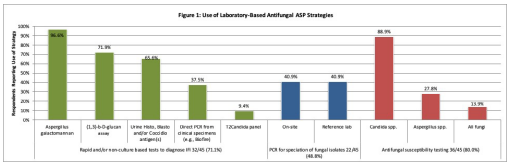
Results. 45/111 (41%) facilities responded, including 10 international sites. Most facilities are academic medical centers (64.6%) and care for stem cell (73.3%) and solid-organ transplant (80.0%) patients. Most facilities have large, well established ASPs (60.0% > 5 members; 68.9% duration ≥6 years). 43 (95.6%) facilities use antifungal stewardship strategies in their ASP; most commonly prospective audit and feedback (33/43, 73.3%) performed by a pharmacist (23/33, 71.4%). Only half of ASPs (51.1%) create guidelines for IFI management. Most (71.1%) facilities offer rapid laboratory tests to diagnose IFI, but availability of PCR for fungal speciation and antifungal susceptibility testing varies (Figure 1). 29 ASPs (64.4%) perform surveillance of antifungal utilization, but only 9 (31.0%) report data to CDC's National Healthcare Safety Network (NHSN). ASP size, ASP duration, and presence of transplant populations were not associated with a higher likelihood of using antifungal stewardship strategies ($P > 0.05$ for all).

Conclusion. Use of antifungal stewardship strategies is high at SRN hospitals, but mainly involves audit and feedback. ASPs should be encouraged to disseminate guidelines for IFI management, to promote access to laboratory-based tests for rapid and accurate IFI diagnosis, and to perform surveillance for antifungal utilization with data reporting to NHSN.



Disclosures. **All authors:** No reported disclosures.

1981. Implementation of an Antifungal Stewardship Bundle Focused on Candidemia in an Indian Hospital

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Background. In India, *Candida* bloodstream infections have a reported incidence of 1–12 per 1,000 admissions and a mortality rate of up to 60%. Antimicrobial stewardship programs (ASP) can improve quality of care and clinical outcomes. This study evaluates the impact of a comprehensive candidemia ASP bundle in a hospital in southern India with an established stewardship program.

Methods. A single-center, pre-post quasi-experimental study was conducted at a tertiary-care center in southern India to analyze the impact of an ASP care bundle for the management of adults with candidemia. During the intervention period (October 2017–December 2018), the ASP provided recommendations to providers in accordance with the 2016 IDSA Guidelines for the Management of Candidemia, which included the following bundle: (1) appropriate selection and dosing of antifungal therapy; (2) repeat blood cultures every 48 hours until clearance; (3) removal of central venous catheters and other potential removable foci of infection; (4) echocardiogram; (5) ophthalmologic evaluation; and (6) appropriate duration of therapy. The primary outcome was initiation of appropriate antifungal therapy. Additional clinical outcomes were also compared with a historical cohort.

Results. One hundred and four patients with candidemia were included: 52 in the pre-intervention and 52 in the post-intervention group. Overall, baseline demographics were similar between the two groups (Table 1). *Candida tropicalis* (26.9%) and *Candida parapsilosis* (29.8%) were the most common causes of candidemia in the cohort. Following intervention, administration of appropriate antifungal therapy improved by 40.4% (28.8% pre vs. 69.2% post, $P < 0.01$). Average time to effective treatment initiation following culture positivity decreased from 57.6 hours to 12 hours in the post-intervention group ($P < 0.01$). Thirty-day all-cause mortality was similar between the two groups (34.6% 38.4%, $P = 0.84$).

Conclusion. Implementation of a comprehensive candidemia care bundle by the ASP significantly improved the use and timing of initiation of appropriate antifungal therapy.

Table 1: Comparison of baseline characteristics in patients with candidemia during the pre- and post-intervention periods

Baseline Characteristic	Pre-Intervention (n=52)	Post-Intervention (n=52)	p-value
Age	58.2±15.6	57.9±15.2	0.92
Male	30 (58%)	34 (65%)	0.55
Malignancy	14 (27%)	9 (17%)	0.34
Neutropenia	3 (6%)	4 (7%)	>0.99
Ventilator use	24 (46%)	24 (46%)	>0.99
Central venous catheter use	33 (63%)	33 (63%)	>0.99
ICU admission	36 (69%)	34 (65%)	0.83
Fungal species			
Candida tropicalis	18 (35%)	10 (19%)	0.12
Candida parapsilosis	11 (21%)	20 (38%)	0.09
Candida albicans	9 (17%)	13 (25%)	0.47
Candida haemulonii	8 (15%)	0	0.01
Candida glabrata	0	1 (1.9%)	>0.99
Hospital-acquired	44 (85%)	42 (81%)	0.80

Disclosures. **All authors:** No reported disclosures.

1982. A Diagnostic Stewardship Intervention for *Clostridioides difficile*: Impact of Stool Toxin Testing on Treatment of Adult Inpatients

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Background. Testing for *Clostridioides difficile* infection has been the subject of recent debate. Guidelines from the Infectious Diseases Society of America now support the addition of a stool toxin test to a positive nucleic acid amplification test (NAAT) as part of a multi-step testing algorithm. In November 2017, the University of Kentucky HealthCare system added stool toxin testing to any specimen positive for *C. difficile* by NAAT. This change was accompanied by face to face education with provider groups and clinical decision support in the form of interpretive verbiage added to the results that are reported into the electronic record. The objective of this study was to assess whether this diagnostic stewardship intervention made an impact on *C. difficile* treatment

Methods. We performed a retrospective review of adult patients admitted to UK HealthCare from November 1, 2017 through October 31, 2018 who tested positive by NAAT but negative by stool toxin test to determine whether or not they were treated. We also assessed treatment by service line to see whether there were treatment differences among these groups. A cost analysis was also performed.

Results. A total of 300 adult inpatients were positive for *C. difficile* by NAAT during the study period with 71% (213 patients) having a negative stool toxin test. Of those, 58% (123) were never started on *C. difficile* therapy and an additional 14% (30) had their therapy stopped after 48 hours. Only 28% (60) of these patients received a full course of therapy. Hospital medicine had the highest rate of non-treatment at 82%. Conversely, our solid-organ and bone marrow transplant services had the lowest rate of non-treatment at 31%. Overall, this approach was associated with an estimated 1470 oral vancomycin days avoided (5,880 doses) and a cost savings of $6,278.

Conclusion. The addition of stool toxin testing to NAAT combined with education and clinical decision support lead to a dramatic reduction of treatment for NAAT positive but toxin-negative patients. This form of diagnostic stewardship had a significant impact on therapy decisions and can be a powerful antimicrobial stewardship approach to decrease unnecessary treatment of *C. difficile* colonization.

Disclosures. **All authors:** No reported disclosures.

1983. Adherence vs. Non-adherence: Clinical Outcomes of an Antimicrobial Stewardship Directed Treatment Protocol for *Clostridioides difficile* Infection

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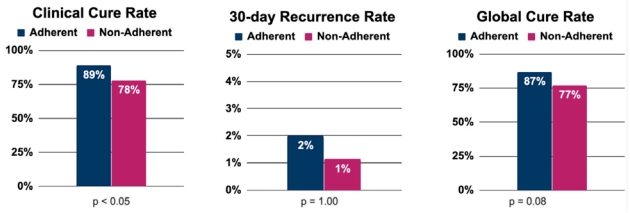
Background. The 2018 Infectious Diseases Society of America (IDSA) *C. difficile* infection (CDI) treatment guideline no longer recommends metronidazole as first-line therapy in adults, instead recommending vancomycin or fidaxomicin. At our 1500-bed academic medical center, a new CDI treatment protocol was initiated by the antimicrobial stewardship program (ASP) to guide treatment based on disease severity and risk factors for recurrence. In this study, we compared the clinical cure rate and 30-day recurrence rate in patients who are adherent and non-adherent to our institutional CDI treatment protocol.

Methods. Patients with CDI between September-December 2018 were identified using electronic health record (EHR) reports. A retrospective chart review was conducted to collect the following information: baseline demographics, white blood cell count, CDI severity, and risk factors, etc. Outcome measures included clinical cure rate, 30-day recurrence rate, and global cure rate, stratified by whether treatment was adherent or non-adherent to institutional protocol. Student's t-test was used for continuous variables. Fisher exact test or Chi-square test was used for categorical variables.

Results. A total of 188 patients (adherent group $n = 100$; non-adherent group $n = 88$) were included. Patient demographics and baseline risk factors did not differ between groups. Clinical cure rate was higher in adherent group ($P < 0.05$), while no significant differences were observed in recurrence and global cure rates between the two groups (Figure 1). The overall protocol adherence rate was 53%. The most common reasons for non-adherence are inappropriate vancomycin dose for fulminant CDI (69%) and insufficient duration of treatment (27%).

Conclusion. An ASP directed new CDI treatment protocol was successfully implemented at our institution. Patients treated according to our institutional protocol resulted in a higher overall cure rate than those non-adherent. Global cure and 30-day recurrence rates were similar. An overall protocol adherence rate of 53% is consistent with previously published literature. Future direction to develop an EHR order set with targeted recommendations is anticipated to further improve adherence and clinical outcomes.

Figure 1. Rates of Clinical Cure, 30-day Recurrence, and Global Cure of *C. difficile* Infection



Disclosures. **All authors:** No reported disclosures.

1984. A Multi-Disciplinary Team-based Quality Improvement Initiative to Reduce *Clostridioides difficile* Rates and Promote Antimicrobial Stewardship in Targeted Surgical Wards

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Background. At Stanford, two surgical wards, E3 and F3, were responsible for 1/5 of hospital-acquired *Clostridioides difficile* infection (HO CDI) cases in the fiscal year 2018 (FY2018). We used a quality improvement framework with a goal to reduce yearly HO CDI episodes by 1/2 on these wards.

Methods. A multidisciplinary quality improvement team was created with front-line nursing leaders and representatives from colorectal surgery, gynecology oncology, antimicrobial stewardship (ASP), infection prevention, and pharmacy. Coaching and instruction on quality improvement were provided as part of Stanford's "Realizing Improvement through Team Empowerment" (RITE) program. Using A3 problem solving, root cause analysis identified key drivers, and interventions were performed. Cumulative HO CDI cases in FY2019 and weekly antibiotic days of therapy (DOT) on E3/F3 were monitored.

Results. Review of FY2018 HO CDI cases (n = 14) revealed the most common key driver as inappropriate antibiotic prescribing (8 cases, 57%). Multiple interventions were instituted (Figure 1). Three ASP interventions began February 2019: nursing questioned antibiotic choice/duration on daily interdisciplinary rounds (Figure 2), automatic infectious disease consultation for > 72 hours of piperacillin/tazobactam on gynecology/oncology patients, and twice-weekly rounds between ASP and a colorectal attending. Data from ASP/colorectal rounds from March 19, 2019 to April 16, 2019 showed means of 18.2 minutes taken for chart review and 4.4 minutes for discussion. 25 charts reviewed led to 16 (64%) ASP recommendations and 14/16 (87.5%) of recommendations accepted. Common interventions included: appropriate duration of antibiotics, clarification of the team's planned duration, and review of microbiology data to narrow therapy. Mean DOT decreased from 35.28 to 21.61 (39%) since July 2018 (Figure 3). Patient volume and case mix index remained stable throughout, suggesting no impact on DOT. Though CDI cases did not decrease, interventions were in place for only 2 months (Figure 4).

Conclusion. While too early to determine its impact on HO CDI rates, a multi-disciplinary team approach utilizing A3 problem solving was successful in implementing effective ASP measures including nursing-led ASP and structured antibiotic timeouts.

Figure 1. Key Drivers and Interventions Targeting HO CDI

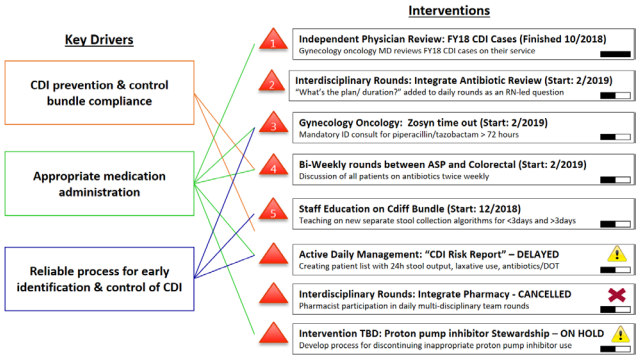


Figure 2. Nursing-led ASP: Integration of "What's the plan/duration" of antibiotics into Interdisciplinary Rounds

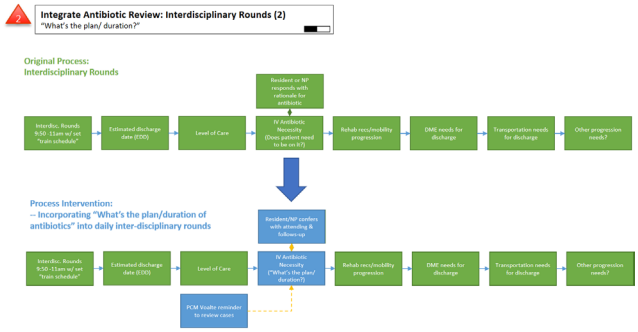


Figure 3. Total Antibiotic DOT Change Over Time: Before and After ASP Interventions

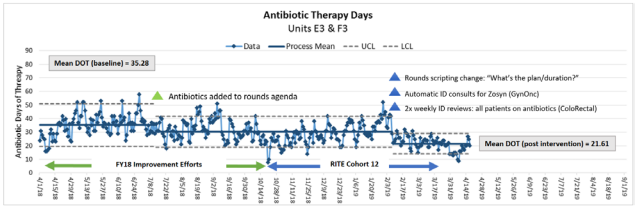
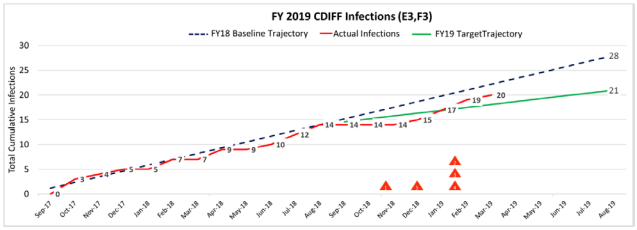


Figure 4. Baseline vs. Goal Trajectory of Cumulative HO CDI Rates on E3/F3 From FY2018 to FY2019



Disclosures. **All authors:** No reported disclosures.

1985. Impact of Suppressing Ciprofloxacin Susceptibility Results on Antibiotic Utilization and Hospital-acquired *Clostridioides difficile* Infection

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Background. Fluoroquinolones (FQs) are broad-spectrum antibiotics associated with multiple adverse effects and an increased risk of *Clostridioides difficile* infections (CDI). Previous data suggest that suppression of FQ susceptibility results decreased FQ use. The purpose of this study was to examine the impact of suppressing ciprofloxacin susceptibility on antibiotic use, susceptibility, and CDI.

Methods. This was a single-center quasi-experimental study of the effect of the suppression of ciprofloxacin susceptibility on pan susceptible urine isolates for *Klebsiella* sp. and *E. coli* starting in March 2018 in the 11 months before and after the intervention. Monthly antibiotic utilization in days of therapy (DOT)/1,000 patient-days for levofloxacin, ciprofloxacin, ceftriaxone, trimethoprim/sulfamethoxazole (TMP/SMZ), fosfomycin, and nitrofurantoin, hospital-acquired CDI (HA-CDI) rates as defined by CDC, and *Pseudomonas aeruginosa* susceptibility was compared with interrupted time series analysis using Stata MP 12.1 before and after the intervention to compare the level, intercept, and rate, slope, of a trend line.

Results. There was no change in the level or rate of ciprofloxacin DOT (0.27, 95% CI: −0.94 to 1.48–3.49; 95% CI: −10.89 to 3.90) and levofloxacin DOT (−5.87, 95% CI: −17.79 to 6.06; −0.98, 95% CI −2.86 to 0.90) with the intervention, respectively. Level of *P. aeruginosa* susceptibility to ciprofloxacin level (8.13, 95% CI: 0.00 to 16.26) had a trend toward increasing and rate (1.65, 95% CI: 0.44 to 2.87) increased after the intervention. Ceftriaxone DOT level decreased after the intervention (P = 0.01), but the rate did not change. Cephalexin (P = 0.01) and nitrofurantoin (P = 0.01) DOT levels increased after the intervention without changes in rates. There was no change in the level or rate of HA-CDI, fosfomycin, or TMP/SMZ DOTs.

Conclusion. Suppressing ciprofloxacin susceptibility results on pan susceptible *Klebsiella* sp. and *E. coli* urine isolates was associated with increased *P. aeruginosa* susceptibility to ciprofloxacin and increased cephalexin and nitrofurantoin DOTs. No changes were seen in FQ use or HA-CDI rates.