RES-331

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Hospital onset C.difficile (HO-CDI) infections in Auckland - clinical characteristics and outcomes

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Background:

HO-CDI, defined as infection after 72 hrs of hospitalisation, is a relatively uncommon infection in NZ contributing to only 1.7% of all healthcare associated infections *(2021 national HCAI study).* Ribotype -014 (non-hypervirulent) is the most common, with ribotype-0244 (similar to 027 US/UK strain) reported in the past.
Our local HO-CDI and overall CDI rate/10,000 bed days ranged from 1.7-2.6, and 3.3- 4.9 respectively over the last decade.

Methods:

An **observational analysis** of demographics, clinical characteristics, commonly implicated antibiotics, severity and outcomes of HO-CDI cases in adults (>18 yrs) diagnosed at North Shore and Waitakere hospitals between Nov 2023 till March 2025 was performed in order to better understand its implications

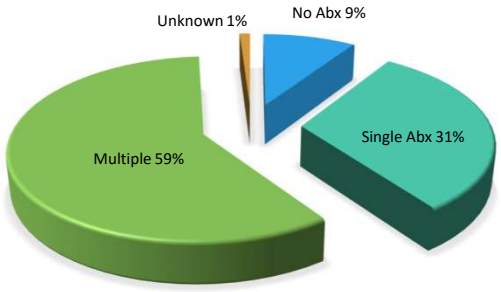
Severe CDI was defined as one of the following at the time of diagnosis (modified ESCMID 2021 criteria)- WBC count of >15 ,000 cells/mL, rise in serum creatinine >50% above baseline, core body temperature >38.5°C with additional supporting factors of colitis ileus, toxic megacolon. Imaging: distension of large intestine, peri-colonic fat stranding or wall thickening hypotension, septic shock, elevated serum lactate, bowel perforation, fulminant course (i.e. rapid deterioration) from CDI.

Results:

A total of **97 cases** with a mean age 78 yrs (range 27-98 years) were identified. Fifty-eight patients were 80 years and above.
Males were slightly more predominant (54 vs 43).
About 30% patients belonged to ethnic minorities.
Charlson Co-morbidity index mean 5.5.
Primary admission reason was not infection related in 69 cases.

Overall sensitivity of C.diff toxin *(C.diff Quik Chek Complete-Tech Lab)* was only EIA 32% highlighting importance of a 2-step testing algorithm with PCR.

Multiple antibiotic use was common (figure) with 144 different antibiotics used in 55 patients.



Cefuroxime (51%) and amoxicillin/clavulanate (35%) were the commonest antibiotics. Attribution to quinolones and clindamycin was uncommon.

Severe CDI was seen in only 6 cases (6%), with only 1 positive on EIA (as shown in table below).
A case of 'atypical CDI'- presenting as stercoral colitis was noted with delay in diagnosis.
A total of 13 patients with HO-CDI died during hospital stay, including 3 with severe CDI.

	Relevant clinical history	Diagnosis of CDI and Abx history	Severity criteria	Outcome
1	76 M, very comorbid PH resident admitted with leg cellulitis treated with flucloxacillin	Toxin neg (day 6 hospital) Fluclox, later added Aug then ceftriaxone for HAP 2 days prior	**'Atypical' CDI presenting with constipation. CT stercoral colitis, severe abd pain, WBC >15 K, CRP 297**	Discharged 1 week post dx
2	77 M, admitted with incarcerated hernia requiring resection	Toxin neg (day 10 hosp) Cef/Met post operative	WBC >15K, Cr >50% baseline, distended abdomen- ileus AXR	Discharged 42 days post dx
3	53 F, admitted with neck swelling, SLE flare, ?dental infection and cystitis. Possible LRTI also	Toxin + (day 10 hospital) Aug/cef/flu/mer/NFN/rox	WBC > 15K; peritonitis, AXR bowel distension, CT- no colitis, readmission in 48 hrs for worsening diarrhoea.	Discharged 5 days post Dx but readmitted
4	94 F, admitted with fall with pubic rami fracture Nosocomial COVID with ?LRTI, recurrent CAUTI	Toxin – (day 30 hospital) Cefuroxime Had norovirus also	Delirium, NGT, tender abdomen, no AXR. Cr >50% , WBC >15 K	Died 6 days post CDI dx
5	87 M, admitted with fall and NOF#, also LLL CAP Subsequently developed HAP post oper	Toxin – (day 4 hospital) Ceftriaxone for CAP	Distended abd, abnormal AXR, Cr>50%, CRP around 400, lactate 8, WCB>15 K	Died- Aspiration 3 weeks post CDI dx
6	79 Maori F, admitted with CHF post NSTEMI. Subsequently AF, CVA, UTI, LRTI and COVID	Toxin – (day 16 hospital) Aug/Cefurox/metr/roxi	Sudden deterioration post CVA, cardiorenal syn, resp. failure, lactate 6, Cr>50%, WBC>15K.	Died- Aspiration 3 days post CDI dx.

All cases were treated with oral vancomycin.
About 10% of patients did not receive any antibiotics in the last 30 days prior to diagnosis of HO-CDI.
All had mild or no CDI symptoms and received laxatives prior, raising the possibility of asymptomatic CDI carriage.
Overall laxative use prior to CDI diagnosis was common in 41 patients.

Conclusion:

HO-CDI still affects about 50 patients per year in our 2 public hospitals, in a setting of low quinolone usage, with adults over 80 yrs as the most common group.
Severe CDI is uncommon and can be seen in EIA negative cases.
Clinicians should be aware of asymptomatic CDI carriage and over-treatment of such cases following transient diarrhea following laxative use.