Exploring Community Associated Clostridium Difficile

Patricia Dumonceaux MSN, RN, CIC, PHN
St. Cloud Hospital, CentraCare Health, dumonceauxp@centracare.com

Dana Schmidt RN
St. Cloud Hospital, CentraCare Health, dana.schmidt@centracare.com

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Exploring community associated *Clostridium difficile*

Patricia Dumonceaux MSN, RN, CIC, PHN and Dana Schmidt, RN, Metropolitan State University
St. Cloud Hospital, St. Cloud, Minnesota

### Introduction

*Clostridium difficile* (C. difficile) is a life threatening bacteria spread in spore form through diarrhea. C. difficile effects approximately 500,000 people annually (CDC, 2016). From 2009-2016, the incidence rate of C. difficile in Minnesota* has increased from 50 to 227/1000,000 persons, with 58% of cases considered community associated** (CA), 17% healthcare facility onset (HCFO), and 25% community onset-HCFO (MDH, 2016). MDH 2016 data indicates C. difficile is being transmitted within healthcare and community settings and among patients primarily greater than 65 years of age, with 54% of CA cases using antibiotics during the 12 weeks prior to positive specimen (2016).

### Research Problem/ Question

What are the commonalities and differences among the CA C. difficile cases admitted to SCH in 2017?

### Methodology

- Retrospective study to examine the CA C. difficile cases for 2017
- Separated CA and HCFO positive C. difficile cases admitted to SCH. (CA defined as no stay in hospital during 12 weeks prior to positive specimen, HCFO defined as collected >3 days after hospital admission.)
- Reviewed prior 30 day history of CA cases to assess patient living situation and previous healthcare encounter(s) within CentraCare Health.
- Analyzed antibiotic use during the 12 weeks prior to disease onset for CA patients

### Analysis/Results

#### Analysis of CA C. difficile cases of patients admitted to St. Cloud Hospital in 2017

- **CA vs HCFO: 2017 Cumulative Data**
  - CA: 53%
  - HCFO: 47%

- **CA Gender Comparison**
  - Male: 47%
  - Female: 53%

- **Percent of Individuals**
  - CA Age Comparison:
    - 0-4: 0%
    - 5-9: 2%
    - 10-14: 9%
    - 15-19: 14%
    - 20-24: 21%
    - 25-29: 21%
    - 30-34: 6%
    - 35-39: 7%
    - 40-44: 6%
    - 45-49: 4%
    - 50-54: 6%
    - 55-59: 2%
    - 60-64: 1%
    - 65+: 21%
  - Previous Living Situation:
    - Live with Others: 24%
    - Live Alone: 13%
    - Live with Spouse: 17%
    - Live with 1-2 People: 9%
    - Live with >5 People: 7%
    - Live in Hospital: 13%
    - Live in Assisted Living: 3%
    - Live in Nursing Home: 4%
    - Live in Group Home: 9%
    - Live in Hospice: 3%
    - Live in Home Health: 3%
    - Live in Other: 6%

- **Type of Antibiotic(s)**
  - 0-4: 0%
  - 5-9: 2%
  - 10-14: 9%
  - 15-19: 14%
  - 20-24: 21%
  - 25-29: 21%
  - 30-34: 6%
  - 35-39: 7%
  - 40-44: 6%
  - 45-49: 4%
  - 50-54: 6%
  - 55-59: 2%
  - 60-64: 1%
  - 65+: 21%
  - Vancomycin: 21%
  - Cephalosporin: 21%
  - Other Antibiotics: 21%
  - Combination of Antibiotics: 21%
  - No Antibiotics: 21%

- **Antibiotic use during 12 weeks prior to positive CA screening**
  - Received Antibiotics: 49%
  - No Antibiotics: 51%

### Conclusions/Implications

- 50% or 105 of the 208 patients with CA C. difficile, had a previous outpatient visit
- Of the 105 individuals with a previous outpatient visit, there was a total of 232 outpatient visits between 104 outpatient locations
- Most common outpatient locations visited: SCH ETC, SCH Outpatient Services, CCH St. Cloud Home Care, CCH Adult Pediatric Urology, CCH Plaza Family Medicine, and CCH Urgency Center.
- No correlation between CA C. difficile and previous living situations with recent outpatient visits
- 49% of patients used antibiotic(s)** during 12 weeks prior to positive screening with greater use of a combination of antibiotics or use of other antibiotic(s) than vancomycin and cephalosporins independently
- Recommend continued community education about C. difficile and antibiotic use and partnering with outpatient healthcare facilities to decrease risk of transmission

### References


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*Data from Benton, Morrison, Olmsted, Stearns, and Todd Counties

*Data limited to information available in CentraCare Health electronic medical record dumonceauxp@centracare.com; Dana.Schmidt@centracare.com.*