style="list-style-type: none"> • Bolus: 1 – 10 mg (max rate 2 mg/min) • Maintenance: 1 – 20 mg/hour
Nitroglycerin	D5W (premixed)	100 mg/250 mL = 0.4 mg/mL (C/P)		<ul style="list-style-type: none"> • 5 – 200 mcg/min
Nitroprusside Protect from light	D5W	50 mg/250 mL = 0.2 mg/mL (C/P) High cost – start with this concentration and reassess	100 – 200 mg/250 mL = 0.4 – 0.8 mg/mL (C/P)	<ul style="list-style-type: none"> • 0.25 – 3 mcg/kg/min Use with caution in renal and/or hepatic impairment

Drug	Diluents	Standard	Concentrated	Usual Dose*
Norepinephrine	D5W or NS	4 mg/250 mL = 0.016 mg/mL (C) 8 mg/250 mL = 0.032 mg/mL (C)	16 mg / 250 mL = 0.064 mg/mL (C) 32 mg / 250 mL = 0.128 mg/mL (C)	<ul style="list-style-type: none"> • 0.03 – 1 mcg/kg/min
Phenylephrine	D5W or NS	20 mg/250 mL = 0.08 mg/mL (C preferred)	40 mg/250 mL = 0.16 mg/mL (C preferred)	<ul style="list-style-type: none"> • 0.15 – 2.5 mcg/kg/min
Procainamide	D5W or NS	1000 mg/250 mL = 4 mg/mL (C/P)	2000 mg/250 mL = 8 mg/mL (C/P)	<ul style="list-style-type: none"> • Bolus: 1000 mg over at least 40 min • Maintenance: 1 – 4 mg/min Renal dose reduction needed
Propofol	Undiluted	500 mg/50 mL = 10 mg/mL (C/P)		<ul style="list-style-type: none"> • 5 – 83 mcg/kg/min
Rocuronium [in fridge]	D5W or NS	500 mg/250 mL = 2 mg/mL (C/P)		<ul style="list-style-type: none"> • Bolus: 0.6 – 1 mg/kg • Maintenance: 5 – 12 mcg/kg/min per TOF
Vasopressin	D5W or NS	40 units/100 mL = 0.4 units/mL (C/P)	100 units/100 mL = 1 unit/mL (C/P)	<ul style="list-style-type: none"> • 1.8 – 2.4 units/hour

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