

**UConn JOHN DEMPSEY HOSPITAL
ANTIMICROBIAL STEWARDSHIP COMMITTEE
M E M O R A N D U M**

To: Medication Safety Committee Members
From: Gillian Kuszewski, PharmD and David Banach, MD – Antimicrobial Stewardship Co-Chairs
RE: Midline Catheter Guideline
Date: January 29, 2019

In an effort to minimize central line blood infections, Infection Prevention has increased awareness of providers in the use of midline catheters for venous access. Below is a guideline regarding medication administration via these catheters.

Medication Considerations for Midline Catheters



There are 3 main types of central venous catheters; central line (internal jugular, subclavian, femoral lines), PICC (peripherally inserted central line) and midline catheters. Midline catheters, which vary in length, are inserted via the same veins used for PICC placement in the middle third of the upper arm; however, the midline catheter is advanced and placed so that the catheter tip is level or near the level of the axilla and distal to the shoulder.

Midline catheters are *preferred* over PICCs for either: 1. Difficult peripheral venous access and 2. Frequent phlebotomy - for use less than 14 days (Chopra, et al). That said, the FDA approval for midline catheters is up to 30 days though after the first 14 days there is an increasing risk of catheter clotting/malfunction.

Midline catheters are contraindicated when there is a history of venous thrombosis, restricted blood flow to the extremities, and end-stage renal disease requiring peripheral vein preservation. **Recognize a midline is NOT a central venous access device and should never be used for continuous vesicant infusions, total parental nutrition (TPN), chemotherapy, solutions greater than 600 mOsm/L, and those infusions that mandate central line-only administration.**

When determining the optimal venous access, medications and other infusions should be considered on an individual patient basis. The greatest concern is the potential extravasation of vesicant drugs, and any drugs known to be irritants should be avoided whenever possible. If central access cannot be obtained, short courses of therapy may be well tolerated, but risk should be evaluated and staff should be familiar with techniques for the management of extravasation.

The following should also be avoided in midline catheters**:

acyclovir	amiodarone	amphotericin B*	ampicillin/sulbactam*	azithromycin*
calcium chloride	calcium gluconate	caspofungin*	contrast media – nonionic*	dexrazoxane*
dextrose concentration ≥10%	dobutamine	epinephrine	foscarnet*	fosphenytoin*
ganciclovir	gentamicin*	iron dextran*	levofloxacin*	mannitol ≥20%
meropenem*	morphine sulfate*	nafcillin*	norepinephrine	oxacillin*
pamidronate*	pentamidine	pentobarbital	phenobarbital	phenylephrine
phenytoin	potassium chloride (≥40 mEq)*	promethazine	protein solutions >5%	sodium bicarbonate
sodium chloride ≥3%	sulfamethoxazole/trimethoprim*	tobramycin*	TPN, exceeding 600mOsm/L	vancomycin*
vasopressin	zidovudine*			

*may be ok with short courses of therapy (not to exceed 3 days) with close monitoring

**This is not a comprehensive list and only provides examples of common medications that should not be administered via midline catheters. For specific drugs not found on this list, consult Trissel's Handbook for Injectable drugs, medication package inserts or contact the pharmacy.

References:

1. Integrated Vascular Services LLC. *Drugs to be infused through A central line (PICC line)*. <https://www.ivs1.com/images/centralline.pdf>. 2006.
2. Visiting Nurse and Hospice Care. *Considerations for home infusion therapy*. https://www.vnhcsb.org/media/data/papers/pdf/593_25.ApdexD.3.pdf. 2010.
3. Alexandrou, Evan & Ramjan, Lucie & Spencer, Timothy & Frost, Steven & Salamonson, Yenna & Davidson, Patricia & M. Hillman, Ken. (2011). *The Use of Midline Catheters in the Adult Acute Care Setting - Clinical Implications and Recommendations for Practice*. *Journal of the Association for Vascular Access*. 16. 35-41. 10.2309/java.16-1-5.
<https://www.researchgate.net/publication/233547486> *The Use of Midline Catheters in the Adult Acute Care Setting - Clinical Implications and Recommendations for Practice*
4. MedComp. *Midline education card*. https://www.medcompnet.com/products/pdf/brochures/piccs/PN2513_A_UNIVERSAL_PICC_Midline_Education_Card.pdf. Updated 2011. Accessed January 21, 2019.
5. IV Therapy. *Intravascular device selection*. <https://www.iv-therapy.net/pdf/deviceselection.pdf>. Accessed January 21, 2019.
- Gorski L. A. (2017). *Fast Facts for Nurses about Home Infusion Therapy: The Expert's Best Practice Guide in a Nutshell*. New York, NY: Springer Publishing Company.
[\[Context Link\]](#)
6. Gorski L. A., Hadaway L., Hagle M., McGoldrick M., Orr M., Doellman D. (2016). *Infusion therapy standards of practice*. *Journal of Infusion Nursing*, 39(1S), S1-S159.
[\[Context Link\]](#)
7. Gorski L.A., Stranz M., and Cook L. et al. *Noncytotoxic Vesicant Medications and Solutions*. Infusion Nurse Society. 2016.
8. Chopra V, Flanders SA, Saint S, Woller SC, O'Grady NP, Safdar N, et al. The Michigan Appropriateness Guide for Intravenous Catheters (MAGIC): Results From a Multispecialty Panel Using the RAND/UCLA Appropriateness Method. *Ann Intern Med*. ;163:S1–S40.