

## IV Push Administration of Drugs<sup>a</sup>

Antimicrobials				
Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Ampicillin</b>	125 mg, 250 mg, 500 mg	SWI, BWI	5 mL	3 – 5 minutes
	1 g	SWI, BWI	7.4 mL	10 – 15 minutes
	2 g	SWI, BWI	14.8 mL	10 – 15 minutes
<b>Aztreonam</b>	1 g, 2 g	SWI	6 – 10 mL	3 – 5 minutes
<b>Cefazolin</b> <sup>1,2,3</sup>	1 g, 2g	SWI	10 mL	3 – 5 minutes
<b>Cefepime</b> <sup>1,4</sup>	1 g	SWI, NS	10 mL	2 – 5 minutes
	2 g	SWI, NS	20 mL (SWI), 10 mL (NS)	2 – 5 minutes
<b>Cefotaxime</b>	1 g, 2 g	SWI	10 mL	3 – 5 minutes
<b>Cefotetan</b>	1 g, 2g	SWI	10 mL	3 – 5 minutes
<b>Cefoxitin</b>	1 g, 2g	SWI, BWI, NS, D5W	10 mL	3 – 5 minutes
<b>Ceftazidime</b>	1 g, 2 g	SWI	10 mL	3 – 5 minutes
<b>Ceftriaxone</b> <sup>1,2,3</sup>	1 g, 2 g	SWI	10 mL	1 – 4 minutes
<b>Cefuroxime</b>	750 mg	SWI	8.3 mL	3 – 5 minutes
	1.5 g	SWI	16 mL	3 – 5 minutes
<b>Colistimethate Na</b>	150 mg	SWI	2 mL	3 – 5 minutes
<b>Daptomycin</b>	350 mg	NS	7 mL	2 minutes
	500 mg	NS	10 mL	2 minutes
<b>Daptomycin RF</b>	500 mg	SWI, BWI	10 mL	2 minutes
<b>Gentamicin</b> <sup>5</sup>	Up to 800 mg	NS	20 mL total volume	3 – 5 minutes
	800 mg or more	Not required	Not required	3 – 5 minutes
<b>Meropenem</b>	500 mg	SWI	10 mL	3 – 5 minutes
	1 g	SWI	20 mL	3 – 5 minutes

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Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Oxacillin</b>	1 g	SWI, NS	10 mL	10 minutes
	2 g	SWI, NS	20 mL	10 minutes
<b>Tobramycin<sup>5</sup></b>	Up to 800 mg	NS	20 mL total volume	3 – 5 minutes
	800 mg or more	Not required	Not required	3 – 5 minutes
Analgesics				
Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Fentanyl</b>	50 – 100 mcg	Not required	Not required	1 – 3 minutes
<b>Hydromorphone</b>	0.5 – 1 mg	Not required	Not required	2 – 3 minutes
<b>Ketorolac</b>	15 – 30 mg	Not required	Not required	Over at least 15 seconds
Anticonvulsants				
Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Fosphenytoin</b>	Various	NS, D5W	Max Conc: 25 mg PE/mL	Max: 150 mg PE/minute
<b>Lacosamide<sup>6,7,8</sup></b>	Up to Max: 400 mg	Not required	Not required	40 – 80 mg/minute
<b>Pentobarbital</b>	Various	Not required	Not required	Max: 50 mg/minute
<b>Phenobarbital<sup>b</sup></b>	Various	Not required	Not required	Max: 60 mg/minute
<b>Phenytoin</b>	Various	Not required	Not required	Max: 50 mg/minute
Benzodiazepines				
Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Diazepam</b>	5 mg	Not required	Not required	Over at least 1 minute
<b>Lorazepam</b>	2 – 4 mg	SWI, NS, D5W	Equal volume of dose volume	Max: 2 mg/minute
<b>Midazolam</b>	1 – 2.5 mg	Not required	Not required	Over at least 2 minutes

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<b>Corticosteroids</b>				
<b>Drug</b>	<b>Dose</b>	<b>Diluent</b>	<b>Diluent Volume</b>	<b>Administration Rate</b>
<b>Dexamethasone</b>	Various	Not required	Not required	Over at least 1 minute
<b>Hydrocortisone</b>	100 – 500 mg	BWI	Up to 2 mL	Max: 30 seconds per 100 mg
<b>Methylprednisolone</b>	Up to Max: 250 mg	BWI with benzoyl alcohol	2 mL	3 – 10 minutes
<b>Diuretics</b>				
<b>Drug</b>	<b>Dose</b>	<b>Diluent</b>	<b>Diluent Volume</b>	<b>Administration Rate</b>
<b>Acetazolamide</b>	500 mg	SWI	At least 5 mL Max Conc: 100mg/mL	Max: 500 mg/minute
<b>Bumetanide</b>	0.5 – 1 mg	Not required	Not required	1 – 2 minutes
<b>Ethacrynic Acid</b>	50 mg	D5W, NS	50 mL	Several minutes
<b>Furosemide</b>	20 – 40 mg	Not Required	Not Required	1 – 2 minutes
<b>Gastrointestinal Agents</b>				
<b>Drug</b>	<b>Dose</b>	<b>Diluent</b>	<b>Diluent Volume</b>	<b>Administration Rate</b>
<b>Esomeprazole</b>	20 mg, 40 mg	NS	5 mL	Over at least 3 minutes
<b>Famotidine</b>	20 mg	NS	5 – 10 mL	Over at least 2 minutes
<b>Granisetron</b>	10 mcg/kg	Not required	Not required	30 seconds
<b>Metoclopramide</b>	Up to 10 mg	Not required	Not required	1 – 2 minutes
<b>Ondansetron</b>	Up to 4 mg	Not required	Not required	30 seconds – 5 minutes
<b>Pantoprazole</b>	40 mg	NS	10 mL	Over at least 2 minutes
<b>Prochlorperazine</b>	5 – 10 mg	Not required	Not required	Max: 5 mg/minute

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Miscellaneous Agents				
Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Diphenhydramine</b>	25 – 50 mg	Not required	Not required	Max: 25 mg/minute
<b>Etomidate</b>	0.2 – 0.6 mg/kg	Not required	Not required	30 – 60 sec
<b>Ketamine</b>	1 – 4.5 mg/kg	SWI, NS, D5W	Equal volume of dose volume (Max Conc = 50 mg/mL)	Over at least 1 minute
<b>Propofol</b>	10 – 20 mg	Not required	Not required	3 – 5 minutes
<b>Naloxone</b>	0.4 – 2 mg	Not required	Not required	60 seconds or less
<b>Levothyroxine</b>	100 – 200 mcg	NS	5 mL	Max: 100 mcg/minute
<b>Octreotide</b>	50 mcg	Not required	Not required	3 minutes
Neuromuscular Blockers <sup>c</sup>				
Drug	Dose	Diluent	Diluent Volume	Administration Rate
<b>Atracurium<sup>9</sup></b>	0.4 – 0.5 mg/kg	Not required	Not required	60 seconds or less
<b>Cisatracurium<sup>9</sup></b>	0.1 – 0.2 mg/kg	Not required	Not required	60 seconds or less
<b>Mivacurium<sup>9</sup></b>	0.15 – 0.25 mg/kg	Not required	Not required	5 – 30 seconds
<b>Pancuronium<sup>9</sup></b>	0.06 – 0.1 mg/kg	Not required	Not required	60 seconds or less
<b>Rocuronium<sup>9</sup></b>	0.6 – 1 mg/kg	Not required	Not required	60 seconds or less
<b>Succinylcholine</b>	0.3 – 1.1 mg/kg	Not required	Not required	10 – 30 seconds
<b>Vecuronium<sup>9</sup></b>	0.08 – 0.1 mg/kg	BWI	10 mL for 10 mg vial 20 mL for 20 mg vial	60 seconds or less

Abbreviations: NS – 0.9% Sodium Chloride Injection; D5W – 5% Dextrose Injection; BWI – Bacteriostatic Water for Injection; SWI – Sterile Water for Injection.

<sup>a</sup>Information is from the package insert unless otherwise specified.

<sup>b</sup>A rate of 75 – 100 mg/min can be used in emergency situations; hypotension and ventilation may be necessary at these rates

<sup>c</sup>Initial or loading dose; other doses may be used but depend on indication and patient-specific factors.



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## References

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