

**VESICANTS, CHEMOTHERAPEUTIC AGENTS AND VASCULAR
ACCESS RECOMMENDATIONS**

Section: Nursing

Compliance: ACHC Infusion Pharmacy

ACHC Standards:

Policy ID: NUR208

Effective: 1/1/21

Reviewed: 5/1/21

Revised:

Approved by, Title and Date Approved: Kathleen Patrick, President 1/1/21, 5/1/21

I. POLICY

A. Vesicants

Vesicants should be given by central vein. A vesicant is any agent that has the potential to cause blistering, severe tissue damage or necrosis when extravasated. The Pharmacist will evaluate patients on a case-by-case basis when orders are received for a vesicant.

Alkylating agents

- Cisplatin (in concentrations more than 20 ml of 0.5 mg/ml)
- Mechlorethamine hydrochloride (Nitrogen mustard)
- Melphalan (Alkeran)
- Streptozocin (Zanosar)

Antitumor antibiotics

- Doxorubicin (Adriamycin)
- Daunorubicin (Cerubidine)
- Mitomycin (Mutamycin)
- Dactinomycin (Actinomycin-D)
- Mitoxantrone (Novantrone)
- Epirubicin (Ellence)
- Idarubicin (Idamycin)

Vinca Alkaloids

- Vincristine (Oncovin)
- Vinblastine (Velban)
- Vindesine (Eldisine)
- Vinorelbine (Navelbine)

Taxane

- Paclitaxel (Taxol)

Dopamine

- Norepinephrine (Levophed) [>24 hrs, central line recommended]

Antibiotics

- Nafcillin (Nafcil)

Antivirals

- Acyclovir (Zovirax) [conc \leq 7 mg/mL for non-central line. > 10 days central line preferred]
- Ganciclovir (Cytovene)

B. Irritants

May be given by peripheral vein but are **BEST** administered by central vein. Irritants are agents that cause aching, tightness, and phlebitis along the vein or at injection site, with or without a local inflammatory reaction. It does not cause tissue necrosis. The Pharmacist will evaluate patients on a case-by-case basis when orders are received for a vesicant.

Alkylating Agents

- Carboplatin (Paraplatin)
- Dacarbazine (DTIC)
- Ifosfamide (Ifex)
- Oxaliplatin (Eloxantin)
- Cisplatin and Thiopeta (Thioplex)

Nitrosurea

- Carmustine (BICNU)

Antitumor Antibiotic

- Daunorubicin citrate liposomal
- Doxorubicin liposomal (Doxil)
- Bleomycin (Blenoxane)

Epipodophyllotoxin

- Etoposide (VP-16, Vespil)
- Teniposide (VM-26, Vumon)

Biological Response Modifiers

- Denileukin Diftox (Ontak)

Antibiotics

- Oxacillin [> 7 days central line preferred]
- Penicillin [> 7 days central line preferred]
- Sulfamethoxazole-Trimethoprim (Bactrim) [> 14 days central line preferred]
- Vancomycin (Vancocin) [> 7 days central line preferred]
- Moxifloxacin (Avolex)
- Levofloxacin (Levaquin)
- Ciprofloxacin (Cipro) [> 7 days central line preferred, otherwise midline ok]

- Gentamicin
- Erythromycin (E-mycin) [central line preferred, dilute to <5mg/mL for peripheral administration]
- Caspofungin (Cancidas) [> 7 days central line preferred]
- Ampicillin [>14 days central line preferred]
- Ampicillin-Sulbactam [>14 days central line preferred]
- Azithromycin
- Amphotericin B (Fungizone) [central line preferred, dilute to 0.1 mg/mL or less for peripheral administration]
- Amphotericin B Lipid Complex (Ablecet)
- Amphotericin B Liposome (Ambisome)

Antivirals

- Foscarnet (Foscavir) [dilute to no more than 12 mg/mL for peripheral administration]

Amiodarone (Cordarone) [central line preferred if therapy exceeds 5 days, \leq 2 mg/mL for peripheral administration]

Refer to supplemental document “Non-Cytotoxic Agents: Vascular Access Recommendations” for more information on non-chemotherapeutic agents.

NON-CYTOTOXIC AGENTS: VASCULAR ACCESS RECOMMENDATIONS*

Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Acetaminophen	Ofirmev	5.5	●	●	●		Intermittent	Any
Acyclovir	Zovirax	10.5-11.6	▲	▲	●	For peripheral or midline, concentration must be 7mg/ml or less. Site must be assessed regularly (q8h) for signs of phlebitis or extravasation. Can cause tissue necrosis	Intermittent only	10 days or less midline ok; >10 days central line preferred
Amikacin	Amikin	3.5-5.5	●	●	●		Both	Any
Amiodarone	Cordarone	4.1	▲	▲	●	Central line preferred. If peripheral line used, insertion into large vein and infusion concentration must be <=2mg/ml. Inline filter recommended (especially if peripheral line used) Site must be assessed at a minimum of q4 hours if peripheral line used	Both	If therapy extends >5 days, a central line is recommended
Amphotericin B	Fungizone	5.0-6.0	▲	▲	●	Central line preferred. If peripheral line must be used, concentration should be 0.1mg/ml or less	Intermittent	Any
Amphotericin B Lipid Complex	Ablecet	5.0-7.0	▲	●	●	Flush line before and after with 5ml D5W. Do not mix with NSS. If infusion time exceeds 2 hrs, shake bag to redistribute suspension. DO NOT USE IN-LINE FILTER Final conc. 1-2 mg/ml	Intermittent	Any
Amphotericin B Liposome	Ambisome	5.0-6.0	▲	●	●	Flush line before and after with 5ml D5W. Do not mix with NSS. May use in-line filter with pore size>1 micron. Final conc. 1-2 mg/ml	Intermittent	Any

● =ok ▲ =use caution ■ =not recommended

**P=Peripheral, M=Midline, C=Central

*These are best practice recommendations. Property of Chartwell Pennsylvania-Home Infusion and Specialty Pharmacy

NON-CYTOTOXIC AGENTS: VASCULAR ACCESS RECOMMENDATIONS*

Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Ampicillin		8.0-10.0	●	●	●	Risk of phlebitis. Monitor IV site regularly for signs of infiltration and phlebitis	Both	Therapy > 14 days consider central line
Ampicillin-Sulbactam	Unasyn	8.0-10.0	●	●	●	Risk of phlebitis. Monitor IV site regularly for signs of infiltration and phlebitis	Both	Therapy > 14 days consider central line
Alpha-1 Proteinase Inhibitor Human	Aralast, Prolastin, Zemaira, Glassia	6.6-7.8	●	●	●		Both	Any
Azithromycin	Zithromax	6.4-6.8	●	●	●	Risk of phlebitis, Monitor site regularly	Intermittent	Any
Aztreonam	Azactam	4.5-7.5	●	●	●		Both	Any
Blinatumomab	Blincyto	7.0	●	●	●	Dedicated IV line	Both	Any
Bumetanide	Bumex	6.0-7.8	●	●	●		Both	Any
Calcium Gluconate		6.0-8.2	▲	■	●	Extreme caution and frequent site assessments must be utilized prior to and during infusion. See policy on extravasation to handle any sign of extravasation. May cause tissue necrosis. Central line preferred	Intermittent only	Peripheral line for emergencies and short term use only.
Caspofungin	Cancidas	6.6	▲	▲	●	Risk of phlebitis (>18%)	Intermittent	Central line preferred for therapy > 7 days
Cefazolin	Ancef	4.5-7.0	●	●	●		Both	Any

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			P	M	C			
Cefepime	Maxipime	4.0-6.0	●	●	●		Both	Any
Cefotaxime	Claforan	4.5-6.5	●	●	●		Both	Any
Cefoxitin	Mefoxin	4.2-7.0	●	●	●		Both	Any
Ceftaroline	Teflaro	4.8-6.5	●	●	●		Both	Any
Ceftazidime	Tazicef	5.5-8.0	●	●	●		Both	Any
Ceftazidime-Avibactam	Avycaz	6.4-6.8	●	●	●		Both	Any
Ceftolozane/Tazobactam	Zerbaxa		●	●	●		Both	Any
Ceftriaxone	Rocephin	6.6-6.7	●	●	●		Both	Any
Cefuroxime	Zinacef	6.8-8.5	●	●	●		Both	Any
Cidofovir	Vistide	7.4	●	●	●		Both	Any
Ciprofloxacin	Cipro	3.3-4.6	▲	▲	●	Administration into a larger vein is preferred to minimize patient discomfort and risk of venous irritation	Intermittent	7 days or less=midline ok; >7 days Central line preferred
Clindamycin	Cleocin	5.5-7.0	●	●	●		Both	Any
Colistimethate	Colistin	4.0-7.0	●	●	●		Both	Any
Dalbavancin	Dalvance		●	●	●	*max concentration 5mg/ml	Intermittent	1 or 2 doses
Daptomycin	Cubicin	6.8	●	●	●		Both	Any

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Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Deferoxamine	Desferal	4.0-6.0	●	●	●	**very slow rate		
Dexamethasone	Decadron	7.0-8.5	●	●	●		Both	Any
Dextrose >10%		3.5-6.5	■*	■*	●	Vesicant over 10% solution * When used for the emergency treatment of hypoglycemia, hypertonic dextrose injections may be administered slowly via a peripheral vein	Both	
Diltiazem	Cardizem	3.7-4.1	●	●	●		Both	Any
Dobutamine	Dobutrex	2.5-5.5	▲*	■	●	* If peripheral site used, line must be assessed regularly (minimum of q8hr) for sign of extravasation/phlebitis	Both	Any
Dopamine	Intropin	2.5-5.0	■*	■	●	Risk of Phlebitis, Necrosis * Peripheral site may be used in emergencies until central line can be placed. Max recommended peripheral concentration=400 mg/250 ml D5W at 0-5 mcg/kg/min. Site must be assessed at a minimum of q2 hours if peripheral line used	Both	Therapy > 24 hrs recommend central line
Doripenem	Doribax	4.5-5.5	●	●	●	Risk of phlebitis, Monitor site regularly.	Intermittent	Any

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Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Doxycycline	Vibramycin, Doryx	1.8-3.3	▲	▲	●	Vesicant. Central line preferred. Prolonged IV administration may cause thrombophlebitis. Oral administration is preferable as IV and oral routes are bioequivalent	Intermittent	Central line preferred. Peripheral line only very short term until switch to po
Epinephrine	Adrenaline	2.2-5.0	■	■	●	Necrosis	Both	Any
Ertapenem	Invanz	7.5	●	●	●		Intermittent	Any
Erythromycin	E-mycin	6.5-7.7	▲	●	●	Very irritating to the vein. May further dilute if peripheral access is necessary. Less than 5mg/ml for peripheral administration.	Intermittent	Any
Fentanyl	Sublimaze	4.0-7.5	●	●	●		Both	Any
Fluconazole	Diflucan	4.0-8.0	●	●	●		Intermittent	Any
Folic Acid		8.0-11.0	●	●	●		Both	Any
Foscarnet	Foscavir	7.4	▲	▲	●	For peripheral vein administration, the solution must be diluted to a final concentration not to exceed 12 mg/mL.	Intermittent	Any
Fosphenytoin	Cerebyx	8.6-9.0	●	●	●	Risk of Phlebitis	Both	Any
Furosemide	Lasix	8.0-9.3	●	●	●		Both	Any
Ganciclovir	Cytovene	11.0	■	▲	●	Vesicant properties	Both	Any
Gentamicin		3-5.5	●	●	●	Vesicant properties; Monitor for signs/symptoms of infiltration/phlebitis.	Intermittent	Any

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Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Haloperidol	Haldol	3-3.6	●	●	●		Both	Any
Heparin		5.0-7.5	●	●	●		Both	Any
Hydrocortisone	Solu-cortef	7.0-8.0	●	●	●		Both	Any
Hydromorphone	Dilaudid		●	●	●		Both	Any
Imipenem/cilastin	Primaxin	6.5-7.5	●	●	●			
Iron Dextran	Infed	5.2-6.5	●	●	●		Both	Any
Iron Sucrose	Venofer	10.5-11.1	●	●	●		Both	Any
Ketamine	Ketalar	3.5-5.5	●	●	●		Both	Any
Ketorolac	Toradol	5.7-6.7	●	●	●		Both	Any
Lacosamide	Vimpat	3.5-5.0	●	●	●		Both	Any
Levetiracetam	Keppra		●	●	●		Both	Any
Levofloxacin	Levaquin	3.8-5.8	▲	▲	●	Irritant: watch for signs of infiltration/phlebitis	Intermittent	Any
Levothyroxine	Synthroid	8.9	●	●	●		Both	Any
Linezolid	Zyvox	4.8	●	●	●		Intermittent	Any
Lorazepam	Ativan	6.4	●	●	●		Both	Any
Magnesium Sulfate		5.0-9.2	●	●	●	Watch for any signs of extravasation. May cause tissue damage	Both	Any

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			P	M	C			
Meropenem	Merrem	7.3-8.3	●	●	●		Intermittent	Any
Methylprednisolone	Solu-medrol		●	●	●		Both	Any
Metronidazole	Flagyl	4.5-7	●	●	●		Both	Any
Micafungin	Micamine		●	●	●	*If concentration >1.5mg/ml must use central line.	Intermittent	Any
Midazolam	Versed	2.9-3.7	●	●	●			
Milrinone	Primacor	3.2-4.0	●	●	●		Both	Any
Morphine		4.0	●	●	●		Both	Any
Moxifloxacin	Avelox	4.1-4.6	▲	▲	●	Irritant: watch for signs of infiltration/phlebitis	Intermittent	Any
Nafcillin	Nafcil	6-8.5	▲	▲	●	Central line is preferred especially for continuous infusion. Peripheral-infuse in a large vein only if necessary. Extravasation may cause tissue sloughing and necrosis.	CONTINUOUS = Central line preferred INTERMITTENT = midline ok for short term, Central line preferred	CONTINUOUS = Central line any length INTERMITTENT = midline ok for short term < =7days
Nicardipine	Cardene	3.7-4.7	●*	●*	●	* peripheral line conc. Must be 0.1mg/ml and site should be changed every 12 hours	Both	Any
Norepinephrine	Levophed	3-4.5	■*	■*	●	Risk of Phlebitis, Necrosis * Peripheral site may be used in emergencies until central line can be placed. Site must be assessed at a minimum of q2 hours if peripheral line used.	Both	Therapy > 24 hrs central line recommended

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Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Octreotide	Sandostatin	3.9-4.5	●	●	●		Both	Any
Ondansetron	Zofran	3.3-4.0	●	●	●		Both	Any
Oxacillin		6.0-8.5	▲	▲	●	Assess line regularly for signs of infiltration or phlebitis. Recommend central line for continuous infusions.	Both	Therapy > 7 days consider central line
Penicillin		6.0-8.5	▲	▲	●	Assess line regularly for signs of infiltration or phlebitis. Recommend central line for continuous infusions.	Both	Therapy > 7 days consider central line
Peramivir	Rapivab	5.5-8.5	●	●	●		Intermittent	Any
Phenobarbital	Luminal	8.5-10.5	▲	●	●	Necrosis, gangrene. Inject into a larger vein to minimize risk of irritation.	Intermittent	Any
Phenylephrine	Vazculep	3.5-5.5	■*	■	●	Risk of Phlebitis, Necrosis *Peripheral site may be used in emergencies until central line can be placed. Max recommended peripheral concentration=20 mg/250 ml NSS. Site must be assessed at a minimum of q2 hours if peripheral line used	Both	Therapy > 24 hrs central line recommended
Phenytoin	Dilantin	12.0	▲	▲	●	If phenytoin is to be administered intravenously for greater than 48 hours a central line should be considered. If Peripheral line infuse in a large vein.	Both	Peripheral line<=48hrs >48hrs consider central line

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Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
Phytonadione	Vitamin K	3.5-7.0	●	●	●		Both	Any
Piperacillin-Tazobactam	Zosyn		●	●	●		Both	Any
Potassium Chloride		4.0-8.0	●	●	●	IVPB (<=100ml) Maximum rate and concentration: <u>Peripheral:</u> 10 meq/hr (10meq/100ml) --Hospital pt: 10meq/50ml <u>Central:</u> 20 meq/hr (20meq/100ml) --Hospital pt: 20meq/50ml LVP (>=250ml) <u>Maximum peripheral concentration:</u> 40 mEq/L <u>Maximum central concentration:</u> 100 mEq/L	Both	Any
Prochlorperazine	Compazine	4.2-6.2	●	●	●		Both	Any
Ranitidine	Zantac	6.7-7.3	●	●	●		Both	Any
Rifampin	Rifadin	4.5-6.5	●	●	●		Both	Any
SMZ-TMP	Bactrim	10.0	▲	●	●	Venous irritant. Infuse into a large vein to minimize patient discomfort.	Intermittent	Therapy > 14 days consider central line
Sodium Bicarbonate (non-emergent)			●	●	●	Concentrations greater than 150 meq/1000 ml (1.26%) should be given via a Central line.	Both	Any
Sodium Thiosulfate		7.5-9.5	●	●	●		Both	Any
Tacrolimus	Prograf		●	●	●		Both	Any
Telavancin	Vibativ	4.0-5.0	●	●	●	Max concentration 8mg/ml	Intermittent	Any

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Generic Name	Brand Name	pH	LINE TYPE**			Comments	Intermittent vs. Continuous	Length of therapy
			P	M	C			
TPN>900mOsm		Variable				Risk of Phlebitis	Both	Any
Tygecycline	Tygacil	7.7-8.2					Both	Any
Valproate	Depacon	7.6					Both	Any
Vancomycin	Vancocin	2.4-5				Concentration must be no more than 5mg/ml for peripheral or midline administration. Assess site regularly for signs of infiltration/phlebitis	Intermittent	For treatment >7 days consider central line.
Vasopressin	Pitressin		 *			*Peripheral line only in emergencies. Central line recommended as soon as possible.	Both	Any

 =ok
  =use caution
  =not recommended

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