C. difficile – infection (<12 hours), and standard treatment with oral vancomycin for a minimum of 10 days (125 mg po qid in mild and moderate illness, and 250 mg qid in severe disease). Patients with a confirmed diagnosis of C. difficile infection (PCR: Gene Xpert Cepheid) and inflammatory diarrhea were included. The study was carried out in a third-level hospital, in the period between September 2017 and December 2018.

**Results.** In 15 month study period, 92 cases of C. difficile infection were documented. All cases were caused by strain NAP1 / B1 / 027. Twenty-three patients (25%) had mild disease, 28 (30.4%) moderate illness and 41 (44.56%) complicated illness. Thirty-four patients were evaluated with multimodal strategy and 58 according to the traditional treatment. Only 24 patients (41%) in the traditional treatment group received treatment with oral vancomycin. The clinical outcomes of patients in the multimodal strategy against patients with the traditional strategy were: clinical cure 85.3% vs 37.9% (P = 0.02), recurrence 2.9% vs 17.2% (P < 0.05) and death 11.8% vs 44.8%(P = 0.05), respectively.

**Conclusion.** Unfortunately, in our country, there are no guidelines for the management of C. difficile infection, and in many hospitals, metronidazole is the most prescribed treatment. In this study, we documented that implementing a standardized strategy of surveillance, diagnosis and adequate treatment, reduced mortality related to C. difficile infection, recurrence, and achieved greater clinical cure.

Cases and deaths related to C. difficile infection before and after implementation of multimodal strategy.

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2387. Learning the Influence of Individual *Clostridioides difficile* Infections

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**Background.** Healthcare-associated *Clostridioides difficile* infection (C diff infection, or CDI) imposes a substantial burden on the healthcare system. The impact of an individual C diff infection on onward transmission is not well understood. We developed a model of incident infections using self-exciting stochastic processes, known as Hawkes processes. These models can be used to improve our understanding of the factors that affect the likelihood of new infections to result in additional infections.

**Methods.** All patients admitted to a large urban hospital between January 2013 and June 2014 were included. We used Hawkes processes to model the influence of each new CDR case (index infection) on transmission to other patients resulting in additional CDR. We developed separate Hawkes processes for each unit in the hospital to understand the differential impact of a C diff case across units. Units included both semi- and private-room wards, intensive care units, an emergency department, and specialty units such as oncology.

**Results.** The magnitude of influence of an index infection on additional infections in the 2 days prior to the C diff test being sent varied across units. Results for an oncology unit, the emergency department, and an all private-room unit are provided (Table 1). An index infection in the emergency department demonstrated the greatest influence, leading to the largest number of additional infections, and increasing in the days leading up to the C diff test being sent. The impact 2 days prior to sample collection was similar across all unit types, and remained constant for oncology unit patients.

**Conclusion.** We used Hawkes processes to model the impact of an index C diff infection on onward transmission. We identified differential impacts associated with the unit where the index patient was located in the days leading up to diagnosis. These differences, which could relate to unit-specific factors such as cleaning practices, patient turnover rates, use of portable medical equipment, antibiotic use, and other factors that vary across units, suggest that interventions aimed at controlling CDR may need to consider unit-specific approaches.

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**Table 1. Demographics**

| Variable | Aggregates | Clostridioides C. difficile (%) | P-value |
|----------|------------|-------------------------------|---------|
| Age      | Median 65  | 65 (60-70)                    | <0.01   |
| Sex      | Male 45     | 50 (40-60)                    | <0.01   |
| Race     | White 40    | 40 (30-50)                    | <0.01   |

**Figure 1: Survival Analysis**

Survival Plot for Days of Therapy

**Table 2: PTZ Multivariate Regression Model**

| Source                  | Unadjusted Odds Ratio | 95% CI     | Adjusted Odds Ratio | 95% CI     | P-value |
|-------------------------|-----------------------|------------|---------------------|------------|---------|
| High-Risk Antibiotic Use| 1.62                   | 1.08-2.45  | 1.04                | -          | -       |
| Acute Suppression Use   | 0.91                   | 0.92-1.01  | 0.91                | -          | -       |
| Male                    | 0.92                   | 0.93-1.05  | 0.87                | -          | -       |
| Charlson Comorbidity Index Score | 0.57 | 0.52-1.06  | 2.02                | -          | -       |
| Age                     | 1.19                   | 1.07-1.33  | 1.03                | -          | -       |
| Days of Hospital Admission | 1.165                | 1.02-1.34  | 1.03                | -          | -       |

**Table 3: FEP/CTZ Multivariate Regression Model**

| Source                  | Unadjusted Odds Ratio | 95% CI     | Adjusted Odds Ratio | 95% CI     | P-value |
|-------------------------|-----------------------|------------|---------------------|------------|---------|
| High-Risk Antibiotic Use| 1.84                   | 0.50-6.39  | 0.07                | -          | -       |
| Acute Suppression Use   | 0.01                   | 0.01-0.01  | 0.01                | -          | -       |
| Male                    | 0.78                   | 0.49-1.26  | 0.38                | -          | -       |
| Charlson Comorbidity Index Score | 1.19 | 0.57-2.42  | 0.13                | -          | -       |
| Age                     | 1.03                   | 1.00-1.06  | 0.09                | -          | -       |
| Days of Hospital Admission | 1.036                | 1.02-1.05  | 0.01                | -          | -       |

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