inappropriate empiric BSA treatment had higher readmissions 30 days after discharge, more transfers to the intensive care unit, more antibiotic-associated adverse events, and longer hospitalizations (Fig. 2). **Conclusions:** Patients hospitalized with CAP often received inappropriate BSA as empiric coverage, and this inappropriate antibiotic selection was associated with worse patient outcomes. To improve patient outcomes, stewardship efforts should focus on reducing inappropriate BSA use in patients hospitalized for CAP with historic HCAP risk factors or severe CAP without other guideline-directed indications for BSA.

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Effect of antifungal stewardship on micafungin prescribing practices in intensive care units at a tertiary-care hospital

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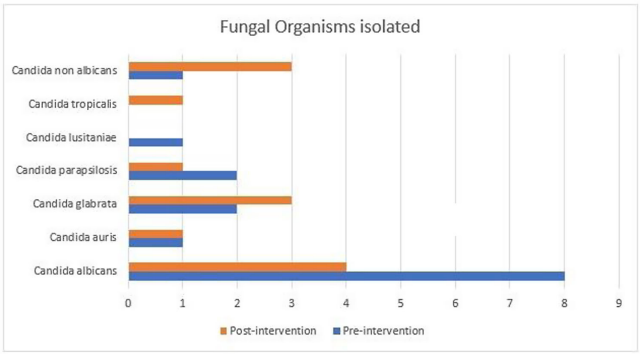
Background: Fungal diseases are associated with substantial global mortality and economic burden, especially in critically ill or immunocompromised patients. Antifungal resistance has emerged as a barrier to treating invasive fungal infections, but antifungal stewardship is still a developing effort due to limited data. Here, we describe the antifungal prescribing practices and the impact of antifungal stewardship on micafungin days of therapy (DOTs) in critical care units. **Methods:** This retrospective study included patients who were admitted to the intensive care unit (ICU) at a tertiary-care hospital in Washington, DC. The preintervention group included baseline micafungin use data between January 1, 2021, and May 31, 2021. The postintervention group included prospective audits, feedback on micafungin orders by a clinical pharmacist, and education on the appropriateness of the antifungal agents. The postintervention group included patients admitted between June 1, 2021, and December 31, 2021. Approval was obtained from the institutional review board. **Results:** The overall average of micafungin days of therapy (DOT) per 1,000 patient days present in the preintervention group versus the postintervention group was 33 versus 24 days, respectively. Moreover, 121 patients were randomly selected for a more detailed retrospective review to define micafungin prescribing practices further. Of these, 73 patients (60.3%) were male; the median age was 63 years. The most common cause for prescribing micafungin in both groups was empiric antifungal coverage (62.8%), followed by fungemia (12.4%). The most common organism isolated was *Candida albicans*. For other sources of infection and organisms isolated, refer to Table 1. In-hospital mortality occurred in 63 (52.06%) patients in both groups. **Conclusions:** Antifungal stewardship through prospective audit and feedback and education by clinical pharmacists decreased micafungin DOTs in critical care units. Empiric prescribing of micafungin is highly prevalent in the ICU despite the low incidence of invasive fungal infections. Although periodic drug utilization reviews and pharmaceutical surveillance can help reduce the prolonged duration of micafungin therapy in the ICU, more robust and routine antifungal stewardship is key to the appropriate use of micafungin to avoid the emergence of antifungal resistance.

	All patients	Pre-intervention	Post-intervention
Total no. of patients	121	58	63
Sex, n (%)			
Male	73(60.3)	37(63.7)	36(57.1)
Female	48(39.7)	21(36.3)	27(42.8)
Race, n (%)			
African American	88(72.7)	44(75.8)	44(69.8)
Caucasian	23(19)	11(18.9)	12(19)
Hispanic	4(3.3)	1(1.7)	3(4.7)
Other	6(4.9)	2(3.4)	4(6.3)
Age, Years, Median	63	62	63
Median BMI (kg/m^2)	27.53	28.37	27.35
Comorbities, n (%)			
Diabetes	39(32.2)	17(29.3)	22(34.9)
HIV	5(7.9)	3(5.1)	2(3.2)
Cancer			
Active Cancer	20(16.5)	10(17.2)	10(15.8)
H/o Cancer	4(3.3)	2(3.4)	2(3.2)
On Immunosuppression	20(16.5)	10(17.2)	10(15.8)
Trauma	6(4.9)	3(5.1)	3(4.8)
In house mortality, n (%)	63(52.1)	35(60.1)	28(44.4)
Infection Source, n (%)			
Empiric	76(62.8)	41(70.6)	35(55.5)
Fungemia	15(12.4)	8(13.8)	7(11.1)
Cardiac device	1(0.8)	0	1(1.6)
Abdominal	14(11.6)	4(6.9)	10(15.8)
SSTI	5(4.1)	1(1.7)	4(6.3)
IV catheter/vascular graft	13(10.7)	8(13.8)	5(7.9)
Endocarditis	0	0	0
Osteomyelitis	1(0.8)	1(1.7)	0
Other[a]	9(7.4)	3(5.1)	6(9.5)

a: Including head and neck infections, antifungal prophylaxis etc.

Table 1: Demographic and Microbiological data



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Serotonergic agents and linezolid: Impact of exposure to more than one agent concomitantly on risk of adverse effects

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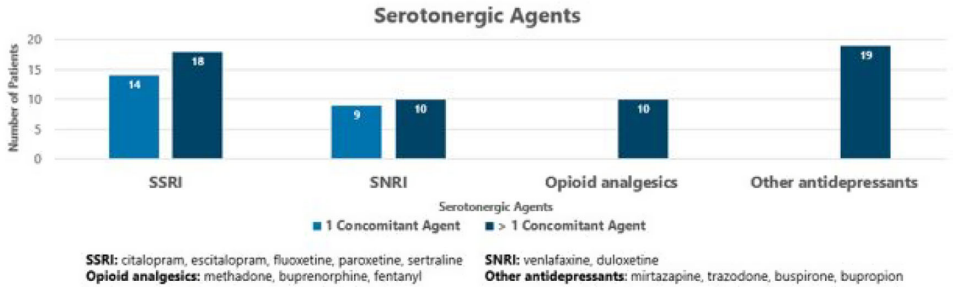
Background: The off-target effects linezolid have the potential to cause serotonin syndrome when given in conjunction with serotonergic agents. Despite package insert labeling as a contraindication, several postmarketing studies have demonstrated a low incidence of serotonin syndrome with the concomitant use of linezolid and other serotonergic agents. Linezolid provides a convenient oral option for gram-positive infections. However, due to concerns for serotonin syndrome, the use of linezolid is sometimes avoided. **Methods:** We performed a single-center, retrospective, medical record review of all adult inpatients from September 2021 to September 2022. Patients included had 1 administration of linezolid and 1 inpatient administration of a selective serotonin reuptake inhibitor (SSRI) or serotonin and norepinephrine reuptake inhibitor (SNRI) within 14 days. The primary outcome was the incidence of serotonin

Serotonergic Agents (Figure 1)



SSRI: citalopram, escitalopram, fluoxetine, paroxetine, sertraline **SNRI:** venlafaxine, duloxetine
Opioid analgesics: methadone, buprenorphine, fentanyl **Other antidepressants:** mirtazapine, trazodone, buspirone, bupropion

Baseline Characteristics (Table 1)

	1 Concomitant Agent (n = 23)	≥2 Concomitant Agents (n = 27)
Age, mean, y (SD)	62 (17)	60 (16)
Male, no. (%)	13 (56)	6 (22)
LOS, median, d (IQR)	7 (5 – 21)	8 (4 – 21)
Duration of concomitant inpatient therapy, median, d (IQR)	3 (1 – 5)	2 (1 – 4)
Comorbidities, no. (%)		
Prior delirium/AMS	2 (8)	1 (4)
Substance use disorder	3 (13)	5 (19)
CKD/ESRD	10 (43)	8 (30)
Stroke	4 (17)	4 (15)

syndrome as defined by the Hunter serotonin toxicity criteria, which were retrospectively applied to each patient based on medical-record documentation. We compared patients receiving 1 versus multiple serotonergic agents. Secondary outcomes included duration of hospitalization and adverse outcomes based on concerns for serotonin syndrome such as need for rescue, ICU admission, or change in medication. **Results:** Of the 50 included patients from a convenience sample, 27 (54%) were on linezolid and >1 serotonergic agent. Patients had similar baseline characteristics (Table 1). The most common concomitant agent used was an SSRI. Other agents that predispose patients to serotonin syndrome included opioid analgesics and other classes of antidepressants (Fig. 1). Serotonin syndrome occurred within 48 hours in 1 patient on an SNRI and a continuous fentanyl drip. There was no need for rescue or ICU admission due to serotonin syndrome. No patients were readmitted due to serotonin syndrome, and no differences were observed in hospital lengths of stay. **Conclusions:** Exposure to a single serotonergic agent combined with receipt of linezolid was not associated with any cases of serotonin syndrome. Exposure to multiple serotonergic agents was not associated with a high incidence of serotonin syndrome. This small series supports previous reports demonstrating relative safety of linezolid given with serotonergic agents and encourages review of interruptive drug–drug interaction alerts for linezolid within the electronic ordering system.
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Assessing inpatient antibiotic use during COVID-19 surges with or without infectious diseases consultation

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Background: Throughout the COVID-19 pandemic, increased inappropriate antibiotic use (AU) drove concern for antimicrobial resistance. Antimicrobial stewardship efforts are critical for combatting antimicrobial resistance. Our objective was to compare AU between SARS-CoV-2 delta and omicron variant surge periods in COVID-19 patients hospitalized at Tufts Medical Center (TMC) in Boston. Infectious diseases consultation (IDC) was mandatory for patients diagnosed with COVID-19 throughout the SARS-CoV-2 delta variant surge. During the SARS-CoV-2 omicron variant surge, IDC was optional for certain patient populations. Instead, the antibiotic stewardship program (ASP) reviewed these patients for appropriate medical management. We hypothesized that AU would increase during the SARS-CoV-2 omicron variant surge compared to the delta variant surge due to optional IDC because IDC would reduce inappropriate AU for suspected viral pneumonia. **Methods:** Retrospective medical record review of patients hospitalized with COVID-19 during the SARS-CoV-2 delta and omicron variant surges was conducted. We collected data regarding vital signs, white blood cell count (WBC), length of stay (LOS), steroid use, IDC, and AU (defined as percentage of patients receiving at least 1 antibiotic dose), with a separate category for antibiotics commonly used for bacterial pneumonia (ampicillin-sulbactam, azithromycin, cefepime, cefpodoxime, ceftazidime, ceftriaxone, doxycycline, piperacillin-tazobactam, vancomycin). We determined that 71 patients from each group were needed to detect an absolute difference of 20% in AU between surges with 75% power, based on the CDC estimate that 80% of patients hospitalized with COVID-19 receive an antibiotic. Unpaired t tests and χ^2 analyses were conducted on demographic data. Inferential statistics assessed for differences between the 2 SARS-CoV-2 variant surges in AU and days of therapy (DOT), supplemental oxygen (SaO_2), steroid use, and IDC utilizing a Wilcoxon rank-sum test and logistic regression analyses. **Results:** Results showed no significant differences in AU between surges (38.0% during the SARS-CoV-2 delta variant surge vs 42.3% during the SARS-CoV-2 omicron variant surge; $P = .131$). Disease severity was not different between surges as measured by steroid use, initial WBC, and SaO_2. WBC was a predictor for AU in both surges (delta surge, $P = 0.007$; omicron surge, $P = .002$). Average LOS was higher throughout the SARS-CoV-2 delta variant surge for all patients (11.58 days during the delta surge, vs 5.97 days during the omicron variant surge; $P = .047$) and those who received antibiotics (18.44 days during the delta variant surge vs 6.70 days dring the omicron variant surge; $P = .210$). Total DOT was significantly longer during the SARS-CoV-2 delta variant surge for all antibiotics (463 DOT during the delta variant surge vs 277 DOT during the omicron variant surge; $P = .047$) and antibiotics commonly used for bacterial pneumonia (315 DOT during the delta variant surge vs 202 DOT during the omicron variant surge; $P = .021$). **Conclusions:** Making IDC optional for certain patient populations diagnosed with COVID-19 did not affect AU in a large, urban academic medical center with a comprehensive ASP.
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