

New York-Presbyterian Hospital MEDICATIONS APPROVED FOR INTRAVENOUS PUSH METHOD OF ADMINISTRATION

DEFINITIONS:

- 1) All medications in this policy are safe to be administered as intravenous (IV) push. If a medication does NOT appear on this list it CANNOT be given IV push, therefore, please refer to the *Reconstitution /Dilution Data for Intravenous Medications* or the On-Line Formulary.
 - a) Refer to Appendix 1 of the Medications Approved for Intravenous Push Method of Administration document for IV Push recommendations for the administration of Antibiotics
 - b) Refer to oncology policies as this document does not apply to chemotherapeutic agents
- 2) The following are definitions for the METHOD of IV push:
 - a) Rapid IV push (R) defined as administration of medication over less than 30 seconds
 - b) Slow IV push (S) defined as administration of medication over 2 - 5 minutes (default rate when specific IV push rate not specified)
- 3) All medications may be administered via the central or peripheral route, unless otherwise stated in the **RATE / ROUTE** section below
- 4) Continuous cardiac monitoring defined as rate and rhythm, using Decentralized, non-remote (hardwire) or Centralized remote wireless monitoring or 12-lead ECG or defibrillator
- 5) **RESTRICTIONS (RES)**: Highlights specific medications that are restricted for administration by either one of the following:
 - a) by patient care unit or patient population **OR**
 - b) by or in the presence of certain medical personnel (eg. privileged prescribers)
- 6) Medication dosing calculators have been developed to assist prescribers in dosing emergency medications and medicated infusion in newborns, infants and children. These calculators are found on the following hospital website:

<https://infonet.nyp.org/Pediatrics/Pages/index.aspx>
- 7) Additional Abbreviations:

BP = blood pressure HR = heart rate RR = respiratory rate PONV = post-operative nausea and vomiting ACLS = Advanced cardiac life support ARREST= Pediatric and neonatal advanced life support PALS = Pediatric advanced life support NRP = Neonatal Resuscitation Program	NS = Normal Saline SW = Sterile Water D5W = 5% Dextrose in Water max = maximum g = gram hr = hours min = minutes sec = seconds
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- 8) **Supervision Policy** refers to *Sedating Agents, Analgesics and Anesthetic Agents- Supervision Requirements for their Use* (P163).
- 9) It is preferred that RNs administer the medications listed in this table via the IV push route. However, when the situation precludes the nurse from doing so or when the prescribed dose exceeds that indicated in the table, the dose may be administered by the prescriber. It is recommended that at MD/PA/NP check the 5 R's prior to administration.
- 10) When larger than recommended doses are deemed necessary by the prescriber, that prescriber or his/her designee **MUST** be present on the patient care unit when the RN is administering the dose.
- 11) Note: Routine administration of antibiotics as an IV push is NOT recommended.
- 12) **PRESENCE REQUIRED BY MD/NP/PA ON UNIT**: presence required at time of and 10 minutes after first dose or dose increase, first dose upon transfer from a post-op recovery area to any inpatient bed, and first dose upon transfer from an ICU setting to any inpatient bed, unless otherwise stated
- 13) **MONITORING PARAMETERS**: 10 minutes after first dose or dose increase, first dose upon transfer from a post-op recovery area to any inpatient bed, and first dose upon transfer from an ICU setting to any inpatient bed, unless otherwise stated

DRUG	(Trade Name)	RATE / ROUTE: (S) Slow IV Push, (R) Rapid IV Push	RATE/ROUTE NOTE	ADULT IV PUSH DOSE:	PEDIATRIC / NEONATAL IV PUSH DOSE: (For doses with a wide range see Formulary for specific recommendations)	FINAL CONCENTRATION FOR ADMINISTRATION:	PRESENCE REQUIRED BY MD/NP/PA ON UNIT: (see definition 12 above)	RESTRICTIONS FOR ADMINISTERING MEDICATION:	MONITORING PARAMETERS: (see definition 13 above)
Acetazolamide	(Diamox)	S		Up to 500 mg over 5 min	5 - 10 mg/kg/dose (max 500 mg)	Reconstitute with 5 mL sterile water to concentration of 100 mg/mL (undiluted) 3 mg/mL (undiluted)	N	NONE	BP
Adenosine	(Adenocard)	R	(if peripheral site, start with larger dose and use most proximal port)	6 - 12 mg over 1 - 2 sec, followed by rapid 10 mL NS flush	ARREST ONLY: < 3 kg: 0.05 mg/kg (max 0.25 mg/kg) > 3 kg: 0.1 - 0.2 mg/kg (max single dose: 0.3 mg/kg or 12 mg/dose) followed by age appropriate NS flush (see Dosing Calculator)		Y	NONE	BP and HR for 2 - 3 min after dose Continuous cardiac monitoring
Alfentanil RES	(Alfenta)	S		1 - 5 microgram/kg over 2 - 3 min	1 - 5 micrograms/kg over 2 - 3 minutes	500 micrograms/mL (undiluted)	Y (RES: refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU and approved procedure areas	BP, HR, RR, Degree of Sedation
Alteplase (TPA) RES	(Activase)	S/R		STROKE ONLY: 0.09 mg/kg over 1 min (max 9 mg). PEA arrest 50 - 100 mg IVPush over 2 mins.	N/A	1 mg/mL (100 mg in 100 mL SW or 50 mg in 50 mL in SW or NS)	Y (for one hr)	Prescribing restricted to Neurology Attendings and Fellows (when used for the treatment of stroke)	Bleeding (per existing standards for anticoagulants)
Alteplase (TPA)	(Cathflo)	R	(For instillation in occluded Central Line ONLY)	2 mg (instill for 0.5 - 2 hrs)	0.5 - 2 mg (instill for 1 - 2 hrs)	2 mg (dilute with 2 mL SW)	N	NONE. Must be administered by RNs validated in this procedure or appropriately credentialed clinicians. See Nursing Policy 733.	Routine vital signs
Amiodarone	(Cordarone)	R		ACLS ONLY: 150 - 300 mg over 30 sec	PALS ONLY: 5 mg/kg, up to 300 mg over 30 sec (see Dosing Calculator)	50 mg/mL (undiluted)	Y	NONE	BP, HR, Continuous Cardiac Monitoring
Ampicillin		S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	N/A	Neonate only: ≤ 500 mg over 3 - 5 min (not to exceed 10 mg/kg/min)	100 mg/mL (dilute with SW)	N	NONE	Routine vital signs
Atropine		R		0.5 - 1 mg over 30 sec (Max cumulative dose 0.04 mg/kg)	0.01 - 0.05 mg/kg over 30 sec. Min dose: 0.1 mg Max single dose, Child: 0.5 mg Max single dose, Adolescent: 1 mg Max total dose, Child: 1 mg Max total dose, Adolescent: 2 mg	0.1mg/mL (undiluted) (ABBOJECT)	N	NONE	BP, HR, Continuous Cardiac Monitoring
Aztreonam	(Azactam)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	1 - 2 g over 5 min	30 - 40 mg/kg/dose over 5 min	100-333 mg/mL (diluted with SW)	N	NONE	Routine vital signs
Bivalirudin RES	(Angiomax)	R		PCI in Cath lab: 0.75 mg/kg over 30 sec Upstream ACS: 0.1 mg/kg over 30 sec	N/A	5 mg/mL D5W or NS	N	Anesthesiology, Cath Lab (PCI). Upstream ACS: NYP/CU: ED, CCU, 5GN, 5GS. NYP/WC: ED, 4W, 4C, 4N, 4S.	Bleeding (per existing standards for anticoagulants)
Bumetanide	(Bumex)	S		Doses ≤ 2 mg over 2 min	Neonate: 0.005 - 0.05 mg/kg. Child: 0.015-0.1 mg/kg over 2 min (max 10 mg/day)	0.25 mg/mL (undiluted)	N	NONE	BP
Calcitriol	(Calcijex)	S		Up to 2 micrograms over 2 min	0.01 - 0.05 micrograms/kg over 2 min	1 micrograms/mL (undiluted)	N	NONE	Routine vital signs
Calcium chloride		S R (for ACLS)	Central Line Preferred	ACLS and life-threatening hyperkalemia with ECG changes, life threatening hypocalcemia: 500 mg - 2 g over 2-5 min	PALS and life-threatening hyperkalemia with ECG changes, arrhythmias: 20 mg/kg/dose over 30 sec (max 1 g/dose)	100 mg/mL (undiluted) (ABBOJECT)	Y	NONE	BP, HR, Continuous Cardiac Monitoring
Calcium gluconate		S R (for ACLS)	Central Line Preferred	Life-threatening hyperkalemia with ECG changes, arrhythmias: 1 g over 2-5 min	ARREST and life-threatening hyperkalemia with ECG changes, arrhythmias: 60 - 100 mg/kg over 30 sec (max 3 g/dose)	100 mg/mL (undiluted)	Y	NONE	BP, HR, Continuous Cardiac Monitoring
Cefazolin	(Ancef)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	1-2 g over 3 - 5 min	30-50 mg/kg over 3 - 5 min	Pediatric: 125 mg/mL (diluted with SW) Adult: 100 mg/mL	N	NONE	Routine vital signs

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Cefepime	(Maxipime [®])	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	1-2 g (100 mg/mL) over 3-5 min* * Only if frozen piggyback product not available	50 mg/kg/dose over 5 min	100 mg/mL (diluted with SW)	N	NONE	Routine vital signs
Cefotaxime	(Claforan [®])	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	N/A	25-100 mg/kg/dose over 5 min	Pediatric: 100-170 mg/mL (diluted with SW)	N	Restricted to Pediatrics	Routine vital signs
Cefoxitin	(Mefoxin)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	1 - 2 g over 3 - 5 min	30 - 40 mg/kg/dose over 5 min	Pediatric: 200 mg/mL Adult: 95 mg/mL (dilute 1 g vial with 10 mL and 2 g vial with 20 mL SW)	N	NONE	Routine vital signs
Ceftazidime	(Fortaz, Tazidime [®])	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	1 - 2 g over 3 - 5 min	50 - 150 mg/kg/dose over 5 min (not to exceed 10 mg/kg/min)	Pediatric and Adult: 180 mg/mL (diluted with SW)	N	NONE	Routine vital signs
Cefuroxime	(Zinacef)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	750 - 1500 mg over 3 - 5 min	25 - 80 mg/kg over 3 - 5 min	90 mg/mL (dilute 750 mg vial with 8.3 mL and 1.5 g vial with 16 mL SW)	N	NONE	Routine vital signs
Chlorothiazide (Diuril [®])		S		Up to 500 mg over 3-5 min	Up to 10 mg/kg (maximum 500 mg) over 3-5 min	28 mg/mL Dilute powder with 18 mL SW	N	None	BP
Cisatracurium ³ RES (Neuromuscular Blocking Agent)	(Nimbex)	R		0.1 - 0.2 mg/kg over 30 sec	0.1 mg/kg over 15 - 30 sec	2 mg/mL (undiluted)	Y	Restricted to Anesthesiology, ICUs, ED and OR/PACU	Train of Four (if infusions are initiated), Adjunctive Sedation, HR, BP, Pulse Oximetry
Cosyntropin	(Cortrosyn)	S		250 micrograms over 2 min	N/A	250 micrograms/4 mL = 62.5 micrograms/mL (Dilute with 4 mL NS)	N	NONE	Cortisol levels drawn before, 30 and 60 min after test
Dantrolene RES	(Dantrium)	R		Malignant Hyperthermia ONLY: 2.5 mg/kg by continuous rapid IV push (over 1 min); continue until symptoms subside or to a max cumulative dose of 10 mg/kg	Malignant Hyperthermia ONLY: 2.5 mg/kg by continuous rapid IV push (over 1 min); continue until symptoms subside or to a max cumulative dose of 10 mg/kg	Add 5 mL SW to 250 mg vial (50 mg/mL)	Y	Restricted to Anesthesiology, ICUs, ED and OR/PACU	Temperature, Continuous Cardiac Monitoring
Daptomycin	(Cubicin & Cubicin RF)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	ALL DOSES over 2 min	N/A	50 mg/mL (dilute 500 mg vial with 10 mL NS for generic products and Cubicin and 500 mg vial of Cubicin RF with 10 mL SW)	N	NONE	Routine vital signs
Darbepoetin alfa	(Aranesp)	S		0.45 micrograms/kg over 3 min	N/A	Multiple Concentrations (undiluted)	N	NONE	Pre-administration BP
Desmopressin	(DDAVP)	R		1-4 micrograms over 1 min	0.1 - 1 microgram/kg/dose	4 micrograms/mL (undiluted)	N	NONE	Routine
Dexamethasone	(Decadron)	S		Doses ONLY ≤ 10 mg over ≤ 1 min	0.03 - 1 mg/kg over ≤ 1 min (max 10 mg)	Neonates: 1mg/mL; Pediatric and Adult: 4 mg/mL or 10 mg/mL (undiluted)	N	NONE	Routine
Dextrose 50%		S (Central Line Preferred)		Up to 50 mL over 5 min	0.1 - 1 g/kg over 5 min (max 25 g)	0.5 g/mL (undiluted)	N	NONE	Blood glucose 15 and 30 min after dose
Diazepam ANXIOLYTIC	(Valium)	S		2 - 5 mg over 2 min	0.04 - 0.15 mg/kg over 3 - 5 min (max 5 mg)	5 mg/mL (undiluted)	N (Refer to Supervision Policy for details)	NONE	BP, RR, Degree of Sedation
Diazepam ANXIOLYTIC - ALCOHOL WITHDRAWAL	(Valium)	S		2 - 10 mg over 2 min	NONE	5 mg/mL (undiluted)	N (Refer to Supervision Policy for details)	NONE	BP, RR, Degree of Sedation

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Diazepam RES MODERATE SEDATION OR SEIZURES	(Valium)	S		5 - 10 mg over 2 min 11 - 20 mg over 5 min Max rate 5 mg/min	0.04 - 0.15 mg/kg over 3 - 5 min (max 10 mg)	5 mg/mL (undiluted)	Y (Refer to Supervision Policy for details)	NONE	BP, RR, Degree of Sedation
Digoxin	(Lanoxin)	S		0.125 - 0.5 mg over 5 min	All digoxin doses may be administered over 3 - 5 min. Please refer to Formulary for age-dependent loading and maintenance dosing	Adult: 0.25 mg/mL (undiluted) Pediatric: 0.1 mg/mL (undiluted)	Y (Peds ONLY)	NONE	Check hold parameters prior to administration
Dihydroergotamine		S		1 mg over 3-5 min (max 2 mg in 24 hr). Doses not to be repeated in less than 4 days after reaching max dose (not to exceed 6 mg/week). Doses exceeding maximum require Neurology Attending approval	0.1 mg - 0.5 mg/dose based on age and dosing strategy; given over 2-3 minutes, max 5 doses	1 mg/mL (undiluted)	N	NONE	BP, HR, RR, Angina
Diltiazem	(Cardizem)	S		0.25 mg/kg over 2 min (max 20 mg), then 0.35 mg/kg (max 25 mg)	0.25 mg/kg over 2 min (max 20 mg), then 0.35 mg/kg (max 25 mg)	5 mg/mL (undiluted)	Y	NONE	BP and HR 2 - 3 min after dose. Continuous cardiac monitoring.
Diphenhydramine	(Benadryl)	S		25 - 50 mg over 5 min	0.5 - 1 mg/kg over 5 min (max 50 mg)	50 mg/mL (undiluted)	N	NONE	Degree of Sedation
Enalaprilat	(Vasotec)	S		0.625 - 5 mg over 5 min	5 - 10 microgram/kg over 5 min (max 5 mg)	Neonates and pediatric: 25 microgram/mL; Pediatric and Adult: 1.25 mg/mL (undiluted)	N	NONE	Pre-administration BP and HR, Repeat in 2 hrs and 4 hrs due to delayed effect
Epinephrine	(Adrenalin)	R		ACLS ONLY: 1 mg Q 3 - 5 min over 30 sec	ARREST ONLY: 0.01 - 0.03 mg/kg Q 3 - 5 min over 30 sec (max 1 mg/dose)	1 mg/10 mL (ABBOJECT) (undiluted)	Y	NONE	BP, HR, Continuous Cardiac Monitoring
Erythropoietin alfa	(Epogen)	S		Up to 40,000 units over 2 min	25 - 300 units/kg over 1 - 3 min	Multiple Concentrations (undiluted)	N	NONE	Pre-administration BP
Ertapenem	(Invanz)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	500 mg - 1 g over 5 min	N/A	100 mg/mL (dilute 1 g vial in 10 mL NS)	N	NONE	Routine vital signs
Esmolol RES	(Brevibloc)	R		500 micrograms/kg over 30 sec	100 to 500 mcg/kg over 1 minute	10 mg/mL (undiluted)	Y	Restricted to Anesthesiology, ICUs, OR/PACU and ED	BP, HR, Continuous cardiac monitoring
Esomeprazole	(Nexium)	S		20-40 mg over 3 min	N/A	Reconstitute with 5 mL NS to concentration of 4 mg/mL (20 mg vial) or 8 mg/mL (40 mg vial)	N	NONE	Routine Vital Signs
Ethacrynic Acid	(Edecrin)	S		Up to 50 mg over 5 min	Up to 1 mg/kg (max 50 mg) over 4 - 5 min	1 mg/mL (dilute with 50 mL D5W or NS)	N	NONE	BP
Etomidate RES	(Amidate)	R		0.2 - 0.6 mg/kg over 30 sec	N/A	2 mg/mL (undiluted)	Y (Refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU and approved procedure areas	BP, HR, RR, Degree of Sedation
Famotidine	(Pepcid)	S		Up to 10 mg over at least 2 min or 20 mg over at least 4 min	0.25 - 0.5 mg/kg over 3 - 5 min (max 20 mg)	Pediatrics: dilute to max concentration of 4mg/mL Adults: 10 mg/mL (undiluted)	N	NONE	Routine vital signs
Fentanyl RES	(Sublimaze)	S		25 - 100 micrograms over 1 - 2 min NOTE: Narcotic tolerant patients may require higher doses	1 - 2 micrograms/kg over 1 - 2 min NOTE: Narcotic tolerant patients may require higher doses	50 micrograms /mL (undiluted)	Y (RES: Refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU and approved procedure areas	BP, HR, RR, Degree of Sedation
Folic Acid		S		Up to 5 mg over 2 min	N/A	0.1 mg/mL (dilute with 10 mL D ₅ W or NS)	N	NONE	Routine vital signs
Flumazenil RES	(Romazicon)	R		0.2 mg over 15 sec, may repeat in 1 min (max 3 mg)	0.005 - 0.01 mg/kg may repeat in 1 min (max 0.2 mg)	0.1 mg/mL (undiluted)	Y	Restricted to Anesthesiology, ICUs, ED, OR/PACU and approved procedure areas	BP, HR, RR, Seizure Activity, Continuous Cardiac Monitoring, Pulse Oximetry
Fosphenytoin ¹	(Cerebyx)	S		Doses ONLY ≤600 mg PE ² over 4 min (max 150 mg PE ² /min)	4 - 20 mg PE ² /kg at 2 mg PE ² /kg/min (max 150 mg PE ² /min)	50 mg PE ² /mL (undiluted)	N	NONE	BP, HR, Continuous Cardiac Monitoring
Furosemide	(Lasix)	S		Doses ONLY ≤100 mg over 2 - 5 min, no faster than 40 mg/min	0.5 - 2 mg/kg/dose, up to 80 mg over 2 - 3 min	10 mg/mL (undiluted)	N	NONE	BP
Granisetron	(Kytril)	R		For CIVV ONLY: 10 micrograms/kg (max 1 mg) over 30 sec	N/A	1 mg/mL (undiluted)	N	Restricted to pediatrics only	Routine Vital Signs
Glucagon		S		1 - 10 mg over 2 - 5 min	≤ 20 kg: 0.02 - 0.03 mg/kg or 0.5 mg over 2 - 5 min. > 20 kg: 1 mg over 2-5 min	1 mg/mL (dilute with provided SW)	N	NONE	BP, HR, Blood Glucose in 15 min
Glycopyrrolate	(Robinul)	R		0.1 - 0.2 mg over 1-2 min	4 - 10 micrograms/kg (max 0.2 mg)	0.2 mg/mL (undiluted)	N	NONE	BP, HR
Haloperidol ONLY LACTATE MAY BE GIVEN INTRAVENOUSLY	(Haldol)	S		0.5 - 5 mg over 3 - 5 min	N/A	5 mg/mL (undiluted)	N	See Haloperidol Use Guidelines, Adults	Routine Vital Signs. RECOMMENDED: Baseline & Daily EKG; Continuous Cardiac Monitoring or Telemetry
Heparin		R		Up to 12,000 units over 30 sec (See Heparin Dosing Policy)	Up to 12,000 units over 30 sec (See Heparin Dosing Policy)	1000 units/mL (undiluted)	N	NONE	See Heparin Dosing Policy

DRUG	(Trade Name)	RATE / ROUTE: (S) Slow IV Push, (R) Rapid IV Push	RATE/ROUTE NOTE	ADULT IV PUSH DOSE:	PEDIATRIC / NEONATAL IV PUSH DOSE: (For doses with a wide range see Formulary for specific recommendations)	FINAL CONCENTRATION FOR ADMINISTRATION:	PRESENCE REQUIRED BY MD/NP/PA ON UNIT: (see definition 12 above)	RESTRICTIONS FOR ADMINISTERING MEDICATION:	MONITORING PARAMETERS: (see definition 13 above)
Hydralazine	(Apresoline)	S		10 - 20 mg over 3 - 5 min (max 40 mg/dose & maximum rate 5 mg/min)	Newborn: 0.1 - 0.5 mg/kg over 3 - 5 min Child: 0.1 - 0.2 mg/kg over 3 - 5 min (max 20 mg) Maximum rate 5 mg/min	20 mg/mL (undiluted)	Y (Peds ONLY)	NONE	BP, HR
Hydrocortisone sodium succinate ONLY SODIUM SUCCINATE MAY BE GIVEN INTRAVENOUSLY	(Solu-Cortef)	R		Doses ONLY < 100 mg over 30 seconds	0.25 – 3 mg/kg over 30 seconds (max 100 mg)	50 mg/mL (undiluted)	N	NONE	Routine Vital Signs and Blood Glucose
Hydromorphone RES	(Dilaudid)	S		0.2 - 2 mg over 2 - 3 min NOTE: Narcotic tolerant patients may require higher doses	15 micrograms/kg over 2 - 3 min Max dose: 2 mg NOTE: Narcotic tolerant patients may require higher doses	1-2 mg/mL (undiluted)	N for acute pain management (RES refer to Supervision Policy for details)	NONE	BP, HR, RR, Degree of Sedation
Insulin (Lispro)	(Humalog)	R		Up to 10 units over 30 sec	0.1 units/kg over 30 sec (max 10 units)	100 units/mL (undiluted) *** NOTE: 10 units = 0.1 mL ***	N	NONE	Blood Glucose as per MD Orders
Insulin (Regular)	(Humulin)	R		Up to 10 units over 30 sec	0.1 units/kg over 30 sec (max 10 units)	100 units/mL (undiluted) *** NOTE: 10 units = 0.1 mL ***	N	NONE	Blood Glucose as per MD Orders
Iron Dextran	(INFeD)	S		USE IVP FOR TEST DOSES ONLY: 25 mg over 1 min	N/A	50 mg/mL (undiluted)	N	NONE	BP, Shortness of Breath
Iron Sucrose	(Venofer)	S		Up to 200 mg over 5 min	N/A	20 mg of elemental iron/mL (undiluted)	N	NONE	BP, Shortness of Breath
Isoniazid		S		300 mg over 5 min	N/A	10 mg/mL (dilute 300 mg in 30 mL SW)	N	NONE	Routine Vital Signs
Ketamine RES	(Ketalar)	S		0.25 - 1 mg/kg (up to 2 mg/kg) over 2-4 min (refractory seizures: 1.5 mg/kg q 3-5 min until seizure stops, up to max of 4.5 mg/kg total).	0.5 - 2 mg/kg (do not exceed 0.5 mg/kg/min); administer over 2-4 min	10 mg/mL	Y (RES = refer to Supervision Policy for details)	<ul style="list-style-type: none"> For ventilated patients or Satus Epilepticus. Restricted to: ICUs, OR/PACU, approved procedure areas and anesthesia (for procedural assisted areas) For Sub-Anesthetic Doses for Analgesia: Restricted to Anesthesiology, Adult & Pediatric Pain/Palliative Services refer to: Ketamine Use and Management (at Sub-Anesthetic Doses) for Analgesia, Adults 	BP, HR, RR, Degree of Sedation
Ketorolac	(Toradol)	R		15 - 30 mg over 30 sec	0.25 – 1 mg/kg over 30 sec (max 30 mg)	15 or 30 mg/mL (undiluted)	N	NONE	Routine Vital Signs
Labetalol RES	(Normodyne)	S		10-20 mg over 1-2 min; May repeat or double dose at 10 min intervals up to 80 mg/dose (Total loading dose max: 300 mg)	0.2 - 1 mg/kg over 2 min (max 20 mg)	5 mg/mL (undiluted)	Y	Adults: None (Refer to Drip Administration Guideline for Adults) Peds: Restricted to PICU, Pediatric Burn ICU, Peds ER, and Peds PACU with MD present	BP, HR, Continuous Cardiac Monitoring
Levothyroxine	(Synthroid)	S		12.5 - 500 micrograms over 2 min	0.8 - 12.5 micrograms/kg over 2 min	20 micrograms/mL if using 100 microgram vial; 100 micrograms/mL if using 500 microgram vial. (Dilute powder with 5 mL NS to final concentration)	N	NONE	Routine Vital Signs
Levocarnitine		S		Up to 100 mg/kg (max 6000 mg) over 2-3 min	Up to 100 mg/kg (max 6000 mg) over 2-3 min	200 mg/mL	N	NONE	Routine Vital Signs
Lidocaine RES	(Xylocaine)	S		1-1.5 mg/kg over 2-3 min (should not exceed 50 mg/min); Max cumulative dose: 3 mg/kg	0.5 - 1 mg/kg over 3 - 5 minutes (should not exceed 50 mg/min) (max 100 mg). See Dosing Calculator	20 mg/mL (undiluted) (ABOJECT)	Y	Restricted for Use in the ED, ICUs, OR/PACU, Labor & Delivery	BP, HR, Continuous cardiac monitoring, Pulse Oximetry
Lorazepam ANXIOLYTIC	(Ativan)	S		0.5 - 1 mg over 2 min	0.05 mg/kg over 2 - 5 min (max 2mg)	2 mg/mL 4 mg/mL (undiluted)	N (refer to Supervision Policy for details)	NONE	BP, RR, Degree of Sedation
Lorazepam ANXIOLYTIC - ALCOHOL WITHDRAWAL	(Ativan)	S		0.5-2 mg over 2 min; Up to 6 mg over 3 min (ICU only)	N/A	2 mg/mL 4 mg/mL (undiluted)	N (refer to Supervision Policy for details)	Doses > 2 mg are restricted to ICU	BP, RR, Degree of Sedation
Lorazepam RES MODERATE SEDATION OR SEIZURES	(Ativan)	S		1 - 4 mg over 2 min	0.05 - 0.1 mg/kg over 2 - 5 minutes (max dose 4 mg)	2 mg/mL 4 mg/mL (undiluted)	Y (RES = refer to Supervision Policy for details)	NONE	BP, RR, Degree of Sedation
Magnesium Sulfate		S		ACLS ONLY: 2 g over 1-2 min	PALS ONLY: 25 - 50 mg/kg/dose (max 2 g)	500 mg/mL (undiluted)	Y	NONE	BP, HR
Mannitol 25%		S		0.2 g/kg over 3-5 min Administer through a 0.22 micron in-line filter secondary to high risk of crystallization.	0.25 - 0.5 g / kg over 3 - 5 min max 12.5 g in 50 mL (25%)	Adults: none (premixed bags/vials) Peds: 20% bags	N	NONE	Routine vital signs, I/Os

DRUG	(Trade Name)	RATE / ROUTE: (S) Slow IV Push, (R) Rapid IV Push	RATE/ROUTE NOTE	ADULT IV PUSH DOSE:	PEDIATRIC / NEONATAL IV PUSH DOSE: (For doses with a wide range see Formulary for specific recommendations)	FINAL CONCENTRATION FOR ADMINISTRATION:	PRESENCE REQUIRED BY MD/NP/PA ON UNIT: (see definition 12 above)	RESTRICTIONS FOR ADMINISTERING MEDICATION:	MONITORING PARAMETERS: (see definition 13 above)
Meperidine DRUG-INDUCED RIGORS OR SHIVERING (post-operative and/or induced therapeutic hypothermia or induced hyperthermia)	(Demerol)	S		Up to 50 mg over 3 - 5 min	0.5 - 1 mg/kg over 5 min (max 50 mg over 5 min)	25 or 50 mg/mL (undiluted) Diluted to 10 mg/mL	N	NONE	BP, HR, RR, Degree of Sedation
Meropenem	(Merrem*)	S	Note: Routine administration of antibiotics as an IV push is NOT routinely recommended	500 mg – 2000 mg over 3 – 5 min	20 – 40 mg/kg/dose over 3 – 5 min	Neonates: 10 mg/mL Pediatrics and Adults: 50 mg/mL (diluted with SW)	N	NONE	Routine vital signs
Methadone RES	(Dolophine)	S		2 - 10 mg over 2 - 5 min	0.05 - 0.2 mg/kg over 2 - 5 min	10 mg/mL (undiluted)	N (RES = refer to Supervision Policy for details)	Restricted to Adult ICUs, ED, OR/PACU. PEDS: Restricted to PICU, Pediatric Burn ICU, Peds ED	BP, RR, Degree of Sedation
Methyl-prednisolone ONLY SODIUM SUCCINATE MAY BE GIVEN IV		S		125 - 250 mg over 2-5 min	0.25 - 2 mg/kg over 2-5 min (max 250 mg)	40 mg/mL or 125 mg/mL (undiluted)	N	NONE	
Metoclopramide	(Reglan)	S		5 - 10 mg over 2 - 3 min	0.033 - 0.1 mg/kg over 3 - 5 min (max 10mg)	5 mg/mL (undiluted)	N	NONE	Extrapyramidal reactions
Metoprolol RES	(Lopressor)	S		2.5 - 5 mg over 2 min	2.5 mg over 2 min	1mg/mL (undiluted)	Y	Adults: NONE PEDS: Restricted to PICU, Pediatric Burn ICU, Peds ED, and Peds PACU with MD present	BP, HR, Continuous Cardiac Monitoring
Midazolam RES ANXIOLYTIC	(Versed)	S		1 - 2.5 mg over 2 min	0.025 mg/kg over 2 min	1 mg/mL 5 mg/mL (undiluted)	N (refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU, approved procedure areas and approved designated intermediate care units	BP, RR, Degree of Sedation
Midazolam RES MODERATE SEDATION OR SEIZURES	(Versed)	R	Note: only for induction of anesthesia, for status bolus 2 mg/min and procedural sedation over ≥2 min	Conscious Sedation: 0.5 - 3 mg over 30 sec	Conscious Sedation: 0.025- 0.05 mg/kg over 30 sec (max 3 mg)	1 mg/mL 5 mg/mL (undiluted)	Y (RES = refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU, approved procedure areas and approved designated intermediate care units	BP, RR, Degree of Sedation
		S		Refractory Seizures: 0.2 mg/kg over 2 - 5 min (max up to 0.5 mg/kg)	Refractory Seizures: 0.15 mg/kg over 2 - 5 min (max up to 0.5 mg/kg)				
Morphine RES		S		1 - 10 mg over 4-5 min NOTE: Narcotic tolerant patients may require higher doses.	0.05 - 0.2 mg/kg over 2 min NOTE: Narcotic tolerant patients may require higher doses.	Multiple Concentrations (undiluted)	N for acute pain management (RES = refer to Supervision Policy for details)	NONE	BP, HR, RR, Degree of Sedation
Nalbuphine	(Nubain*)	S		2.5 - 5 mg over 2-3 min	N/A	10 mg/mL (undiluted)	N	NONE	BP, HR, RR, Degree of Sedation
Naloxone	(Narcan)	R		0.04 - 2 mg over 30 sec	0.01 - 0.1 mg/kg/dose over 30 sec (max 2 mg)	0.4 mg/mL (undiluted) Doses < 0.4 mg: add 0.4 mg (1 mL) to 9 mL for a final concentration of 0.04 mg/mL	N	NONE	BP, HR, RR, Seizure Activity, Continuous Cardiac Monitoring Pulse Oximetry, Nausea & Vomiting
Neostigmine		S		Up to 2 mg over 5 min (max 2 mg)	0.025 - 0.1 mg/kg/dose over 5 min (max 2 mg)	0.5 mg/mL	Y (Remain at bedside for at least 30 min after each dose given)	NONE	BP, HR, RR, Continuous Cardiac Monitoring
Octreotide	(Sandostatin)	S		25-100 micrograms over 3 min (with allowances for up to 1,000 micrograms for carcinoid crisis)	1 - 10 micrograms/kg over 3 min, up to 25 - 50 micrograms/dose	100 micrograms/mL (undiluted)	N	NONE	Routine Vital Signs
Ondansetron	(Zofran)	S		4 – 16 mg over 2-5 min	0.05-0.15 mg/kg over 2-5 min (max 4mg) (Doses for CINV should not be administered IV push)	2 mg/mL (undiluted)	N	NONE	Routine Vital Signs
Palifermin RES	(Kepivance)	R		60 micrograms/kg over 30 sec	60 micrograms/kg over 30 sec	Add 1.2 mL SW to vial; final concentration: 5 mg/mL (diluted)	N	Restricted to Stem Cell Transplant Service for myeloablative total body irradiation based conditioning regimens	Routine Vital Signs
Palonosetron	(Aloxi)	R		For CINV ONLY: 0.25 mg over 30 sec	N/A	0.05 mg/mL (undiluted)	N	NONE	Routine Vital Signs
Pantoprazole	(Protonix)	S		40 mg over 2 min	1 mg/kg over 2 min (max 40 mg)	4 mg/mL (dilute with 10 mL of NS)	N	NONE	Routine Vital Signs

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Pentobarbital RES		S		1 - 3 mg/kg over 3 - 5 min (no faster than 50 mg/min) (max 100 mg)	1 - 3 mg/kg over 3 - 5 min (no faster than 50 mg/min) (max 100 mg)	50 mg/mL (undiluted)	Y (RES = refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU and procedure areas as approved	BP, Continuous Cardiac Monitoring, Degree of Sedation, Resolution of seizures
Phenobarbital RES		S		Doses < 300 mg over 3 - 5 min (no faster than 60 mg/min)	5 - 7.5 mg/kg over 3 - 5 min (no faster than 30 mg/min) (max 300 mg)	Multiple Concentrations (undiluted)	Y (Only when used for anesthesia induction) (RES = refer to Supervision Policy for details)	NONE	BP, Continuous Cardiac Monitoring, Degree of Sedation, RR in non-intubated patients, Resolution of seizures
Phentolamine RES	(Regitine)	R		Up to 15 mg over 4 min for pheochromocytoma	Up to 0.1 mg/kg/dose (max single dose 5 mg) over 4 min for pheochromocytoma	5 mg/mL (undiluted)	N	Restricted to Anesthesiology, ICUs, ED and OR/PACU	BP
Phenylephrine RES	(Neo-Synephrine)	R (central line preferred)		50 - 150 mcg over 30 seconds per dose Q10-15 min PRN	N/A	40 micrograms/mL (diluted) 80 micrograms/mL (diluted)	Y	Restricted to Anesthesiology, ICUs, ED, procedure areas, and OR/PACU,	BP, Continuous Cardiac Monitoring
Phenytoin	(Dilantin)	S		Doses ≤ 100 mg over 2-4 min (no faster than 25 mg/min)	5 - 20 mg/kg (no faster than 1-3 mg/kg/min)	50 mg/mL (undiluted)	N	NONE	BP, HR, Continuous Cardiac Monitoring
Physostigmine	(Antilirium)	S		2 mg over 2 min no faster than 1 n	0.02 mg/kg (max 2 mg; over ≤ 0.5 mg/min)	1 mg/mL (undiluted)	Y	NONE	BP, HR, RR
Prochlorperazine	(Compazine)	S		5 - 25 mg over 3 - 5 min (max rate 5 mg/min)	N/A	10 mg/mL (undiluted)	N	NONE	BP, HR, RR
Propofol RES	(Diprivan)	S		DOSE DETERMINED BY CASE / SITUATION RN to administer to intubated, ventilated patients, 10 - 20 mg IVP over 10 sec x 1 (For severe agitation where patient may cause harm to themselves or others). Only give if order is active and notify provider	REFER TO UNIT-SPECIFIC GUIDELINES	10 mg/mL (undiluted)	Y (RES = refer to Supervision Policy for details)	Restricted to Anesthesiology, ICUs, ED, OR/PACU and approved procedure areas	BP, HR, RR, Degree of Sedation
Propranolol	(Inderal)	R		1 - 3 mg at a rate no faster than 1 mg/minute	0.01 - 0.1 mg/kg over 10 min	1 mg/mL (undiluted)	Y	NONE	BP, HR, Continuous Cardiac Monitoring
Rocuronium ³ RES Neuromuscular Blocking Agent	(Zemuron)	R		0.45 - 1.2 mg/kg over 30 sec	0.5 - 1.2 mg/kg over 30 sec	10 mg/mL (undiluted)	Y	Restricted to Anesthesiology, ICUs, ED and OR/PACU	Train of Four (if infusions are initiated), Adjunctive Sedation, HR, BP, Pulse Oximetry
Sildenafil	(Revatio)	S		2.5 - 10 mg over 5 min	N/A	0.8 mg/mL (undiluted)	N	Restricted for the treatment of pulmonary hypertension, in patients who are temporarily unable to take oral medications	BP
Sodium Chloride 23.4% RES		S (Central Line ONLY)		30 mL over 2-3 min (only if physician is present in the vicinity)	0.5 mL/kg over 2-3 min (up to max of 30 mL): 1. Only if Attending or Fellow is present at the bedside 2. Have vasopressors readily available to deal with hypotension that may occur as a result of rapid administration	4 mEq/mL	Y	A. The use of 23.4% or 14.6% sodium chloride solution is restricted to ICU/ED/OR settings and must be initiated by an ICU/ED/Anesthesiologist attending or fellow B. Sodium Chloride 23.4% or 14.6% may be given to a patient outside of the ICU/ED/OR if ALL of the following conditions are met: 1. Patient demonstrates clinical signs of herniation 2. Patient is awaiting transfer to an ICU 3. There is a written order 4. Patient has central line access 5. The order is approved by the following	Sodium Chloride 23.4% or 14.6% Solution in the Treatment of Refractory Intracranial Hypertension in Adults and Pediatrics
Sodium Bicarbonate		S		50 mEq over 1 -3 min	ARREST ONLY: 0.5 - 1 mEq/kg (max 50 mEq) over at least 2 min; Max rate of infusion: 10 mEq/min	<2 yr: 4.2% (0.5 mEq/mL) All others: 1 mEq/mL (undiluted) (ABOJECT)	Y	NONE	Routine vital signs
Succinylcholine ³ Neuromuscular Blocking Agent RES		R		0.5 - 1.5 mg/kg over 30 sec	1 - 2 mg/kg over 30 sec (max 150 mg)	20 mg/mL (undiluted)	Y	Restricted to Anesthesiology, ICUs, ED and OR/PACU	Train of Four (if infusions are initiated), Adjunctive Sedation, HR, BP, Pulse Oximetry
Sufentanil RES		S		10 - 50 micrograms over 2 - 3 min	0.2 - 1 micrograms/kg over 2 - 3 min	50 micrograms/mL (undiluted)	Y (RES = refer to Supervision Policy for details)	Restricted to Anesthesiology (for procedural assisted areas), ICUs, ED, OR/PACU and approved procedure areas	BP, HR, RR, Degree of Sedation
Tenecteplase RES	(TNKase)	R		Weight-based bolus dose not to exceed 50 mg over 5 sec	N/A	5 mg/mL (50 mg in 10 mL SW)	Y	For acute myocardial infarction. Prescribing and administration restricted to ED and Cardiology Attendings and Cardiology Fellows experienced with the use of thrombolytic therapy	BP, HR, Continuous Cardiac Monitoring, Bleeding (per existing standards for anticoagulants)

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Thiamine		S		100 mg over 5 min	10 - 25 mg over 5 min (maximum 100mg)	100 mg/mL (undiluted)	N	NONE	BP, Shortness of breath
Torsemide	(Demadex)	S		5 - 20 mg over 3 - 5 min	N/A	10 mg/mL (undiluted)	N	NONE	BP
Vecuronium3 Neuromuscular Blocking Agent	(Norcuron)	R		0.08 - 0.1 mg/kg over 30 sec	0.03 - 0.15 mg/kg over 30 sec	1 mg/mL (dilute 10 mg in 10 mL SW)	Y	Restricted to Anesthesiology, ICUs, ED and OR/PACU	Train of Four (if infusions are initiated), Adjunctive Sedation, HR, BP, Pulse Oximetry
Verapamil RES		S		2.5 - 5 mg over 2 min; may repeat in 15-30 min to max total dose of 20 mg	N/A	2.5 mg/mL (undiluted)	Y	Restricted to ICUs, ED, OR/PACU and Cardiac Stepdown-4C, 4N- at NYP/WC	BP, HR, Continuous Cardiac Monitoring

³ The neuromuscular blocking agents DO NOT possess any sedative or analgesic properties. They must **ONLY** be administered in the presence of a clinician who has advanced airway management skills or to patients who are already intubated. In non-emergent situations, the patient should be sedated prior to administration. In emergent situations, sedation should be initiated as quickly as possible following administration of the neuromuscular blocking agent. For more information, please see Nursing Policy CC1160: *Neuromuscular Blocking Agents - Peripheral Nerve Stimulation and Train of Four*.