## Figure 2. Inter-Reviewer Agreement *

### A. All Cases (n=50)

| | fellow 1 | fellow 2 | fellow 3 | attending 1 | attending 2 | attending 3 |
|---|---|---|---|---|---|---|
| fellow 1 | *26%* | 0.49 (0.20,0.79) | 0.23 (-0.08,0.54) | 0.27 (-0.02,0.57) | 0.48 (0.19,0.77) | 0.13 (-0.15,0.40) |
| fellow 2 | | *20%* | 0.34 (0.02,0.66) | 0.39 (0.10,0.67) | 0.27 (-0.04,0.58) | 0.03 (-0.24,0.30) |
| fellow 3 | | | *22%* | 0.35 (0.06,0.64) | 0.23 (-0.08,0.54) | 0.17 (-0.14,0.48) |
| attending 1 | | | | *32%* | 0.18 (-0.12,0.47) | 0.08 (-0.15,0.31) |
| attending 2 | | | | | *26%* | 0.13 (-0.15,0.40) |
| attending 3 | | | | | | *8%* |

### B. Cases not meeting NHSN criteria for CAUTI (n=34)

| | fellow 1 | fellow 2 | fellow 3 | attending 1 | attending 2 | attending 3 |
|---|---|---|---|---|---|---|
| fellow 1 | *12%* | 0.15 (-0.35,0.65) | -0.06 (-0.51,0.39) | 0.02 (-0.52,0.55) | 0.26 (-0.25,0.77) | -0.03 (-0.36,0.31) |
| fellow 2 | | *12%* | 0.14 (-0.40,0.68) | 0.35 (-0.16,0.87) | 0.10 (-0.45,0.64) | -0.23 (-0.53,0.07) |
| fellow 3 | | | *21%* | 0.33 (-0.16,0.82) | 0.33 (-0.16,0.82) | -0.20 (-0.43,0.03) |
| attending 1 | | | | *26%* | 0.24 (-0.30,0.78) | 0.03 (-0.37,0.44) |
| attending 2 | | | | | *18%* | 0.03 (-0.37,0.44) |
| attending 3 | | | | | | *6%* |

### C. Cases meeting NHSN criteria for CAUTI (n=16)

| | fellow 1 | fellow 2 | fellow 3 | attending 1 | attending 2 | attending 3 |
|---|---|---|---|---|---|---|
| fellow 1 | *56%* | 0.72 (0.33,1.00) | 0.47 (0.06,0.87) | 0.36 (-0.02,0.73) | 0.53 (0.12,0.95) | 0.28 (-0.25,0.81) |
| fellow 2 | | *38%* | 0.47 (0.06,0.87) | 0.36 (-0.02,0.73) | 0.23 (-0.08,0.54) | 0.28 (-0.25,0.81) |
| fellow 3 | | | *25%* | 0.35 (-0.03,0.73) | 0.15 (-0.25,0.54) | 0.39 (-0.02,0.80) |
| attending 1 | | | | *44%* | 0.07 (-0.29,0.43) | 0.09 (-0.21,0.40) |
| attending 2 | | | | | *44%* | 0.18 (-0.25,0.59) |
| attending 3 | | | | | | *13%* |

\* Responses grouped as "yes" vs "no or unclear"; diagonal squares (bold, italic) = % of responses that were yes; other cells contain Kappa statistic (95% CI) for pairs of reviewers

## Figure 3: Inter-reviewer agreement allowing for three responses

### A. All Cases (n=50)

| | fellow 1 | fellow 2 | fellow 3 | attending 1 | attending 2 | attending 3 |
|---|---|---|---|---|---|---|
| fellow 1 | *26%* | 0.51 (0.24,0.79) | 0.26 (-0.03,0.56) | 0.28 (0.01,0.55) | 0.26 (0.09,0.43) | 0.14 (-0.09,0.37) |
| fellow 2 | | *20%* | 0.34 (0.05,0.63) | 0.36 (0.10,0.61) | 0.22 (0.05,0.38) | 0.07 (-0.15,0.28) |
| fellow 3 | | | *22%* | 0.41 (0.17,0.65) | 0.09 (-0.08,0.26) | 0.05 (-0.20,0.29) |
| attending 1 | | | | *32%* | 0.06 (-0.13,0.24) | 0.01 (-0.18,0.21) |
| attending 2 | | | | | *26%* | 0.04 (-0.14,0.21) |
| attending 3 | | | | | | *8%* |

### B. Cases not meeting NHSN criteria for CAUTI (n=34)

| | fellow 1 | fellow 2 | fellow 3 | attending 1 | attending 2 | attending 3 |
|---|---|---|---|---|---|---|
| fellow 1 | *12%* | 0.19 (-0.27,0.66) | -0.01 (-0.43,0.42) | 0.07 (-0.43,0.56) | 0.19 (-0.18,0.56) | 0.06 (-0.25,0.38) |
| fellow 2 | | *12%* | 0.15 (-0.29,0.60) | 0.32 (-0.12,0.76) | 0.22 (-0.17,0.62) | -0.19 (-0.49,0.10) |
| fellow 3 | | | *21%* | 0.42 (0.05,0.80) | 0.17 (-0.01,0.34) | -0.26 (-0.45,-0.08) |
| attending 1 | | | | *26%* | 0.21 (-0.15,0.58) | 0.00 (-0.34,0.34) |
| attending 2 | | | | | *18%* | -0.10 (-0.40,0.19) |
| attending 3 | | | | | | *6%* |

### C. Cases meeting NHSN criteria for CAUTI (n=16)

| | fellow 1 | fellow 2 | fellow 3 | attending 1 | attending 2 | attending 3 |
|---|---|---|---|---|---|---|
| fellow 1 | *56%* | 0.72 (0.33,1.00) | 0.47 (0.06,0.87) | 0.32 (-0.03,0.67) | 0.22 (0.02,0.42) | 0.14 (-0.25,0.53) |
| fellow 2 | | *38%* | 0.47 (0.06,0.87) | 0.32 (-0.03,0.67) | 0.17 (-0.01,0.34) | 0.27 (-0.10,0.64) |
| fellow 3 | | | *25%* | 0.39 (0.05,0.73) | 0.00 (-0.20,0.21) | 0.24 (-0.12,0.60) |
| attending 1 | | | | *44%* | -0.06 (-0.27,0.15) | -0.01 (-0.25,0.24) |
| attending 2 | | | | | *44%* | 0.10 (-0.13,0.34) |
| attending 3 | | | | | | *13%* |

\* Responses grouped as "yes", "no", or "unclear" (separately); diagonal squares (bold, italic) = % of responses that were yes; other cells contain Kappa statistic (95% CI) for pairs of reviewers

especially in patients with abnormal genitourinary (GU) anatomy. Our study assessed inter-provider variability in diagnosing CAUTI in 50 such patients, including those meeting NHSN(National healthcare safety network) criteria. **Methods:** We included a random set of 50 adults (18+) with abnormal GU anatomy admitted to the University of Miami hospitals from January 2018 to November 2021 who had a urinary foley catheter and at least one positive urine culture during their hospitalization. Three Infectious disease fellows and three board-certified Infectious disease physicians independently reviewed each patient's chart, classifying them as having or not having a CAUTI. Inter-physician reliability was assessed using kappa statistics. **Results:** Our findings highlight substantial variation in clinician-determined CAUTI incidence among the 50 patients with abnormal GU anatomy, ranging from 8% to 32% (Figures 2,3). Inter-rater agreement on CAUTI diagnosis was generally poor (Kappa Hollenbeak CS, et al. The attributable cost of catheter-associated urinary tract infections in the United States: A systematic review. Am J Infect Control. 2018 Jul;46(7):751-757. Trautner BW, et al. Development and validation of an algorithm to recalibrate mental models and reduce diagnostic errors associated with catheter-associated bacteriuria. BMC Med Inform Decis Mak. 2013 Apr 15;13:48. Gafary M, et al. Catheter Associated Urinary Tract Infections (CAUTI) in Bladder Cancer Patients Post Cystectomy With a Neobladder, Open Forum Infectious Diseases, Volume 2, Issue suppl_1, December 2015, 293.

**Presentation Type:**
Poster Presentation - Poster Presentation
**Subject Category:** CLABSI
**The Next Target for Readmission Reporting? Exploring Readmission Rates of Patients with CLABSI**
Caitlin Crews-Stowe, University of Tennessee at Chattanooga and Elliot Sklar, Nova Southeastern University

**Background:** Multi-drug resistant organisms (MDROs) are a common cause of healthcare-associated infections, particularly central line-associated bloodstream infections (CLABSIs). Prior research has shown that MDROs cause up to 67% of CLABSIs and have up to a 37% increase in 30 day readmission, which is higher than readmission rates for other conditions reported to the Centers for Medicare and Medicaid Services (CMS). The objective of the study was to determine overall 90-day readmission rates, and if there was a difference in readmission rate within 90 days post discharge for patients who had a MDRO as the causative pathogen of their CLABSI compared to patients who did not have an MDRO. **Methods:** A retrospective analysis of patient data from a nine-hospital system was performed on patients who had a CLABSI and were discharged alive between January 1st, 2018, and December 31st, 2019. Basic descriptive statistics were performed, and the potential differences in readmission rates were examined using Chi-square analyses. **Results:** The overall readmission rate for all CLABSIs was 46.9%. The chi-square analysis determined there was not a significant difference in readmission rates in patients who had a MDRO CLABSI compared to patients with a non-MDRO CLABSI (59.1% vs. 44.6%, x2= 1.564 , p= 0.211). **Conclusion:** There was not a significant difference in readmission rates between patients with an MDRO CLABSI compared to a non-MDRO CLABSI. However, the overall readmission rate for this patient population was much higher than seen in previous literature and other publicly reported readmission rates. Additional research is recommended to explore if the increased CLABSI readmission rates seen are a unique finding to this health system.
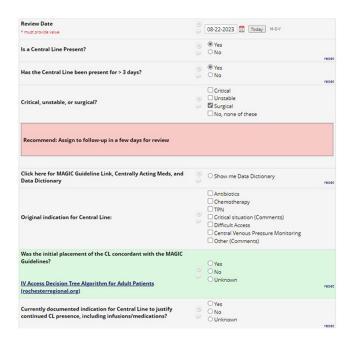
**Presentation Type:**
Poster Presentation - Poster Presentation
**Subject Category:** CLABSI
**The Mechanics, Art, and Value of Central Line Stewardship**
Jennifer Gutowski, Rochester Regional Health; Maryrose Laguio-Vila, Rochester General Hospital; Gaby Razzouk, Rochester Regional Health; Anil Job, Rochester Regional Health; Chris Reynolds, Rochester Regional Health; Elizabeth Duxbury, Rochester Regional Health; Cunningham Kelly, Rochester Regional Health; Farhad Nasar, Rochester Regional Health and Emil Lesho, Rochester Regional Health

**Background:** Central venous catheter (CVC) utilization and central-line associated bloodstream infection (CLABSI) have increased nationwide. Busy providers can easily overlook the recommended practice of daily assessment of the ongoing indication for CVC. Prospective audit and

**Review Date** *must provide value*  08-22-2023  Today  M-D-Y

**Is a Central Line Present?**  ● Yes  ○ No  reset

**Has the Central Line been present for > 3 days?**  ● Yes  ○ No  reset

**Critical, unstable, or surgical?**
☐ Critical
☐ Unstable
☑ Surgical
☐ No, none of these

**Recommend: Assign to follow-up in a few days for review**

**Click here for MAGIC Guideline Link, Centrally Acting Meds, and Data Dictionary**  ○ Show me Data Dictionary  reset

**Original indication for Central Line:**
☐ Antibiotics
☐ Chemotherapy
☐ TPN
☐ Critical situation (Comments)
☐ Difficult Access
☐ Central Venous Pressure Monitoring
☐ Other (Comments)

**Was the initial placement of the CL concordant with the MAGIC Guidelines?**
○ Yes
○ No
○ Unknown

**IV Access Decision Tree Algorithm for Adult Patients (rochesterregional.org)**  reset

**Currently documented indication for Central Line to justify continued CL presence, including infusions/medications?**
○ Yes
○ No
○ Unknown
reset

**Non-justified reasons for Central Line:**
☐ Poor IV access
☐ Frequent Blood Draw
☐ No justified indication
☐ Other

**Based on Chart Review, any concerns about a Central Line complication or changing a medication?** (i.e. - suspect DVT, local dressing skin reaction, infection of line)
○ Yes
○ No
○ Unknown
reset

**The outcome of previous Central Line Stewardship recommendation:**
○ Accepted
○ Modified
○ Declined
○ First Review
○ Not Applicable (no previous recommendation or other)
○ Cannot determine
reset

**Central Line Stewardship recommendation made?**
☐ Remove Central Line
☐ Replace Central Line with a different line
☐ Place new Central Line
☐ Please document expected removal date and continue to assess need daily (Plan for future removal)
☐ Keep line due to justification (for now)
☐ Consider Vascular Access Team Consult

**Central Line Stewardship recommendation comments?**  Expand

**Next Review Date:**  08-25-2023  Today  M-D-Y

**Don't need to review again (remove from review lists)**  ○ Take off future review lists  reset

**Comments**  Expand

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**Central Line Stewardship (CLS) Team Recommendations**

The CLS team would like to make the following suggestions:

**Please consider removing the Central Line.**

**Please consider updating the patient's lines and drains avatar for increased accuracy.**

*Intravenous therapies, phlebotomy needs, infection risk, thrombosis risk, microbiologic data, and renal function have been considered in formulating our suggestions. We have not interviewed or examined the patient. Therefore, our suggestions should be considered in conjunction with all other patient factors. Our review is intended to support best practices and provide assistance in optimizing the use of intravenous lines in order to limit unintended consequences such as central line associated bloodstream infection (CLABSI), inadequate drug delivery access, inability to draw critical labs, deep vein thrombosis, and venous stenosis.*

Upon chart review, this patient was identified as having a central venous catheter eligible for CLS team review.

The following information was noted:

| Lines and Drains | |
| --- | --- |
| CVC Line | Duration |
| CVC Triple Lumen 03/25/23 Left Internal jugular | 9 days |

On chart review, the patient is on IV antibiotics, but they are being given via hemodialysis on dialysis days only. Per the MAR, no other IV medications are currently ordered.

Please consider that the following criteria are needed to justify the need for continued central venous access:
- Medically unstable or in need of critical care
- Receiving a medication that requires central venous access for administration, such as
  - Chemotherapy
  - Total parenteral nutrition
  - Others as per the RGH Guidelines link.

As the patient does not meet any of these other criteria, please know that the CLS team would like to make the following suggestion:
- Please consider removing the Central Line.

The risks of continued central venous access may outweigh the benefits.

Please also consider updating the patient's LDA to improve accuracy. It is noted that the patient has a peripheral IV line in place since March 20, and an arterial line since March 25. If these are true, please consider that the risks of continued presence on a patient likely outweigh the benefits.

For more information, please see the IV Access Protocol and Guidelines located at this link.

Please remember that our suggestions are NOT a substitute for clinical reasoning and that the CLS program does not formally follow the patient.
If you have any questions, please feel free to page or call any member of the CLS program:

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feedback (PAF) is widely used and the gold standard for antibiotic steward-ship programs (ASP), but reports involving PAF for device use are scarce. Therefore, we decided to evaluate the usefulness and feasibility of PAF for reducing device utilization and ultimately CLABSI rates at our 528-bed tertiary care hospital. **Methods:** A PAF-based Central Line Stewardship (CLS) initiative was launched in February 2023, with a team of hospitalists, infectious diseases physicians, health informatics, vascular access nurses, and infection preventionists. On business days, CVC line-lists were exported from the electronic medical record (EMR), into a REDCap (Research Electronic Data Capture) database for team members to evaluate, in real-time, all non-ICU CVCs in place for more >72 hours (Figures 1 and 2). For CVCs eligible for stewardship, CLS members placed Legal-approved note into the patient's EMR, advising CVC removal or alternative IV access (Figure 3). CVCs continued to be audited until removal or patient discharge. Recommendation outcomes were tracked over the subsequent 72 hours for acceptance. Standardized Utilization Rates (SUR) and Infection Rates (SIR) were calculated and compared using the National Healthcare Safety Network. **Results:** Between February and August 2023, the CLS team reviewed 861 CVCs, representing 581 unique patient encounters, and made 622 recommendations. Recommendations to remove or replace the CVC represented 23.5% (146) of reviews, and 57% of these CVCs were removed within 3 days. 95% of removed lines had no adverse outcomes and did not require reinsertion. Hospital-wide CVC utilization decreased 18.7% from a SUR of 1.006 in the previous year, to 0.818 during the 7-month pilot period (p < .001). In the 4 months following the pilot period, decreased CVC utilization was sustained with an SUR of 0.797. Non-ICU CLABSI SIR decreased from 1.282 in 2022 to 1.024 in 2023 (p=0.36). Average time physician required for CLS review approximated a 0.4 full-time equivalent a week. The intervention was well received, with requests for expansion to urinary catheters. **Conclusion:** CLS safely and significantly reduced device-utilization; directly via docu-mentation and recommendation, and indirectly through increased aware-ness and the Hawthorne Effect. Examples of the "art" of CLS include when to leave a discoverable note and how to determine ongoing need for CVC in a fragile patient.