How Much Does Prior Hospitalization Contribute to Readmission with Community-onset *Clostridioides difficile* Infection?

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Background

- Interventions to reduce community-onset *Clostridioides difficile* Infection (CDI) are not typically hospital-based
  - Common perception that community-onset CDI is often acquired outside the hospital
- However, the admission prevalence rate of community-onset CDI can impact the incidence of hospital-onset CDI
- Objective: determine the proportion of admitted community-onset CDI that might be associated with previous hospitalization

Methods

- Centers for Disease Control and Prevention's Emerging Infections Program (EIP) conducts population-based CDI surveillance in 10 sites (CA, CO, CT, GA, MD, MN, NY, NM, OR, TN)
- Case definition: *C. difficile*-positive stool (toxin or molecular assay) collected in person ≥1 year of age with no positive tests in prior 8 weeks
- Medical-record abstraction performed on all cases in 8 EIP sites and a 33% random sample of cases in 2 EIP sites (CO and GA)
- Classification of hospitalized cases:
  - –Hospital-onset: stool collected >3 days of admission
  - –Community-onset: stool collected ≤3 days of admission
    - Further classification of community-onset cases into 4 mutually exclusive categories:
      - –Long-term care facility (LTCF)-onset: stool collected from LTCF resident
      - –Long-term acute care hospital (LTACH)-onset: stool collected from a patient admitted from an LTACH
      - –Community-onset healthcare-facility associated (CO-HCFA): documented overnight stay in ≥1 healthcare facility in the prior 12 weeks but was admitted from a private residence
      - –Community-associated: no documented overnight stay in a healthcare facility in the prior 12 weeks
- Excluded hospitals with <10 cases among admitted catchment-area residents

Results

- 15,512 CDI cases identified in 10 EIP sites in 2017
  - –Medical-record abstraction performed on 12,376 cases (excludes 3136 non-sampled CO and GA cases):
    - 4724 cases hospitalized in 86 hospitals: 2984 (63.2%) community-onset cases (median per hospital: 65.8%; interquartile range [IQR]: 58.3%-70.7%)

Figure 1. Proportion of Incident *Clostridioides difficile* Infection Cases that are Hospitalized According to Epidemiologic Classification, 2017, 10 U.S. Sites

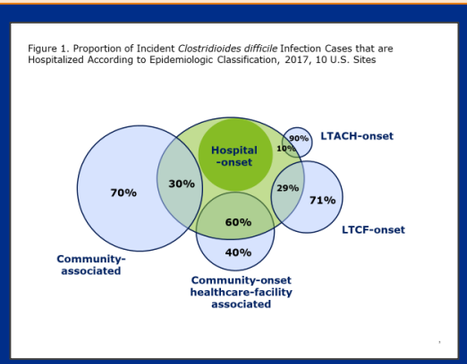
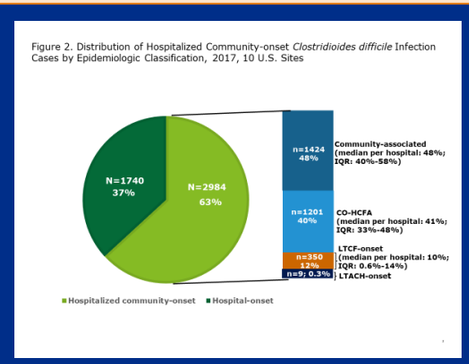


Figure 2. Distribution of Hospitalized Community-onset *Clostridioides difficile* Infection Cases by Epidemiologic Classification, 2017, 10 U.S. Sites



Healthcare and antibiotic exposures in preceding 12 weeks among CO-HCFA cases

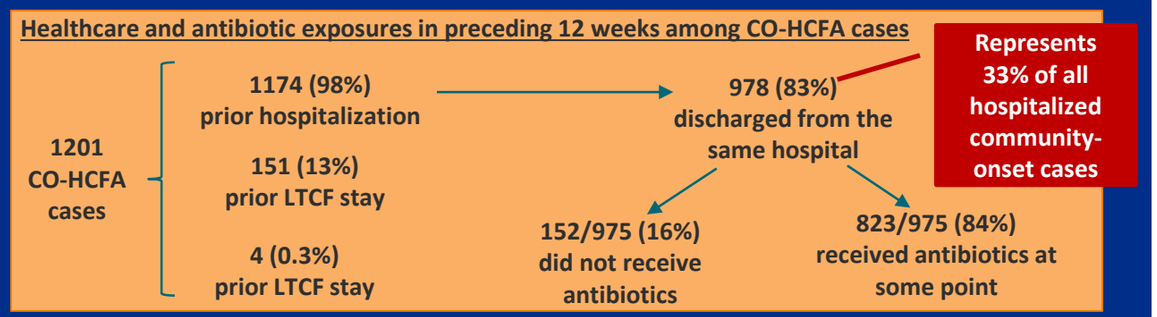
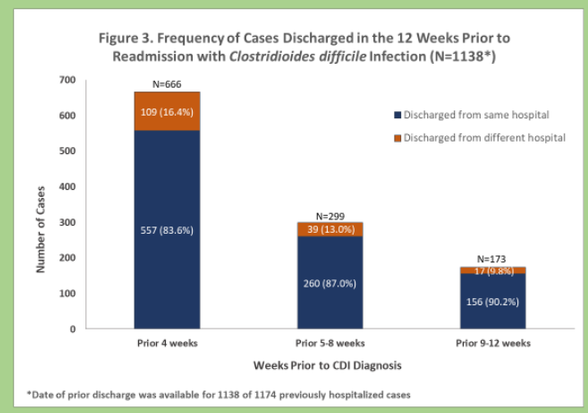


Figure 3. Frequency of Cases Discharged in the 12 Weeks Prior to Readmission with *Clostridioides difficile* Infection (N=1138*)



*Date of prior discharge was available for 1138 of 1174 previously hospitalized cases

Limitations

- We did not have data for non-catchment-area residents who were admitted with CDI
  - –Could potentially bias our data if there were systematic differences in the detection of CDI among non-catchment vs catchment-area residents
- Incomplete documentation of medical records could underestimate the extent of prior hospitalizations and antibiotic exposures
- We did not have information on where prior antibiotics were prescribed or administered
  - –Unable to determine the extent to which antibiotic exposure could be attributed to previous hospitalization

Conclusions

- A third of patients hospitalized with community-onset CDI had been recently discharged from the same hospital
- Most of the hospitalized community-onset CDI patients who were recently discharged had recent antibiotic exposures
  - –Likely received antibiotics during or soon after the previous admission
- Hospital-based and post-discharge interventions aimed at improving antibiotic use could potentially help reduce subsequent CDI hospitalizations

EMERGING INFECTIONS PROGRAMS

Healthcare-Associated Infections/Community Interface

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