Part 1—*Clostridium difficile* Prevention:
Coming Together to Examine What Works

March 23, 2016

Welcome

The HealthInsight Quality Innovation Network-Quality Improvement Organization (QIN-QIO) team welcomes our colleagues and stakeholders.
Materials for today

- Agenda
- Speaker biographies
- Slide handouts
- Action plan

*Didn't get them? Click in the Files section on the right side of the screen to download.*

Our request of you!

- Be present
- Enter questions in Chat, or ask over the phone during Q&A after each presentation
- Participate in the polling questions provided during session
- Complete the evaluation available after session
Be Thinking About Action!

- Has an idea for change entered your mind?
- What did you learn from the speakers or something you saw in the chat?
- What made you say *hmmm*?
- What one thing will you do differently?
- How will you share what you’ve learned with others?

Action Plan form
Reach Out!

Let’s do it NOW!

• Chat online: Use the chat on your screen
  – Let us know which state you are from and how many people are watching with you

Polling

Let’s test out the polling with this question:

When is the last time you took a week’s vacation?

☐ I just returned from vacation!
☐ Within the last 6 months
☐ Within the last 12 months
☐ What is a vacation?

Answers to polls are anonymous
Speakers

Welcome to our expert speakers from across the region.

- Utah—Rochelle Neilson, RN, BSN, MSHCA, Infection Preventionist
- Oregon—Genevieve Buser, MDCM, MSHP, Public Health Physician
- Nevada—Whitney Buckel, PharmD, BCPS, Infectious Diseases Clinical Pharmacist
- New Mexico—Susan M. Kellie, MD, MPH Professor of Internal Medicine, Division of Infectious Diseases

Learning Objectives

This session will prepare participants to

- distinguish aspects of CDI epidemiology, diagnosis, prevention and treatment in health care facilities
- apply best practices related to CDI in health care settings
- evaluate components of antimicrobial stewardship and status of programs in communities
C. difficile Reduction Strategies: One Hospital’s Experience

Presenter: Rochelle Neilson, RN, BSN, MSHCA
Infection Preventionist

Acknowledgments: Dr. Elaine Yee, I.P. Medical Director
Jennifer Connolly, I.P. Coordinator

Saint Mary’s Regional Medical Center (Reno, Nevada)

Saint Mary’s Regional Medical Center

- Located in the high desert region of the Sierra mountains
- 380 bed for-profit acute care & general medical/surgical hospital
- Owned & operated by Prime Healthcare Services
- Network includes outpatient, home care, and hospice services
- High-risk patient population along with visitors, transient
Presentation Objectives

Participants will be able to:

1. Identify some potential barriers to proper identification of healthcare facility-onset cases
2. Describe strategies used to prevent *C. difficile* transmission
3. Initiate the development of a “Nurse-Driven” protocol for *C. difficile* testing
4. Provide additional guidance to physicians regarding appropriate testing for active disease
5. Understand the importance of a comprehensive “antibiotic stewardship” program

Some *C. difficile* History

- Outbreak identification & response
- Greatest challenge: specimen collection & testing within the first 3 days of admission
- Transmission-based isolation precautions (“special contact”) extended for duration of hospital stay
- Environmental of care modifications – terminal cleaning
  - Facility-wide conversion to bleach products only (wipes)
  - Hand hygiene with soap & water only
  - “Exelyte” spray cleaning of isolation rooms
  - ATP testing to validate effectiveness of EVS cleaning practices
- Developed aggressive screening program – dramatic rate
  - Antigen positive + toxin negative = PCR testing
“Nurse-Driven” Testing Protocols

Unformed Stool
Within 48 hours of admit, upon admission, or during hospital stay
(patient not receiving laxatives or bowel prep for procedures)

Order C. difficile Testing
(EIA Antigen/Toxin Test)

- Antigen positive
  - Toxin positive
    - Patient remains in isolation for duration of hospital stay

- Antigen positive
  - Toxin negative

- Antigen negative
  - Toxin negative
    - Patient removed from isolation – continue to monitor for unformed stool or other signs of possible C. difficile

SMRMC Physician Algorithm

- Antigen positive
  - Toxin positive
    - Patient remains in isolation for duration of hospital stay – do not retest for cure

- Antigen positive
  - Toxin negative

- Antigen negative
  - Toxin negative
    - Patient removed from isolation

PCR Testing (automatic)
Day 1-3 after admission

New
Consider clinical correlation and risk for active C. difficile

Day 1 – 3
Day 4 or later
MD Testing Protocols (continued)

If the patient has been treated and is asymptomatic, but develops symptoms 14 or more days after the original positive testing; repeat testing should be completed to rule out a new-onset of C. difficile disease.

High Risk
- Antibiotics (aminopenicillins, Clindamycin, cephalosporins, fluoroquinolones)
- History of C. difficile (within 3 months)
- Transfer or admission from other facility (ECF, SNF, Rehab, LTAC, acute care)

Order PCR Testing
(if patient not receiving treatment)

Consider clinical correlation and risk for active C. difficile

Low Risk

No PCR testing

Symptomatic patients will remain in isolation (consider EUA retesting in 7 days)

Polling

Does your laboratory use PCR (NAAT) testing for the identification of active *C. difficile* disease?

☐ Yes
☐ No
☐ Uncertain/Don’t know
Policy & Protocol Summary

- Revision of SMRMC “Special Contact Precautions” policy & protocol for “Nurse-Driven” *Clostridium difficile* testing (algorithm)
- Defined “unformed” stool - any feces that conforms to the container *(not just diarrhea)* – refer to “Bristol Stool Scale” (type 5, 6, or 7)
- Formed stool should not be sent for testing unless specifically requested by the physician – notify laboratory of need for testing so that sample is not rejected
- Patients receiving laxatives or bowel prep for a procedure should not be tested unless there are other indications suggestive of *C. difficile* infection
- History of *C. difficile* alone does not require isolation for the patient (he/she must be symptomatic, i.e., unformed stool)
- Patient should be placed in “Special Contact” precautions immediately when *C. difficile* is suspected
- Physician’s order is not required to place patient in isolation
- A patient with an active *C. difficile* infection at any time during hospitalization will remain in isolation for the duration of his/her stay at SMRMC

Other Reduction Strategies

- Comprehensive “Antibiotic Stewardship” program
- Monthly “HAI Reduction” meeting with staff & supervisors
- System improvement opportunities (some real surprises – i.e., orders for testing & documentation challenges)
- Staff education – extensive for nursing & physicians
- Daily “Poop” report & Infection Prevention rounding with every unit (system interface)
  - Stool characteristics
  - Testing status
- Revised EVS products & protocols (bleach wipes)
  - Reduced EVS staff exposure to chemicals
  - Excellent ATP results after cleaning
  - Spot checks by Infection Prevention Department

Intervention Results = approximately 70% reduction in HFO cases
Thank you all so much for allowing us to share our challenges & successes – it has been an incredible team effort, and we believe that our patients and community are benefitting greatly from this initiative!

Clostridium difficile
Your foot in the door for Antibiotic Stewardship, Interfacility Transfer Communication & Environmental Services improvement

Genevieve Buser, MDCM, MSHP
Public Health Physician
Oregon Public Health Division
**Objectives**

Participants will be able to:
- Describe an initiative to assess CDI prevalence
- Describe interventions including interfacility transfer communication between hospital and SNF, and environmental hygiene

We will
- Discuss adaption to real-world funding
- Discuss opportunities for collaboration

**Scenario**

- ELC Grant Dream Team
  – CDI Collaborative with Oregon Patient Safety Commission

[Link](http://oregonpatientsafety.org/)
Scenario

- ELC Grant Dream Team
  - CDI Collaborative with Oregon Patient Safety Commission
- Reality
  - Funding, staffing
  - Timing: Ebola

Recruitment

- Built on EIP CDI Surveillance in 1 county
- Built on OPSC success with CUSP collaborative
  - NHSN CDI Lab ID Event
- Started with long-term care networks
  - Outreach two-ways: corporate and local
Mixed-methods

• Baseline assessments
  – CDC Tool
  – Facility-specific report, goals
• Education
  – CDI slides, CNA education, binder
  – On-site, Grand Rounds, webinars
• Connection with hospitals and SNFs
  – Interfacility transfer communication
  – Environmental hygiene
• Website
  – All resources available

Summary

• Enrolled 3 hospitals
• 8 skilled nursing facilities
• 5 main areas of work:
  – Surveillance: NHSN enrollment
  – Best practices
  – Environmental hygiene
  – Antibiotic stewardship
  – Interfacility transfer communication
Assessment Consultations

1. General infrastructure, capacity, and processes
   - Does your facility's senior leadership actively promote C. difficile prevention activities?

2. Is antimicrobial stewardship guided by clinical decision support tools?
   - Does your facility have a team/committee focused on C. difficile prevention?

3. Does your facility coordinate CDI training?
   - Does your facility have a multi-level approach to C. difficile prevention?

4. Does your facility coordinate CDI training?
   - Does your facility coordinate CDI training?

5. Does your facility coordinate CDI training?
   - Does your facility coordinate CDI training?

6. Does your facility coordinate CDI training?
   - Does your facility coordinate CDI training?

7. Does your facility coordinate CDI training?
   - Does your facility coordinate CDI training?

III. Antimicrobial Stewardship for CDC Prev

1. Does your facility review appropriateness of use of C. difficile antibiotics?
   - Does your facility review appropriateness of use of C. difficile antibiotics?

2. Early detection and testing
   - Early detection and testing

3. Does your facility follow-up with patients who have C. difficile?
   - Follow-up with patients who have C. difficile

4. Does your facility follow-up with patients who have C. difficile?
   - Follow-up with patients who have C. difficile

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6. Does your facility follow-up with patients who have C. difficile?
   - Follow-up with patients who have C. difficile

7. Does your facility follow-up with patients who have C. difficile?
   - Follow-up with patients who have C. difficile

8. Are patients with C. difficile monitored for CDI?
   - Monitored for CDI

9. Does your facility follow-up with patients who have C. difficile?
   - Follow-up with patients who have C. difficile

10. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

11. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

12. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

13. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

14. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

15. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

16. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

17. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

18. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

19. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

20. Does your facility follow-up with patients who have C. difficile?
    - Follow-up with patients who have C. difficile

We will touch base in about 1 month to discuss the above topics.

Interfacility Transfer Evaluation

- Rule Jan 2014
- New plan:
  - 27 hospitals
  - 60 SNFs
- Database
- Chart review
- Analysis
Polling

In your facility, are interfacility transfer forms used:

☐ Yes, on all discharges to another facility
☐ Intermittently, but not consistently
☐ Only on discharges with MDRO diagnoses
☐ We have included fields in electronic discharge paperwork
☐ We don’t have any interfacility transfer communication in place (form or eform)

Polling

In your facility, do you provide forms or copy of electronic transfer forms for medevac transport vehicles?

☐ Yes
☐ No
☐ Uncertain
Prevalence Project

• Identify prevalence at admission for units with high rates of CDI

• Look for transmission events
  – Hospital
  – Future: LTACH? SNF?

Collaboration

• Acumentra Health joined 1 visit, also used tool

• Webinars about antibiotic stewardship (AWARE)
  – Rural Health Network
  – Grand Rounds
  – Oregon Health Care Association

• Oregon Patient Safety Commission

• Office of Licensing & Regulatory Oversight
Resources

- CDI Learning Session
- CDI Toolkit
- CNA Education (in progress)
- (Self) Assessment Tools
- NHSN Education

Future

- Continue facility support with Acumentra Health
- Include interfacility transfer communication of infectious diseases in “care transition”
- Dovetails with Ebola Part B grant
  - Onsite consultation and observations
  - Facility-specific plans
- Need assistant
Advancing Antimicrobial Stewardship in Community and Rural Hospitals

Whitney Buckel, PharmD, BCPS
Infectious Diseases Clinical Pharmacist
Intermountain Medical Center
Disclosures

- The SCORE study was supported by the Pfizer Grant for Learning and Change administered by The Joint Commission
- Co-investigator on investigator-initiated study on antimicrobial stewardship
- Primary Investigator: Eddie Stenehjem, MD, MSc

Objectives

- Participants will be able to:
  - Define antimicrobial stewardship
  - Give an example of an antimicrobial stewardship intervention
National Landscape

- September 2014: President’s Executive Order, PCAST report
- November 2015: Proposed Standard for Antimicrobial Stewardship by The Joint Commission (TJC)
- Coming soon:
  - National Quality Partners (NQP) Antibiotic Stewardship Initiative
  - Condition of Participation by Centers for Medicare & Medicaid Services (CMS)

What Is Stewardship?

Systematic efforts to optimize the use of antibiotics to maximize benefits, minimize resistance and decrease adverse events
Core Elements of a Stewardship Program

- Leadership commitment from administration
- Single leader responsible for outcomes
- Single pharmacy leader
- Antibiotic use tracking
- Regular reporting on antibiotic use and resistance
- Educating providers on use and resistance
- Specific improvement interventions

Types of Stewardship Interventions

- Antimicrobial Stewardship
  - Prospective Audit with Feedback
  - Guidelines and Clinical Pathways
  - Education
  - Dose Optimization
  - IV to PO Conversion
  - Rapid Diagnostics
  - Decision Support
Stewardship and C. difficile

- Previous antibiotic use is the predominant risk factor for C. difficile
  - All antibiotics carry this risk, but most commonly implicated are clindamycin, cephalosporins, beta-lactams and fluoroquinolones.
- Use of combination therapy and long-term receipt of antibiotic therapy are also risk factors.
- Treatment with concomitant antibiotics compromises the initial response to C. difficile and the risk of recurrence.
- Antimicrobial stewardship helps to reduce unnecessary antibiotic use, minimize combination therapy and reduce treatment duration, which all help to reduce the risk of C. difficile and improve outcomes.


What about Community and Rural Hospitals?

2005 United States Hospitals
4935 Registered Hospitals
- 72% have <200 beds
- Most of these are without antibiotic oversight.
- All included in National Action Plan.
- Very few studies of stewardship in these settings.
- Rate of antibiotic use at these facilities is high.

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Polling

Do you have a program for Antibiotic Stewardship in your facility?

- Yes
- Partial program
- Working to launch a program
- No

Antibiotic Use

- NHSN AU option
- Excluding:
  - Maternity
  - Newborn
  - Psychiatry
  - Rehabilitation

Days of Therapy per 1,000 Patient Days Present

Intermountain Facilities
SCORE study

Objective: Define an antibiotic stewardship strategy for Intermountain’s smaller hospitals that optimizes outcomes while maximizing resources.

Setting: Community and Rural Hospitals less than 200 beds within Intermountain Healthcare.

Design: Cluster randomized controlled trial.

Program 1 (High resource): 5 hospitals
Program 2 (Medium resource): 5 hospitals
Program 3 (Low resource): 5 hospitals

Timeline: 6 months curriculum development, 15-month intervention period.

Types of Stewardship Interventions:
- Antimicrobial Stewardship
  - Prospective Audit with Feedback
  - Formulary Restrictions
  - Antimicrobial Indications
  - Guidelines and Clinical Pathways
- Education
- Dose Optimization
- IV to PO Conversion
- Rapid Diagnostics
- Decision Support
Example Interventions

Date: 08/29/2013 07:00
To: Dr. Sydnor

Mrs. Buckel in Room T907 has been on vancomycin and piperacillin/tazobactam for 48 hours. This patient has allergies to no antibiotics and appears to tolerate other trial therapies.

The following microbiology data are available:

Negative cultures to date

The CDC recommends re-evaluating antibiotic therapy at this time based on new data and the current clinical picture.

☐ Yes, I have acknowledged this patient’s current regimen, and plan to tailor their antibiotics.

☐ Yes, I have acknowledged this patient’s current regimen, and wish to continue the current regimen.

Please return to pharmacy at the time of discharge.

Example Interventions (cont.)

Pillar 1: Prospective Audit with Intervention and Feedback

Pillar 2: Antibacterial Restrictions
**ALL Sites - Antibiotic Best Practices**

**IV to PO Conversion**

**Antibiotic Indications**

**48 hour Antibiotic “Timeout”**

**Access to: ID clinicians and pharmacists**

**Monthly Hospital Antibiotic Utilization Report**

<table>
<thead>
<tr>
<th>Program 1</th>
<th>Program 2</th>
<th>Program 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAF – lite</strong>: Audit a limited number of antimicrobial agents* and provide feedback</td>
<td><strong>PAF</strong>: Audit an expanded list of antimicrobial agents** and provide feedback</td>
<td><strong>Restriction</strong> (Infectious Diseases review) of selected antimicrobials***</td>
</tr>
<tr>
<td><strong>Restriction</strong> (local pharmacy review) of selected antimicrobials***</td>
<td></td>
<td>ID study staff to review positive blood and CNS culture results and all cultures with MDROs.</td>
</tr>
</tbody>
</table>

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**Education Initiative - Pharmacy**

**KAP survey**

**Topics Covered:**
- **Stewardship Basics**
- **Antibiotic Time Out**
- **IV to PO**
- **Antibiotic Indications**
- **Bug Drug mismatch**
- **When to call ID**

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**Polling**

Is there a person at your facility responsible to review antibiotic orders for appropriateness?

- Yes
- No
- Uncertain

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* Vancomycin, carbapenems, piperacillin/tazobactam, cefepime, aminoglycosides, ciprofloxacin, levofloxacin, ceftriaxone, and ampicillin/sulbactam

**Vancomycin, carbapenems, piperacillin/tazobactam, cefepime, aminoglycosides, ciprofloxacin, levofloxacin, ceftriaxone, and ampicillin/sulbactam**

*** Restricted agents: Imipenem/meropenem, linezolid, daptomycin, ceftaroline, tigecycline, echinocandins, voriconazole, and amphotericin compounds
Figure: Rate ratios for restricted drugs comparing antimicrobial use rates (days of therapy/1,000 patient days) during the intervention period to the preceding baseline period in 15 small, community hospitals.
SCORE Study Conclusions

- Antimicrobial use in SCH is comparable to larger facilities
  - Stewardship is needed
- Stewardship is feasible in these settings
- Stewardship can lower antimicrobial use
  - Which program type fits best, to be determined

Summary

- Antimicrobial stewardship is an important approach to reducing antimicrobial resistance, including C. difficile
- Soon, all facilities will be required to have antimicrobial stewardship programs in place and functioning
- Antimicrobial stewardship is feasible in all facilities, but must be tailored to unique site needs
Thank you for your time and attention!

Questions?
Whitney Buckel, PharmD, BCPS
whitney.buckel@imail.org

Environmental Cleaning for C. difficile Reduction

Susan M. Kellie, MD, MPH
Professor of Internal Medicine, Division of Infectious Diseases
University of New Mexico School of Medicine
and New Mexico VA Healthcare System
Objectives

Participants will be able to

• Describe what is required for environmental cleaning to remove *C. difficile*

• Define criteria for confirming cleanliness

• Recognize and address barriers to cleaning

Key Points

• Why is cleaning essential?

• What does it take to be clean?

• How do we know we’re clean?

• Why doesn’t cleaning get done?

• What is the end result?
The evidence: environmental contamination doubles the risk for the next patient

- **Prior Occupant**
  - No CDI \(\Rightarrow\) 4.6% CDI
  - Yes CDI \(\Rightarrow\) 11.0% CDI
  - \(P = .002\)

- **Multivariate regression**
  - HR 2.35 (1.21–4.54) \(P = .01\)

Kaplan-Meier curve of *Clostridium difficile* infection (CDI) development. (\(P = 0.008\))

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**Skin Contamination Is Common**

*Frequency of *C. difficile* contamination of skin sites of 27 patients with CDI and sterile gloves after contact with 10 patients*

Hygienic Cleaning Can Decrease Burden

Percentage of positive environmental cultures for *C. difficile* before and after housekeeping cleaning and after disinfection with 10% bleach by the research team. Nine rooms were cultured.

Monitoring Cleaning Quality

- Patient and family perceptions matter.
- Hospital Consumer Assessment of Healthcare Providers and Systems survey is a required part of the inpatient prospective payment plan
  - Hospital environment (clean & quiet) is a survey question
“Clean and quiet” on the hospital patient survey correlated with the hospital’s patient safety scores

Measuring Clean—What Is Clean?

We can monitor

• Subjectively: inspection mode

OR

• Objectively for the process: checklist and direct technique observation mode

OR

• Objectively for the outcome: environmental contamination measurements
Question

How do you know a room is clean?

How do we get the results we want from our efforts in cleaning?

• Ensure the right rooms get cleaned the right way with correct signage and communication with nursing staff
• Use a checklist tool
• Monitor thoroughness of cleaning and use results for continuous training of staff
• Engage patients and families in ensuring a safe and clean environment
Problems with Subjective Mode

- Only finds soiling that can be visualized
- Focus may be on issues that are more cosmetic than patient-safety oriented.
- Tends to be fault-finding

Measuring Clean

Use of a UV marking solution to assess environmental cleaning
Measuring Clean

- A structured list of surfaces is swabbed for ATP reading at the end of all terminal cleans for *C. difficile* patients
- Feedback to cleaner is instantaneous
- Areas with high readings are re-cleaned
- Data trending software is available

Developing an Evidence-Based Process

- **Plan the clean:**
  - Develop the program as a joint “blame-free” task between infection preventionists and Environmental Services leadership
  - Divide areas/items to be cleaned into high-touch and low-touch
  - Develop a checklist
Getting to Clean: Human Factors

- Who cleans what?
- With what?
- For how long? (contact times)
- When do we use a different product (e.g., for *C. difficile*) and how is this communicated?
- How do we monitor?

Discuss

Why doesn’t cleaning happen effectively in your facility?
Recommended Education for EMS Personnel

A presentation should be developed for all line staff involved in terminal room cleaning and should:

– Provide an overview of the importance of HAIs in a manner commensurate with their educational level, using as many pictorial illustrations as is feasible.
– Explain their valuable role in improving patient safety through optimized hygienic practice.
– Review specific terminal room cleaning practice expectations.

Engaging Patients and Families: Scripting

• The Environmental Services (ES) staff plays an important part in keeping your hospital room and other areas of the hospital environment clean. But you (the patient) also play a role.

• Survey your room—does it look clean? Your hospital room should be cleaned daily and look and smell clean. If you have concerns, tell the ES staff so they can be addressed immediately.

• Don’t contribute to the clutter; clutter makes it hard for the ES staff to do their job. Limit personal items, keep items off the floor and away from waste containers, have a waste container near your bed, and use it for disposal of personal items.
Ways to engage teams on the importance of good environmental cleaning

Implementing a Cleaning Checklist

- Checklists ensure a culture of reliability
- Interruptions happen constantly in healthcare—everyone needs help to keep on track and be thorough
Cleaning and Disinfection of Clinical Environmental Surfaces Table

<table>
<thead>
<tr>
<th>Clinical Environmental Surfaces</th>
<th>Exposure Group</th>
<th>Cleaning Agent</th>
<th>Contact Time</th>
<th>Responsible Department</th>
<th>When each patient</th>
<th>Frequency</th>
<th>Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor</td>
<td>Disinfecting cloth</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gowns / Scrubs</td>
<td>Disinfecting towel</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>In‐patient Rooms:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathrooms</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Beds</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bedside stand / over bed table</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>High touch surfaces in patient rooms (light switches, door knobs, bathroom fixtures, nurse call cord, TV controls, telephone)</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nurse Station (emptied by Nursing)</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Patient Lockers</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Over door PPE Caddies (emptied by Nursing)</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Long‐term patient room: intermittent terminal cleaning procedure</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Long‐stay patient rooms</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Waste receptacles, including bins</td>
<td>One Disinfecting wipe</td>
<td>10 min</td>
<td>ENS</td>
<td>Discharge</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
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Getting to Clean with the Correct Sporicidal Agents—Check the List of EPA‐Approved Agents

- Chlorine‐containing and sporicidal agents
  - Use appropriate concentrations
- Drawbacks:
  - May be damaging to environment
  - Surfaces don’t get cleaned

Polling

Is your facility using a sporicidal cleaning agent?

☐ Yes
☐ No
☐ Uncertain/Don’t know

Evidence-Based Cleaning Focuses on High-Touch Sites
What Works—
Example: Kill and Remove

Clostridium difficile infection incidence for units A and B combined before the intervention (August 1, 2008–July 31, 2009) and after the intervention (August 1, 2009–July 31, 2010).
HAI, hospital-acquired infection; INC, overall infection incidence; PD, patient days; PT, patient.

Getting to Clean: Technology

<table>
<thead>
<tr>
<th>Variable</th>
<th>MRSA Without coating</th>
<th>MRSA With coating</th>
<th>C. difficile Without coating</th>
<th>C. difficile With coating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle time, minutes</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Direct surfaces</td>
<td>4.10 (3.88–4.32); 30</td>
<td>4.68 (4.61–4.76); 30</td>
<td>3.35 (3.14–3.55); 30</td>
<td>3.34 (3.19–3.59); 30</td>
</tr>
<tr>
<td>Indirect surfaces</td>
<td>2.74 (2.53–2.94); 20</td>
<td>4.21 (4.00–4.42); 20</td>
<td>1.80 (1.36–2.24); 20</td>
<td>2.61 (2.24–2.97); 20</td>
</tr>
<tr>
<td>Overall</td>
<td>3.56 (3.31–3.80); 50</td>
<td>4.50 (4.38–4.61); 50</td>
<td>2.78 (2.48–3.07); 50</td>
<td>3.05 (2.82–3.28); 50</td>
</tr>
</tbody>
</table>

Note: Data are mean log10 reduction in colony-forming units (95% confidence interval) and no. of samples, unless otherwise indicated. Patient room is 130 square feet (12.07 m²) in area. Confidence intervals were calculated based on a Poisson distribution.

Rutala et al, Room Decontamination Using an Ultraviolet-C Device with Short Ultraviolet Exposure Time. Infection Control & Hospital Epidemiology. 2014;35(08):1070–2 http://dx.doi.org/10.1086/677149
Considerations for Technology

- Training required
- Time and room turnover
- Expense of device
- Device maintenance expenses
- Incorporation into work processes
- Use of enhanced technology in addition to other interventions appears to add ~20% reduction to hospital-onset CDI in uncontrolled before and after studies.

Share

Technologies used in your facilities for cleaning—how successful are they?
Human Factors Are Still Critical: Feedback to Staff

• Celebrate “Supercleaners”

• Let them know they make a difference in infection rates.

Questions?

This material was prepared by HealthInsight, the Medicare Quality Innovation Network-Quality Improvement Organization for Nevada, New Mexico, Oregon and Utah, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy.
Wrap-up and Evaluation

We value your feedback to help us continuously improve!

Please complete the online evaluation, using the link we will email to you after the session.

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