Decreasing Hospital-Acquired *Clostridioides Difficile* in Patients With Cancer

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Patients with cancer are particularly susceptible to *Clostridioides difficile* infections because of their exposure to antibiotics, serious underlying chronic illnesses, advancing age, immunocompromising conditions, and extended lengths of stays in the hospital setting. In addition to suboptimal hand hygiene, other potential sources for bacterial transmission in the hospital setting include high-touch surfaces within the patient's immediate environment. Payers, such as the Centers for Medicare and Medicaid Services, continue to prioritize the reduction of healthcare-associated infections.

AT A GLANCE

- A standard protocol to clean high-touch surfaces in a patient's immediate environment has the potential to decrease the incidence of nosocomial *Clostridioides difficile*.
- Clinical teams, in collaboration with environmental services, need to assess each patient in their immediate environment to determine which items are considered high-touch.
- An intervention to identify and clean five high-touch surfaces is quick, simple, cost-effective, and replicable in a variety of inpatient hospital environments.

KEYWORDS
oncology nursing; hospital-acquired infection; *Clostridioides difficile*

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Clostridioides difficile (*C. diff*) causes nearly 500,000 infections in the United States annually (National Foundation for Infectious Diseases, 2020). Of these cases, an estimated 223,900 occur in hospitalized patients, and they cause an estimated 12,800 deaths (Centers for Disease Control and Prevention [CDC], 2019). When considering all healthcare-associated infections, *C. diff* has become the most frequent microbial cause of infection in U.S. hospitals, resulting in nearly $5 billion excess healthcare costs each year for acute care facilities (CDC, 2017).

The financial implications for hospital-acquired *C. diff* are substantial, with payers such as the Centers for Medicare and Medicaid Services (2021) continuing to prioritize the reduction of healthcare-associated infections. The morbidity and mortality impact on patients with cancer is significant, particularly for immunocompromised patients (CDC, 2021; Nielsen et al., 2019). Garzotto et al. (2015) reported that of 225 patients with cancer (mostly solid tumors) admitted to the hospital with diarrhea, 17% of patients were diagnosed with *C. diff* infections (CDIs). When comparing patients with lymphoma who had CDIs versus patients with lymphoma who did not, Bhandari et al. (2018) reported increases in several metrics associated with hospitalizations: mortality (17% versus 8%, $p < 0.05$), length of stay (23.6 versus 9.9 days, $p < 0.05$), mean hospital charges ($197,015 versus $79,392, $p < 0.05$), rate of intubation (13% versus 4%, $p < 0.05$), and rate of total parenteral nutrition (11% versus 3%, $p < 0.05$).

Patients with cancer comprise a vulnerable population for contracting CDIs because they may experience multiple comorbidities. These patients are associated with at least seven risk factors for contracting *C. diff*. According to CDC (2021), these seven risk factors for CDI for patients are as follows: antibiotic exposure, gastrointestinal surgery, long lengths of stay in the healthcare setting, serious underlying illness, immunocompromising conditions, advanced age, and the use of proton pump inhibitors or H2 blockers. Every patient with a cancer diagnosis meets at least two of these risk factors (serious underlying illness and immunocompromising conditions), and some patients are affected by all seven risk factors.

Current practices to help prevent hospital-acquired infections in the author's institution, specifically for *C. diff*, include universal gloving, hand hygiene, careful consideration of testing for *C. diff*, antibiotic stewardship, and contact precautions for patients with an active CDI (see Figure 1). Aside from daily room cleaning by environmental services, the author