



Compatibility of Commonly Used Intravenous Drugs

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The number of available IV medications continues to expand. Many institutions have observed an increase in patient acuity and a rise in the number of medications administered to each patient. This increases the likelihood that multiple IV medications will need to be administered concurrently.

These factors contribute to the escalating complexity of IV drug administration and have resulted in an ever-increasing number of possible incompatibilities. The potential for serious and life-threatening adverse drug events exists when incompatible medications are infused together. Therefore, it is important to verify drug compatibility prior to coadministration. A clear and concise compatibility chart can be a useful tool in helping to deliver safe, high-quality IV therapy to patients.

A chance of incompatibility exists whenever any

medication is combined or added to an IV fluid. It is important to recognize that compatibility is not just a function of the drugs themselves, but also can be dependent on a variety of factors including the concentration, temperature, storage vehicle, infusion solution, order of mixing, and administration technique. Compatibility differences even have been reported for different brands of the same drug.

Three types of incompatibilities are commonly discussed: physical, chemical, and therapeutic. *Physical*

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Table. Compatibility of Selected IV Drugs

	Acyclovir	Amikacin	Amiodarone	Ampicillin	Ampicillin-sulbactam	Anidulafungin	Argatroban	Azithromycin	Aztreonam	Bivalirudin	Bumetanide	Calcium gluconate	Caspofungin	Cefazolin	Cefepime	Cefotaxime	Cefoxitin	Ceftaroline	Ceftazidime	Ceftizoxime	Ceftriaxone	Ciprofloxacin	Clindamycin	Daptomycin	Dexamethasone	Dextrose 5% in water	Diazepam	Diltiazem	Diphenhydramine	Dobutamine	Dopamine	Doripenem	Doxycycline	Enalaprilat	Epinephrine	Eptifibatide	Esmolol	Esomeprazole	Famotidine	Fentanyl	Fluconazole	Furosemide	Gentamicin						
Acyclovir		C	N	C	I	C	C	N	I	C	C	C	N	C	I	C	C	C	C	C	C	I	C	I	C	C	I	N	N	I	I	C	C	C	I	I	I	N	C	C	C	C	N						
Amikacin	C		C	N	N	C	N	I	C	C	C	C	C	H	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C					
Amiodarone	N	C		N	I	C	I	N	N	I	C	C	C	N	N	N	N	C	I	C	C	C	C	C	N	N	N	C	N	C	C	C	C	C	C	N	C	N	C	N	C	C	C	N	C				
Ampicillin	C	N	N		N	C	N	N	N	C	N	N	I	N	N	N	N	N	N	I	N	N	S	C	N	I	I	N	I	I	I	N	I	N	N	C	N	N	N	N	N	I	S	I					
Ampicillin-sulbactam	I	N	I	N		C	N	N	N	C	N	N	I	N	C	I	I	N	N	N	N	I	N	C	N	A	I	N	N	I	N	N	I	N	N	C	N	N	N	N	N	N	N	N	N				
Anidulafungin	C	C	C	C	C		C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	N	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
Argatroban	C	N	I	N	N	C		N	N	C	N	N	N	N	N	N	N	N	N	N	N	N	N	C	N	C	N	C	C	C	C	N	N	N	N	N	N	C	N	N	N	C	N	C	N				
Azithromycin	N	I	N	N	N	C	N		I	C	N	N	N	N	I	N	C	I	N	I	I	I	C	N	C	N	C	N	C	N	C	N	C	N	N	C	N	N	I	I	N	I	I						
Aztreonam	I	C	N	N	C	N	I	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	I	C	N	C	N	C	C	C	C	C	C	N	C	C	C	C	C					
Bivalirudin	C	C	I	C	C	C	C	C	C	C	C	C	I	C	C	C	C	N	C	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C					
Bumetanide	C	C	C	N	N	C		N	N	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
Calcium gluconate	C	C	C	N	N	C		N	N	C	C	C	C	C	C	C	C	C	C	I	A	C	C	I	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	N	C	C					
Caspofungin	N	C	C	I	I	C	N	N	C	I	C	C	I	I	I	I	I	C	I	C	I	C	I	C	I	N	I	C	C	C	C	C	C	C	C	C	I	C	N	C	N	C	C	I	C				
Cefazolin	C	C	N	N	N	C		N	N	C	C	C	I	N	I	C	N	C	C	C	N	C	C	C	C	C	I	C	I	I	I	N	I	C	C	C	C	N	C	C	C	N	C	C	N				
Cefepime	I	H	N	N	C	C		N	N	C	C	C	I	N	N	N	N	N	N	N	I	C	C	C	C	I	I	I	N	N	N	N	I	N	C	N	N	I	N	C	C	N							
Cefotaxime	C	C	N	N	I	C		N	I	C	C	C	I	I	N	C	N	I	C	N	C	C	C	C	C	C	I	C	I	N	C	N	C	C	C	C	C	C	C	C	C	C	N	C	N				
Cefoxitin	C	C	N	N	I	C		N	N	C	C	C	I	C	N	C		N	C	I	C	N	C	C	C	C	I	C	I	I	C	N	I	C	C	C	C	N	C	N	C	C	C	C					
Ceftaroline	C	C	C	N	N	N		C	N	N	C	C	I	N	N	N	N	N	N	N	C	C	N	C	C	C	I	C	C	N	C	C	N	C	N	N	C	C	C	C	C	C	C	C	C				
Ceftazidime	C	C	I	N	N	C	N	I	C	C	C	C	I	C	N	I	C	N	C	C	C	C	C	C	C	C	C	I	C	I	N	C	N	I	C	C	C	C	C	N	C	C	C	C					
Ceftizoxime	C	C	C	I	N	C		N	N	C	C	C	C	C	C	N	I	N	C	N	C	C	C	C	C	C	C	I	C	C	N	C	N	I	C	C	C	C	N	C	C	C	C	C					
Ceftriaxone	C	C	C	N	N	C		N	I	C	C	C	I	I	C	N	C	N	C	C	C	N	I	C	C	C	C	I	C	I	I	C	N	C	C	C	C	C	N	C	N	C	N						
Ciprofloxacin	I	C	C	N	I	C		N	I	C	C	N	A	C	N	I	N	N	C	C	N	N	I	C	I	C	N	C	C	C	C	N	N	N	C	N	N	N	N	C	N	N	C	I	C				
Clindamycin	C	C	C	S	N	C		N	I	C	C	C	I	C	C	C	C	C	C	I	C	C	C	C	C	C	I	C	C	N	C	N	C	C	C	C	C	C	C	N	C	C	N	C	C				
Daptomycin	I	C	C	C	C	N		C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
Dexamethasone	C	C	N	N	N	C		N	N	C	C	C	I	I	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	I	C	C	C	C	C	C	C	I	N	C	C	C	I					
D5W	C	C	N	I	A	C		C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
Diazepam	I	I	N	I	I	N		N	I	I	I	I	I	I	I	I	I	I	I	I	N	I	C	I	N	I	I	N	I	I	I	I	I	I	I	I	I	I	I	I	N	I	I	I	I				
Diltiazem	N	C	C	N	N	C		C	N	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	I	C			
Diphenhydramine	N	C	N	I	N	C		C	C	N	C	C	C	C	I	I	I	I	C	I	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C		
Dobutamine	I	C	C	I	I	C		C	N	C	N	N	C	C	I	N	I	N	N	N	I	C	N	C	I	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C			
Dopamine	I	C	C	I	N	C		C	N	C	C	C	C	C	I	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	N	C				
Doripenem	C	C	C	N	N	C		N	C	N	N	C	C	C	N	N	N	C	N	N	N	C	N	C	C	C	C	I	C	C	C	C	N	C	N	N	C	C	C	C	C	C	C	C	C	C			
Doxycycline	C	C	C	I	I	C		N	N	C	C	C	C	I	N	C	I	N	I	I	C	N	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Enalaprilat	C	C	N	N	N	C		N	N	C	C	C	C	I	C	I	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Epinephrine	I	C	C	N	N	C		N	N	C	C	C	C	C	N	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Eptifibatide	I	C	N	C	C	C		C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Esmolol	I	C	C	N	N	C		N	N	C	C	C	C	C	N	C	C	C	C	N	C	C	I	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Esomeprazole	N	N	N	N	N	N		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
Famotidine	C	C	C	N	N	C		N	I	C	C	C	C	N	I	C	N	C	C	N	N	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	N	C
Fentanyl	C	C	C	N	N	C		C	I	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		

^a Protect from light. ^b Testing was performed with ethylenediaminetetra-acetic acid (EDTA)-free formulation.

KEY

- A = Physically compatible for at least 2 hours
- C = Physically compatible
- D = Physically compatible in dextrose 5% in water
- E = Physically compatible for at least 5 minutes
- G = Physically compatible in glass bottle only
- H = Physically compatible for at least 1 hour
- I = Incompatible
- N = Information on compatibility is not available or not adequate
- R = Physically compatible for 24 hours under refrigeration
- S = Physically compatible in 0.9% sodium chloride

Granisetron	Heparin	Hydrocortisone Sod. Succ.	Hydromorphone	Imipenem-cilastatin	Insulin, regular	Labeltalol	Levofloxacin	Linezolid	Lorazepam	Magnesium sulfate	Mannitol	Meropenem	Methylprednisolone sod. Succ.	Metoclopramide	Metronidazole	Micafungin	Midazolam	Morphine sulfate	Nafcillin	Nitroglycerin	Nitroprusside ^a	Norepinephrine	Ondansetron	Palonosetron	Pantoprazole ^b	Penicillin G Potassium	Phenylephrine	Phenytoin	Piperacillin-tazobactam	Potassium chloride	Prochlorperazine	Propofol	Ringer's, lactated	Sodium bicarbonate	Sodium chloride 0.9%	Tacrolimus	Tigecycline	Tobramycin	TMP-SMX	Vancomycin	Vasopressin	Voriconazole								
C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	C	C	C	C	N	I	C	C	N	C	C	N	C	C	C	I	N	C	N	C	N	I	C	N	C	I	I	C	C	I	C	C	C	C	C	C	N	C	C	I	I	N	C	C	C				
C	I	N	C	C	N	C	C	C	C	C	C	C	C	C	C	N	C	C	N	C	C	C	C	C	C	C	C	I	N	C	C	I	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C		
	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	N	N	C	N	C	I	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C		N	N	C	C	N	I	C	C	C	C	N	C	C	C	C	N	C	N	C	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	N		C	C	C	I	C	C	C	N	C	N	N	C	C	N	N	C	N	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	N	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	N				
C	C	C	C	C	C	C	C	I	C	I	N	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	C	C	C	I	N	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	N	C	C	C	C	C	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	N	C	N	C	N	N	C	C	C	I	N	C	C	N	N	C	N	N	C	N	N	C	N	N	N	N	N	N	N	N	N	N	N	I	I	R	C	C	N	N	C	C	C	C	C				
C	N	N	C	C	C	C	C	C	I	C	N		C	C	N	N	C	N	C	C	C	C	N	N	I	C	C	I	C	N	C	I	N	C	C	C	C	C	C	C	N	C	I	C	C	C	C	C		
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
N	C	N	C	N	I	I	N	N	C	C	N	N	N	N	N		I	I	N	C	C	I	N	C	C	C	C	C	I	N	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	N	
C	C	N	C	N	N	C	C	C	C	C	N	N	C	C	I	C		C	C	C	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
C	N	C	C	C	N	C	C	C	C	C	C	C	C	C	I	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	N	C	C	N	N	N	C	C	C	N	N	C	C	N	N	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
N	C	C	C	N	I	I	N	N	N	C	C	N	N	N	N		I	I	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
N	C	C	C	I	C	C	C	C	C	C	N	C	C	C	N	C	C	I	C	C	C	C	N	I	N	C	I	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
C	C	N	N	C	N	I	I	I	N	N	I	N	I	N	I	N	I	N	C	N	N	I	N	N	I	I	N	C	I	N	C	I	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
I	I	I	I	I	I	I	I	I	I	N	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I		
C	C	C	C	N	I	I	I	C	C	C	N	C	C	C	N	I	C	N	C	C	C	C	C	C	C	C	C	C	C	I	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
C	C	C	C	N	C	C	C	C	C	C	N	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	N	N	N	I	I	C	I	C	N	C	C	N	C	C	C	N	I	C	C	C	I	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
N	N	C	C	I	G	C	N	C	N	C	N	I	N	C	N	C	N	C	C	G	C	C	C	N	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	C	I	I	C	N	C	C	C	C	C	I	C	C	C	N	I	N	C	C	C	I	I	C	N	N	C	I	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
C	C	C	C	R	N	C	C	C	N	C	N	R	C	C	N	C	C	C	G	C	C	C	C	C	C	C	C	C	C	C	N	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
C	I	N	C	C	N	C	C	C	C	C	N	C	C	C	C	N	C	C	N	C	C	C	C	C	C	C	C	C	C	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
C	E	I	C	I	I	N	C	N	C	N	I	N	I	I	C	N	I	N	I	I	I	I	I	I	I	I	I	I	I	I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
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C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				

Text continued from page 1

incompatibilities are the most easily detected and are evidenced by visible changes, such as particulate formation, haze, precipitation, color change, and gas evolution. *Chemical incompatibilities* are those that result in decomposition of a drug. Loss of potency of greater than 10% over the defined testing period is considered chemical incompatibility. Most chemical incompatibilities can be detected only with a suitable analytic method. *Therapeutic incompatibilities* in which a drug combination results in undesirable antagonistic or synergistic pharmacologic activity are beyond the scope of most compatibility references.

The purpose of this chart is to provide data in an organized, concise format from which compatibility information can be accessed quickly and conveniently. Although there are differing types of incompatibilities, the type of incompatibility or compatibility is not specified in this chart. A designation of "compatible" indicates that the combination evaluated appears to be compatible based on the tests performed, whether these tests measured physical, chemical, or both types of compatibility. All conditions that may affect compatibility cannot be included in such a format and it is not possible to predict all incompatibilities that may arise, but it is hoped that the information provided may

help clinicians minimize their occurrence. Continuing research adding to the existing body of knowledge on IV compatibilities is vital.

Suggested Reading

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