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# Medications and Solutions Appropriate for Midline Infusion

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## Introduction/Problem

- The Venous Access Team (VAT) has been the resource for medications appropriate for midline use. This information was not available on the intranet.
- Venous access options for clinicians is now streamlined with this tool that identifies medication appropriate for peripheral IV (piv), midline and PICC. The medications requested for midline infusion has been increasing, making it difficult for the VAT to have that information readily available to the clinical team.
- Medications and solutions can be given via a PIV and/or central line but not through a midline.
- An on-line search will not yield a midline infusate list consistent with BIDMC policy.
- Options for patient vascular access have increased with new technology. Often a patient's access is diminished with long hospital stays; this has changed the reason/volume for midline requests.

## The Interventions

- The venous access team had been working with a list of antibiotics appropriate for home infusion for midlines requested for discharge. The list became incomplete as the indications for midlines increased ie difficult venous access, frequent lab draws, out-patient contrast bolus injection.
- The pharmacy department was consulted when the midline list did not include the specific medication or solution on the midline list.
- The Vascular Access nurses kept a list of the added medications; the list needed to be validated by the pharmacy department and made available to BIDMC clinicians and nurses.
- The vascular access nurse worked closely with pharmacy to develop a tool listing the most common infusates used in the medical center.
- Creation of a quick reference tool on the portal for all to access when patients have a midline or require selection of appropriate vascular access device when medications are ordered.

## Aim/Goal

- Provide an intranet resource identifying commonly requested medications for midline placement requests.
- Utilize tool to appropriately identify patients where a midline would help to decrease number of repeat PIV insertions throughout admission

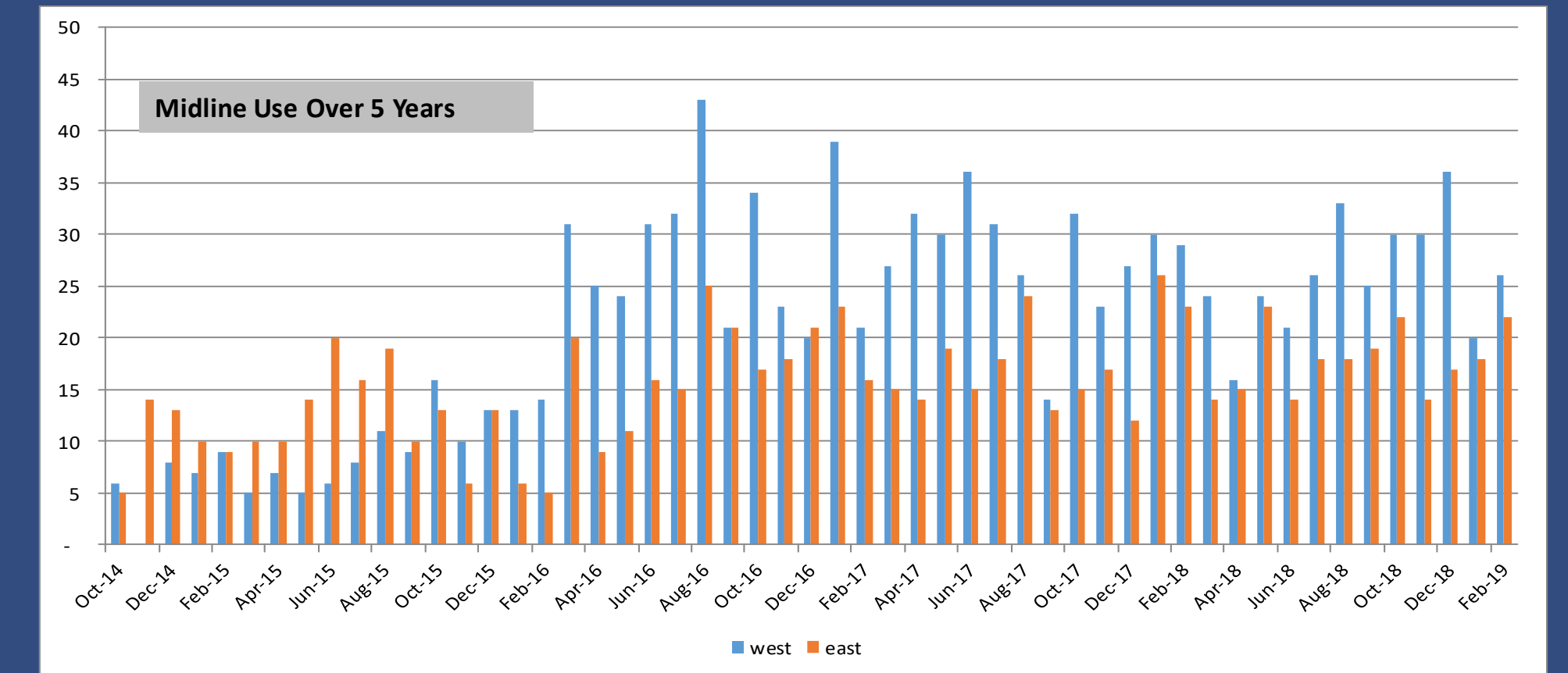
## The Team

- Isabel K. Hopper, RN, VA-BC, Venous Access Team
- Marie Horgan, RN, Venous Access Team
- Andrew Mackler, RN, MHA, CNIV, VA-BC Venous Access Team
- Monica V. (Golik) Mahoney, PharmD, BCPS-AQ ID, BCIDP
- Blanche Murphy, RN VA-BC, CNIV, BSN, Venous Access Team

## The Results

- [Nursing Manual \(Nursing Manual\)](#)
- [200-7 IV Therapy Flushing Guidelines](#)
- [Pharmacy Clinical Guidelines \(Pharmacy\)](#)
- [Midline Venous Catheter Medication Guideline](#)

Generic Name	Trade Name	PIV	Midline	PICC	pH	mOsm/kg	Diluent	Phlebitis	Ref.	BIDMC P&P	Comments
Acyclovir < 700 mg	Zovirax	Yes	NO	Yes	11	316	NS 100mL	Yes	1,3	PIV or central	Per ID PICC recommended
Acyclovir ≥ 700 mg	Zovirax	Yes	NO	Yes	11	316	NS 250mL	Yes	1,3	PIV or central	Per ID PICC recommended
Algaltraban		Yes	NO	Yes	3.2-7.5		NS 250mL		3	Central line	no data
Amikacin	Amikin	Yes	NO	Yes	3.5-5.5	349	NS 100mL	Yes	1, 3	PIV or central	no data
Amiodarone		Yes	NO	Yes	4.1		NS 250mL	Yes	1, 3	Central line preferred if available	no data
Ampicillin 1 & 2 gm		Yes	NO	Yes	8-10	328-372	NS 100mL		1, 3	PIV or central	
Ampicillin and Sulbactam 1.5 & 3 gm	Unasyn	Yes	Yes	Yes	8-10		NS 100mL	Yes	3	PIV or central	may cause phlebitis
Azithromycin 250 & 500 mg	Zithromax	Yes	NO	Yes	6.4-6.6	~280	NS 100mL	Yes	1, 3, 4	PIV or central	
Aztreonam 1 & 2 gm	Azactam	Yes	Yes	Yes	4.5-7.5		NS 100mL		3	PIV or central	
Cefazolin 1 & 2 gm	Ancef	Yes	Yes	Yes	4.5-7	317-351	NS osmotic diluent 50mL		1, 3	PIV or central	may cause phlebitis

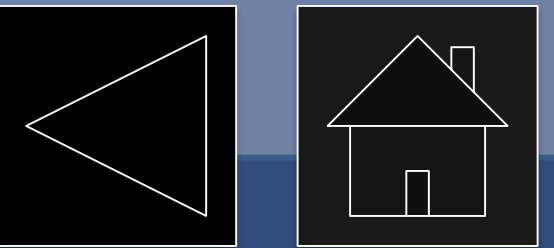


- Increased compliance with less risk of inappropriate medications being infused via midlines.
- Less delay in treatment of patients with ability to quickly validate proper access.
- Increased use of midlines on both campuses (see Chart: Blue=West Campus/Orange=East)

Guidelines for Midline Catheter Medication Administration added to Pharmacy Clinical Guidelines (2019) after approval by Pharmacy Committee and Nursing Practice Council

**For more information, contact:**

**Isabel K. Hopper, RN VA-BC Venous Access Team 617-632-0952**



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## More Results/Progress to Date

Generic Name	Trade Name	PIV	Midline	PICC	pH	mOsm/kg	Diluent	Phlebitis	Ref.	BIDMC P&P	Comments
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Acyclovir ≥ 700 mg	Zovirax	Yes	NO	Yes	11	316	NS 250mL	Yes	1-3	PIV or central	Per ID PICC recommended
Argatroban		Yes	NO	Yes	3.2-7.5		NS 250mL		3	Central line	
Amikacin	Amikin	Yes	NO	Yes	3.5-5.5	349	NS 100mL		1, 3	PIV or central	no data
Amiodarone		Yes <i>caution</i>	NO	Yes	4.1		NS 250mL	Yes	1, 3	Central line preferred if concentration > 2mg/mL Dedicated line	*VAT noted phlebitis not uncommon
Ampicillin 1 & 2 gm		Yes	NO	Yes	8-10	328-372	NS 100mL		1, 3	PIV or central	
Ampicillin and Sulbactam 1.5 & 3 gm	Unasyn	Yes	Yes	Yes	8-10		NS 100mL	Yes	3	PIV or central May cause phlebitis	
Azithromycin 250 & 500 mg	Zithromax	Yes	NO	Yes	6.4-6.6	~280	NS 250mL	Yes	1, 3, 4	PIV or central	
Aztreonam 1 & 2 gm	Azactam	Yes		Yes	4.5 – 7.5		NS 100mL		3	PIV or central	
Cefazolin 1 & 2 gm	Ancef	Yes	Yes	Yes	4.5-7	317-351	Iso-osmotic dextrose 50mL		1, 3	PIV or central May cause phlebitis	

Midline Appropriateness Chart for use by Clinicians (Found on the Portal)

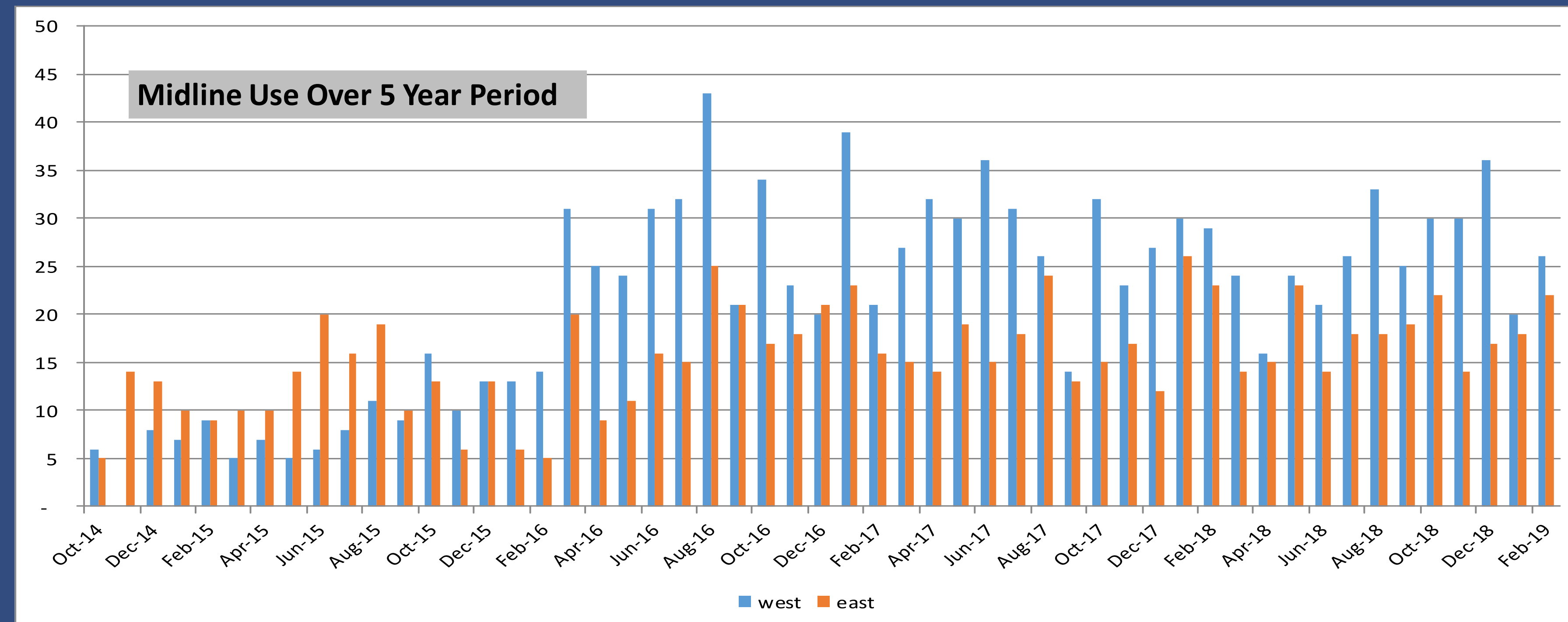


Chart demonstrating increased use of midlines over 5 year period

## Lessons Learned

- Working with a collaborator from a different department brings depth to a project.

## Next Steps

- When a medication revision is due the **Pharmacy Policies & Procedures Manual (Pharmacy)** midline appropriateness will be added.

*For more information, contact:*

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