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Publishing Title: The Epidemiology of Initial and Recurrent *Clostridium difficile* Infections in US Hospitals, 2007-2008

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Abstract Body: Background:

Clostridium difficile infections (CDIs) are increasing in incidence and severity; however, little is known about the relative roles of initial vs. recurrent disease and characteristics of hospitals most impacted. Using electronic data we examined the epidemiology of CDIs across 88 US hospitals.

Methods:

All cases of CDI between January 2007 and June 2008 were defined by a positive result for a *C. difficile* toxin assay in a patient with no positive results in the previous two weeks. Cases were defined as *initial* if they occurred in a patient without a positive assay in the previous 8 weeks. Cases that occurred in a patient with a positive assay in the previous 2-8 weeks were defined as *recurrent*.

Results:

Among 1,397,648 unique adult patients, 11,076 CDI cases were identified in 9,801 patients including 8,766 patients with a single initial case; 246 with two initial cases; 605 with one initial and 1 recurrent case; and 184 with three or more cases (307 initial, 301 recurrent). Initial cases accounted for 91.8% of all CDI cases and recurrent, 8.2%. The CDI incidence density per 10,000 patient (pt)-days was 12.5 for initial and 1.1 for recurrent cases. Combining initial and recurrent cases, the median (IQR) CDI incidence density was 13.3 (8.0-18.4) per 10,000 pt days across hospitals. Small (bed size number <100) hospitals had higher overall rates than medium (bed size number 100-300) hospitals, which in turn had higher rates than large (bed size number >300) hospitals (17.8 vs. 14.4 vs. 12.9 per 10,000 pt days, respectively; p<0.0001).

Conclusion:

Nearly 10% of CDI cases in hospitalized patients were recurrent; 10% of CDI case-patients had multiple cases over an 18-month surveillance period. Many patients remained at risk for a subsequent case even after the surveillance time frame for recurrent CDI had passed. Smaller hospitals appear more impacted by

CDIs than larger hospitals.

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Disclosure
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