C. diff Stinks!!
An Interdisciplinary Approach to Combatting Hospital Acquired Clostridium difficile

December 19, 2018
12:00 pm – 1:00 pm PST
Housekeeping Items

• All lines will be muted. Raise your hand if you wish to be unmuted.
• The presentation slides and recording will be available within 1-3 business days.
• 1 CE unit will be provided to CHPSO/HQI/CHA Members:
  – Complete the survey by December 28, 2018
  – CE certs will be emailed by January 4, 2019
How to ask a question
Today’s Speakers

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Director, Critical Care Services
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C. diff Stinks!!
An Interdisciplinary Approach to Combatting Hospital Acquired *Clostridium difficile*

Shelley Johnson, RN, DNP, MHA, CENP, CNL
Heather Resseger, MSN, RN, CNL
About NorthBay Healthcare

- NorthBay Healthcare is an independent health system with two community hospitals:
  - NorthBay Medical Center in Fairfield, CA
  - VacaValley Hospital in Vacaville, CA
- 184 licensed beds
- Trauma Level II Center
- Neurosurgery, Open Heart Surgery, NICU, Primary and Specialty Outpatient Care, Ambulatory Center, Cancer Center, Wound Center

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Background

- Hospital acquired infection (HAI) rates in 2016 were greater than in 2015
- Rising above benchmarks for *C. diff*, CAUTIs, and CLABSIs
- High HAIs not aligned with our organizational mission or strategic plan
Background

Many HAIs are preventable, HAIs harm patients, HAIs are costly

<table>
<thead>
<tr>
<th>HAI</th>
<th>Estimated additional cost of care per HAI</th>
<th>2016 HAIs</th>
<th>2016 Estimated additional cost of care related to HAIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSI</td>
<td>$3,700 - $29,000</td>
<td>9</td>
<td>$33,300 - $261,000</td>
</tr>
<tr>
<td>CAUTI</td>
<td>$1,000 - $2,000</td>
<td>15</td>
<td>$15,000 - $30,000</td>
</tr>
<tr>
<td>C. diff</td>
<td>$13,000 - $28,000</td>
<td>61</td>
<td>$793,000 - $1,708,000</td>
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<tr>
<td>Total</td>
<td></td>
<td>85</td>
<td>$841,300 - $1,999,000</td>
</tr>
</tbody>
</table>
Background

- Organizational leaders formed a HAI steering committee to ensure organizational buy in and support for improvement efforts
- Asked that a group of front line staff form to work through the issues
- Set the aim
Aim

Decrease *C. diff* from 2016 to 2017 by at least 20%. Continue to decrease by 20% year over year to the ultimate goal of zero HAIs.
Methods

• Organization wide HAI workgroup met every other week

• Nine RNs/CNLs
  • Emergency (2)
  • Intensive Care (2)
  • Three (3) Acute Care
  • Maternal-Child (2)

• Physicians (Infectious Disease, Intensivist, Hospitalist)

• Ancillary team members from Lab, Vascular Access RNs, Environmental Services, Clinical IT, Infection Prevention, Pharmacy, Rad/Procedural areas, CNS, Improvement Advisor, Quality Analyst
Methods

Percentage Compliance with Doffing of PPE

- Completely inside patient room
- Hand and gown with bare hands
- Gloves at the same time
- Doff gown in hallway
- Doff PPE at doorway
- Wash hands, attend to front

Percentage Compliance with Proper Handwashing

- Uses a paper towel to turn off water
- Dries hands
- Rubs hands
- If wearing ring, moves it up and down to scrub underneath
- Scrubs fingers
- Scrubs back of hands
- Scrubs front of hands
- 20 seconds of friction
- Use soap
- Wet hands
- Under the faucet

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## Methods

### C. diff Interventions

<table>
<thead>
<tr>
<th>Issue</th>
<th>HAI Team Interventions</th>
<th>Type of Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C. diff</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stool collection criteria</td>
<td>Collection audit tool for front-line providers and staff to be completed before sending any stool specimen to lab. Revised audit tool based on staff feedback to increase clarity and ease of use. Educated staff on revisions.</td>
<td>Process</td>
</tr>
<tr>
<td></td>
<td>Ensure staff complete audit tool prior to sending specimen</td>
<td>Practice</td>
</tr>
<tr>
<td>Hand washing</td>
<td>Standard work for hand washing</td>
<td>Process</td>
</tr>
<tr>
<td></td>
<td>Reviewed at unit huddles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staff return demonstration at staff meetings</td>
<td>Practice</td>
</tr>
<tr>
<td></td>
<td>Created small poster depicting standard work of hand washing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poster placed at every sink in the organization (staff and visitor)</td>
<td>Process</td>
</tr>
<tr>
<td></td>
<td>Patient and visitor education sheet on proper hand washing technique</td>
<td>Process</td>
</tr>
<tr>
<td></td>
<td>Invite visitors to wash their hands at nurses’ station</td>
<td>Process</td>
</tr>
<tr>
<td>Doffing PPE</td>
<td>Standard work for doffing PPE</td>
<td>Process</td>
</tr>
<tr>
<td></td>
<td>Reviewed at unit huddles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staff return demonstration at staff meetings</td>
<td>Practice</td>
</tr>
<tr>
<td></td>
<td>Created small poster depicting standard work of doffing PPE</td>
<td>Process</td>
</tr>
<tr>
<td></td>
<td>Poster placed at doorway of every C. diff/contact isolation room</td>
<td>Process/Practice</td>
</tr>
<tr>
<td></td>
<td>Patient and visitor education sheet on use of PPE and proper doffing</td>
<td>Process</td>
</tr>
</tbody>
</table>
Interventions

In late 2016, acquired two “robots” to disinfect using UVC. This technology effectively kills pathogens such as C. diff, MRSA, CRE. Implemented on C. diff discharges, ORs nightly, and as needed for other areas/issues.

Robots are on a Mission to Eradicate C. diff and other Hospital-acquired Infections
## Interventions

### C. difficile Testing Audit Tool

If your patient has diarrhea (type 7 on the Bristol Stool Chart—see back), do the following:
- [ ] Isolate (initiate Contact C. diff isolation and document initiated in EMR)
- [ ] Evaluate need for C. diff testing by using tool below
- [ ] Validate tool with lead RN throughout the evaluation and prior to sending any specimen

### Step 1. Does the patient have a known history of C. diff in the past 90 days?
- [ ] Yes—DO NOT SEND SPECIMEN
- [ ] No—Go to Step 2

### Step 2. Has the patient been admitted for less than three calendar days?
- [ ] Yes—Contact provider to order C. diff test
- [ ] No—Go to Step 3

### Step 3. Does the patient have stool that meets the description of Bristol Chart* Type 7?
- [ ] Yes—Go to Step 4
- [ ] No—DO NOT SEND SPECIMEN

### Step 4. Has the patient received a bowel prep, stool softeners, or laxatives in the last 48 hours?
- [ ] Yes—DO NOT SEND SPECIMEN
- [ ] No—Go to Step 5

### Step 5. Have there been 3 or more passing—Type 7 stools on Bristol Chart—in the past 24 hours?
- [ ] Yes—
  1. Date Time
  2. Date Time
  3. Date Time
- [ ] No—Consult provider to discuss clinical symptoms AND evaluate necessity of C. diff test and continued isolation

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**BRISTOL STOOL CHART**

| Type 1 | Separate hard lumps | Very constipated |
| Type 2 | Lumpy and sausage like | Slightly constipated |
| Type 3 | A sausage shape with cracks in the surface | Normal |
| Type 4 | Like a smooth, soft sausage or snake | Normal |
| Type 5 | Soft blobs with clear-cut edges | Lacking fibre |
| Type 6 | Mushy consistency with ragged edges | Inflammation |
| Type 7 | Liquid consistency with no solid pieces | |

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*Mandatory field—signature required for completion.*

Call 540-5014 between 8:00am - 4:15pm, M-F to collaborate with IP for any questions. On weekends, holidays, and after hours you may contact IP via pager #426-8508 (providing 7 digits call back number).

Date:  
Team Signature 

*THIS NOT A PERMANENT CHART RECORD WHEN DISCHARGED PLEASE REMOVE AND GIVE TO LEAD. Revised 10/13/17*
Interventions

The team created new isolation signs that included some of the evidence based standard work that had been rolled out (hand washing, doffing PPE)
Interventions
Interventions

What’s the story?

Case 2: 3/5/17

Situation: We had another hospital acquired C. difficile infection on 3/5/17 in the ICU. This patient presented in the ED and was on 1800 for one day before being transferred to ICU. Again, multiple disciplines have been involved in her care.

Background:
2/24/17: Patient presented to the NB ED for SOB, cough, and fever for 3 days. She received cefepime, vancomycin, and zosyn in the ED, and was placed on vancomycin by the admitting SIP. She was admitted to 1861 with a possible sepsis with pneumonia as the suspected source. She received MD in her room.
2/25/17: Patient was transferred to ICU for hypoxia. Zosyn added for possible pneumonia.
2/26/17-2/27/17: Patient had multiple stools described as “small or medium, brown, soft or pasty”; 2/27/17: Stool sent - C. diff PCR negative. Vancomycin discontinued.
2/28/17: Zosyn switched to rocephin.
3/1/17-3/4/17: Multiple stools described as “small, brown or black, soft”;
3/5/17: Patient has small, green, loose, mucous stool at 0116. Isolation order placed and initiated at 0117. At 0550, WBC count increases to 13.41 (previously less than 8). Patient continues to have “small or medium, brown, soft or pasty or loose and watery” stool during the day shift. Stool sent according to C. difficile Specimen Audit tool. At 1352, the sample was reported as positive. The RN, MD, and infection control were notified appropriately.

Assessment: This patient had multiple stools with previous negative result. The nursing staff did an excellent job in recognizing the situation, initiating isolation, and sending a specimen appropriately. Risk factors for this patient were age, antibiotics, and being on a unit with other C. diff cases.

Recommendations:
• Doff PPE correctly
• Wash hands thoroughly
• Use single patient use items when available
• Clean multi-use items with bleach wipes using 2-step process
• Practice antibiotic stewardship

Case 1: 2/25/17

Situation: We had a hospital acquired C. difficile infection on 2/25/17 in the ICU. This patient has previously been on multiple units before being transferred to ICU and came into contact with multiple disciplines during her stay.

Background:
2/13/17: This patient was brought in by ambulance to the VVED because she was found down at home by family. There was suspicion of a GI bleed because of low H/H. She was started on protonix gtt, and admitted to 1 West.
2/14/17: Patient was started on a 7-day course of rocephin for UTI. An EGD was performed, which was negative for active bleeding.
2/25/17: Early in the morning a code blue was called for a brady arrhythmia; the patient was intubated and transferred to VVICU at 0430. Patient was then transferred to NBICU at 1115.
2/21/17: The patient was ordered and given a one-time dose of bismuth (Dulcolax suppository) 10mg PR at 1028. At 1405 “medium, black, green, loose stool documented (Patient did not have any documented stools prior to this).
2/24/17: WBC increased to 11.24. There was a suspicion of possible PNA, but no additional antibiotics were ordered.
2/25/17: WBC 11.14. The next stool documented was at 1145 was “large, brown, and formed.” At 1230 there was a “large, brown, loose” stool documented. C. diff PCR was ordered at 1239. The sample was collected at this time. Contact orders were placed and contact isolation was documented as initiated at 1241. At 1335, there was a “medium, brown, loose” stool documented. At 1445, the sample was reported as positive. The RN, MD, and infection control were notified appropriately.

Assessment: Stool was sent appropriately despite C. difficile specimen audit checklist not being utilized for this patient. This patient had contact with multiple departments and disciplines during hospitalization – This is a call to action for all of us! Risk factors included GI procedure, protonix, and antibiotic usage.
Interventions

# Predicted vs # Actual C Difficile HAI

- 5/16 CDPH Baseline; IHI on C difficile; Universal Gloving implemented 1800 & 1 West
- 6/16 HH Video; nutrition offers HH wipes
- 7/16 Oxicide started (Both)
- 1/17 Created HAI Steering Cmte/Work grp
- 2/17 C.Diff Algorithm rev 02/17; Auto C.diff order cancelled after 24 hrs.
- 10/16 Tru-D implemented (NB); C diff printout
- 3q-revised C diff audit
- Cornerstone module on audit tool

<table>
<thead>
<tr>
<th>Date</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/8/16</td>
<td>First C. diff task force meeting</td>
</tr>
<tr>
<td>2/9/16</td>
<td>RCA Initiated</td>
</tr>
<tr>
<td>4/19/16</td>
<td>2 week Oxycide trial began on 1600 &amp; ICU</td>
</tr>
<tr>
<td>5/5/16</td>
<td>CDPH Baseline assessment</td>
</tr>
<tr>
<td>5/10/16</td>
<td>IHI on C. difficile began</td>
</tr>
<tr>
<td>5/20/16</td>
<td>Universal Gloving on 1800 &amp; 1West</td>
</tr>
<tr>
<td>June</td>
<td>Hand hygiene video required by all staff</td>
</tr>
<tr>
<td>6/24/16</td>
<td>Nutrition begins offering handwip es to patients</td>
</tr>
<tr>
<td>7/13/16-7/14/16</td>
<td>Oxicide rollout Hospital-wide</td>
</tr>
<tr>
<td>10/5/16</td>
<td>UV light disinfecti on starts at NB campus</td>
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<tr>
<td>October</td>
<td>C difficile printout to capture new isolation s</td>
</tr>
<tr>
<td>January</td>
<td>Algorithm for C difficile on units- several updates</td>
</tr>
<tr>
<td>January</td>
<td>Focus on Tru-D cleaning of all C diff rooms</td>
</tr>
<tr>
<td>1/31/17</td>
<td>HAI committ ee began</td>
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<tr>
<td>March</td>
<td>C difficile audit tool implemented</td>
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Results

# Predicted vs # Actual C Difficile HAI

<table>
<thead>
<tr>
<th></th>
<th>1q15</th>
<th>2q15</th>
<th>3q15</th>
<th>4q15</th>
<th>1q16</th>
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<th>1q18</th>
<th>2q18</th>
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<tbody>
<tr>
<td># HAI NB</td>
<td>4</td>
<td>6</td>
<td>20</td>
<td>16</td>
<td>16</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>4</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td># Predicted VV</td>
<td>1.89</td>
<td>2.617</td>
<td>2.525</td>
<td>4.02</td>
<td>2.852</td>
<td>2.011</td>
<td>5.825</td>
<td>3.369</td>
<td>3.377</td>
<td>6.497</td>
<td>5.697</td>
<td>8.6</td>
<td>9.794</td>
<td>5.768</td>
<td>2.811</td>
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<tr>
<td># HAI VV</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>4</td>
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## Results

<table>
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<tr>
<th>HAI</th>
<th>Cost</th>
<th>2016 (Jan-Dec)</th>
<th>2016 YTD Cost</th>
<th>2017 (Jan-Dec)</th>
<th>2017 YTD Cost</th>
<th>2017 over 2016 Cost</th>
<th>Avoidance</th>
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<tbody>
<tr>
<td>C. diff</td>
<td>$13,168</td>
<td>61</td>
<td>$803,248</td>
<td>33</td>
<td>$434,544</td>
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<tr>
<td>CAUTI</td>
<td>$1,000</td>
<td>14</td>
<td>$14,000</td>
<td>9</td>
<td>$9,000</td>
<td>$5,000</td>
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<tr>
<td>CLABSI</td>
<td>$3,700</td>
<td>9</td>
<td>$33,300</td>
<td>6</td>
<td>$22,200</td>
<td>$11,100</td>
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<tr>
<td>Total</td>
<td>$16,868</td>
<td>84</td>
<td>$850,548</td>
<td>48</td>
<td>$465,744</td>
<td>$384,804</td>
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<table>
<thead>
<tr>
<th>HAI</th>
<th>Cost</th>
<th>2017 (Jan-Nov 20)</th>
<th>2017 YTD Cost</th>
<th>2018 (Jan-Nov 20)</th>
<th>2018 YTD Cost</th>
<th>2018 over 2017 Cost</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. diff</td>
<td>$13,168</td>
<td>28</td>
<td>$368,704</td>
<td>22</td>
<td>$289,696</td>
<td>$79,008</td>
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<td>CAUTI</td>
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<td>$9,000</td>
<td>7</td>
<td>$7,000</td>
<td>$2,000</td>
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</tr>
<tr>
<td>CLABSI</td>
<td>$3,700</td>
<td>6</td>
<td>$22,200</td>
<td>2</td>
<td>$7,400</td>
<td>$14,800</td>
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<tr>
<td>Total</td>
<td>$16,868</td>
<td>43</td>
<td>$399,904</td>
<td>31</td>
<td>$304,096</td>
<td>$95,808</td>
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References:


Next Steps

- Continue case review of all HA *C. diff* cases
- Clinical decision support from EHR for stool specimen collection—Aligned stool descriptors with Bristol Stool Chart in EHR
  - This was the beginning phase to create a clinical decision support tool for *C. diff* testing by leveraging documentation in EHR
- Changing our *C. diff* testing method
- Electronic communication boards for more real time communication about successes and issues
- Replicate this model for improvement for other initiatives/opportunities that arise
Questions?
How to ask a question
## Upcoming HQI-CHPSO Webinars

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Topic</th>
</tr>
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<tbody>
<tr>
<td>January 9</td>
<td>10:00 am – 11:00 am PST</td>
<td>Reducing Hospital Acquired Pressure Injuries Through Focusing on the Braden Scale Sub Categories, in a Safety Net Hospital</td>
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</table>
## Upcoming CHPSO Safe Tables

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<tr>
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<th>Time</th>
<th>Topic</th>
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<tr>
<td>January 16</td>
<td>10:00 am – 11:00 am PST via teleconference</td>
<td>Medical Device Associated Pressure Injuries</td>
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<tr>
<td>January 30</td>
<td>10:00 am – 11:00 am PST via teleconference</td>
<td>Failure to Rescue and Early Warning Systems</td>
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HQL’s 2019 Conference

October 14 - 15, 2019
Sacramento
CHPSO has the following opportunities:

- HQI Vice President
- Roles available at other organizations in San Francisco, Stockton, the San Diego area. Check out the job board and let us know if you would like to post anything at your facility!

- [http://www.chpso.org/career-opportunities](http://www.chpso.org/career-opportunities)
Follow-up Email

• **Click here** for the survey link
  – Please share potential topics for future meetings

• **CE Information**
  – For CHPSO/HQI/CHA Members only

• Slides
• Recording
Thank You and Happy Holidays!

Follow @CHPSO and @HQInstitute on Twitter!