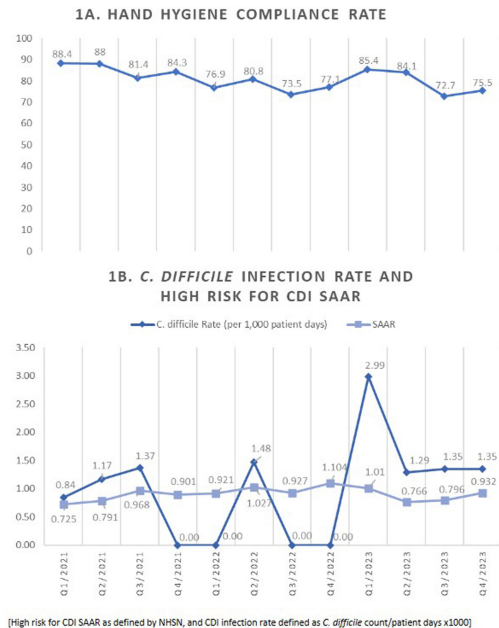


Figure 1. (A) Hand hygiene compliance rate and (B) *C. difficile* infection (CDI) rate, high risk for CDI standardized antimicrobial administration ratio (SAAR) for nephrology unit from 2021-2023



[High risk for CDI SAAR as defined by NHSN, and CDI infection rate defined as *C. difficile* count/patient days x1000]

correlated with high CDI rates. Multicomponent interventions may be required to reduce the rates of HO-CDI in CKD patients. Opportunities include emphasis on diagnostic and antimicrobial stewardship, environmental cleaning and adherence to IPC practices, including hand hygiene.

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Factors Associated with Inappropriate Urine Culture Orders in Hospitalized Patients with Indwelling Urinary Catheters

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Background: Catheter-associated urinary tract infection (CAUTI) is among the most prevalent healthcare-associated infections. Clinical diagnosis of CAUTI and National Healthcare Safety Network (NHSN) definitions do not always align. Most patients with indwelling urinary catheters ultimately develop asymptomatic bacteriuria (ASB) due to bacterial colonization and may be misattributed as CAUTI. Urine cultures ordered on patients with ASB may lead to reporting of non-clinically significant CAUTI to NHSN. We sought to examine factors associated with ordering inappropriate urine cultures in patients with urinary catheters. **Methods:** All CAUTIs that were reported to the NHSN at a large academic medical center in Eastern North Carolina were evaluated from October 2021-July 2023. A logistic regression model was fit for patients treated for urinary tract infection (UTI) with the following covariates: age, sex, time of urine culture order, provider type, and days that the urinary catheter was in place. All data analysis was performed in SAS (SAS Institute Inc., SAS 9.4, Cary, NC: SAS Institute Inc., 2002-2023). **Results:** Table 1 demonstrates patient characteristics stratified by treatment for UTI. The analysis suggests that abnormal results from urine cultures ordered overnight were less likely to be treated with antibiotics, and this result was statistically significant in both the adjusted and unadjusted analyses – see table 2 and 3. The model also suggests abnormal results from urine cultures ordered by housestaff and older patients were more likely to be treated for UTI, but these results were not statistically significant – see table 3. Finally, the longer a catheter was in place the less likely an abnormal urine culture

Table 1: Patient characteristics.

| | Treated for UTI | Not Treated for UTI | n |
|--------------------------------|-----------------|---------------------|----|
| Male Sex | 53 (77.9%) | 15 (22.1%) | 68 |
| Female Sex | 41 (85.4%) | 7 (14.6%) | 48 |
| Average Age | 62 | 54.7 | - |
| Average WBCs/HPF | 112.5 | 104.7 | - |
| Average days catheter in place | 7 | 13.9 | - |
| Dayshift Culture Order | 78 (86%) | 13 (14%) | 91 |
| Nightshift Culture Order | 16 (64%) | 9 (36%) | 25 |
| Attending Ordered | 21 (81%) | 5 (19%) | 26 |
| Midlevel Ordered | 33 (73%) | 12 (27%) | 45 |
| Resident Ordered | 40 (89%) | 5 (11%) | 45 |
| Insertion Maintenance | 44 (85%) | 8 (15%) | 52 |
| ID Consulted | 50 (78%) | 14 (22%) | 64 |
| ID Not Consulted | 8 (8.5%) | 86 (91.5%) | 94 |
| Foley Buddy | 7 (31.8%) | 15 (68.2%) | 22 |
| No Foley Buddy | 73 (78.5%) | 20 (21.5%) | 93 |
| | 14 (93.3%) | 1 (6.7%) | 15 |

Table 2: Unadjusted logistic regression model for time of day of urine culture order (dayshift 7am-6pm, nightshift 6pm-7am).

| | OR | 95% CI | p-value |
|--------------------|------|-----------|---------|
| Night Shift orders | 0.30 | 0.11-0.81 | 0.02* |

Table 3: Results of adjusted logistics regression model.

| | OR | 95% CI | p-value |
|------------------------|------|------------|---------|
| Night Shift orders | 0.21 | 0.061-0.74 | 0.01* |
| Midlevel orders | 0.73 | 0.19-2.8 | 0.65 |
| Housestaff orders | 1.4 | 0.31-6.6 | 0.65 |
| Male Sex | 0.65 | 0.21-2.1 | 0.47 |
| Age | 1.03 | 1.0-1.06 | 0.05 |
| Days catheter in place | 0.89 | 0.83-0.96 | 0.003* |

was to be treated and this finding was statistically significant – see table 3. **Conclusion:** Cultures that did not prompt antimicrobial treatment did not impact patient care decisions and could be considered as inappropriate orders. This can result in CAUTIs reported to NHSN that were not clinically significant. Abnormal results from cultures that were ordered by the overnight team were less likely to be treated for clinical UTI and this may represent an important target for diagnostic stewardship interventions.

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Does Urinary Catheter Replacement Prior To Obtaining Urine for Culture Make a Difference?

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Background: Indwelling urinary catheters (UCs) generate biofilm that grows over time, raising concern that after several days any culture from