# Interprofessional collaboration leads to significant and sustained reduction in hospital-onset C. difficile infections

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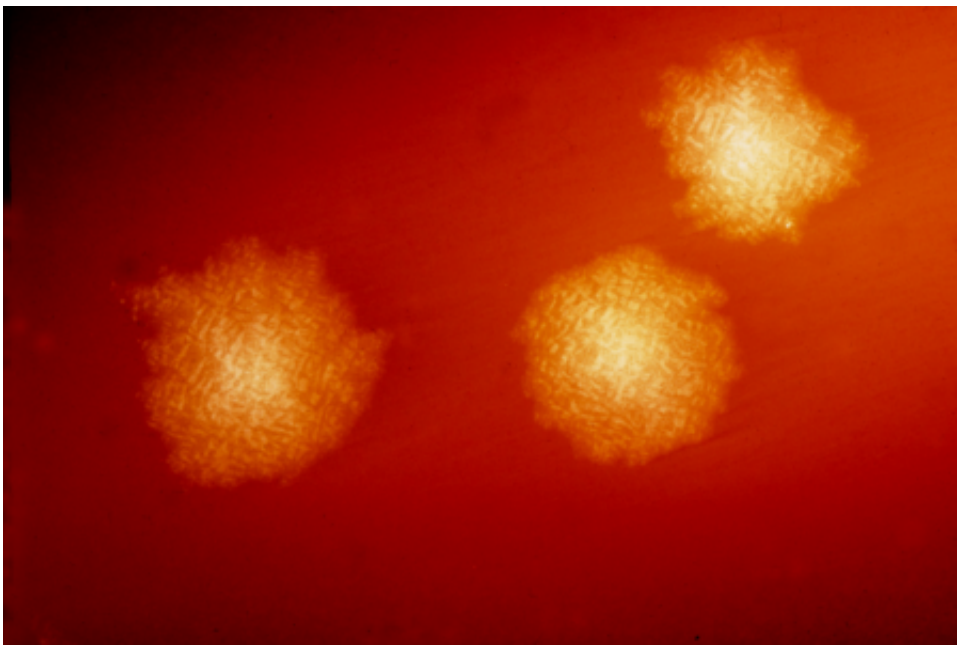

This photograph depicts Clostridium difficile colonies after 48hrs growth on a blood agar plate; Magnified 4.8X. C. difficile, an anaerobic gram-positive rod, is the most frequently identified cause of antibiotic-associated diarrhea (AAD). It accounts for approximately 15–25% of all episodes of AAD. Credit: CDC

A new study published today in the *American Journal of Infection Control* (AJIC), suggests that health care facilities can significantly reduce the incidence of hospital-onset *Clostridioides difficile* infection

(HO-CDI) by establishing interprofessional teams to implement selected, evidence-based infection-prevention interventions.

"Our project showed that interprofessional collaboration and continuous improvement can profoundly impact HO-CDI incidence, and sustain reductions over years," said Cherith Walter, MSN, RN, Emory St. Joseph's Hospital, and first author on the published study. "We hope our findings will help other healthcare teams struggling with this incredibly challenging healthcare-associated infection to improve patient safety and reduce associated costs."

According to the Centers for Disease Control and Prevention, an estimated 500,000 cases of CDI occur in the United States annually, making it one of the most prevalent healthcare-associated infections (HAI) in the country. Due to the cost of caring for patients with HO-CDI, as well as financial penalties levied under the Centers for Medicare and Medical Services' (CMS) hospital-acquired condition reduction program, these infections have increased the financial burden on the healthcare system.

To address the HO-CDI incidence at their 410-bed community hospital, which was consistently above the national CMS benchmark, Walter and colleagues created an interprofessional team comprising a clinical nurse specialist, a physician champion, a hospital epidemiologist, an infection preventionist, a clinical microbiologist, unit nurse champions, an antimicrobial stewardship pharmacist, and an environmental services representative. The team reviewed HO-CDI events at their facility between 2014 and 2016 to determine causative factors, and then identified appropriate, evidence-based infection prevention interventions. The selected interventions comprised diagnostic stewardship, including the development of a Diarrhea Decision Tree (DDT) testing algorithm with a nurse-driven ordering protocol; enhanced environmental cleaning; antimicrobial stewardship, including a system-

wide Electronic Medical Record intervention to reduce fluoroquinolone use; and education and accountability, the latter of which focused on encouraging compliance with the DDT algorithm.

After the first year, the project leads recorded a 63% decrease in HO-CDIs as compared to the two years prior (4.72 per 10,000 patient days vs. 12 per 10,000 patient days). This number improved further to 2.8 per 10,000 days three years after implementation of the selected interventions (a 77% decrease from baseline). The team also saw a decrease in their facility's standardized HO-CDI infection ratio (the total number of infections divided by the National Health Safety Network's risk-adjusted predicted number of infections), from 1.11 in 2015 to 0.43 in 2020—significantly lower than the national benchmark.

Interventions also improved CDI testing practices, increasing testing for appropriate patients within the first three days of hospital admission from 54% in 2014 to 81.1% in late 2019, to support prompt treatment of infected patients. This practice also helped identify and differentiate cases of community-acquired CDI (CA-CDI) from HO-CDI, reducing the financial impact of HO-CDIs on the facility after 2016. Finally, by empowering nurses to hold providers accountable for judicious test ordering and creating a system of 'accountability notices' alerting nurses and providers to DDT algorithm deviations, the team successfully increased compliance with the algorithm, from 50% in mid-2018 to 80% in mid-2020.

"These study findings are exciting, because they suggest that professional collaboration to consistently apply known, evidence-based practices can significantly reduce the incidence of HO-CDI, an intractable and costly HAI," said Linda Dickey, RN, MPH, CIC, FAPIC, and 2022 APIC president. "They are also the first findings demonstrating the impact of education and accountability interventions in reducing HO-CDI incidence and improving compliance with

standards of practice."

**More information:** An Interprofessional Approach to Reducing Hospital-Onset Clostridioides difficile Infections, *American Journal of Infection Control* (2022). DOI: 10.1016/j.ajic.2022.02.017

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