1.5%, 11.9%] (aggregate $P = 0.04$); median diarrheal recovery rate change = 11.8% [IQR: 8.8%, 18.2%] (aggregate $P = 0.018$).

Conclusion. In a 5-center study, toxin-dominant test result reporting decreased anti-*C. difficile* treatment and improved discharge rates and diarrheal recovery in Toxin−/PCR+ patients. More work is needed to determine the rate of *C. difficile*-related adverse events in Toxin−/PCR+ patients.

Disclosures. **All Authors:** No reported Disclosures.

840. Clinical Failure Rates Associated with Hemin-induced Metronidazole Resistance in Clostridioides difficile

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Background. Current guidelines suggest limiting metronidazole (MTZ) use due to increased treatment failures in patients with *Clostridioides difficile* infections (CDI). We hypothesized that an increase in the minimum inhibitory concentration (MIC) of MTZ to *C. difficile* may contribute to these poor response rates. The objective of this study was to examine clinical response rates in patients with CDI based on MTZ MIC and stratified by receipt of MTZ treatment.

Methods. *Clostridioides difficile*-positive stool samples collected from 2017 to 2018 as part of routine care at two hospital systems in Houston, Texas were collected for MIC determination at 24 h to MTZ by broth microdilution following incorporation of 5 mg/L of hemin. The primary outcome was initial clinical success by Day 7 of treatment in those with MICs ≥1 vs. <1. Results were stratified based on receipt of MTZ within 48 hours of diagnosis. Study objectives were tested using χ^2 and multivariable logistic regression analyses.

Results. A total of 235 *C. difficile* samples were included, of which 73 (31%) had an MTZ MIC ≥1. Overall, 72% received MTZ within the first 48 hours. Clinical success rates differed based on disease severity (77% in nonsevere, 64% in severe/fulminant; $P = 0.03$) and infecting ribotype (52% in RT 027, 75% in non-RT 027; $P = 0.014$). In patients with MTZ receipt, clinical success rates were higher in patients infected with strains with an MTZ MIC < 1 (76%) compared with those with an MIC ≥1 (60%; $P = 0.031$). The difference in initial clinical success was not different in those that did not receive MTZ (78% for MIC <1 vs. 65% for MIC ≥1, $P = 0.28$). After controlling for disease severity, treatment failure was higher in patients infected with strains with an MTZ MIC ≥1 and treated with MTZ (OR 2.1; 95% CI, 1.01–4.35; $P = 0.048$) but not for those with an MIC ≥1 treated with other therapies (OR 1.9; 95% CI, 0.62–5.6; $P = 0.27$).

Conclusion. This study provides the first preliminary evidence of an association between reduced metronidazole susceptibility and decreased clinical success rates. Larger studies are warranted to validate these findings.

Disclosures. **All Authors:** No reported Disclosures.

841. Implications of C. difficile Treatment on Environmental Contamination: A Randomized Controlled Trial with Microbiologic, Environmental, and Molecular Outcomes

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Background. *Clostridioides difficile* is a leading cause of healthcare-associated infection. Despite multimodal prevention efforts, in-hospital transmission continues to occur. In this study, we tested whether the choice of treatment can reduce *C. difficile* shedding and contamination of the inpatient environment.

Methods. We conducted a prospective, unblinded, randomized controlled trial of adult inpatients with *C. difficile* at Duke University Hospital. Thirty subjects were randomized 1:1:1 to receive metronidazole, vancomycin, or fidaxomicin. Stool specimens and environmental samples from five high-touch surfaces were serially collected throughout each subject's hospital stay. Each specimen was assessed by quantitative culture and PCR ribotyping. Primary outcomes included the change over time in *C. difficile* stool burden and environmental contamination relative to treatment choice. As a secondary outcome, we examined the correlation between infecting strains and contaminating strains present in the care environment.

Results. Relative to metronidazole (Figure 1), *C. difficile* stool shedding decreased more rapidly for patients receiving vancomycin ($P = 0.05$) and most rapidly with fidaxomicin ($P = 0.002$). Treatment choice had no significant effect on total *C. difficile* colony counts across sites sampled over time (Figure 2). However, both vancomycin ($P = 0.001$) and fidaxomicin ($P = 0.01$) were associated with lower proportions of positive environmental cultures than metronidazole (Figure 3). Ribotyping of subjects' stool isolates matched surrounding environmental isolates >90% of the time (Figure 4).

Conclusion. Fidaxomicin and vancomycin reduced *C. difficile* stool burden more rapidly than metronidazole. Environmental results were mixed: fidaxomicin and vancomycin were associated with fewer positive surface cultures, but no difference in total colony counts. High concordance between stool and environmental ribotypes confirms that most room contamination originated from study subjects, without a significant contribution from any additional sources. Treatment choice may have a role in reducing *C. difficile* contamination of the hospital environment. Further study is needed to assess for effect on disease incidence.

Figure 1: Change in C. difficile Stool Shedding Relative to Treatment Choice.

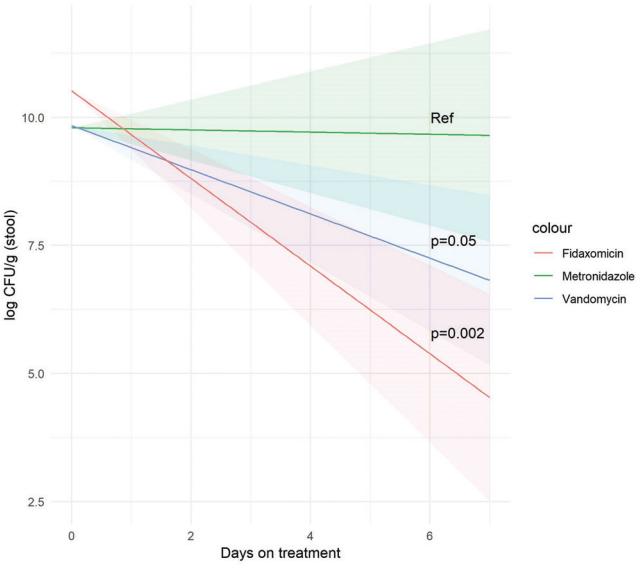
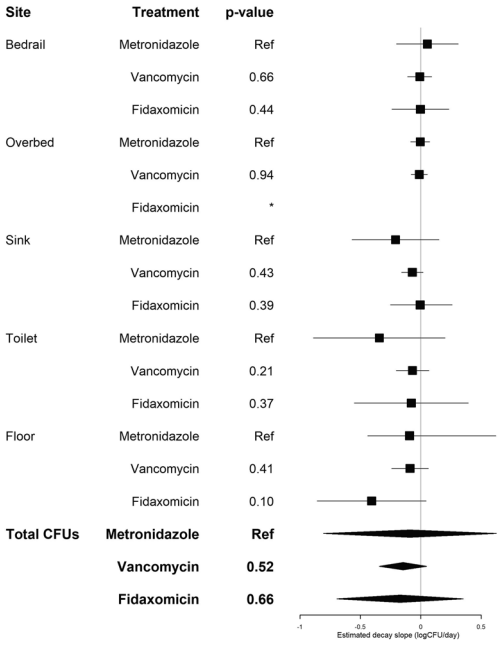


Figure 2: Rates of Change in Environmental C. difficile CFUs Relative to Site and Treatment Choice



*All p-values relative to metronidazole as reference. Insufficient growth from overbed sampling precluded assessment of fidaxomicin at this site.