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Stubborn, Persistent, Dangerous C.difficile Infections. Is Improvement Possible?

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Stubborn, Persistent, Dangerous
C.difficile Infections



Is Improvement Possible?

Sara Townsend
August 30,2012

Introduction



- ❧ 2008 Health & Human Services plan to reduce Healthcare Acquired Infection (HAI)
 - ❧ *Clostridium difficile* infections (CDI)
 - ❧ Reduce by 30% at individual institutions by 2013
 - ❧ Across the country this measure is not on track
 - ❧ In fact *C.difficile* rates are going up
- ❧ Bryn Mawr Hospital – Improvement Project
 - ❧ Struggling to stabilize *C.difficile* infection rates
 - ❧ 2010 – 3.7
 - ❧ 2011 – 2.6
 - ❧ 2012 (through June 2012) – 3.6

Background – *C.difficile*



Clostridium difficile

- ❧ Anaerobic spore-forming bacillus
- ❧ Causes a range of diarrheal infections - mild to severe
- ❧ Fecal-Oral transmission
- ❧ Vertical vs. Horizontal onset of infection
- ❧ Major Reservoir
 - ❧ Inpatients with diarrhea
 - ❧ Inanimate objects in patient's room
 - ❧ Health care workers

Risk factors for *C.difficile*

- ❧ Previous hospitalizations
- ❧ Antibiotic therapy
- ❧ Old age
- ❧ Compromised health
- ❧ Inpatient proximity to patients with *C.difficile* infection (*CDAD* pressure)

Background – *C.difficile*



Surveillance

- ❧ Use of definition
 - ❧ Symptoms of diarrhea or toxic megacolon
 - ❧ Stool positive for *C.diff* toxin A &/or B
- ❧ Isolation Strategies
 - ❧ Patient placed in special precautions
 - ❧ Hand washing
 - ❧ Soap and water
 - ❧ Inanimate Object
 - ❧ Dedicated disposable equipment
 - ❧ Bleach to clean re-usable equipment

Challenges

- ❧ No defined national standard for surveillance
- ❧ Patient's may be colonized with *C.difficile* spores
- ❧ Antibiotic usage
- ❧ Poor hand hygiene practices

Background – *C.difficile*



Facts

- ❧ Hospital discharges with *C.diff* diagnosis doubled between 2001-2005
- ❧ IC9 codes with enterocolitis due to *C.difficile* 1999-2004
 - ❧ 5.7/ million 1999
 - ❧ 23.7/ million 2004
- ❧ Increased LOS
 - ❧ 2.6 to 4.5 days

Facts

- ❧ 19% readmission rate over 6-months
- ❧ 5.7% 6-month attributable mortality
- ❧ Costs per patient with CDI
 - ❧ \$6,408-\$9,124
- ❧ Costs for USA –inpatient services
 - ❧ \$1.14-\$1.62 billion

Project – Can *C.difficile* rates at Bryn Mawr Hospital be improved?



❧ Rates at Bryn Mawr Hospital

- ❧ Lower than the national average

 - ❧ National average >11

 - ❧ Bryn Mawr <4

- ❧ Not in control

 - ❧ Varies up and down year to year

- ❧ Many interventions in the past

 - ❧ No sustained improvement

Stakeholders



- ❧ Bryn Mawr Hospital
- ❧ Patients
- ❧ Infectious Disease Doctors
- ❧ Infection Prevention Team
- ❧ Nurses
- ❧ Patient Care Techs
- ❧ Environmental Services
(EVS)
- ❧ Nutritional Staff



Improvement Team



- ❧ Infection Preventionists
- ❧ EVS managers, educators and staff
- ❧ Infectious disease doctors
- ❧ 5th Floor -
 - ❧ Nursing managers, educators, nurses
 - ❧ Patient care techs
 - ❧ Hostess staff



Aim



- ☞ To develop and test a quality improvement project created to interfere with the horizontal transmission of *Clostridium difficile* while creating strategic partnership with the EVS department, nursing, patient care technicians and the nutrition departments at Bryn Mawr Hospital.

Data



- ❧ Laboratory positive test results – *C.diff*
 - ❧ Exclusions
 - ❧ Outpatient
 - ❧ Pediatric results
- ❧ 2010-2011
 - ❧ Pre-Project Data
- ❧ 2012
 - ❧ Jan-March- pre-intervention
 - ❧ April – June – during intervention

Project Development



- ❧ Infection Prevention Team
 - ❧ Develop interactive educational materials for *C.difficile*
 - ❧ Target specific departments with key interaction with patients
 - ❧ Bring together various departments
 - ❧ System checks with cross evaluations
 - ❧ Ensure deep understanding of *C.difficile* infection
 - ❧ Create personal interest in improving *C.difficile* infection
 - ❧ Protect
 - ❧ Self, Patient, Patient Family
 - ❧ Save Money
 - ❧ Save Jobs

Focused Education



- ∞ EVS – power points
 - ∞ Informational
 - ∞ Buy-in
 - ∞ Professional & Personal
 - ∞ Policy and Procedure
- ∞ Nursing/PCTs – power point
 - ∞ Informational
 - ∞ Patient Education
- ∞ Patients
 - ∞ Posters



Methods



Part 1

- ❧ Data collection
 - ❧ C.diff positive
 - ❧ Unit location
 - ❧ Date of Admission
 - ❧ Date of positive result
 - ❧ Unit/room 48 hours prior
 - ❧ All rooms used after positive ID
 - ❧ Antibiotics used

Part 2

- ❧ Improvement Project
 - ❧ Education
 - ❧ EVS teams
 - ❧ Nursing staff 5th floor
 - ❧ Patients - 5th floor
 - ❧ Direct Intervention - Nutrition hostesses
 - ❧ Hand wipes
 - ❧ Follow up
 - ❧ RN & EVS

EVS Education – Part 1



Fighting *C.difficile* in our
Hospital - BMH

The Importance of Environmental Services

- ∞ 12 slide Power Point
 - ∞ Interactive
 - ∞ Embedded videos
- ∞ Group Huddles
 - ∞ Small groups
 - ∞ Multiple sessions
 - ∞ Question and Answer session
- ∞ Follow up
 - ∞ Email and Bulletin Board

EVS Education - Part 2



CLEANING FOR SAFETY
The role of EVS – first line of protection

Cleaning a
room with
Special
Precautions



- ❧ 17 slide power point
 - ❧ Policy & Procedure - Aramark
 - ❧ Focus on Special Precautions
 - ❧ What are high touch surfaces
 - ❧ Cleaning the bed & bathroom
 - ❧ Importance of EVS
- ❧ EVS educator
 - ❧ Check off for all staff

Nursing Education



Fighting *C-difficile* in our
Hospital - BMH

On the Front Line -
Nurses and Patient Care Techs

- ❧ Intro to project at 5th floor staff meeting
- ❧ 16 slide power point
 - ❧ Interactive
- ❧ RN educator and team leaders
 - ❧ Teach to all staff members
- ❧ Collect feedback for EVS & project

Barriers to Project



∞ EVS

- ∞ Manager wanted to work exclusively with our team
- ∞ 2nd education blast rescheduled 3 times
 - ∞ Ultimately cancelled
- ∞ 2nd approach
 - ∞ Educate the EVS educator

∞ Nursing

- ∞ Engage Nursing Leaders in project
- ∞ We must run project

∞ Nutrition

- ∞ Did not participate (April – June) due to poor communication
 - ∞ Money

Nursing Education - Feedback



***C. diff* Education Review Form – Nursing and Patient Care Techs**

1. Do you feel like you can better prevent a patient from getting *c.diff* after reviewing the power point?
2. What was the most memorable part of the education that will help you encourage a patient or staff member to reinforce good hand hygiene practice?
3. What can be improved in the educational materials provided on *c.diff*?
4. What would you add to make this a better tool to help prevent *c.diff* infections?

Evaluation of EVS cleaning on Special Precautions Rooms (*C.diff*)

1. Do you feel like the EVS staff does a good job terminally cleaning a room upon discharge that held a patient on Special Precautions?
2. If no, can you please list areas that could be cleaned better in patient room on a terminal clean for discharge of a patient who was on Special Precautions?
3. If yes, what is the EVS staff doing well for a terminal clean of a patient's room on special precautions?
4. The EVS staff must clean rooms everyday. Do you feel they are doing a good job in a special precautions room making sure the high touch areas are cleaned with bleach each day?
5. If no, please give some examples.
6. If yes, please give some examples.
7. Do you feel like the EVS staff knows how to manipulate the bed or other equipment to clean the room thoroughly for a terminal clean?
8. If you had a recommendation for the EVS staff what would it be in reference to cleaning a special precautions room.

Patient Education



Located in front of the bed, in all patient rooms on 5th floor

Located above the toilet roll dispenser in all rooms on 5th floor



WASH YOUR HANDS

DON'T SPREAD GERMS



REMEMBER

WASH HANDS WITH SOAP AND WATER
AFTER USING THE RESTROOM



Results *C. diff* rates



- ❧ 2010 – 98 *C.diff* infections
 - ❧ 35 possible HAI
 - ❧ 31 actual HAI
 - ❧ Rate 3.7 (31 confirmed cases/83,152 patient days)
- ❧ 2011 – 84 *C.diff* infections
 - ❧ 34 possible HAIs
 - ❧ 21 actual HAI
 - ❧ Rate 2.6 (21 confirmed cases/81,658 patient days)
- ❧ 2012 (thru June 2012) – 44 *C.diff* infections
 - ❧ 15 possible HAIs
 - ❧ 13 actual HAI
 - ❧ Rate 3.6 (13 confirmed cases/36,464 patient days)

Result 2012 *C. diff* rates - Pre/Post Intervention



❧ January - March - Rates

❧ January

- ❧ 5 possible HAI, 2 actual HAI
- ❧ Rate 3.1 (2 confirmed cases/6,399 patient days)

❧ February

- ❧ 8 possible HAI, 4 actual HAI
- ❧ 6.8 (4 confirmed cases/5905 patient days)

❧ March

- ❧ 3 possible HAI, 1 actual HAI
- ❧ Rate 1.6 (1 confirmed case/6292 patient days)

❧ April - June - Rates

❧ April

- ❧ 5 possible HAI, 2 actual HAI
- ❧ Rate 3.4 (2 confirmed cases/5,848 patient days)

❧ May

- ❧ 8 possible HAI, 3 actual HAI
- ❧ Rate 4.8 (3 confirmed cases/6289 patient days)

❧ June

- ❧ 5 possible HAI, 1 actual HAI
- ❧ Rate 1.7 (1 confirmed case/5731 patient days)

Results



Aim

- ❧ To develop and test a quality improvement project created to interfere with the horizontal transmission of *Clostridium difficile* while creating strategic partnership with the EVS department, nursing, patient care technicians and the nutrition departments at Bryn Mawr Hospital.

Partially Accomplished

- ❧ Time constraints in education time line
- ❧ More time is needed
 - ❧ To form better habits
 - ❧ To foster needed relationships between departments
 - ❧ To collect data to see if real improvement has happened

Discussion



Success of intervention will be measured over time as different HCWs become more aware of each other's role in the prevention of *C.diff* while also providing feedback to each other to keep the process of prevention alive

The improvement team will follow up with each group to ensure the improvement project is still working, continue to collect data to see if improvement has occurred and make adjustments in programs based on feedback from all groups

Limitations



- ⌘ Time - the timeline for such an improvement project was much too short
- ⌘ Money
- ⌘ Title
- ⌘ System Projects - BMH has it's own system projects that take precedence over additional projects
- ⌘ DOH visit
- ⌘ Change in lab ID for *C.diff*
- ⌘ Declining BMH census
- ⌘ Recession