**BACKGROUND/RATIONALE**

- According to the Centers for Disease Control, approximately 500,000 individuals are infected annually with *Clostridium difficile* resulting in 15,000 deaths.  
- Our facility is a 78 bed Adult Inpatient Acute Rehabilitation Facility that realized an increase of *Clostridium difficile* infections (CDI) that exceeded National Standards during 2015.  
- Our Quality Committee embarked to examine the root cause of this increase and develop an action plan.

**OBJECTIVES**

- Understand the impact and contributing factors of *Clostridium difficile* infection (CDI)  
- Discuss results and findings  
- Implement action plan to reduce CDI

**METHODS**

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<th>Study Design: Retrospective review of medical records</th>
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| Data Collection:  
  - Time from admission to development of CDI  
  - Co-Morbidities  
  - Use of PICC Line or Urinary Catheter  
  - Presence of infection prior to CDI and treatment of such infection  
  - CDI treatment regimen  
  - Use of probiotics  
  - History of CDI within last 90 days  
  - Length of stay  
  - Proton Pump and/or H2 antagonist use  
  - Room/location during stay  
  - Personnel involved in care |

**Study Period:** January 2015 to October 2015

**Inclusion Criteria:** Patients with a positive CDI confirmed by toxin and antigen 72 hours after admission

**Exclusion Criteria:** Patients with a positive CDI prior to 72 hours of admission  
Patients < 18 years old

**REFERENCES**


**RESULTS**

- Admitted with pre-existing C. difficile (CDI) infection  
- Acquired CDI during hospital stay  
- Broad spectrum antimicrobial use  
- Positive CDI infection after the first 72 hours of hospital admission  
- Incorrect frequency for CDI treatment  
- Recurrent CDI infection (previous 90 days)  
- Use of one antimicrobial  
- Use of two to three antimicrobial agents  
- Use of more than three antimicrobial agents  
- Length of hospital stay 14 days or less  
- Length of hospital stay greater than 14 days  
- History of DM  
- History of Cancer  
- Use of PPI/H2 blocker during hospital stay

**DISCUSSION/FINDINGS**

- Documentation of *C. difficile* history within last 90 days was not well identified.  
- Decreased awareness of patients experiencing diarrhea and obtaining *C. difficile* toxin testing in a timely manner was noted  
- Incorrect frequency for prescribed CDI treatment  
- 97% of patients prescribed broad-spectrum antimicrobials for various indications  
- No trends or issues with cross-contamination of personnel or patient care rooms  
- All patients were prescribed a PPI or H2 antagonist

**ACTION PLAN**

- All patients admitted will be reviewed for a history of *C. difficile* especially within the previous 90 days by pharmacy  
- Standard antimicrobial treatment for *C. difficile* infections  
- Stool cultures will be obtained for patients who exhibit diarrhea and have a history of antimicrobial therapy 3-4 weeks previously  
- Indication and duration is required for antimicrobials  
- Antimicrobial Stewardship Program under development  
- Future considerations include a more thorough investigation of the prescribing practices of PPI and H2 antagonists

**FIGURE 1: FISHBONE DIAGRAM OF POTENTIAL CAUSES OF CDI**

- Direct causes  
- Indirect causes  
- Systemic causes  

**FIGURE 2: MONTHLY PERCENTAGE OF CDI CASES PER 10,000 PATIENT DAYS 2015**

**FIGURE 3: BROAD SPECTRUM ANTIBIOTIC USE**

- Percentage of antimicrobials prescribed for various indications  

**FIGURE 4: DESCRIPTION OF FINDINGS**

- Antimicrobial use  
- Proton pump inhibitors  
- H2 antagonists  

- Number | Percentage |
- Admitted with pre-existing C. difficile (CDI) infection | 4 | 27 |
- Acquired CDI during hospital stay | 11 | 73 |
- Broad spectrum antimicrobial use | 13 | 87 |
- Positive CDI infection after the first 72 hours of hospital admission | 11 | 73 |
- Incorrect frequency for CDI treatment | 2 | 13 |
- Recurrent CDI infection (previous 90 days) | 4 | 37 |
- Use of one antimicrobial | 2 | 13 |
- Use of two to three antimicrobial agents | 10 | 67 |
- Use of more than three antimicrobial agents | 6 | 40 |
- Length of hospital stay 14 days or less | 9 | 60 |
- Length of hospital stay greater than 14 days | 5 | 33 |
- History of DM | 4 | 26 |
- History of Cancer | 15 | 100 |