

IV Admixture Guidelines

For

Pharmacy Graduates

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Pharmacy Services – IV Admixture Room

*** Medications highlighted in purple are approved to be administered by nursing staff via IV Push ***

INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medication	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Acetyl cysteine	Oral Route preferred. IV Push/ IM/ SC Not recommended		Loading: 150 mg/kg in 250 ml D5W Initial maintenance: 50 mg/kg in 500 ml D5W 2nd maintenance: 100mg/kg in 1000ml D5W		Loading: 150 mg/kg in D5W 250 ml over 60 mins followed by 50 mg/kg in 500 ml D5W over 4 hours then 100mg/kg in 1 liter over 16 hours or longer		
Acyclovir (Zovirax)	IV Push/ IM/ SC Not recommended		Dilute every 500 mg in 100 ml D5W or NS to infuse for 1 hour. If dose > 700 mg dilute in 250ml D5W.		N/A		Do not refrigerate.



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Adenosine	RAPID IV PUSH preferred IM/SC: Not recommended 6mg in 1-2 secs. Max adult single dose: 12 mg. Infant- child: if odes is less than 0.2 ml (600mcg) dilute to 1-2 ml NS	Critical Care Areas, ED, OT, RR	Max 3 mg/mL. Rate Adult: 140 mcg/kg/min over 6 min infusion Pediatric: < 50kg 0.05-0.1mg/kg Max single dose 0.3 mg/kg or 12mg	Critical Care Areas, ED, OT, RR	N/A		Physician must be present when administered in In-Patient wards Code Blue equipment must be on standby
Albumin 20% undiluted	IV Push/ IM/ SC Not recommended		20%: max 1 ml/min Pediatrics or Adult Over 1 to 4 hours.	All Nursing Units	N/A		Discard after 4 hours from spiking
Alprostadiil	IV Push/ IM/ SC Not recommended		NA		Dilute 500mcg in 25 or 250ml D5W/NS Start at 0.05-0.1mcg/kg/min. When therapeutic response is achieved, reduce rate in increments to the lowest dose that maintains the response	All Nursing Units	24hrs refrigerated Any Dextrose – Saline solution



Medication	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Alteplase	Myocardial Infarction	Critical Care Areas, ED	<u>Weight above 67kg</u> Infuse 15mg over 1-2 mins, then 50mg over 30 mins. Infuse remaining 35mg over the next hour <u>Weight 67kg or less</u> Infuse 15mg over 1-2 mins, then 0.75mg/kg over 30 mins. Infuse remaining 0.5mg/kg over the next hour	Critical Care Areas, ED	NA		Do NOT use in-line filter Reconstitute solution in provided diluent Infusion stable for 8hrs refrigerated
	Acute Ischemic Stroke	Critical Care Areas, ED	Give 10% of 0.9/kg dose over 1min then give remainder dose over 60mins	Critical Care Areas, ED			
	Acute Pulmonary Embolism	Critical Care Areas, ED	Give 100mg over 2hours	Critical Care Areas, ED			
	Pediatrics with Systemic thrombosis	PICU	Give at a rate of 0.1-0.6mg/kg/hr	PICU			



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Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Amikacin	IV Push/ SC Not recommended IM at large muscle		Dilute in 100 to 200ml of Dextrose/Saline to infuse for 30-60 mins	All Nursing Units	N/A		7 days refrigerated or 24 hours at room temperature.
Aminophylline	Slow IV push ≤25 mg/min IM/SC: Not recommended	All Nursing Units	N/A		Adult: 0.25-2.0 mg/kg/hour Pediatrics: 1yr-16 yrs old 0.5-0.8 mg/kg/hour	All Nursing Units	24 hours refrigerated. 1) Aminophylline 100mg = 85mg Theophylline 2) Acephylline (Etaphylline) 100mg = 64mg Theophylline =75mg Aminophylline
Amiodarone	IM/SC: Not recommended IV Push- 300 mg over 1 min for VF/VT arrest flush with 10 ml NS	Critical Care Areas, ED, Other Nursing Units with Physician present	Bolus 150mg over 10 minutes		900 mg in 500 ml D5W at 1 mg/min x 6 hours then 0.5mg/ min maintenance	Critical Care Areas, ED, Other Nursing Units with Physician present	Stability: 24 hours refrigerated Stability in PVC bag-2 hours only Dose for neonates/ children are not established.



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Amoxicillin	IV Push/ IM/ SC Not recommended		Dilute every 600 mg in 50 ml Normal Saline only to run for 30 minutes. 1200 mg in 100ml for 1 hour.	All Nursing Units	N/A		Stable for 8 hours refrigerated; 4 hours at room temperature
Amphotericin-B Liposome	IV Push/ IM/ SC Not recommended		N/A		50 mg in 50 ml D5W infuse over 1-2 hours Max: 2.5mg/kg/hour	All Nursing Units	Use micron filter Avoid using saline
Ampicillin	IV Push 3-5 min if between 125 to 500 mg , max 100 mg/min. IM: dose in 3-5 mL, painful SC-not recommended	All Nursing Units	1 gm in 50 ml NS or 2 gm in 100ml to infuse minimally over 30 mins.	All Nursing Units	N/A		Stable for 24 hours refrigerated NS preferred D5W (4 hrs. stability)



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Atracurium	Rapid IV Push, undiluted IM / SC :Not Recommended	Critical Care Areas, ED, OT	10 mg/mL or less Standard concentration 10 mg/ml	Critical Care Areas, ED, OT	11-13 mcg/kg/min Dose for Pediatrics may be higher	Critical Care Areas, ED, OT	Stable for 24 hours refrigerated Dilute with any dextrose saline solution
Atropine sulfate	IV PUSH: 0.1 mg/ml or undiluted. 0.5- 1mg every 3-5min not to exceed 0.04mg/kg. SC/IM- Undiluted	All Nursing Units	N/A		N/A		Maybe given via ETT followed by 10 ml NS and ambubag Physician must be present when administered in In- Patient wards
Azithromycin	IV Push/ IM/ SC Not recommended		Dose in 250 ml D5W to run for 1-2 hours	All Nursing Units	N/A		Dilute with any dextrose saline solution



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Medication	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Aztreonam	IV Push/ IM/ SC Not recommended		Each gram in 50 ml D5W over 60 minutes	All Nursing Units	N/A		Dilute with any Dextrose saline solution
Benztropine (Cogentin)	IM: undiluted IV PUSH: rarely 1-2 mg over 1-2 minutes SC: Not recommended	Adult Nursing Units	N/A		N/A		IM administration preferred over IV
Baclofen	For Intrathecal (Epidural) injection Test Dose: Screening dose of 50mcg/ml over at least 1min	All Nursing Units	For Intrathecal (Epidural) injection		For Intrathecal (Epidural) injection		
Calcium Chloride 10%	IV PUSH: 500 mg-1000mg over 1 minute Cardiac arrest: 1g or prescribed dose over 10-20 sec. IM/SC: Not recommended	Critical Care Areas, ED, OT, other nursing units with Physician present	500mg- 1000mg in 50 ml D5W or NS over 15-30 minutes.	Critical Care Areas, ED, OT, other nursing units with Physician present	N/A		Extravasation risk. Requires central line unless emergency With physician present Do not exceed 200mg/min



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Medication	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Calcium Gluconate 10%	IV PUSH: 1gm slow IV PUSH atleast over 2-5 mins IM/ SC: Not recommended	Critical Care Areas, ED, OT, other nursing units with Physician present	1-2 gm in 50-100 ml over 30-60 mins.	Critical Care Areas, ED, OT, other nursing units with Physician present	NA		Extravasation Risk. Prefer central line. Any dextrose- Saline solution. Be careful when mix with phosphate- containing Solution.
Carnitine L-Carnitine	IV Push: 50mg/kg over 2- 3mins every 3- 4hrs	All Nursing Units	Dilute with 25ml D5W/NS at 4mg/kg/hr	All Nursing Units	NA		Dilute with any dextrose- Saline Ringer's Lactate solution
Caspofungin (Cancidas)	IV Push/ IM/ SC Not recommended		50-70 mg in 250 ml NS over 1 hour up to 100 ml for fluid restricted patients.	All Nursing Units	NA		48 hours refrigerated diluted vial with water is stable for 24 hours refrigerated NS or RL only. Do not use Dextrose Solution
Cefepime	IV Push/ IM/ SC Not recommended		Dilute each gm in 100 ml NS or 50 ml for fluid restricted patient over minimum of 30 mins.	All Nursing Units	NA		Dilute with any dextrose- Saline solution



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Cefotaxime	IV PUSH: 500 mg in 10 ml NS over 3-5 minutes IM: Deep muscle 200- 300mg SC: Not recommended	All Nursing Units	Dilute each gm in 100 ml NS or 50 ml for fluid restricted patient over minimum of 30 mins.	All Nursing Units	N/A	Dilute with any dextrose- Saline solution	
Ceftazidime	IV PUSH: 500 mg in 10 ml NS over 3-5 minutes IM/ SC: Not recommended	All Nursing Units	Dilute each gm in 100 ml NS or 50 ml for fluid restricted patient over minimum of 30 mins	All Nursing Units	N/A	Dilute with any dextrose- Saline solution	
Ceftizoxime	IV PUSH: over 3-5 min IM: deep muscle SC: Not recommended	All Nursing Units	Dilute each gm in 100 ml NS or 50 ml for fluid restricted patient over minimum of 30 mins	All Nursing Units	N/A	Dilute with any dextrose- Saline solution	
Ceftriaxone	IV PUSH: over 3-5 min IM/ SC: Not recommended	All Nursing Units	Dilute each gm in 100 ml NS or 50 ml for fluid restricted patient over minimum of 30 mins.	All Nursing Units	N/A	Dilute with any dextrose- Saline solution	



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Medication	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Cefuroxime	IV PUSH: 550 mg in 8.3 ml NS over 3-5 minutes. IM/ SC: Not recommended	All Nursing Units	Dilute each 750 mg in 100 ml NS or 50 ml for fluid restricted patient over minimum of 30mins	All Nursing Units	N/A		Dilute with any dextrose- Saline solution
Chlorpheniramine	IM / SC : injection over 1 min. IV PUSH: only in severe allergies, and should be given slowly over	All Nursing Units	N/A		N/A		
Ciprofloxacin	IV Push/ IM/ SC Not recommended		200 mg in 100 ml 400 mg in 200 ml D5W over 60 minutes	All Nursing Units	N/A		Prefer Central Line
Cisatracurium (Nimbex)	IV PUSH: 0.15-0.2 mg/kg over 5-10 secs. IM/ SC: Not recommended	Critical Care Areas, OT	N/A		100mg/250 ml D5W/ NS at 1-5 mcg/kg/min	Critical Care Areas	For 7 days refrigerated (Protected from light) Mechanical Ventilator required



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Clindamycin	IV PUSH/SC: not recommended IM: dose greater than 600 mg must be over 2 sites for adult	All Nursing Units	300-900 mg in 100 ml D5W/ NS over 30 min	All Nursing Units	N/A		Dilute with any dextrose- Saline solution
Cloxacillin Or Flucloxacillin	IV PUSH: conc. 100mg/mL SWI, dose over 10 min IM: painful dose in 3-5 mL	All Nursing Units	Dilute 500 mg in 100 ml D5W or 50 ml for fluid restricted patient over minimum of 30 mins	All Nursing Units	N/A		D5W preferred for dilution. For 7 days refrigerated (with D5W) For 24 hours refrigerated (with NS)
Colistimethate Colomycin® 2 MU= 160 mg of colistimethate = 60 mg Colistin base	IV Push: Dose in 20ml SWI in 5mins Aerosol: dissolve in 1-2ml NS Adult: 25-50mg 2-3 times daily Pedia: 2-15mg 2-4 times daily	All Nursing Units	NA		Dilute dose with 25-100ml D5W/NS Give 1/2 of total daily dose as IV Push over 5mins. The remaining 1/2 to be given after 1hr to run over 23hrs	All Nursing Units	May be administered in a standard nebulizing apparatus or with an IPPB device Discard unused portions after 24hrs
Dantrolene	IV Push: 1mg/kg rapid IV push, repeated as necessary up to 10mg/kg (Emergency dose)	Surgical Units	Reconstitute 20mg with 60ml SWI. Prophylactic dose: 2.5mg/kg over 1hr	Surgical Units	N/A		Do NOT use glass containers. Extravasation risk. Incompatible with D5W, NS or bacteriostatic water



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Medication	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Deferoxamine Desferrioxamine Desferal	IV Push Not Recommended IM (recommended for all patient not in shock) : use 500 mg/2 mL SWI Intraperitoneal: 5 mg/kg added to final daily dialysis	All Nursing Units except NICU	Reconstitute 500mg in 2ml sterile water, then add to 250ml D5W at 15mg/kg/hr every 8hrs	All Nursing Units except NICU	NA		Stable for 24hrs at room temperature.
Desmopressin Desmopressin acetate	IV Push 2-4mcg undiluted over 1min for Diabetes Insipidus	All Nursing Units except NICU	0.3mcg/kg in 50ml NS over 15-30mins for bleeding	All Nursing Units except NICU	NA		Dilute with NS only. Max infusion not more than 20mg/min
Dexamethasone	IV Push: over 1-5mins without dilution if dose is less than 10mg IM: 4mg/ml	All Nursing Units	Give dose in volume of normal saline to 0.4mg/ml over 30 to 60mins	All Nursing Units	3mg /kg to dilute every 4mg in 1ml NS over 24h	All Nursing Units	Stable for 7 days refrigerated



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Dexmedetomidine	IV Push/ IM/ SC Not recommended		NA		Dilute 200 mcg in 48 mL NS 1mcg/kg over 10 minutes, followed by infusion of 0.2-0.7 mcg/kg/hr	Critical Care Areas	Max infusion period is 24 hrs. NS Preferred
Dextrose 25-50%	IV Push: 25gm of 50% each 3ml over 1min	All Nursing Units	NA		Adult: Max 5-6mg/kg/min Pedia: Max 5-17 mg/kg/min	All Nursing Units	Large vein preferred Dilute with any dextrose- Saline solution
Diazepam	IV Push: Give dose undiluted at a rate of 5mg over 1min	All Nursing Units	NA		NA		May be given via ET tube NS Only
Diclofenac (Voltaren)	IV Push/SC: Not Recommended IM: 25mg/ml undiluted	All Nursing Units except NICU	Add dose to 100-500ml NS/D5W with 0.5ml Sodium bicarbonate 8.4% To be given over 30mins	All Nursing Units except NICU	Add dose to 100-500ml NS/D5W with 0.5ml Sodium bicarbonate 8.4% 5mg/hr up to maximum daily dose of 150mg	All Nursing Units except NICU	Only Voltaren brand approved for IV infusion. Add 0.5ml Sodium bicarbonate 8.4% to diluent as buffering agent



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Digoxin	IV Push: 0.125-0.5mg over 5min IM/SC: Not recommended	Critical Care Areas, ED, OT	Slow IV Push Preferred		Slow IV Push Preferred		Cardiac monitoring preferred Physician must be present when administered in In-Patient wards
Diltiazem	IV Push: 0.25mg/kg over 2mins May repeat with 0.35mg.kg in 15mins	Critical Care Areas, ED, OT	NA		Dilute 250mg in 500ml D5W or 125mg in 100ml D5W at 5-15mg/hr	Critical Care Areas, ED, OT	Cardiac monitoring preferred Physician must be present when administered in In-Patient wards
Dobutamine	NA		NA		Dilute 250mg in AT LEAST 50ml D5W At 2-20 mcg/kg/min	Critical Care, Areas, ED, OT	May be used by Stress labs Only stable drips for step-down units 5% Dextrose-saline solution only
Dopamine	NA		NA		Dilute 200mg in AT LEAST 50ml D5W At 2-20 mcg/kg/min	Critical Care Areas, ED, OT	Central line preferred except for emergencies 5% Dextrose-saline solution only



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Epinephrine Adrenaline	IV Push: 1mg every 3-5mins in cardiac arrest	Critical Care Areas, ED, OT	NA		Dilute 2mg in 250ml D5W At 0.01-0.05 mcg/kg/min	Critical Care Areas, ED, OT	Central line required except for emergency May be given via ET tube D5W preferred
Ephedrine	IV Push: 5-25mg, each 10mg over 1min IM: Undiluted	All Nursing Units except NICU	NA		NA		Do not administer unless solution is clear
Erythromycin Lactobionate	IV Push / SC / IM not recommended		Dilute 1gm in 250ml NS to be given over 1hr	All Nursing Units	NA		Infusion stable for 24hr refrigerated, 8hrs in room temperature Compatible with NS only
Erythropoietin	IV Push: 1-3min into venous line at end of dialysis, undiluted SC: undiluted	All Nursing Units	NA		NA		IV route preferred in Dialysis patients, Otherwise, Subcutaneous preferred Compatible with NS



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Esmolol	IV Push: 0.5mg/kg over 1 min	Critical Care Areas, ED, OT	NA		2500mg in 250ml D5W At 25-300 mcg/kg/min	Critical Care Areas, ED, OT	Extravasation risk Dilute with any dextrose- Saline solution
Fat Emulsion 20%	IV Push / IM / SC Not Recommended		Infant: max 0.75ml/kg/h Pedia: max 1.25ml/kg/h Adult: max 1.25ml/kg/h not to exceed 50ml/h	All Nursing Units	NA		See TPN policy Avoid with RL
Fentanyl citrate	IV Push: 25-100mcg over 3-5mins	Critical Care Areas, ED, OT	Per PCA orders	Critical Care Areas	Dilute 2500mcg in 50ml D5W At 50-250mcg/hr	Critical Care Areas	For pain management, monitor chest wall rigidity – can cause apnea and rest Dilute with any dextrose- Saline solution
Fluconazole	IV Push / SC / IM not recommended		2mg/ml (100ml) vial to run at 200mg/hr	All Nursing Units	NA		Do not use if cloudy or precipitated



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Flumazenil	IV Push: 0.2mg over 15secs. May repeat every 1min for a total of 1mg	Critical Care Areas, Endoscopy, OT	NA		NA		Large vein preferred Dilute with any dextrose- Saline solution
Furosemide	Slow IV Push: over 2-5 min IM: Undiluted SC: Not recommended	All Nursing Units except NICU	Dilute 40mg in 40ml NS	All Nursing Units	Dilute 40mg in 40ml NS 10-80mg/hr for titration every 3-6hrs	All Nursing Units	Use cautiously for patient with renal impairment Dilute with any dextrose- Saline solution
Gentamycin	IV Push / IM / SC not recommended		<100mg in 50ml in 30min >200mg in 100ml >300mg in 150ml over 1hr 500mg in 250ml over 2hrs	All Nursing Units	NA		For neonatal dosing, see newborn guidelines Dilute with any dextrose- Saline solution
Glucagon	IV Push: 3-5mg For treatment of beta blocker excess: 50-150mcg/kg over 1min	All Nursing Units	NA		Dilute 10mg in 100ml NS at 0.07mg/kg/hr For beta-blockade: 1-15mg/hr to max of 16mg/hr	All Nursing Units	Dilute with any dextrose- Saline solution



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Glycopyrolate	IV Push: 200mcg per 1ml or neostigmine over 1-2mins IM: Undiluted 200mcg	Critical Care Areas, OT, ED	NA		NA		Dilute with any dextrose- Saline solution
Granisetron	IV Push / IM / SC not recommended		Dilute 1mg in 20ml NS and to be given over 5-10mins	All Nursing Units	NA		Stable for 7 days refrigerated Dilute with any dextrose- Saline solution
Haloperidol	IV Push: 0.5 – 10mg at 5mg/min to be diluted with SWI or D5W IM: Undiluted	Critical Care Areas, ED, OT	NA		NA		Monitor for ECG Changes (May prolong QT interval) Dilute with D5W only
Heparin	IV Push: To be given over at least 1min SC: 5000units/ml IM: Not recommended	All Nursing Units	NA		Dilute 25000units in 250ml NS at rate as ordered per protocol	All Nursing Units	See KHUH Heparin Guidelines



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Hydralazine	IV Push: 10-40mg over 1min IM: Not preferred	Obs and Gyne Areas	NA		Dilute 20mg in 200ml NS or RL Loading dose of 0.1mg/kg then at a rate of	Obs and Gyne Areas	Central line preferred See KHUH OB/Gyne protocol Monitor BP
Hydrocortisone	IV Push: 25-200mg over 30-60secs SC: Not recommended	All Nursing Units	Dilute 100mg in 100ml NS and to be given over 30mins	All Nursing Units	NA		
Hyoscine-N-Butylbromide or Scopolamine-N-Butylbromide Br	IV Push / IM / SC not recommended		Dilute 20mg in 50ml NS at a rate of 1ml/min	All Nursing Units except NICU	NA		
Imipenem + Cilastatin	IV Push / SC not recommended		Dilute each 500ml in 50-100ml NS and to be given over 30 to 60mins	All Nursing Units	NA		



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	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Immunoglobulin-G IgG (IV)	IV Push / SC not recommended		Dilution and compatibility based on Manufacturer	All Nursing Units	NA		Monitor for anaphylaxis, BP, HR and temperature
Infliximab	IV Push / IM / SC not recommended		Reconstitute each vial with 10ml SWFI gently, let sit for 5mins. Dilute in 250ml NS and to be given over 2hrs.	Adult Nursing Units except Obs and Gyne	NA		Must be given in a set with in-line filter
Insulin (Regular)	IV Push: Over 15-30secs SC/IM: Given undiluted	All Nursing Units	NA		Dilute 50units in 50ml NS and titrate according to protocol	All Nursing Units	Kindly see KHUH guidelines
Iron Sucrose (Ferosac)	IV Push: 100mg over 3-5mins with extreme caution	All Nursing Units	Dilute 200mg in 100ml NS to be given over 15mins	All Nursing Units	NA		Too rapid administration may cause hypotension or symptoms of overdose



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Isoproterenol	IV Push: Dilute 200mcg in 10ml NS.	Adult Nursing Units	NA		Dilute 1mg in 250ml D5W and titrate at 2-20mcg/min	Adult Nursing Units	Central line for continuous infusion
Ketamine	IV Push: 0.5mg/kg/min	Critical Care Areas except NIC, OT	Dilute 500mg in 250ml D5W At 1-7 mcg/kg/min	Critical Care Areas except NIC, OT	NA		Not compatible with barbiturates or benzodiazepines
Labetalol	IV Push: 20mg initial dose followed by 40-80mg. Each 20mg to be given over 2mins. Max 300mg	Adult Nursing Units/ Obs and Gyne	NA		Dilute 300mg in 240ml D5W At 2-8mg/min	Adult Nursing Units/ Obs and Gyne	
Levofloxacin	IV Push / IM / SC not recommended		500mg to be given over 60mins 750mg to be given over 90mins	All Nursing Units	NA		Do not administer with cations (Ca, Mg, etc.)



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Lidocaine 2%	IV Push: 1-1.5mg/kg load (rate of 50mg/min). Repeat dose 0.5- 0.75mg/kg. Max of 3mg/kg	Critical Care Areas, ED, OT	NA		Dilute 2gm in 250ml D5W Titrate at 1-4mg/min	Critical Care Areas, ED, OT	May be given via ET tube
Linezolid	IV Push / IM / SC not recommended		Ready-to-use infusion bags To be given over 30- 120mins	All Nursing Units	NA		Do not mix with other medications
Lorazepam	IV Push: 0.5-10mg dilute with NS (1mg/ml) and give each 2mg over 2-5mins	Critical Care Areas, OT, ED	NA		Dilute 100mg in 100ml NS Max dose of 8mg/hr	Critical Care Areas, OT, ED	Check BP and SPO2 30mins after IV push dose. Reasses fall risk. Can cause nephrotoxicity
Magnesium Sulfate	IV Push: Over 2mins. Max 150mg/min 1-2gm in 10ml push (Cardiac arrest)	All Nursing Units	Dilute 1-4gm in 100ml NS 1gm in 30min 2gm in 60min 3gm in 2hrs 4gm in 3hrs	All Nursing Units	NA		Monitor BP, RR, SPO2 every 5mins during loading dose. Strict Intake and Output



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Mannitol 20%	IV Push: 0.25-2gm/kg over 5-10mins	Adult and Pediatric Nursing Units	Undiluted solution given over 30-90mins	All Nursing Units	NA		Inspect for crystals prior to administration. Re-dissolve by warming solution In line filter required
Meropenem	IV Push / IM / SC not recommended		Dilute with 100ml NS for every 500mg and infuse over 30 to 60mins	All Nursing Units	NA		
Methylene Blue	IV Push: Over 5- 10mins IM: 1ml(10mg) into gluteus maximus	All Nursing Units except NICU	IV Push preferred		IV Push preferred		Ensure patient is not hypoglycemic. Consider giving D5W if necessary
Methylergometrine Methergine	IV Push: Over at least 60 seconds IM: 0.2mg undiluted. Repeat every 2-4hrs IM route preferred	Obs-Gyne	Dilute dose to 50ml NS and give over 5mins	Obs-Gyne	NA		IV route reserved for life-threatening situations. Monitor blood pressure very closely



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Methylprednisolone	IV Push / SC not recommended		Reconstitute in provided diluent. Dilute 500mg in 200ml NS and to be given for at least 30mins. Doses above 500mg over at least 60mins	All Nursing Units	NA		Only SUCCINATE formulation can be given IV
Metoclopramide	IV Push: Given over 2min Doses above 10mg to be given as infusion	All Nursing Units except NICU	Dilute dose in at least 50ml NS and infuse for at least 15mins	All Nursing Units except NICU	Dilute dose in at least 50ml NS and infuse at a rate of 0.5-1.2mg/kg/hr	All Nursing Units except NICU	
Metronidazole	IV Push / IM / SC not recommended		Pre-diluted solution to be given over 30-60mins	All Nursing Units	NA		Avoid using equipment containing aluminum



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Midazolam	IV Push: 0.5-2mg over 2mins	Critical Care Areas, ED, OT	NA		Dilute 25mg in 50ml D5W and start at 1mg/hr. Max dose per physician's order	Critical Care Areas, ED, OT	For conscious sedation
Morphine Sulphate	IV Push: Dilute 10mg in 10ml NS and give 2-5mg over 3-5mins Max 20mg/4hrs If ventilated: 5-10mg max of 200mg in 24hrs IM: Give undiluted	All Nursing Units	See Patient Controlled Analgesia protocol	All Nursing Units	Dilute 100mg in 100ml NS and start at 1mg/hr Max dose per physician's order	All Nursing Units	Monitor for respiratory depression
Naloxone	IV Push: 0.4-2mg each 0.4mg over 15secs IV push preferred	All Nursing Units	NA		Dilute 4mg in 100ml NS Start at 0.2-0.4mg/hr and titrate to patient response	All Nursing Units	Continuous infusion used for long-acting opioid overdose May be given via ET tube



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES							
Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Neostigmine	IV Push: 0.5mg-2mg over 1min		NA		NA		
Nimodipine	IV Push / IM / SC not recommended		Dispensed in syringe. Initial dose of 1mg/hr for the first 2hrs. Co-infuse with D5W/NS at 20ml/hr via 3-way stop cock Max of 2mg/hr with co-infuse rate of 40mg/hr	Adult Nursing Units except Obs and Gyne	NA		Nimotopp solution must not be added to any PVC bag or bottle Use special tubing provided by manufacturer
Nitroglycerine	IV Push / IM / SC not recommended		NA		Dilute 10-40mg in 100ml NS (glass container) Start at a rate of 10mcg/min, increase by 10mcg every 5mins Max dose 400mcg/min	Adult Nursing Units	Use non-PVC plastic or glass bottle Tolerance may develop if administered over 24hrs



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Norepinephrine	IV Push / IM / SC not recommended		NA		Dilute 4mg in 250ml D5W or 16mg in 500ml D5W Adult: 0.01-3 mcg/kg/min Pedia: 0.05-2 mcg/kg/min	Critical Care Areas, ED, OT	Central line only Not stable in NS
Ocreotide Sandostatin	IV Push: 50-100mcg over 3min	Adult Nursing Units	NA		Dilute 500mcg in 500ml NS At 20-50mcg/hr	Adult Nursing Units	NS preferred
Omeprazole	IV Push: Over 3-5mins IM/SC: Not recommended	All Nursing Units	NA		Dilute 80mg in 100ml NS At 8mg/hr	All Nursing Units	NS only



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES							
Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Ondansetron	IV Push: 4mg dose over 2-5mins IM/SC: Not recommended	Adult Nursing Units	Dilute 32mg in 50ml and give over 15mins	Adult Nursing Units	NA		Monitor QTc for ongoing treatment
Oxytocin	IV Push: Emergencies only, maximum dose 2 units administered by physician	Obs and Gyne	NA		Dilute 20units in 1L NS/LR/D5W with fetal demise Dilute 30units in 500ml for induction Titrate rate at 0.5-10 milliUnits/min	Obs and Gyne	See Oxytocin infusion protocol 1000milliUnits = 1unit
Oxycodone	IV Bolus: Dilute 10mg in 10ml D5W/NS and administer a bolus dose of 1 to 10mg slowly over 1-2mins.		NA		NA		



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Papaverine	IV Push: Slow IV push 30mg/2min To be given by physician only	Adult Nursing Units	NA		NA		
Paracetamol	IV Push / IM / SC not recommended		Prepared solution to be given over 15mins	All Nursing Units	NA		
Phenobarbital Sodium	IV Push: 100-320mg each 60mg over 1min Slow IV push preferred	All Nursing Units	NA		NA		
Phenylephrine	IV Push: 0.2-0.5mg over 30secs every 15mins	All Nursing Units except NICU	NA		Dilute 20-40mg in 250ml D5W/NS At 0.1-0.5 mcg/kg/min	All Nursing Units except NICU	Extravasation risk, Central line preferred



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Phenytoin Sodium	IV Push: Maintenance dose: 50-100mg each 25-50mg over 1-2mins	All Nursing units	Loading dose: Dilute 500mg in 100ml NS over 20mins Maintenance dose: Dilute 50-100mg in 50-100ml NS over 20min	All Nursing Units	NA		Give in a line with NS only or flush with 10ml NS before and after. Large bore IV preferred. Stable only for 3hrs at room temp.
Piperacillin/ Tazobactam Tazocin	IV Push / IM / SC not recommended		Dilute 2.25mg in 50ml NS Dilute 3.375 and higher doses in 100ml over 30mins	All Nursing Units	NA		
Potassium Chloride	IV Push / IM / SC not recommended		Central line: Dilute 20mEq in 100ml NS At rate not more than 20mEq/hr Pedia: Not more than 1mEq/kg/hr	All Nursing Units	Peripheral line: Dilute 60mEq in 1L NS At rate not more than 10mEq/hr Pedia: Not more than 0.5mEq/kg/hr	All Nursing Units	The maximum adult dose must not exceed 200mEq /24hrs Maximum pedia dose must not exceed 2mEq/kg/24hrs Infusion pump required



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Potassium Phosphate as Phosphate	IV Push / IM / SC not recommended		Central Line: Dilute 15mmol in 100ml NS over 2hours	All Nursing Units	Peripheral Line: Dilute 27mmol in 1L NS at a rate of 3-4mmol/hr	All Nursing Units	Maximum rate of administration is 7.5mmol as Phosphate per hour Infusion pump required
Prochlorperazine	IV Push: 5mg/ml over 1-5mins IM: 5mg/ml, upper outer buttock IM route preferred	Adult Nursing Units	Dilute 10mg in 50ml NS at a rate of 5mg/min	Adult Nursing Units	NA		Observe for 30mins after administration The maximum daily IV dose should not exceed 40 mg
Promethazine	IM: Deeply into a large muscle IM route preferred IV/SC: Not recommended	All Nursing Units except NICU	Dilute 12.5-25mg in 50ml D5W over 15min	All Nursing Units except NICU	NA		Extravasation risk Rapid rate may cause fall in blood pressure
Propofol	IV Push: 20-40mg IV push IM/SC: Not recommended	Critical Care Areas, ED, OT	NA		Dilute 1000mg in 100ml D5W At 10-50 mcg/kg/min	Critical Care Areas, ED, OT	Tubing change every 12hrs



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Protamine Sulfate	IV Push: Slow IV push, not to exceed 50mg in 10mins	All Nursing Units except NICU	Dilute 50-100mg in 50ml D5W over 20-30mins Slow IV Push Preferred	All Nursing Units except NICU	NA		1mg Protamine neutralizes 1mg Enoxaparin and 100units dalteparin/ tinzaparin or heparin
Ranitidine	IV Push: Dilute 50mg in 18ml NS and to be given over 5mins	All Nursing Units	Dilute 50mg in 50-100ml D5W/NS over 15mins	All Nursing Units	Total daily dose or 150mg in 250ml D5W/NS at 1-2.5mg/kg/hr	All Nursing Units	Continuous infusion only recommended for Zollinger-Ellison patients. Needs monitoring of gastric acid output
Rocuronium	IV Push: 0.6-1.2 mg/kg over 5mins SC/IM: Not recommended	Critical Care Areas, ED, OT	NA		Dilute 50mg in 50ml D5W/NS Titrate at a rate of 8-12 mcg/kg/min	Critical Care Areas, ED, OT	
Rituximab (Mabthera)	IV Push / IM / SC not recommended		Dilute 500mg in 200-450ml D5W/NS Start 50mg/hr if there is no reaction, increase the rate 50mg every 30mins to max of 400mg/hr	Adult Nursing Units	NA		Do not shake solution after preparation



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Sodium Bicarbonate 8.4% (1mEq/ml)	IV Push: 0.5-1mEq/kg over 1-3mins for cardiac arrest Max conc <2yrs old: 0.5mEq/ml	All Nursing Units	NA		Not to exceed 150mEq/1000ml D5W/NS to be given over 8-12hrs Remove 150ml from bag before adding bicarbonate	All Nursing Units	Incompatible with RL, dopamine, dobutamine, epinephrine
Sodium Chloride 3% (500ml)	IV Push / IM / SC not recommended		To infuse at a rate of 25-50ml/hr Not to exceed 100ml/hr in adults	All Nursing Units	NA		Does not need a central line Tubings change every 48hrs
Sodium Nitroprusside	IV Push / IM / SC not recommended		NA		Each 50mg must be reconstituted in 2-3ml D5W/SWI and diluted in minimum of 250ml D5W/NS Titrate at a rate of 0.3-10 mcg/kg/min	Adult Nursing Units	Protect from light immediately after mixing. Monitor blood pressure continuously while on medication



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Succinylcholine (Suxamethonium)	IV Push: 0.3-1.1mg/kg over 30secs IM: When IV route not feasible, high into deltoid muscle	Critical Care Areas, ED, OT	NA		Dilute 100mg in 50ml D5W/NS Titrate at 10-100mcg/kg/min	Critical Care Areas, ED, OT	Physician must be present and ventilator on standby Attach patient to cardiac monitor
Thiamine HCl	IV Push: Slow IV over 5mins	Adult Nursing Units	Dilute dose in 25-100ml D5W/NS over 30-120mins	Adult Nursing Units	NA		
Tigecycline	IV Push / IM / SC not recommended		Reconstitute each vial with 5ml D5W/NS then dilute in 100ml D5W/NS To be given over 30-60mins	All Nursing Units except Obs and Gyne	NA		Initial dose of 100mg followed by 50mg every 12hrs
Thiopental	IV Push: Dilute 500mg in 10-25ml D5W/NS and given over 3-5mins	Critical Care Areas, ED, OT	Dilute 500mg in 150-250ml D5W/NS to be given over 15-30mins	Critical Care Areas, ED, OT	Dilute 1000mg in 50ml D5W/NS (central line only)	Critical Care Areas, ED, OT	



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Trace Elements (Pediatrics or Adult)	IV Push / IM / SC not recommended		Add dose to suitable volume and infuse over at least 2hours	All Nursing Units except NICU	Incorporated in TPN for NICU patients		
Tramadol	IV Push: Undiluted over 2-3mins IM: Undiluted	All Nursing Units except NICU	NA		Dilute dose to suitable volume and titrate the rate	All Nursing Units except NICU	
Tranexamic acid	IV Push: Max dose of 100mg/min SC/IM: Not recommended	All Nursing Units except NICU	Dilute 500mg in 50ml D5W/NS and transfuse over 5-30mins	All Nursing Units except NICU	NA		Administer in plastic syringe Prepare at the same time the solution is to be used. Stable for 2hrs refrigerated
Valproate Sodium	IV Push / IM / SC not recommended		Dilute 400mg in 50ml D5W/NS and give over 60mins Max infusion of 20mg/min	Adult Nursing Units	NA		



INTRAVENOUS MEDICATION ADMINISTRATION GUIDELINES

Medications	IV PUSH / IM/ SC		Intermittent Infusion		Continuous Infusion		Comments/ Special Considerations
	Preparation	Where it can be given	Preparation	Where it can be given	Preparation	Where it can be given	
Vancomycin	IV Push / IM / SC not recommended		Reconstitute each 500mg with 10ml SWFI Dilute 1g in 200ml D5W/NS >1.25g in 250ml >1.5g in 500ml	All Nursing Units	NA		
Verapamil	IV Push: 2.5-10mg over 2-3mins Max dose 5mg/min	Critical Care Areas, ED, OT	Slow IV Push Preferred		NA		Cardiac monitoring Monitor for prolonged PR interval
Vit K 1 Phytonadione	IV Push: 1mg over 1min or longer with extreme caution (Emergency only)	All Nursing Units	Dilute 10mg in 50ml D5W/NS to be given over 30mins	All Nursing Units	NA		
Zoledronic acid Zoledronate	IV Push / IM / SC not recommended		Prediluted 100ml over at least 15mins or longer	Adult Nursing Units	NA		Flush IV line with 10ml NS after infusion



Note:

- *Medication highlighted in purple are approved to be administered via IVPUSH by nursing staff.*
- *Clear order and special instructions must be obtained from the prescribing physician before preparing and administering medications especially in vulnerable populations and patients with co-morbidities. (e.g. neonates, pediatric, pregnant and lactating mothers, multi-organ compromised, renal failure etc.)*
- *Contact clinical pharmacist in case of any doubt for clarifications.*
- *If a certain medication is ordered to be administered as IV push and is not included on the list above, clinical pharmacist must be contacted.*
- ***ALWAYS ENSURE PATENCY OF IV LINES PRIOR TO ADMINISTERING IV PUSH.***