tipped swab (Fisher Scientific) premoistened in Dey-Engley neutralizer (Becton Dickinson). The swabs were vortexed for 45 seconds in 200 μL of Dey-Engley neutralizer, plated onto prerreduced C. difficile Brucella agar (CDBA), and cultured as previously described. For the fresh Clorox premoistened germicidal wipe only, an additional experiment was performed in which the inoculated site was wiped for 10 seconds and then sequentially imprinted onto 5 prerreduced CDBA plates containing Dey-Engley neutralizer. All experiments were performed in triplicate.

Figure 1 provides an illustration of the findings. Use of fresh Clorox premoistened germicidal wipes with 5 minutes of contact time consistently reduced C. difficile spores to undetectable levels at the inoculum site, with no transfer of spores to clean sites. In contrast, large numbers of spores were transferred to all four sequential clean sites by wipes moistened with the quaternary ammonium product or water (mean number of spores recovered from the fourth transfer site, 3 and 2.1 log CFUs, respectively). The used Clorox wipes transferred spores to all 4 sequential sites but in much lower quantities (mean, 0.4 log CFUs recovered from the fourth transfer site). Finally, fresh Clorox premoistened germicidal wipes transferred large quantities of spores (CFU too numerous to count) to 5 successive CDBA plates containing Dey-Engley neutralizer (i.e., minimal contact time with hypochlorite allowed because of rapid exposure to neutralizer).

In summary, our results demonstrate efficient transfer of C. difficile spores from contaminated to clean surfaces by nonsporicidal wipes, as has previously been reported by Siani et al. Moreover, our findings illustrate the potential for transfer of spores by hypochlorite wipes that are used inappropriately. In our facility, observations of housekeepers demonstrated that many workers changed hypochlorite wipes infrequently while others used paper towels to dry surfaces shortly after application of hypochlorite. As illustrated here, such practices can result in insufficient wet contact time for killing of spores. Our findings demonstrate the need to provide clear instructions to housekeepers on how wipes should be used and provide support for the recommendation that sporicidal disinfectants are preferred for surfaces in CDI rooms when feasible. For effective disinfection of C. difficile, a sporicidal product plus correct practices are essential.

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Clostridium difficile Infection: It’s a Family Affair

To the Editor—Infection control management of Clostridium difficile infection (CDI) in healthcare facilities has primarily focused on prevention of patient-to-patient transmission. We report on 6 cases of paired CDI identified over a 5-year period that occurred within the respective families, which highlights the potential for intrafamilial spread of CDI in both community and hospital settings. The original case-pairs were identified through root-cause analysis, which we perform on...
all cases of CDI with onset during hospitalization or within
72 hours after patient discharge. We subsequently undertook
a search of all microbiologically confirmed cases of CDI dur-
ding the period 2007–2012. Individuals who shared the same
surname or same address were identified for additional in-
vestigation. All putative case-pairs identified were reviewed
to identify potential epidemiological associations; this in-
cluded ribotyping of available C. difficile isolates and, when
possible, multiple-locus variable number tandem repeat anal-
ysis (MLVA). Six cases of paired CDI were identified.

In pair 1, the index patient, a 74-year-old woman, was
admitted for investigation and management of diarrhea. She
had had an episode of CDI earlier that year and received a
diagnosis of recurrent CDI during this hospitalization. A
specimen obtained within 1 day of admission to the hospital
was found to be positive for glutamate dehydrogenase (GDH)
and C. difficile toxin. One week later, the patient’s husband
(also her main caregiver) developed CDI. The contact patient
had multiple comorbidities and his own independent risk
factors for CDI. Isolates from both patients were identified
as ribotype 027, and they were indistinguishable on MVLA
typing.

In pair 2, the index patient, a 76-year-old woman, was
admitted to the hospital for investigation of suspected acute
colitis after chemotherapy. A stool sample obtained at hospital
admission was found to be positive for GDH but negative for
C. difficile toxin, which suggested C. difficile colonization
rather than CDI. However, because of persistent symptoms,
the patient was given metronidazole therapy, to which she
responded well. Her husband, a patient with chronic lung
disease who required recurrent antibiotic therapy for infective
exacerbations in the community, was admitted to the hospital
ten days later with diarrhea. A stool sample obtained the fol-
dowing day was positive for both GDH and C. difficile toxin.
Both isolates belonged to ribotype 127.

In pair 3, a 39-year-old woman received a diagnosis of CDI
in the community after receiving antibiotic therapy for pre-
sumed cholecystitis. Her 15-month-old son presented to his
primary care physician with diarrhea. At the family’s request,
a stool sample was tested and was found to be positive for
both GDH and C. difficile toxin. Ribotyping of the isolates
demonstrated that both belonged to ribotype 017.

Review of the paired cases of CDI, taken together with
indistinguishable ribotypes and their temporal association, is
highly suggestive of an epidemiological link and thus high-
lights the potential for spread within families. Interestingly,
2 of 3 contact patients had their own independent risk factors
for CDI. In addition, the apparent transmission from a GDH-
positive but toxin-negative patient to her spouse, who went
on to develop active CDI, is also of particular note. Although
the clinical significance of isolating C. difficile in an infant is
not clear, as in the last case-pair, the matching ribotypes
suggest a putative link between the 2 cases.

A recent study has suggested that intrafamilial transmission
of CDI is infrequent.1 Our findings corroborate this. We iden-
tified 3 case-pairs from a total of 238 confirmed cases of CDI
over a 5-year period. However, the database search relied on
identification of shared surname and address, and this may
have underestimated the frequency of transmission. Never-
theless, we have amended the information on CDI given to
patients and their relatives. In particular, we have reinforced
the importance of adopting appropriate hand hygiene mea-
sures by index case patients and family members (both at
home and in the hospital) in an attempt to reduce the risk
of intrafamilial spread of CDI.

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East North Central Region Has the Highest
Prevalence of Vancomycin-Resistant
Enterococcus faecalis in the United States

To the Editor—We read the article of Hayakawa et al1 with
great interest. The report describes the growing prevalence
of vancomycin-resistant Enterococcus faecalis in Michigan, a
state that also has the most reports of vancomycin-resistant
Staphylococcus aureus. Similar findings were reported in the
tigecycline evaluation and surveillance trial (TEST).2 During
the 2004–2009 period, 4.6% of 3,753 E. faecalis isolates were

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