

1649. Acquisition of *Clostridium difficile* Associated with Potentially Contaminated Inpatient Rooms

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Session: 203. *Clostridium difficile* Infection: Epidemiology, Presentation, Treatment
Saturday, October 11, 2014: 12:30 PM

Background. Hospital rooms of inpatients with *Clostridium difficile* infection (CDI) can become contaminated with this major pathogen; unless adequately disinfected, rooms can serve as a reservoir where subsequent patients hospitalized in the same room can also become infected with *C. difficile* (CD). It was incidentally noted that a patient acquired severe CDI while in a room in our hospital that had recently been occupied by another patient with CDI. As a pilot for a new surveillance measure, we sought to estimate the frequency that patients acquire CDI after exposure to a room recently occupied by a patient with CDI.

Methods. CD test results and room location data were obtained from our 500-bed tertiary care center's MedMined database. For the purposes of this surveillance pilot, hospital-acquired CDI was defined as positive CD PCR test ≥ 3 days after admission. A room was defined as "potentially contaminated" when occupied by a patient who had a positive CD test within the prior 14 days. A patient was defined as exposed if he/she occupied a "potentially contaminated" room within 14 days prior to testing positive for CD. The Emergency Department and operating rooms were excluded from the study.

Results. During the period July-September 2013, 93 patients had a positive CD PCR. Of the 47 hospital-acquired cases, 5 (11%) had developed CDI after exposure to a "potentially contaminated" room (occupied 0-2 days prior by a person with CDI).

Geographically associated cases	Room	Dates same room was occupied	Date 1 st <i>C. difficile</i> positive
Index	A	Jul 23-28	Jul 22
HAI	A	Jul 28-Aug 18	Jul 31
Index	B	Aug 1-Aug 7	Aug 1
HAI	B	Aug 7-Sep 5	Aug 15
Index	C	Aug 3-6	Aug 4
HAI	C	Aug 6-7	Aug 15
Index	D	Jul 22-Aug 23	Aug 20
HAI	D	Aug 25-Sep 10	Sep 8
Index	E	Sep 9-12	Sep 11
HAI	E	Sep 12-17	Sep 16

Conclusion. In a 3-month period, this specialized surveillance measure uncovered a small but important percentage of inpatients who had acquired CDI potentially from a contaminated room. Our hospital subsequently instituted sporicidal (bleach-based) disinfectants for terminal cleaning of all inpatient rooms. It is relevant to develop computerized algorithms in surveillance systems that can recognize these geographical associations for hospital-acquired infections; this data can then be used to guide environmental health interventions.

Disclosures. All authors: No reported disclosures.