

How much *Clostridium difficile* is preventable?

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1. Introduction

- *Clostridium difficile* remains a challenge to many acute hospitals.
- Several recent study suggest that a minority of cases of *C. difficile* are due to in-hospital transmission.^{1,2}
- The multidisciplinary team performing root cause analysis wanted to examine if the number of cases seen could be due to two key locally agreed potential lapses in care: (a) non compliance with antibiotic policy, and (b) evidence of patient pathway transmission.

2. Methods

- Antibiotic management and patient pathways were examined for the 79 Trust-attributed cases in FY14/15.
- If patient pathways crossed and the patient shared a ward with a patient who was symptomatic and was later found to have *C. difficile* positive diarrhoea, ribotyping was examined to see if it supported possible transmission.
- A potential lapse in care was defined as an identified failure in antibiotic policy or evidence of patient pathway transmission.

Table: Potential lapses in care for *C. difficile* cases.

	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	TOT
Total number of toxin positive cases 14/15	7	9	9	6	10	4	9	3	4	2	8	8	79
Antibiotic Exposure													
No exposure	0	2	1	0	3	0	2	1	0	0	1	0	10
Prescribed as per policy	6	7	8	6	7	4	7	2	4	1	6	8	66
Outside of policy and action taken	1	0	0	0	0	0	0	0	0	1	1	0	3
Contact with other <i>C. difficile</i> cases during this admission throughout pathway													
No contact with other patients with <i>C. difficile</i>	7	9	8	6	9	3	7	2	4	0	7	3	65
Had contact with other patients with <i>C. difficile</i>	0	0	1	0	1	1	2	1	0	2	1	5	14
Potential lapse in care	1	0	1	0	1	0	0	0	0	1	1	5	10

3. Results

- Of the 79 cases, three cases were found to have antibiotic policy non compliance. Non compliance was defined as an incorrect agent or lack of antibiotic policy documentation. Of the 3 cases, one was an incorrect agent, one had no indication documented and one had no stop or review date.
- A total of 14 cases were identified as possible transmission by pathway investigation; however seven of these had differing ribotypes.
- Of the remaining 7 cases, 6 had similar ribotyping and in 1 case the ribotype failed to grow so transmission could not be excluded.
- This led to a total of 10 potential lapses in care out of a total toxin positive number of 79. 7 of these were based around pathway transmission with 3 cases linked to antibiotic non compliance.

4. Discussion

- In approximately 95% (78/81) of the cases, there was evidence of compliance with local antibiotic policy. The cases where ribotyping was found to be similar represented two separate possible transmission incidents where the ward environment was challenging and patients needed higher levels of clinical care.
- However, 50% (7/14) of the cases had different ribotyping, with 70% of these cases having less than one month inpatient stay highlighting a possible community reservoir.
- We only identified a potential lapse of care in 13% of cases suggesting that the majority of cases acquire their *C. difficile* elsewhere and develop *C. difficile* infection as a result of appropriate antibiotic use.

References

1. Eyre *et al.* *N Engl J Med* 2013;369:1195-205. 2. Curry *et al.* *Clin Infect Dis* 2013;57:1094-102.