

MIDLINES FROM THE INFECTION PREVENTION SIDE OF THE TABLE

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DISCLOSURES

- Michelle DeVries is sponsored by Access Scientific.

OBJECTIVES

- Describe the current evidence regarding the use of midlines as part of a CLABSI reduction strategy
- Conduct a review of CLABSI and PIV bloodstream infection cases to identify patients who may have been candidates for a midline catheter instead
- Collaborate with Infection Prevention to determine mutually agreeable objectives for a safe and monitored framework for a robust midline program

HERE'S WHAT I'M NOT GOING TO TALK ABOUT

- What you can infuse
- What you should not infuse

This is a presentation focused on infection prevention strategies in midlines...which is a separate conversation

OPENING QUESTIONS...

- How is your performance on Hospital Compare? For CLABSIs? For MRSA Lab ID events? For C. diff?
 - This interpretation does not equate with whether or not VBP thresholds were made
- How is your performance on state based public reporting?
- How has rebaselining impacted internal and external targets?
- How is central line utilization?
 - Specific units or types of units with high utilization?
 - Is there an understanding of "why" the central lines are used? Is there a policy?
 - What percent of your PICCs are placed for difficult access?
 - How many "drive-by PICCs"?
- For Vascular Access teams...
 - Are there other infections that go unreported (opinion)?
 - Do you have ongoing dialogue with Infection Control about the above measures?
 - Are you involved in developing and managing the action plans around these measures?
 - Are you part of the Value Analysis teams? Shared Governance councils? How is your expertise communicated to the organization?

VALUE BASED PURCHASING...

- It's more than just the ICU that "matters" now

Healthcare-Associated Infections			
	Baseline Period	Performance Period	
	January 1, 2015 – December 31, 2015	January 1, 2017 – December 31, 2017	
Measure	Threshold (†)	Benchmark (‡)	
CLABSIS [§]	0.850**	0.000**	
CAUTI [¶]	0.822**	0.000**	
SSI Colon [§]	0.783**	0.000**	
Abdominal Hysterectomy [§]	0.762**	0.000**	
C. difficile	0.924**	0.113**	
MRSA Bacteremia	0.854**	0.000**	

†Includes selected ward (non-ICU) locations.
 ‡Standardized infection ratio.
 §There will be one SSI measure score that will be a weighted average based on predicted infections for both procedures.
 ¶PSI-09 threshold and benchmark updated based on AHRQ software recalibration.
 **TAM thresholds and benchmarks updated utilizing new 2015 re-baselining data.

IDENTIFYING EXISTING RISKS

- Prior to the 2016 Infusion Therapy Standards of practice there was no true maximum number of peripheral IV attempts that were permitted in standards.
- 2011 standards said no more than 2 attempts per clinician
 - In an effort to "get the line" patients may be repeatedly stuck.
 - How do we accurately capture number of attempts?
 - With *S. aureus* as a frequently isolated pathogen in PIV associated bloodstream infections this association may be significant

STARTING WHERE IT STARTS: EMERGENCY ROOM

- Several studies have examined the role of ER started peripheral IV catheters and their risk of bloodstream infection
- Internal review of data suggests that over 40% of all PIVs may be started in the ER
 - Failure of these catheters can set up a cascade for future lines
- Obtaining early reliable cannulation in the ER can impact overall hospitalization
- Recent studies have suggested significant success and improved outcomes with ER initiated, ultrasound guided midlines (8-10 cm)
 - Absence of visible/palpable veins or 2 or more failed PIV attempts
 - 73% lasted beyond 7 days
 - Placed with sterile drape, sterile gel and probe cover
- Our ER program kicked off in April 2017

Scoppetolo, G., et al. (2016). "Ultrasound-guided "short" midline catheters for difficult venous access in the emergency department: a retrospective analysis." *JLL Emerg Med* 9(1): 3

MIDLINES FOR DIFFICULT ACCESS

- Selecting a site most likely to last the patient's full course of therapy may also include consideration of a midline, particularly as ultrasound becomes the expectation for difficult access and failed attempts
 - Better first stick success
 - Lower complication rate (phlebitis/infiltration)
 - Lower risk of infections
 - Longer dwell time possible
 - Enhanced vessel preservation
 - Improved use of nursing resources
- Take into consideration that every failure increases risk of future failure and that a recent study suggests that a large percentage (79%) of peripheral IV associated *S. aureus* infections occurred at old IV sites (and 29% of those assessments were missed by the bedside staff)

Austin, E. D., et al. (2016). "Peripheral Intravenous Catheter Placement is an Underrecognized Source of Staphylococcus aureus Bloodstream Infection." *Open Forum Infect Dis* 3(2): ofw072

UNDERSTANDING NHSN DATA FOR TARGETED IMPROVEMENTS

- Device utilization ratios/standardized utilization ratios (SUR)
- Lab ID events for MRSA
- CLABSI rates and standardized infection ratios (SIR)
- TAP analysis

• These are all tools that your Infection Preventionists can show you how to access and analyze

STANDARDIZED UTILIZATION RATIOS

Summary Yr	Central Line Days	Number Predicted Device Days	SUR	SUR p-value	95% Confidence Interval
2016	20758	24294.903	0.854	0.0000	0.843, 0.866

Location Type	Summary Yr	Central Line Days	Number Predicted Device Days	SUR	SUR p-value	95% Confidence Interval
CC	2016	4586	4,705.114	0.974	0.0004	0.947, 1.003
CC-N	2016	519	741.672	0.700	0.0000	0.641, 0.762
STEP	2016	5050	5,287.354	0.968	0.8720	0.971, 1.025
WARD	2016	7818	9,506.675	0.822	0.0000	0.804, 0.841
WARD-Onc	2016	2580	4,073.087	0.633	0.0000	0.609, 0.658

CC Location	Summary Yr	Central Line Days	Number Predicted Device Days	SUR	SUR p-value	95% Confidence Interval
INACUTE-CC-C	2016	1737	1,819.487	0.995	0.0533	0.911, 1.050
INACUTE-CC-MS	2016	1997	1,914.962	1.043	0.0037	0.998, 1.089
INACUTE-CC-N	2016	852	971.666	0.877	0.0001	0.819, 0.937
INACUTE-CC-NURS	2016	519	741.672	0.700	0.0000	0.641, 0.762
INACUTE-STEP	2016	5050	5,287.354	0.998	0.8720	0.971, 1.025
INACUTE-WARD-MS	2016	7900	9,306.092	0.951	0.0000	0.913, 0.980
INACUTE-WARD-MS PED	2016	10	111.583	0.090	0.0000	0.046, 0.160
INACUTE-WARD-Onc HONC	2016	2580	4,073.087	0.633	0.0000	0.609, 0.658

DEVICE UTILIZATION BY UNIT

Location	Summary Yr	Month	Central Line Days	Number Predicted Device Days	SUR	SUR p-value	95% Confidence Interval
Stepdown 1	2016	12	1154	880.347	1.311	0.0000	1.237, 1.388
Stepdown 2	2016	12	1268	1,011.399	1.254	0.0000	1.186, 1.324
Stepdown 3	2016	12	1424	1,893.823	0.752	0.0000	0.714, 0.792
Med surg 1	2016	12	725	1,286.028	0.560	0.0000	0.520, 0.602
Med surg 2	2016	12	833	1,079.001	0.772	0.0000	0.721, 0.826
Peds - MS1	2016	12	10	58.855	0.170	0.0000	0.086, 0.303
Med surg 3	2016	12	1595	1,730.292	0.922	0.0010	0.877, 0.968
Med surg 4	2016	12	458	720.825	0.630	0.0000	0.574, 0.690
Decubid	2016	9	2580	4,073.087	0.633	0.0000	0.609, 0.658
Med surg 5	2016	12	1036	1,090.331	0.950	0.1012	0.884, 1.009
Med surg 6	2016	12	1403	1,271.235	1.104	0.0003	1.047, 1.163
Med surg 7	2016	12	441	517.029	0.853	0.0007	0.776, 0.935
Med surg 8	2016	12	1317	1,685.349	0.781	0.0000	0.740, 0.825
Stepdown 4	2016	12	1409	1,481.788	0.951	0.0089	0.902, 1.002
ICU 1	2016	12	1997	1,914.962	1.043	0.0037	0.986, 1.089
ICU 2	2016	12	852	971.666	0.877	0.0001	0.819, 0.937
Peds - MS 2	2016	12	0	52.728	0.000	0.0000	0.057
NMICU 1	2016	12	470	700.374	0.671	0.0000	0.612, 0.734
NMICU 2	2016	12	49	41.298	1.186	0.2357	0.887, 1.556
ICU 3	2016	12	1737	1,819.487	0.955	0.0533	0.911, 1.000

1. This report includes central line utilization data from units open throughout 2016 and forward.
2. The SUR is only calculated if number of available device days (sum(PredictedDays) >= 1. Lower bound is 0.
3. The confidence interval is only reported if the number of available device days is greater than 100.
4. The reported device utilization ratios are calculated based on predicted device days from 2016.
5. The risk adjusted for CCU location is applicable to medical-surgical utilization type, and facility type.
