

IV Product Preparation

Dilution and Stability Guidelines

Memorial Hospital Pharmacy Department

Agent	Size/Diluents	Stability Mixed or Opened Vial	Final Concentration /Diluents	Stability CRT/FRG	Comments
Acetylcysteine I.V. (Mucomyst)	6 g/30 ml SW		See Comments/D5W only	60 hrs/NA	LD: 150mg/kg in 200 ml IV over 1 hr 2 nd Dose: 50mg/kg in 500 ml IV over 4 hrs. 3 rd Dose: 100mg/kg in 1000 ml IV over 16 hrs. Lexicomp
Acyclovir (Zovirax)	500 mg/10 ml SW 1000 mg/20 ml SW	12hrs	<= 750 mg in 100 ml > 750 mg in 250 ml In D5W or NS	4 days/DNR	May cause precipitation if refrigerated; product will re-solubilize at room temperature without loss of potency. Recommended conc. <7mg/ml. (7-10mg/ml for fluid restriction).USP/Lexicomp
Allopurinol (Aloprim)	500 mg/25 ml SW	10 hrs (CRT)	≤ 6 mg/ml in D5W or NS	10 hrs/DNR	Do not refrigerate. Swirl, don't shake. TR/AHSP
Alteplase(TPA)	50 mg/50 ml SW 100mg/100 ml SW 2mg/2 ml SW	8 hrs(CRT)	1mg/ml in syringe 10 mg in 30 to 60 ml syringe 5-10mg in 500 ml in NS	24 hrs/24 hrs	Frozen syringe is stable for 45 days. USP/TR Cathflo is stable at room temp for 120 days per PI
Amikacin (Amikin)			<=1000 mg in 100ml >1000 mg in 250ml In NS or D5W	48 hrs/10 days	Discoloration may occur due to oxidation without loss of potency. Recommended conc range <10 mg/ml. USP/Lexicomp
Aminocaproic Acid (Amicar)			1 g per 50ml In NS or D5W	4 days/7 days	More than 30gms over a 24 hrs period not advised. Yellow discoloration occurs after 24 hrs at 23°C without loss of potency. Acceptable conc. ranges 10-45 mg/ml, USP/Lexicomp
Aminophylline (Theophylline)			0-250mg /50 ml 251-500 mg/ 100ml in D5W/NS 1mg/ml D5W 500 ml(PRE-MIX)	4 days/DNR	Do not refrigerate(risk of crystallization), USP/Lexicomp
Amiodarone (Cordarone)			150 mg in 100 ml D5W	2 hrs in PVC 4 days/5 days In non-PVC	DO NOT USE EVACUATED GLASS CONTAINER. PVC BAG IS STABLE ONLY 2 HRS Use in-line filter. NS can be use but only for 2 mg/ml (Amiodarone precipitation in NS due to salting out has been reported at a lower amiodarone concentration.). CP/Lexicomp/USP
			250 mg in 250 ml D5W (1mg/ml)	4 days/5 days In non-PCV	
			500mg in 250 ml D5W/NS (2mg/ml)	4 days/10 days In non-PVC	
Amphotericin B (Fungizone)	50 mg/10 ml SW(use preservative free)	7 days (4°C) 24 hrs (CRT) if protected from light	<0.1mg/ml(peripheral) <0.25mg/ml(central and fluid restriction)* In D5W	24 hrs/24 hrs	Protect from light. Do Not Mix in NS,TR *Uptodate Use in-line filter(minimum 1 micron),
Amphotericin B liposome(Ambisome)	50mg/12 ml SW(preservative free)	14 days(4°C)	1-2 mg/ml in D5W	24 hrs/10 days	Do not use saline containing fluid. May use in line filter(1 mcgm) per Mfg, Lexicomp/USP

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Amphotericin B Lipid Complex (Abelcet)			Final con. 0.4-2mg/ml Diluents D5W only	4 days/8 days	Intact vials protect from light, keep refrigerate. Use 5-micron filter needle. Do not use in-line filter. PI/Lexicomp/USP
Ampicillin		4 hrs (4°C)	0.5-1g 50 ml NS 2g 100 ml NS	24 hrs/72 hrs	Do not freeze. Heat sensitive. Use immediately if D5W used as diluent(stable: only 4 hrs), CP
Ampicillin / Sulbactam (Unasyn)		4 hrs (4°C)	1.5g 50ml NS 3g 100mlNS	32 hrs/72 hrs	Do not freeze. Refrigerate immediately Use immediately if D5W used diluent(stable: only 4 hrs),CP
Angiotensin II (Giapreza)			5-10 mcg/ml in NS	24 hrs/24 hrs	Do not use D5W PI
Aprepitant(Cinvanti)			0.08 to 1.1 mg/ml	6 hrs/72 hrs in NS 12 hrs/72 hrs in D5W	PI
Argatroban			100 mg in 100 ml(pre-mixed) or 250 mg in 250 ml In NS or D5W	4 days/10 days	Discard solution if cloudy or precipitate. Protect from sunlight. Reduce dose in liver disease. USP
Ascorbic acid(Vitamin C)	500mg/ml(50ml)	9 days(4°C)	1500mg in NS or D5W 100ml	24 hrs/96 hrs	Do not need to Protect from light , TR, USPM Crit Care Resusc 2018; 20 (3): 180-181
Azithromycin (Zithromax)			250-500mg/250 ml In D5W or NS	24 hrs/7 days	Do not exceed 2mg/ml,TR
Aztreonam (Azactam)	1g/10 ml SWFI 2g/10 ml SWFI		1g in 10 ml SWFI 2g in 10 ml SWFI	4 hrs	Upon adding diluent, swirl the contents ; may appear colorless to light yellow and slight pink tint on standing. Potency not affected. 1-2g dilute vial with 10 ml SWFI & give slow IVP over 3 min in per hospital protocol. TR
Bivalirudin (Angiomax)			0.5-5 mg/ml In NS or D5W	24 hrs/NA	PI
Brivaracetam (Briviact)	50 mg/5 ml		25-200 mg/ iv push or in 50 ml NS or D5W	4 hrs/NA	BRIVIACT injection should be administered intravenously over 2 to 15 minute, PI
Bumetanide (Bumex)			25mg in 100 ml(no dilution)	4 days/10 days	USP
Caffeine citrate (Cafcit)			150 mg/100 ml of D5W	24 hrs/NA	PI
Calcium gluconate			0-2g In 50-100ml of NS or D5W 93meq/700mL NS	4 days/10 days	USP
Cangrelor (Kengreal)			50mg in 250ml NS	24 hrs	12 hrs only if in D5W per PI
Caspofungin (Cancidas)			50 mg/250 ml NS only 70 mg/250 ml NS only	60 hrs/ 10 days	Do not filter, Do not use Dextrose , LR can be use as alternative diluents, Lexicomp/USP

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Cefazolin (Ancef / Kefzol)	1g/10 ml SWFI 2g/20 ml SWFI		1-2g in 10-20ml SWFI 1-3 g 50-100 ml In D5W or NS	1-2g syringe(4 hrs) 1-3g piggy bag (4 days/10 days)	Upon adding diluent, swirl the contents gently until solution dissolves; 1-2g dilute vial with 10-20 ml SWFI & give slow IVP over 3 min in per hospital protocol. Lexicomp/USP
Cefepime (Maxipime)	1g/10 ml SWFI 2g/20 ml SWFI		1 g in 10 ml SWFI 2 g in 20 ml SWFI	4 hrs	Swirl vial contents gently until solution dissolves; reconstituted solution may be translucent to yellow. 1-2g : dilute vial with 10-20 ml SWFI & give slow IVP over 3 min per hospital protocol.TR
Cefotaxime (Claforan)			0.5-2g 50-100 ml In D5W or NS	24 hrs/ 5 days	Stable 10 days in refrigerator after thawing.TR Lexicomp/USP
Cefoxitin (Mefoxin)	1g/10 ml SWFI 2g/20 ml SWFI		1 g in 10 ml SWFI 2 g in 20 ml SWFI	4 hrs	Swirl vial contents gently until solution dissolves; reconstituted solution may be translucent to yellow. 1-2g : dilute vial with 10-20 ml SWFI & give slow IVP over 3 min per hospital protocol.TR
Ceftaroline (Teflaro)	600mg/20 ml SW		200-600mg 100 ml In NS or D5W	24 hrs/6 days	Lexicomp. Stable only 6 hrs if stored temp>30
Ceftazidime (Fortaz)			0.5-2 g 50-100 ml In D5W or NS	1 days/10 days	CAUTION: Generates carbon dioxide upon reconstitution. Must vent during preparation. CP
Ceftazidime/Avibactam (Avycaz)	2.5g/10 ml of NS,SW,D5W,LR FV 12 ml Conc 0.20833mg/ml	Use ASAP	2.5g in 50-250ml In NS/D5W/LR	12 hrs/24 hrs+12 hrs	Avycaz dose volume to withdraw from constituted vial 2.5g 12 ml(entire vial) 1.25g 6 ml 0.94g 4.5 ml bags may also be refrigerated at 2 to 8°C for up to 24 hours; and then should be used within 12 hours of subsequent storage at room temperature. PI
Ceftolozane/tazobactam (Zerbaxa)	1.5g/10 ml SW FV 11.4ml Conc 131.57mg/ml	1 hrs	1.5-3g 100ml In D5W or NS	24 hrs/7 days	Per PI
Ceftriaxone (Rocephin)	1g/10 ml SWFI 2g/20 ml SWFI		1g in 10 ml SWFI 2g in 20 ml SWFI	4 hrs	Swirl vial contents gently until solution dissolves; reconstituted solution may be translucent to yellow. 1-2g : dilute vial with 10-20 ml SWFI & give slow IVP over 3 min per hospital protocol.TR
Cefuroxime (Zinacef)			0.75-1.5g 50-100 ml In D5W or NS	4 days/10 days	Solution may darken, does not affect potency. Lexicomp/USP
Chlorothiazide(Diuril)	500mg/20 ml SW		500mg/20 ml or 250mg/10 ml In SW	30 hrs/9 days	Data in file, USP
Chlorpromazine(Thozazine)	25mg/ml		25-50 mg/50ml NS	3 days/NA	Lexicomp
Ciprofloxacin			200/400 mg premixed in 100/200 ml D5W	4 days/10 days	Maximum conc. = 2 mg/ml, NS can be used as diluents(same stability).Protect vial from light. USPL, PI Stable after remove overwrap for 14 days/100 ml,30 days/200 ml

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Cisatracurium (Nimbex)			0.1-5 mg/ml In D5W or NS	4 days/10 days	Lexicomp/USP
Clindamycin (Cleocin)			300-900mg/50-100 ml In D5W or NS	4 days/DNR	Crystallization may occur upon refrigeration of vial. Crystals re-solubilize upon warming to room temperature, USP/Lexicomp
Colistimethate sodium (Colistin)	150mg/2 ml SW	48 hrs(CRT) 7 days(4°C)	2.5-5 mg/kg/day in NS or SW 50 ml	24hrs/24 hrs	direct I.V. injection over 3-5 minutes, intermittent infusion over 30 minutes. 150 mg in NS4-8 ml for neb.(SW is not recommended for neb per MedWatch). CP
Copper chloride	0.4mg/ml(10 ml)		Usually 0.5-1.5mg/ In NS 100 ml	Use immediately	the suggested additive dosage is 0.5 to 1.5 mg copper/day (1.25 to 3.75 mL/day. No stabilities data available.
Co-Trimoxazole (Sulfamethoxazole-Trimethoprim) (Bactrim / Septra)			< 1.07mg/ml as TMP in D5W Do not use NS	2hr when 5ml added to 75ml D5W 4hr when 5ml added to 100ml D5W 6hr when 5ml added to 125ml D5W	Mix immediately prior to use if possible. DO NOT REFRIGERATE. Do NOT use if cloudy or crystallized. Do not use glass bottle if conc > 0.8mg/ml as TMP,CP/TR Stability: 0.81-1.06 mg/ml TMP = 2 hrs, 0.65-0.8 mg/ml TMP = 4 hrs, < 0.65 mg/ml TMP = 6 hrs
Cyclosporine (Sandimmune IV)			0.2-2.5 mg/ml In D5W/NS use VisiV/glass BT	24 hrs/24 hrs	Use of containers and tubing that does not contain DEHP Use 0.45-micron polypropylene filter.CP
Daptomycin (Cubicin)	250mg/5ml NS 500mg/10ml NS	48 hrs(CRT) 7 days(4°C)	0-1g/50 ml In NS	48 hrs/7 days	No dextrose. Eur J Hosp Pharm. 2018 Mar; 25(2): 107–110. Study was done in polypropylene bag(non-DHEA bag)
Daptomycin (Cubicin RF)	250mg/5ml SW 500mg/10ml SW	24 hrs (CRT) 72 hrs (4°C)	0-1g/50 ml In NS	19 hrs/72 hrs	Not available in memorial. No dextrose. Un-opened vial is stable for 1 years in room temp.
Deferoxamine (Desferal)		24 hrs(CRT)	5-73mg/ml In NS(preferred) D5W(see comment)	4 days/10 days In NS 4 days/NA In D5W	Max Rate = 15mg/kg/hr (dry weight). OK to use D5W as diluents but no data for REFRIGERATE. Lexicomp/USP
Desmopressin (DDAVP)			5-20 mcg in NS 50 ml	use immediately	Mix and use immediately. IV dose has 10 times diuretic effect of intranasal DDAVP
Dexamethasone			0-10 mg IVP ≥ 11 mg/50 ml in NS/D5W	4 days/10 days In NS 4 days/NA In D5W	Protect from freezing and light. Lexicomp/USP
Dexmedetomidine (Precedex)			Standard drip = 400 mcg in 100 ml NS (4 mcg/ml) Max conc 20 mcg/ml	4 days/10 days In NS	Mfg recommends NS as diluents but stable in D5W per PI. No stability data but premix bag in D5W is commercially available Lexicomp/USP
Dialysate with Calcium gluconate			Usual conc 2.5 to 5 meq/L	4 days/10 days	If seal is opened between compartment, use within 24 hrs.
Diltiazem (Cardiazem)			Standard drip=100mg/100ml or 125mg/125ml in NS/ D5W	4 days/10 days	Lexicomp/USP

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Dobutamine			Standard drip = 250 mg in D5W 250 ml (1mg/ml) Max conc.=5mg/ml	4 days/10 days	Premixed by Abbott stable 14 days after over wrap removed NS can be used as diluents (stability 24 hrs.) Lexicomp/USP
Dopamine			Standard drip = 800 mg in D5W 500 ml(1.6mg/ml) Max conc. = 3.2mg/ml	4 days/10 days	Premix by Abbott stable 7 days after over wrap removed NS can be used as diluents (stability 48 hrs.) Lexicomp/USP
Dornase (Pulmozyme)			5 mg in 30 ml SW per syringe	Use immediately	Mfg does not recommend mix with other drug per PI. Use ASAP after mixing with other med
Doripenem (Doribax)	500 mg/10 ml In SW or NS	1 hr	0.5-1g 100 ml in NS/D5W	72 hrs/10 days	Lexicomp/USP
Doxycycline (Vibramycin)	100 mg/10 ml in SW	Discard unused portion	100 mg/100 ml 200 mg/250 ml In D5W/NS	4 days/7 days	Lexicomp/USP
Epinephrine			Standard drip = 2 mg in NS/D5W 250 ml (8 mcg/ml) Max conc.= 64mcg/ml	4 days/10 days	Lexicomp/USP
Ertapenem (Invanz)	1 gm/10 ml SW or NS	Use immediately	0-1g/ 50 ml NS not D5W	6 hrs/24 hrs	Use within 4 hrs of removal from refrigeration. PI
Erythromycin	500 mg/10 ml SW 1 gm/20 ml SW	14 days(4°C) 24hrs (CRT)	0-500 mg/100 ml 501-1000 mg/250 ml In NS (not D5W)	24 hrs/10 days	Reconstitute only with preservative-free water. Lexicomp/USP
Esmolol (Brevibloc)			Standard drip = 2500 mg/ 250 ml NS (10 mg/ml)	Mfr. Exp. Date	Use within 24 hrs. after open overwrap. No long term stability data per Mfg
Esomeprazole (Nexium)	40 mg/ 5ml NS	12 hrs (CRT)	Standard drip = 40 mg/50 ml NS or D5W (0.8 mg/ml)	48 hrs/120 hrs	Mfg informs 12 hrs. stability per PI but stable over 48/120 hrs. per TR
Fenoldopam (Corlopam)			Standard drip = 10 mg/250 ml NS or D5W (40mcg/ml) Max conc. 160 mg/ml	48 hrs/72 hrs	Dosing range: 0.1-1.6 mcg/kg/hr, protected from light USPL/CP
Fomepizole (Antizol)			1g in 100 -250 ml NS or D5W	24 hrs/24 hrs	Per PI
Fentanyl			PCA 1500mcg/30ml (50mcg/ml)	4 days/10 days	Lexicomp/USP
Ferric gluconate complex (Ferrect)			125-250 MG/100 ml NS	24 hrs/7 days	DO NOT USE DEXTROSE Lexicomp
Fluconazole (Diflucan)			2mg/ml in NS(pre-mixed)	4 days/10 days	USP Premixed by Hospira stable 30 days after over wrap removed
Folic acid			1mg/0.2 ml syringe	4 days/10 days	USP
Fosaprepitant (Emend)	150 mg	5 ml NS	1mg/ml in D5W 0.6-3 mg/ml in NS	24 hrs/NA in D5W 4 days/10 days in NS	Lexicomp/PI
Fosphenytoin		Stable for 48hrs	500-1000 mgPE/50 ml	4 days/7 days	Lexicomp/USP

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(Cerebryx)		in CRT	In NS or D5W		
Furosemide			100 mg/100 ml In NS	4 days/ 10 days In NS	Keep from light, refrigeration may cause precipitin which dose not influence effect. D5W can be used as diluents(24 hrs), Lexicomp/USP
Ganciclovir	500 mg/10 ml SWPF	12 hrs in (CRT) DNR*	Max conc. 10mg/ml In D5W or NS	4 days/10 days	*Possibility of precipitation/CP Lexicomp/USP
Gentamicin			All doses in 100 ml In NS or D5W	4 days/ 10 days	Lexicomp/USP Premixed by Hopira stable 30 days after over wrap removed
Glucagon	1mg/1 ml of SW		10 mg/100ml in D5W	Use immediately	USE IMMEDIATELY (Mfg dose not recommended IV infusion: no stability data)
Heparin			50-100 units/ml In D5W or 1/2NS or NS	4 days/10 days	Lexicomp/USP
Hydrocortisone (Solu-Cortef)		3 days(CRT)*	200mg in 250 ml NS	4 days/10 days	2-60 mg/ml conc. Is stable only for 4 hrs, Ok with D5W but less stable data(use with 24 hrs) Lexicomp/USP
Heme			313 mg in 43 ml of SW	Use immediately	Infuse over 10 to 15 minutes using a 0.45 micron or smaller filter. Administer through a large vein or central line to prevent phlebitis
Hydromorphone			1mg/ml or 10 mg/ml In NS/D5W	4 days/10 days	Lexicomp/USP
Ibuprofen			2- 4mg/ml in NS or D5w	24 hrs in CRT	PI
Insulin(regular)			250 units/250 ml of NS	4 days/10 days	Lexicomp/USP
Iron Sucrose (Venofer)			1-2 mg/ml in NS	4 days/ NA	Do Not Mix in D5W , stable 7 days in room temp per PI USP
Iron Dextran (InFeD/Dexferrum)			Total dose infusion in NS 250-500 ml (unlabeled use) Daily dose in NS 100 ml	Use immediately	Dextrose results in a greater incidence of pain and phlebitis Mfr does not have any stability data→ use immediately
Isoproterenol(Isuprel)	1mg/5ml		Standard drip 1mg/250 ml in NS/D5W (Max conc : 5mg/250ml)	4 days/10 days	Need to protect from light Extended Stability of Isoproterenol Hydrochloride Injection in Polyvinyl Chloride Bags Stored in Amber Ultraviolet Light Blocking Bags. <i>Hospital Pharmacy</i> . 2022;0(0). Lexicomp/USP
ketamine	50mg/ml 10 ml vial 30mg/3 ml syringe		0.2-2mg/ml in NS or D5W	4 days/10 days in NS 3 days/NA In D5W	Stable pH in D5W for 72 hrs. Lexicomp/USP
Labetalol (Normodyne/Trandate)			Standard drip = 300 mg/240 ml (1 mg/ml) In D5W Max conc. 3.75 mg/ml	72 hrs/72 hrs In D5W 24 hrs/24 hrs In NS	NS can be alternative diluent but stable only 24hrs/24hrs per PI To make max conc.:375mg(75 ml)+25 ml of D5W→100ml(final volume) Lexicomp/USP

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Lacosamide(Vimpat)			0-400mg in NS/D5W 50 ml	4 hrs/NA	PI
Leucovorin	10-20mg/ml in SW	see comment*	0-20mg/ml in NS or D5W	48 hrs/7 days	*Use immediately if mixed in preservative free water but is stable for 7 days in bacteriostatic water at CRT per Mfg. USPM
Levofloxacin (Levaquin)			250mg/50 ml 500mg/100 ml 750 mg/150ml	48 hrs/6* or 14** days	Premixed stable 7 days(500 or 750 mg), 6 days(250 mg) after over wrap removed, USPL(*w/o light protection,**need light protection)
Levetiracetam (Keppra)			>1g in 100ml NS	4 hrs/NA Brand:UCB (Keppra) 24 hrs/NA Generic:Pfizer (levetiracetam)	premixed Keppra bag(NS) is available. Per PI
Lidocaine			2 gm/500 ml NS Premix Upto 200mg/100ml NS/D5W	4 days/10 days	If mixed in out of IV room, use within 12 hrs.CP Lexicomp/USP
Lorazepam(Ativan)		60 days(CRT)	50mg in D5W in 250ml (conc 0.2mg/ml)	24 hrs/DNR	Use VISIV bag or glass container. Lexicomp DO NOT CHAGE CONCENTRATION
Magnesium sulfate			Recommended Conc.<3.7g/100ml in NS or D5W	4 days/10 days	Max infusion rate is 150 mg/min. USPL/CP Premixed by Hospira stable 30 days after over wrap removed
Meropenem (Merrem)	500mg/10ml SWFI 1gm/20ml SWFI	12 hrs(4°C) 2 hrs (CRT)	500mgg in 10 ml SWFI 1-2g 100ml NS	1-2g/NS100ml (4 hrs/24 hrs)	Swirl vial contents gently until dissolves; clear color Dilute 0.5 g vial with 10 ml SWFI & give slow IVP over 3 min per protocol DO NOT USE D5W FOR 3 HRS INFUSION (Stable only 1 hr) Lexicomp
Methocarbamol			<=750mg/50 ml 751-1500 mg/100 ml in D5W or NS (Max conc:15mg/ml)	4 days/DNR	Do not refrigerate after dilution. May also be administered undiluted IF dose < 500 mg. USPL/CP
Methylprednisolone (Solu-Medrol)			251-1000mg in 50 ml > 1000 mg in 100 ml In NS	48 hrs /48 hrs	0-250 mg IV push, over 250mg IVPB D5W can be alternative diluents but less stable(8 hrs in CRT)CP
Methyldopate			250-500 mg in 50 ml 501-1000 mg in 100 ml D5W or NS	24 hrs/24 hrs	Administer over 30-60 minutes CP
Methylene blue			1-2 mg/kg in 50-100 ml of D5W only	Use immediately	Infuse over 20-60 min. It can be slow IV push over 5 mins Do not use NS
Metoclopramide (Reglan)			11-20 mg in 50ml In D5W or NS	24 hrs/24 hrs	PI/Lexicomp
Metronidazole (Flagyl)			250 mg/50 ml 500mg/100 ml in NS (Conc:5mg/ml)	4 days/DNR	Refrigeration may result in crystal formation but may re-dissolve on warming to CRT. USPL Premixed by Hospira stable 30 days after over wrap removed

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Micafungin (Mycaminne)		24 hrs(CRT)	50-150 mg/100ml In NS or D5W	4 days/ 10 days	Protect from light (stable only for 12 hrs under light). Flush line with saline pre-dose. DO NOT SHAKE (Gently swirl to dissolve) Lexicomp/USP
Midazolam (Versed)			100mg/100ml In NS or D5w (Max 3 mg/ml)	4 days/10 days	Lexicomp/USP
Milrinone (Primacor)			Standard drip = 20 mg in 100 ml D5W(0.2mg/ml) Max conc. 0.4mg/ml	4 days/10 days	NS can be alternative diluent (same stability) Stable 30 days after removed from overwrap. USPL/CP
Minocycline	100mg/5ml SW		100-200 mg/100-1000 ml In D5W or NS	4 hrs/24 hrs	PI
Morphine			Standard drip = 100 mg in 100 ml NS/D5W	4 days/10 days	Lexicomp/USP
Multivitamins (M.V.I Adult)	Mix contents of Vial 1 and Vial 2	24 hrs (4°C)	Dilute in at least 500ml, preferably in 1L NS, D5W	24 hrs/24 hrs	Store in refrigerator, protect from light, PI
Mycophenolate (Cellcept)	500 mg vial		1-6 mg/ml in D5W	4 days/7 days	Infuse over at least 2 hours – Never administer by rapid or bolus IV inj. Incompatible with other solutions (only D5W), Lexicomp/USP
Nafcillin Sodium			2g/50-100 ml or 10-12g /250-500 ml In D5w	2 days/10 days	D5W is prefer due to Na content Lexicomp/USP
Naloxone(Narcan)			Standard drip=4mg/250 ml in NS Max conc 133 mcg/ml	24 hrs/24 hrs	CP. Am J Health-Syst Pharm: 1998. 55: 2630-4.
Neostigmine			0.5-2 mg/syringe	4 days/10 days	0.5 to 2 mg slow IV injection. Repeat as required; the total dose rarely should exceed 5 mg. USPL
Nicardipine (Cardene)			0.1-0.5 mg/ml in NS/D5W	4 days/7 days	Protect from light , 0.5mg/ml is for central line only Premixed stable 7 days after open cardboard carton Do not use PVC container Am J Health Syst Pharm. 1996 Jul 15;53(14):1701-5. USP
Nitroglycerin			100 mcg/ml 10 or 20 ml D5W in polypropylene plastic syringes	4 days/10 days	Do not use PVC container , Lexicomp/USP
Nitroprusside (Nipride)			0.2-0.4mg/ml in D5W or NS	48 hrs/NA	Protect from light. Dilute with preservative free SWFI, D5W, NS Mfg does not recommended NS as diluents but NS still can be alternative diluents, 0.8mg/ml is stable for 24 hrs only.USPL CP
Norepinephrine (Levophed)			Standard drip = 4mg in 250 ml D5W/NS Max conc. 64 mcg/ml	4 days/10 days	Lexicomp/USP
Octreotide (Sandostatin)		14 days in CRT	500 mcg/250 ml in NS Max conc 250 mcg/ml	4 days/NA	D5W is stable for 24 hrs Lexicomp/USP

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Agent	Size/Diluents	Stability Mixed or Opened Vial	Final Concentration /Diluents	Stability CRT/FRG	Comments
Ondansetron (Zofran)			9-16 mg/50 ml in NS or D5W	4 days/10 days	Lexicomp/USP Premixed by Hospira stable 30 days after over wrap removed
Oritavancin (Orbactiv)	400 mg/40 ml SW		1200 mg/1000 ml D5W (final volume is 1000 ml)	6 hrs/12 hrs	No not use NS. Need to remove 120 ml from bag to make 1.2 mg/ml
Oxacillin			1-2 g/100 ml 12g/500 ml in NS or D5W	4 days/8 days In NS 48 hrs/8 days In D5W	PI/Lexicomp
Pamidronate	30 mg /10 ml SW 90 mg /10 ml SW	24 hr (4°C)	30-90 mg dose in 250-1000 ml D5W	4 days/10 days In D5W	Do not mix with calcium containing solutions, including D5LR or LR NS can be use diluents but stable only 24 hrs . Lexicomp/USP
Pantoprazole (Protonix)			200 mg in NS or D5W 250-500 ml	4 days/10 days	Does not require filtration. Lexicomp/USP
Penicillin G (Potassium) (Sodium)	5 MU/ 8.2 ml SW 20 MU/ 33 ml SW (0.5 MU/ML)	7 days (4°C)	2-4 MU/50 ml 4.1-8 MU/100 ml >8.1 MU/250-500 ml in D5W	24 hrs/ 7 days	(1.7mEq K+/ MU Potassium) (2 mEq Na+/MU Sodium) NS can be used as diluent but higher content of Na/Lexicomp/PI
Pentobarbital (Nembutal)			2-4g/500 ml NS	24 hrs/NA	Lexicomp
Phenobarbital			<=260 mg IV slow push(<60 mg/min) 261-2000 mg/100 ml NS over 30 mins	24 hrs/24 hrs	Lexicomp
Phenylephrine (Neo-synephrine)			Standard drip = 10 mg in 250 ml NS/D5W(40 mcg/ml) Conc. range 40-200 mcg/ml	4 days/10days	Lexicomp/USP
Phenytoin (Dilantin)			101-250mg in 50ml 251-500mg in 100ml 501-1000mg in 250ml NS	2 hrs/NA	Mix immediately prior to use. Administer with 0.22 micron filter. Do not use Dextrose, Do not refrigerate. CP
Phytonadione(Vit K) (Aqua-Mephyton)			1-20 mg/50ml in D5W or NS	24 hrs/24 hrs	Protect from light. Lexicomp
Potassium chloride			1-40 meq/100-1000 ml in D5W or NS	4 days/10 days	Premixed by Hospira stable 30 days after over wrap removed Lexicomp/USP
Potassium phosphate			1-20 mM/100 or 250 ml 21-40 mM/250 or 500 ml in NS or D5W	48 hrs/48 hrs	Do not use with LR PI
Pipercillin /Tazobactam (Zosyn)	2.25gm/10ml SW 3.375 m/115 ml SW 4.5 gm/20ml SW	24 hrs(CRT) 48 hrs(4°C)	2.25-4.5g In 50-100ml NS or D5W	2 days/10 days	Stable 14 days in refrigerator after thawing. Lexicomp/USP
Procainamide			4mg/ml in NS only	4 days/10 days	CP

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Agent	Size/Diluents	Stability Mixed or Opened Vial	Final Concentration /Diluents	Stability CRT/FRG	Comments
Prochlorperazine (compazine)			11-40mg in NS or D5W (50-1000 ml)	24 hrs/24 hrs	Protect from light. May give IV slow push if less than 10 mg Lexicomp
Promethazine (Phenergan)			6.25-50 mg in 50 ml	24 hrs/NA	Lexicomp/USP
Quinupristin/Dalfopristin(Synercid)	500 mg/ 5ml in SW or D5W	30 min (4. 4°C	250ml D5W IVPB desired conc.: 2mg/ml	5 hrs/54 hrs	Incompatible with NS. Send each dose with D5W 50 ml flush bag. PI
Rasburicase (Elitek)			All dose in 50 ml NS	Use immediately /24 hrs	
Remdesivir	100 mg/19 ml SW	4hrs/24hrs	100-200 mg/250 ml NS	24 hrs/48 hrs	PI
Rifampin (Rifadin)	600mg/10ml SWFI	24hrs (CRT)	0-600mg in 100-500 ml	4 hrs/NA in D5W 24 hrs/NA in NS	Protect from light/heat 100 ml infuse over 30 min or 500 ml infuse over 3 hrs PI
Rocronium (Zemuron)		60 days(CRT)	1-5 mg/ml in NS or D5W	24 hrs/NA	LD 0.6-1.2mg/kg MD 8-12mcg/kg/min per PI
Sodium Bicarbonate			50-150 meq/L in SW/D5W	4 days/7 days	NS or 1/2NS is stable for 24 hrs Lexicomp/USP
Sodium Phosphate			1-20 mM/100 or 250 ml 21-40 mM/250 or 500 ml in NS or D5W	4 days/10 days	Do not use with LR Can J Hosp Pharm. 2017 Jan-Feb; 70(1): 7–12. Lexicomp/USP
Thiamine			100-300mg/50ml In D5W or NS	24 hrs/24 hrs	Lexicomp
Tigecycline (Tygacil)	5.3 ml of NS or D5W	6 hrs(CRT)	50-100mg in 100ML NS or D5W	24 hrs/45 hrs	Max Conc.= 1 mg/ml PI
Tobramycin		4 days(4°C) 24 hours(CRT)	All doses in 100 ml NS or D5W	4 days/10 days	Lexicomp/USP Premixed by Hospira stable 30 days after over wrap removed
Tocilizumab (Actemra)			All dose in 100 mlNS	24 hr/24 hr	PI
Tranexamic acid	1g/10ml		All dose in NS 100 ml	4 days/10 days	Int J Pharm Compd. Sep-Oct 2014;18(5):432-7. Lexicomp/USP 24 hrs stability in D5W
Vabomere (meropenem/vabobactam)	2g vial(1+1g)/ In 20ml NS(TV 21.3ml)	Immediately further dilute	Conc range 4-16mg/ml in NS (fluid volume range 70-1000ml)	12 hrs/5 days	VABOMERE solution for administration by 3-hour infusion is only compatible with 0.9% NS, Lexicomp
Valproate Sodium (Depacon)			0-500mgg in 50 ml/ >=1g in 100ml D5W or NS	4 days/NA	Maximum infusion rate = 20 mg/min Lexicomp/USP

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Agent	Size/Diluents	Stability Mixed or Opened Vial	Final Concentration /Diluents	Stability CRT/FRG	Comments
Vancomycin (Vancocin)	1 gm/20 ml SW	9 days (4°C)	<5 mg/ml D5W/NS IVPB	4 days/10 days	Compounded oral vancomycin liquid is stable for 75 days in FRI Lexicomp/USP
Vasopressin (Pitressin)			20 units in 50 ml D5W or NS (0.4units/ml)	NS:4 days/10 days D5W:18 hrs/24hrs	Lexicomp/USP
Vecuronium (Norcuron)	10mg/10ml SW	24hrs SW(4°C)	Standard drip: 50mg/500ml in D5W/NS (Conc. 1 mg/ml)	24 hrs/ 24 hrs	Compatible with D5W, NS,LR PI
Voriconazole (VFEND I.V.)	200 mg/19 ml SW	24 hr (4°C)	Further dilution in D5W or NS to 0.5 -5 mg/ml is required	4 days/10 days	Vial contains vacuum to ease reconstitution process. Lexicomp/USP
Zoledronic Acid (Zometa)	4mg/5 ml		Further dilute in D5W/NS 100 ml for infusion	24 hrs/24 hrs	Do not mix with calcium containing solutions such as D5LR or LR. PI

AddEase Binary Connector with PAB container is stable 70 days and AddEase Binary Connector with EXCEL container is stable for 30 days in room temperature per manufacturer.
ADD-Vantage ADDaptor Connector 72 hrs per manufacturer

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