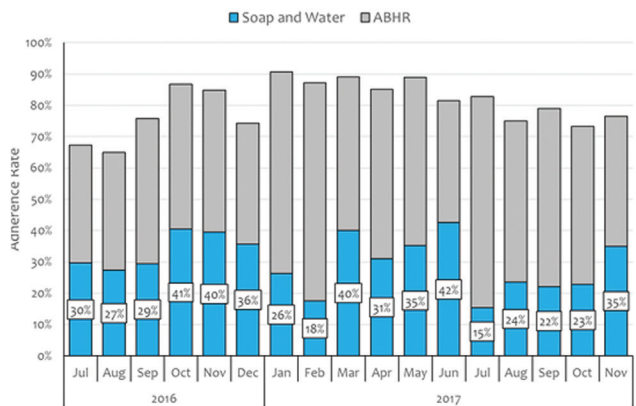


opportunities and washes are recorded. eHH after CDI patient contact and any patient contact were collected. eHH adherence (using an ABHR or soap dispenser within 1 minute of room exit) was calculated overall and stratified by soap and water vs. ABHR. The primary outcome was eHH adherence using soap and water vs. ABHR after contact with a CDI patient. The secondary outcome was eHH adherence after CDI patient contact compared with all patients with and without CDI.

Results. A total of 1,061,288 exit eHH opportunities were recorded. Seventy-three CDI cases were identified (none in December 2017), and 16,404 (2%) exit eHH opportunities were linked to rooms with CDI patients. eHH adherence after CDI patient contact (78%) was significantly higher than for any patient contact (73%) ($P < 0.001$). Mean eHH adherence using soap and water after CDI patient contact was 29%; no changes in trend were noted over time (Figure 1).

Conclusion. Low adherence to mandated soap and water use after CDI patient contact was observed; however, HCW maintained a high level of overall adherence. This may indicate that concerns of inconsistent messaging reducing overall adherence may not be founded. ABHR may be used more often than soap and water after CDI patient care because our glove use is high; further investigation will be necessary to determine whether this is the case.

Figure 1. Hand Hygiene Adherence After Contact with Patients With *Clostridium difficile* Infection



Disclosures. All authors: No reported disclosures.

513. Effectiveness of Pulsed Xenon Ultraviolet Light Disinfection System to Decrease *Clostridium difficile* Infections at the South Texas Veterans Health Care System

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Background. *Clostridium difficile* is the leading pathogen implicated in health-care-associated infections. *C. difficile* spores can survive for months on surfaces, allowing for transmission between patients; thus, environmental disinfection is a cornerstone for *C. difficile* infection (CDI) prevention. Pulsed xenon ultraviolet (PX-UV) light disinfection effectively eliminates *C. difficile* spores from surfaces and can be used as an adjunct to manual cleaning; however, few studies have evaluated the effects of this technology on healthcare facility-onset CDI (HO-CDI) rates. The objective of this study was to compare HO-CDI rates prior to and post-implementation of PX-UV disinfection in an acute care hospital.

Methods. This was a quasi-experimental study in the South Texas Veterans Health Care System (STVHCS), San Antonio, Texas from 2011 to 2018. The PX-UV system was implemented beginning January 1, 2013. HO-CDI rates were calculated as CDI cases per 10,000 patient-days. Rates were compared between the pre-PX-UV period (2011–2012) and post-PX-UV period (2013–2018) using the conditional maximum likelihood estimate of rate ratio. The association between number of beds cleaned and HO-CDI incidence was evaluated using Pearson correlation.

Results. During the 2-year preintervention period, the HO-CDI rate was 9.09 per 10,000 patient-days compared with 9.44 per 10,000 patient days in the postintervention period (RR 1.038; 95% CI 0.817 – 1.328) ($P = 0.7703$). HO-CDI rates peaked in 2015 (13.60 per 10,000) and declined steadily thereafter through 2018 (6.86 per 10,000). There was not a significant correlation between number of beds cleaned and HO-CDI incidence ($R=0.3713$; 95% CI $-0.0597-0.6856$; $P = 0.0889$).

Conclusion. PX-UV disinfection did not significantly reduce HO-CDI rates in the first 5 years of use; however, more recent data demonstrate HO-CDI rates lower than that of the preintervention period.

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514. The Effect of Probiotics on the Incidence of *Clostridium difficile*

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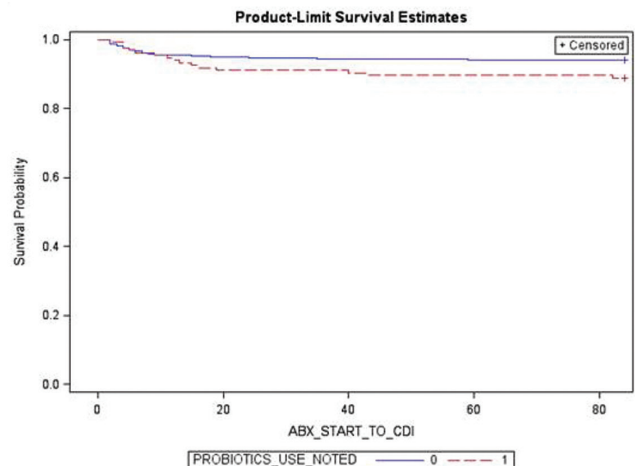
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Background. Currently there is conflicting evidence regarding probiotics affecting the incidence and/or severity of *Clostridium difficile* infection (CDI). According to the IDSA guidelines, there are insufficient data to support the use of probiotics as primary prophylaxis of CDI. The primary objective of this study was to evaluate whether the administration of probiotics is efficacious for CDI prophylaxis in patients who are on antibiotics making them at increased risk for contracting CDI.

Methods. The study is an Institutional Review Board approved retrospective cohort study looking at patients who were admitted to NYU Winthrop University Hospital and received at least one dose of antibiotics considered high-risk of inducing CDI. Patients were grouped according to concurrent probiotic use and the association between probiotic use and incident CDI was examined. A model for incident CDI adjusting for number of concurrent antibiotics, patient age, proton pump inhibitors, histamine receptor antagonists, presence of colitis, and chemotherapy was also estimated. Microbiology reports were analyzed for up to 12 weeks post initial administration of antibiotics to determine whether patient acquired CDI. If no CDI occurred during the admission or post discharge, data was censored at 12 weeks.

Results. Of 2,208 patients, 1,502 (68%) were included in the interim analysis. Ninety-six out of 1,502 patients (6.39%) had CDI within 12 weeks of antibiotics initiation. One hundred thirty-five (9%) were on probiotics during antibiotic use and 1,367 (91%) were not. Of those taking probiotics, 11.1% had an incident of CDI and of those not taking probiotics, 5.9% had an incident of CDI with a relative risk of 1.88 (1.11, 3.16) and a $P = 0.02$. After adjustment, although a positive association between probiotics and CDI was still observed, it was not statistically significant ($P = 0.24$).

Conclusion. Based on the interim analysis, probiotics were associated with a higher risk of CDI in univariate analysis, however, when adjusted for several confounding factors this association, while still positive, was no longer statistically significant. Further data collection is ongoing to corroborate these results.



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515. Estimating the Effect of Proton Pump Inhibitor Stewardship in Reducing *Clostridium difficile* Transmission

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Background. Antibiotic stewardship programs (ASPs) have been successful in reducing the incidence of *Clostridium difficile* (CDI) by reducing patient exposure to antibiotics, especially fluoroquinolones. Proton pump inhibitors (PPIs), while less pronounced as a risk factor for CDI, are widespread in their use, often for much longer durations than most courses of antibiotics. PPI stewardship may be a potential target for ASPs.

Methods. We used a mathematical model of *C. difficile* transmission in an ICU to estimate the effects of a co-occurring antibiotic and PPI stewardship program. This approach captured any synergistic dynamics between the two interventions (e.g., patients taking both PPIs and antibiotics) while being able to independently estimate their effects. This model simulated for five years and 5,000 iterations, with the reduction in antibiotic and PPI use independently varied independently between 0% and 40%. The rates of *C. difficile* were then estimated using Poisson regression models accounting for admission volume.

Results. Both antibiotic and PPI stewardship reduced the number of incident *C. difficile* cases within the simulated ICU. A 30% decrease in fluoroquinolone use corresponded with