A Collaborative, System Wide Approach to Reducing Healthcare Onset Clostridium Difficile

By Renecha Abrams, MSN, APRN, CCRN, ACCNS-AG and Angeleta Robinson, MSN, GB LLS, CNL
WellStar Health System

- Not-For-Profit 11-Hospital System ~ 2,775 Beds
- Integrated Health System: 2 Health Parks, 3 Nursing Homes, 3 Hospices, 8 Urgent Care Centers, 19 Imaging Centers, 1 Pediatric Center

- 240 Medical Offices (2,900 Medical Group Providers)
- 69,900+ Discharges/year
- 9,500+ Deliveries/year
- 20,000+ Team Members
- Revenues $3 Billion
- $427 Million in Annual Community Benefits
Objectives

• Explain the purpose of the collaborative effort to decrease the healthcare onset clostridium difficile (C-diff) rates within the system

• Examine the multidisciplinary team approach and strategies used

• Analyze the effectiveness of the initiatives implemented
Background

Healthcare Onset Clostridium Difficile (HOC-diff)

• Is one of the most common healthcare associated infections (HAIs), within the United States

• Increases hospital length of stay by 2.7 days, has an associated mortality rate of 10%, and negatively impacts the citizens in our community (Dubberke et al., 2014)

• Increases the cost to the organization by $15,000 per episode (Dubberke et al., 2014)
Gap Analysis

• Variations within clinical practice, lack of evidence-based policies and procedures; knowledge deficits, a lack of standardized tools, workflow across the system, and communication between nursing staff and EVS regarding daily cleaning

• A lack of antimicrobial stewardship programs at most new facilities; antibiotic usage tracking at new facilities; transitioning from defined daily doses to days of therapy (more accurate days of use)

• Major differences in practices in the cleaning of the environment, equipment between facilities by environmental services (EVS), compliance in cleaning between c-diff patients, and insufficient validation of hand hygiene compliance among the clinical staff within the outpatient setting

• An unachieved FY16 C-diff goal rate of 6.89 per 10,000 patient days – end rate 8.86 for our 5 legacy facilities
Purpose

• The purpose of this multidisciplinary team approach was to standardize our clinical practices across the system, implement evidence-based policies and procedures related to c-diff, identify and correct practices that contribute to HOC-diff cases.

• All actions were aimed at decreasing the rate of HOC-diff cases, decreasing patient’s length of stay, decreasing organizational expenses associated with HOC-diff, reducing mortality, and decreasing the impact on our community
Team Structure

• Formulated a multidisciplinary C-diff Taskforce that consisted of:
  – Antimicrobial Stewardship (AMS)
  – Education
  – Environmental Services
  – Clinical Inpatient
  – Clinical Ambulatory
  – Clinical Community
  – Information Technology
  – Communication/Marketing

• Led by a Project Manager, Operational Leaders, Executive Sponsors and Leaders
Methodology
Antimicrobial Stewardship

Initial work:

• Conducted a retrospective review of HOC-diff cases that revealed an overuse of agents shown to be associated with HOC-diff and delays in microbiological identification of pathogen, which caused prolonged empiric antimicrobial therapy.

• Worked with IT to implement best practice advisories (BPAs) for additional diarrhea-inducing medication and those target agents which prompted providers to consider other antibiotics.
Antimicrobial Stewardship

Continued worked:

• Monitoring antibiotic usage
  – Transitioning from DDD/1000 patient days to DOT/1000 patient days to allow for benchmarking

• Reviewing policies to identify differences and barriers in order to develop one-system wide policy

• Gives instructions on how stewardship should be performed
  – Analyzed gaps at each facility with action plan in place

• Working to update existing pathogen identification and susceptibility testing system in microbiology, including new mass spectrometry and polymerase chain reaction (PCR) testing methods
Leading Metric:

Broad Spectrum Antibiotic Use in DDD/1000 Patient Days and DOT/1000 Patient Days at WS Legacy Hospitals
Clinical Inpatient

• Finalized and implemented a system-wide C-diff Nurse Driven Protocol
  – Med Exec. approval
  – Collaborated with Professional Practice department and/or leaders at each facility and Organizational Learning

• Identified barriers and challenges with process and frontline staff
  – Job Aides and other tools to hardwire the process changes
  – Communication tools clarifying process initiatives and available resources
**Old Nurse Driven Protocol**

**Nurse Driven Protocol**

**Loose or Liquid Stool Testing for C. difficile**

1. **Patient presentation**
   - Nursing note: loose or liquid stool
   - Assess patient history of loose, liquid stools prior to hospital arrival

2. **Evaluation**
   - Does the patient have loose, liquid stools within 24 hours?
   - Refer to protocol for definition of loose, liquid stools

3. **Suspicious**
   - Suspect C. difficile and place patient on contact precautions
   - Contact infection control

4. **No**
   - Continue with usual care

**New Nurse Driven Protocol**

**3 Steps for Appropriate C-diff Testing**

(Nurse Driven Protocol)

**Step 1**

Does your patient meet all criteria?

1. ≥ 3 watery stools per day for 2 consecutive calendar days, with no other causes

**Step 2**

Verify & Document

1. Verify patient has not had the following:
   - Diarrhea or stool softeners, 65 Prep, Enemas
   - Oral contrast
   - Tube feedings
   - Oral magnesium supplements
   - Lactulose
   - Positive C-diff PCR test within 28 days
   - Negative C-diff PCR test within 7 days

2. Enter C-diff pending in EMR (Epic = Infection Status)

**Step 3**

Consult

1. You MUST double check with one of the following:
   - Nurse Manager
   - Charge Nurse
   - CNO
   - Infection Preventionist

2. For discrepancies consult VPH or Infectious Disease

3. Initiate isolation precautions

Remember: Cancel C-diff test if no stool within 12 hours!
C-diff Ordering Algorithm for Prescribers

My patient has diarrhea*
What do I do next?

Are clinical signs of colitis present?
No → Continue to assess/monitor my patient
Yes → My patient had ≥3 watery stools per day for 2 consecutive calendar days
No → Do not order C-diff PCR
Yes → Confirm answers to the following:

- Has my patient had any formed stools since the onset of diarrhea?
- Is my patient taking any medications that can cause diarrhea?
  - Laxatives, stool softeners, enemas, or GI Prep?
  - Lactulose, oral contrast, or oral magnesium supplements?
  - Tube feeding?
- Does my patient have Irritable Bowel Disease?
- Does my patient have any GI Pathology that would cause diarrhea?
- Has my patient been treated for C-diff in the last 28 days?
- Has my patient been tested for C-diff in the last 7 days?
- Does my patient have another cause for diarrhea?
- Does my patient have an order for comfort measures/care?

YES to 1 or more questions
→ Do NOT order C-diff PCR
NO to all questions
→ Initiate double check, Order C-diff PCR, & Contact Isolation
Unclear/Questionable
→ Consult VPMA or Infectious Disease

Remember: If no watery stool within 12 hours after test order then CANCEL ORDER and stop C-diff isolation

Revised 2/1/2017
High Touch Areas - Cleaning Checklist
For Contact Precaution Rooms

Directions:
➤ CCP or RN @ 8am & 8pm (with first set of vital signs) to wipe down high touch areas noted below. Select appropriate wipe based on type of precautions (Indicate selected disinfectant to the right).
➤ Hang a new sheet starting every Sunday and write in dates for the week. Write your initials in the boxes when you complete.
➤ Turn in completed checklists forms to unit manager.

Thank You for Putting Our Patients’ Safety First!

<table>
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<tr>
<th>Week of:</th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<td>- Shared equipment cleaned?</td>
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<td>- Disposable thermometer and yellow stethoscope present in room?</td>
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<tr>
<td>- Proper PPE used upon EVERY entry into room?</td>
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<tr>
<td>DAILY CHARGE RN CONFIRMATION</td>
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</table>

CLEANING:
➤ Use 6-10 wipes from the appropriate wipe canister and wipe down the high touch areas indicated by the arrows in the diagram.
➤ Use additional wipes and wipe all remaining surfaces on the list.
➤ Use enough wipes so that a wet sheen is visible after wiping.
➤ DO NOT WIPE SURFACES DRY!
➤ Leave wet surfaces untouched for 4 minutes and allow to air dry.
➤ Discard used wipes in trash can (Do Not flush in toilet).
➤ Keep disinfectant canister lid closed to prevent drying out.

Revised 9/2016
Item #103142
Environmental Services (EVS)

• Developed standardized education, competencies, and simulation labs for all new and existing team members

• Developed equipment cleaning policy

• Continues to monitor EVS Daily Surface Cleaning for compliance
Education

• Stratified a teaching plan based upon the needs of each job type to address infection prevention and isolation precautions

• Created computer based learning (CBL) modules and competency check offs

• Validated competency amongst new and current employees
Clinical Ambulatory

• Reviewed their practices and identified patients’ risks of transmitting c-diff through surface areas within the examine rooms to their staff, patients, and vendors
  – Modified inpatient High Touch Cleaning Checklist
  – Hand hygiene evaluations and compliance

• Standardized their cleaning process
Clinical Community

• Focused their attention on the skilled nursing facilities, home health agencies, retail pharmacies, clinics and affiliated detention center
  – Patients routinely received and transferred to and from these areas, creating a high risk for transmission

• Created a communication tool to utilize during patient transitioning
Information Technology (IT)

- Enhanced the electronic medical record to support communication between the RN and care partners (CPs)
  - Provided CPs with the ability to document stool consistency

- Improved the process of documenting when specimens have been collected and sent to the lab

- Best Practice Advisories
Communication/Marketing

• Developed scripting for hospital staff when interacting with compliant and noncompliant visitors of patients in isolation.

• Created new color-coded infection prevention “contact precaution” room signage to differentiate between c-diff contact and all other contact isolations.

• Created system communications, developed PPE educational brochures, and standardized the check-in process for visitors on isolation patients.
Barriers Encountered

• Ineffective communication and dissemination of information

• Changes in positions of key stakeholders

• Rapid PDSA changes causing confusion amongst frontline staff

• Lack of standardized tools across the system
### Results

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of cases *</th>
<th>Cost to System</th>
<th>Loss/Gain</th>
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<td>FY15</td>
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<td>FY14 data unknown</td>
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<td>FY16</td>
<td>266</td>
<td>$3,990,000</td>
<td>$420,000</td>
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<td>FY17</td>
<td>117</td>
<td>$1,755,000</td>
<td>$2,235,000</td>
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Healthcare onset C-diff increases the cost to the organization by $15,000 per episode (Dubberke et al., 2014).

*Legacy WellStar*
### Legacy and New WellStar HO- C. diff rate as of July 2016

#### WellStar FY17 Quality PPP Goal Performance

<table>
<thead>
<tr>
<th>July</th>
<th>Hospital Onset C-diff: Infections / 10,000 Patient Days</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Current Month</td>
</tr>
<tr>
<td>AMC</td>
<td>3.89</td>
</tr>
<tr>
<td>Cobb</td>
<td>10.86</td>
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<tr>
<td>Douglas</td>
<td>4.80</td>
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<tr>
<td>Kennestone</td>
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<tr>
<td>North Fulton</td>
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<tr>
<td>Spalding</td>
<td>3.37</td>
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<tr>
<td>West Georgia</td>
<td>3.96</td>
</tr>
<tr>
<td>Legacy Roll-up</td>
<td>11.06</td>
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</table>

Baseline: Legacy May 15-Apr 16; AMC, SP, NF CY15; WGA Jun 15-May 16
Measurement/Source: NHSN (National Healthcare Safety Network) FY17
**WellStar FY17 Quality PPP Goal Performance**

**Performance Period 10 Data - FY17 Jul-Apr**

YTD better than baseline

<table>
<thead>
<tr>
<th>Current Month</th>
<th>YTD Month</th>
<th>Current</th>
<th>FYTD</th>
<th>12 mo</th>
<th>YTD O/E</th>
<th>Baseline</th>
<th>Threshold</th>
<th>Target</th>
<th>Max</th>
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<tbody>
<tr>
<td>Month Counts</td>
<td>Counts</td>
<td>Period</td>
<td>Actual</td>
<td>Rolling</td>
<td>Ratio</td>
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</table>
| **C-Diff data is preliminary for AMC, Kennestone and Spalding and is subject to change**

**Hospital Onset C-diff: Infections / 10,000 Patient Days**

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Current Month</th>
<th>FYTD</th>
<th>12 mo Rolling</th>
<th>YTD O/E Ratio</th>
<th>Baseline</th>
<th>Threshold</th>
<th>Target</th>
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<td>AMC</td>
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<td>2.55</td>
<td>2.44</td>
<td>2.77</td>
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<td>5.71</td>
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<td>5.20</td>
<td>8.38</td>
<td>7.12</td>
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<td>Douglas</td>
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<td>0.00</td>
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<td>11.43</td>
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<td>Kennestone</td>
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<td>4.46</td>
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<td>7.40</td>
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<tr>
<td>North Fulton</td>
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<td>3.81</td>
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<td>0.00</td>
<td>4.55</td>
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<td>8.26</td>
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<td>2.26</td>
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<td>5.55</td>
<td>4.94</td>
<td>4.42</td>
<td>3.96</td>
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<td>One WellStar Roll-up</td>
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<td>1.88</td>
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<td>7.25</td>
<td>6.30</td>
<td>5.84</td>
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Baseline Source: NHSN (National Healthcare Safety Network) Comparison is top 100

Baseline: Legacy: May 15-Apr 15; AMC, NF and SP: CY15; WGA: Jun 15-May16

Reporting lag: All facilities = 0 month (Jul 16 - Jun 17)
Taskforce Ongoing Work

• **RCA meetings**
  – Process
    • Hospitals perform their standard C-diff RCAs
    • Hospital C-diff RCA team sends findings in an SBAR format to system leads (ID physician, IP Manager, Project manager)
  – Goals
    • Highlight key trends and recommend action items
    • Follow up with the C-diff Taskforce Sub-teams on action items that pertain to their team
    • Report summation of findings in C-diff Taskforce meeting

• **Taskforce meetings**
  – Review progress and trends
    • Discuss any new or existing barriers
    • Discuss new or current action items
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- Michelle Tillis - IT
- Jason Taylor – Communications


Questions

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