Teaming up Against Health Care Associated Infections (HAI)

Presented By: Mamta Desai, BS, MBA, CIC
Director of Infection Prevention
Objectives

• Describe the role of the environment in transmitting infections
• Discuss strategies to ensure effectiveness of cleaning and disinfection
• Discuss available resources for EVS staff education
• Discuss EVS role in preventing HAIs
Contaminated Environmental Surface Leading to Patient Infection

1. Surface becomes contaminated by contact or droplet spread
2. Organism must survive on the surface
3. Surface must be touched by another person who picks up sufficient inoculum
4. Person must omit or poorly perform hand hygiene
5. Person must transmit the organisms to another person or object in sufficient quantity to cause disease

Ref: The Inanimate Environment, Bennett & Brachman’s Hospital Infections 6th Ed. 2014
Chou. APIC Text of Infection Control & Epidemiology. 2013
HICPAC/CDC Isolation Guidelines. 2007
Evidence of Environment Playing a Role in Disease Transmission

1. Admission to a room previously occupied by a colonized or infected patient is a significant risk factor for infection

2. C. difficile acquisition
   - 11% patient admitted to an ICU room previously occupied by a CDI patient developed CDI
   - 4.6% patients admitted to a room without a prior CDI positive occupant developed CDI

http://www.idse.net/download/HAI_IDSE13_WM.pdf
Weber DJ et.al. AJIC 2013
How to reduce Environmental Bioburden

• Clean and disinfect high-touch surfaces daily
• Improve cleaning and disinfection of rooms after discharge of patients
  – Isolation
  – All rooms
• Clean and disinfect portable equipment
Cleaning Policy Considerations

• Include in policy the surfaces and equipment that can be reasonably expected to be contaminated by bacteria (high touch surfaces)
  - Bedrail
  - Call bell
  - Light switches
  - Doorknobs
  - TV remote
  - IV pump
  - Toilet, commode chair
  - IV poles
  - Computer keyboard
  - Telephone
  - Over bed table
  - Respiratory and other bedside equipment
  - Chairs

• Define responsibility and frequency for cleaning and disinfecting patient care equipment and surface
<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>FREQUENCY</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Care Room Furniture (includes but is not limited to)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed - All</td>
<td>After discharge</td>
<td>EVS</td>
</tr>
<tr>
<td>Bed - Rails/footboards</td>
<td>Daily when in use</td>
<td>EVS</td>
</tr>
<tr>
<td>Bed - Specially owned by PVHMC</td>
<td>After each use</td>
<td>EVS</td>
</tr>
<tr>
<td>Bed - Specially (KCI and Magrion-owned by PVHMC)</td>
<td>Daily when in use/After each use</td>
<td>Cleaned by vendor through Storage and Distribution</td>
</tr>
<tr>
<td>Crib</td>
<td>Daily when in use/+After each use</td>
<td>Occupied - User Discharge - EVS</td>
</tr>
<tr>
<td>Bassinet</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - EVS</td>
</tr>
<tr>
<td>Gurney</td>
<td>After each use</td>
<td>Occupied - User Discharge - EVS</td>
</tr>
<tr>
<td>Overbed Table</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - EVS</td>
</tr>
<tr>
<td>Bedside Table/Cabinet</td>
<td>Daily</td>
<td>EVS</td>
</tr>
<tr>
<td>Chair(s)</td>
<td>Daily</td>
<td>EVS</td>
</tr>
<tr>
<td>Telephone/Call Light/TV/Door Knobs</td>
<td>Daily</td>
<td>EVS</td>
</tr>
<tr>
<td>Patient Care Cubicles (ED/PACU)</td>
<td>After each use</td>
<td>Occupied - User</td>
</tr>
<tr>
<td>Gurney</td>
<td>After each use</td>
<td>Occupied - User</td>
</tr>
<tr>
<td>Baby Warmer</td>
<td>After each use</td>
<td>Occupied - User</td>
</tr>
<tr>
<td>Bassinet</td>
<td>After each use</td>
<td>Occupied - User</td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Care Cubicles (NICU)</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - NICU Storeroom</td>
</tr>
<tr>
<td>Isolette</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - NICU Storeroom</td>
</tr>
<tr>
<td>Baby Warmer</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - NICU Storeroom</td>
</tr>
<tr>
<td>Bassinet</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - NICU Storeroom</td>
</tr>
<tr>
<td>Auto Syringe Pumps</td>
<td>Daily when in use/After each use</td>
<td>Occupied - User Discharge - EVS</td>
</tr>
<tr>
<td>Bed - Occupied</td>
<td>Daily and as needed</td>
<td>Occupied - User</td>
</tr>
<tr>
<td>Bedside Commodes (Portable)</td>
<td>At time of discharge</td>
<td>EVS</td>
</tr>
<tr>
<td>Bedside Commodes (Portable) - Seat</td>
<td>After each use</td>
<td>Nursing</td>
</tr>
<tr>
<td>Blanket Warmer - Inside</td>
<td>Daily</td>
<td>User</td>
</tr>
<tr>
<td>Blanket Warmer - Outside</td>
<td>Daily</td>
<td>EVS</td>
</tr>
<tr>
<td>Blood Pressure Cuffs/Meters</td>
<td>After each use</td>
<td>User</td>
</tr>
<tr>
<td>BP Machine (Portable)</td>
<td>After each use</td>
<td>Nursing</td>
</tr>
<tr>
<td>BP Machine (Portable) - Pole/Wheels</td>
<td>Weekly</td>
<td>EVS</td>
</tr>
</tbody>
</table>
Cleaning Before Disinfection

• Cleaning removes large numbers of microorganisms from a surface that would otherwise interfere with the disinfection process
• Disinfectant are not as effective in the presence of organic material

Important: A thorough cleaning must occur before a surface can be disinfected.

HICPAC/CDC 2008
Detergent and Disinfectants

• Detergents
  – Used for cleaning
  – Contains surfactants; lift dirt
  – Can become easily contaminated, does not kill microorganism
  – Less toxic, generally less odor, less costly than disinfectant

• Disinfectant
  – Inhibit growth or kill microorganisms
  – More toxic, more costly than detergent

Ref: APIC Text of Infection Control and Epidemiology, 2013
EPA Label Claim for Disinfectant

• The EPA label claim states if the product is
  – Virucidal
  – Bactericidal
  – Tuberculosis
  – Fungicidal
  – Sporicidal

• Clarifies manufacture's instruction for use (IFU), including wet/contact/dwell time required to achieve the desired degree of microbial killing

https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants
Importance of Wet/Contact Time

• Wet/Contact time is the time required for a disinfectant to kill microorganisms on a pre-cleaned surface
• Disinfect must remain wet long enough to achieve the claimed level of surface disinfection
• Follow manufacture’s guidelines for achieving the appropriate wet/contact time

Rutala et al. ICHE. 2014
### Selection of Disinfectant

<table>
<thead>
<tr>
<th>Disinfectant</th>
<th>Strengths</th>
<th>Concerns</th>
</tr>
</thead>
</table>
| Quaternary Ammonium Products (Quats) | • Widely used  
• Bactericidal, fungicidal, virucidal  
• Hospital-grade quats tuberculocidal  
• Safe for computer keyboards | • Hard water can reduce effectiveness  
• Generally not sporicidal  
• Occupational asthma documented |
| Phenolics                     | • Bactericidal, virucidal, fungicidal, tuberculocidal  
• Not sporicidal | • Absorbed by porous materials  
• Can irritate tissue  
• Unsafe for use in nurseries |
| Chlorine-based                | • Broad antimicrobial activity  
• Does not leave toxic residues  
• Inexpensive  
• Fast acting  
• Removes dried organisms, biofilms | • Can cause eye irritation, gastric burns  
• Inactivated by organic matter  
• Discolors fabrics  
• Wet contact time 10 minutes  
• Corrosive in high concentrations  
• Can release toxic chlorine gas when mixed with ammonia |
| Hydrogen peroxide, Accelerated H₂O₂ | • Effective  
• Bactericidal, virucidal at 30- 60 sec  
• Fungicidal at 10 min  
• Low EPA toxicity rating | • Expensive |

Consider duration of contact time
Why Sporicidal Agent for C. difficile?

• C. difficile spores are difficult to kill and adheres to environmental surfaces for extended periods

https://www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium-difficile-spores

https://www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium
Microfiber vs. Cotton

• Microfiber comprised of densely constructed synthetic strands
• Microfiber cleans 50% better than comparable cotton
  – Attracts dust
  – Easier to use, lighter
  – Designed for repeat use
Cleaning Porous Surfaces

- **Fabrics**
  - Vacuum regularly and re-cover when torn
  - Organic material and excess liquid should be extracted as much as possible

- **Carpets**
  - Steam cleaning is recommended for as appropriate
  - Allow to dry for up to 72 hours to prevent fungi growth
Privacy Curtains

- Bacteria and fungi can survive on polyester, cotton, wool and other fabrics
- Privacy curtains are considered high-touch surfaces and can become rapidly contaminated especially when in isolation rooms
- Hands can become contaminated after handling curtains
  - Study found 50% of hands contaminated after handling curtains
  
  Oh et.al Am J Infect Control. 2012
Best Practices for Cleaning a Room

- Certified Healthcare Environmental Services Technicians (CHEST) Certification
- STRIVE (CDC, AHE and APIC collaboration)
- CDPH
- CDC Guidelines
About CHEST

• The Certified Healthcare Environmental Services Technician (CHEST) program offers a new certification for Environmental Services frontline workers.
• It is a comprehensive, healthcare specific, best practice referenced training program for supervisors and the frontline staff
• CHEST is built on an innovative “Train-the-Trainer” model. Healthcare facilities can choose to train one or more of their staff through AHE to deliver the CHEST certification program directly in their hospitals.
PVHMC Plan and Phased Approach

1. First Phase:
   ✓ EVS Management T-CHEST, certified Trainers
2. Second Phase:
   ✓ EVS Leads
3. Third Phase:
   ✓ All Relief Leads
4. Final Phase:
   ✓ Key EVS Associates
   ✓ Continued Education (CEU’s)
Train the Trainer Model:

- AHE identified Environmental Services Subject Matter Experts (SMEs)
- SMEs developed standards and an extensive training program
- M-Ts teach Trainers (T-CHEST) through a 3 day/24 hour AHE CHEST training program
- SMEs train Master Trainers (M-Ts)
- T-CHEST then go back to their facility to train their frontline environmental services staff using AHE’s certification materials.
- Frontline environmental service staff become certified after passing a written exam.
Why CHEST?

• Achieve quality outcomes
  ✓ Reduce HAIs
  ✓ Higher HCAHPS rating
  ✓ Improve medical reimbursements

• CHEST program validates competency of Environmental Services Technicians

• Technicians not only learn the proper way to perform their duties, they also learn “why” they perform it.
CHEST Training Methods:

Utilizes a variety of media:

- Video
- PowerPoint presentations
- Class activities and participation:
  - Study guides
  - Q & A / Chapter reviews
  - Real-world scenarios and examples
  - Games

All designed to help engage participants, help them retain information, improve on-the-job performance and heighten awareness.
Program/Certification Aspects:

• The program covers all aspects of a frontline worker’s typical tasks and accountabilities.
• Environmental Service Technicians must complete the required training hours.
• Environmental services technicians must pass a written assessment (Exam) to earn the CHEST title.
CHEST Program Sections:

- Infection Prevention
- Cleaning and Disinfection of all areas
- Environmental Services Equipment and Supplies
- Working Safely and Responsibly
- Basic Floor Care and Maintenance
- Environmental Monitoring and Quality Control
- Waste Removal
- Linen/Laundry Handling
- Multi-cultural Differences/Ethical Decision-Making
- Effective Communication and the Patient Experience of Care
The program covers seven domains.

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>Domains are taught in 10 modules.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20% Cleaning and Disinfection</td>
<td>Infection Prevention and Control 4.0 hours</td>
</tr>
<tr>
<td>10% Waste Handling</td>
<td>Assignments with Supervisor and Other Staff 1.5 hours</td>
</tr>
<tr>
<td>5% Floor Care</td>
<td>Cart Set-up and Handling Chemicals 2.5 hours</td>
</tr>
<tr>
<td>10% Linen Handling</td>
<td>Occupied Room #1 2.0 hours</td>
</tr>
<tr>
<td>20% Infection Prevention</td>
<td>Unoccupied Discharge or Transfer Room 1.5 hours</td>
</tr>
<tr>
<td>15% Safety</td>
<td>Isolation Room 2.0 hours</td>
</tr>
<tr>
<td>20% Communication</td>
<td>Occupied Patient Room #2 1.75 hours</td>
</tr>
<tr>
<td></td>
<td>Common Area 2.0 hours</td>
</tr>
<tr>
<td></td>
<td>Specialty Areas, Uncommon Situations 2.0 hours</td>
</tr>
<tr>
<td></td>
<td>Wrap up and Review 2.0 hours</td>
</tr>
<tr>
<td></td>
<td>Additional Practice 1.5 - 2 hours</td>
</tr>
</tbody>
</table>
1. Chain of infection/breaking chain
   - 6 links

2. Behaviors to control/prevent infection
   - Know pathogen
   - Proper cleaning/chemical/tool/disinfection process-dwell time
   - Proper PPE
   - Sneeze/Cough etiquette
   - Hand Hygiene

3. Cleaning vs. Disinfecting
   - Disinfection classifications

4. Standardized cleaning process:
   - Clean clock/counterclockwise
   - Clean to dirty
   - Clean top to bottom
   - Unidirectional wiping

5. PPEs:
   - Donning & Doffing

6. Standard precautions

7. Transmission based precautions
## Cleaning vs. Disinfecting

### Cleaning
- The removal of material like dust, soil, blood, and bodily fluid.
- Physically removes rather than kills microorganisms. Accomplished with water, detergents, and mechanical action.
- Always essential prior to disinfection or sterilization.
- A surface that has not been cleaned effectively cannot be properly disinfected or sterilized.

### Disinfecting
- The inactivation of pathogens.
- Usually involves chemicals, heat, or ultraviolet light.
- Sterilization destroys microbial life including bacteria, viruses, spores, and fungi and is not performed by environmental services.
- The most common disinfectants used are quaternary ammonium compound products, hydrogen peroxide-based products, and sodium hypochlorite (bleach).
Putting on PPE
Benefits:

**Frontline Environmental Services Staff**
- Increased professionalism
- Engaged environmental services staff
- Improved Department morale and respect

**Department/Facility**
- Improved interdepartmental communication
- Earned credential recognized by the American Hospital Association
- Ability to perform and compete at the highest level for environmental services jobs

**Patients**
- Greater satisfaction
- Better experience of care
- Improved outcomes
STRIVE: Environmental Services Training Modules and Tools

• Module 1

Module 1: Basic Principles of Infection Control for EVS Technicians
This module defines what an infection is, reviews the chain of infection, and discusses how important environmental cleaning is to break the chain of infection.

Tools and Resources In English and Spanish
• A ready-to-use presentation for trainers English | Spanish
• Learners' version in PowerPoint format English | Spanish
• Presentation facilitator notes and guidelines for trainers, for use in live sessions English
• Narrated audio version of the presentation English | Spanish
• Flashcards English | Spanish
• Infographics English | Spanish
• Checklists for discharge and daily cleaning inspection processes
  ◦ Discharge Inspection English | Spanish
  ◦ Daily Cleaning Inspection English | Spanish

https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services
Module 2: PPE and EVS: Keeping EVS Team Members, Patients, and Caregivers Safe
This module provides information on what basic personal protective equipment (PPE) is, how to don and doff it, and when and how to use it during routine EVS activities.

Tools and Resources In English and Spanish

- A ready-to-use presentation in PowerPoint format [English](#) | [Spanish](#)
- Narrated audio version of the presentation [English](#) | [Spanish](#)
- Flashcards [English](#) | [Spanish](#)
- Infographics depicting “Do’s and Don’ts” of glove use [English](#) | [Spanish](#)
- Checklist for donning and doffing PPE and fit-checking respirator [English](#) | [Spanish](#)

https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services
Module 3: Chemical Safety for EVS
This module covers safety practices EVS personnel should follow to protect themselves, other staff, patients, and visitors when using chemical disinfectants.

Tools and Resources *In English and Spanish*

- A ready-to-use presentation in PowerPoint format: English | Spanish
- Narrated audio version of the presentation: English | Spanish
- Flashcards: English | Spanish
- Short PowerPoint on hazard symbols: English | Spanish
- Checklist for setting up an EVS cart to support best safety practices: English | Spanish

https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services
Module 4: Surface Cleaning and Disinfection Procedures and Techniques in EVS
This module covers best practices for cleaning and low-level disinfection of environmental surfaces in occupied patient rooms and at the time of patient discharge or transfer, as well as how to evaluate adequate cleaning.

**Tools and Resources In English and Spanish**
- A ready-to-use presentation in PowerPoint format  [English](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services) | [Spanish](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services)
- Narrated audio version of the presentation  [English](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services) | [Spanish](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services)
- Flashcards  [English](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services) | [Spanish](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services)
- Infographic on cleaning occupied rooms  [English](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services) | [Spanish](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services)
- Checklists for monitoring room cleanliness using ATP technology and UV light inspection
  - ATP Technology  [English](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services) | [Spanish](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services)
  - UV Light Inspection  [English](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services) | [Spanish](https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services)
Emerging Cleaning Technologies
Non Touch Disinfection Technologies

• Developed because manual cleaning and disinfection is often suboptimal
• Provides a higher level of disinfection
• Must collaborate with Nursing, Safety, EVS and IP
• Effective in stopping CDI outbreaks
• Options
  – Hydrogen Peroxide fogging (Dry mist or vapor)
  – Ultraviolet light (Continuous emitting or pulse xenon)
Caveats to Non Touch Disinfection Technologies

• Process takes time
  – Room turnover may be delayed
• Room must be thoroughly cleaned prior to use for non touch technology
  – Technology is ineffective in the presence of organic matter
• Special training/competency
• Consider safety/exposure
  – Special PPE may be needed
Enhancement to Terminal Disinfection:

- Added UV disinfecting technology
  
  **In addition to routine discharge cleaning/disinfecting**

- Effective against C. difficile spores
  - All ICU rooms
  - All isolation rooms

https://www.youtube.com/watch?v=5QxQmDpDcss
Effective Cleaning and Disinfection Program
How Do you know a Patient Room is Clean?

- Appears visually clean or finger-swipe clean
  - Fast and inexpensive, but lacks objectivity
- Confirmed via technology
  - Increasingly becoming the community standard

<table>
<thead>
<tr>
<th>Fluorescence</th>
<th>Adenosine Triphosphate (ATP) monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally stable marker is visible to UV light if still present after cleaning</td>
<td>Measure residual organic matter left on a surface after cleaning</td>
</tr>
<tr>
<td>- Great visual tool</td>
<td>- Set benchmark</td>
</tr>
</tbody>
</table>
# Monitoring Cleaning

## Comparison of Methods

<table>
<thead>
<tr>
<th></th>
<th>Visual</th>
<th>Fluorescence</th>
<th>ATP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is measured?</td>
<td>impression of cleanliness</td>
<td>whether fluorescent residual has been removed</td>
<td>biological matter remaining on surface after cleaning</td>
</tr>
<tr>
<td>2. Can it be used by persons of differing skill levels?</td>
<td>no technical training required</td>
<td>some technical training needed</td>
<td>some technical training needed</td>
</tr>
<tr>
<td>3. How objective is the method? (Can results be changed to appear more positive?)</td>
<td>can be subjective</td>
<td>objective, but marks could have been removed prior to reading</td>
<td>very objective</td>
</tr>
<tr>
<td>4. Can the amount of time spent on monitoring be minimized?</td>
<td>yes</td>
<td>room must be pre-marked and read after cleaning</td>
<td>yes</td>
</tr>
</tbody>
</table>
## Monitoring Cleaning (continued)

<table>
<thead>
<tr>
<th>Method</th>
<th>Visual</th>
<th>Fluorescence</th>
<th>ATP</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. How are results presented?</td>
<td>pass/fail</td>
<td>pass/fail</td>
<td>numeric value</td>
</tr>
<tr>
<td>6. Is software needed for the monitoring process?</td>
<td>no</td>
<td>can be used, but not required</td>
<td>yes</td>
</tr>
<tr>
<td>7. How well can it be used for a training tool?</td>
<td>results immediate with visual cues</td>
<td>results immediate with visual cues</td>
<td>results delayed, no visual cues usually available from surface</td>
</tr>
<tr>
<td>8. How affordable is the method?</td>
<td>no monetary investment</td>
<td>materials inexpensive; if formal program including staff education purchased, expenses will be higher</td>
<td>cost of machine and swabs is substantial</td>
</tr>
</tbody>
</table>
Measuring Effectiveness

**Plan**
Maintain High Cleaning Effectiveness, which assists with HAI Reductions.

**Design**
- Define/Background: 
  - What data will be collected?
  - How will the data be collected, tabulated, and documented?
  - Required by Title 22 and The Joint Commission.
  - Maintain high cleaning effectiveness through education, training, process changes, staffing, technology and other means, which also assists with HAI reduction.
- Data will be collected to measure desired results of PI indicator. Data includes:
  - ATP testing of high touch surfaces (HTS) is monitored from reports provided from 3M software using Relative Light Units (RLU).
- Numerator: Total levels of HTS below 250 RLU.
- Denominator: Total number of HTS inspected each month.

**ATP testing of HTS Results**

<table>
<thead>
<tr>
<th></th>
<th>1st Qtr 2019</th>
<th>2nd Qtr 2019</th>
<th>3rd Qtr 2019</th>
<th>4th Qtr 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal:</strong> ≥ 90%</td>
<td>98.4%</td>
<td>97.8%</td>
<td>97.1%</td>
<td>96.2%</td>
</tr>
<tr>
<td>Numerator</td>
<td>2224</td>
<td>2295</td>
<td>2976</td>
<td>2019</td>
</tr>
<tr>
<td>Denominator</td>
<td>2261</td>
<td>2346</td>
<td>3064</td>
<td>2098</td>
</tr>
</tbody>
</table>

**Assess**
- Overall judgment of the situation: Goal met or not met?
  - Common causes of deviation and evaluation of the process.
  - 1st QTR - Goal met. All failed tests were retested and passed after cleaning to assure a passing score. 1st QTR exceeds the goal. The analyses showed that the top 2 items that failed the most were blood pressure cuff and nurse call. The blood pressure cuff was also the highest fail for 2018. EVS used the UV light in isolation rooms post discharge/transfer clean a total of 929 for January, 767 for February, and 878 for March. This includes ED isolation rooms, which make up a large portion of the total.
  - 2nd QTR - Goal met. All failed tests were retested and passed after cleaning to assure a passing score. Scores remained consistent except for June, which had a slight dip. The analyses showed that the top 2 items that failed the most in the quarter were blood pressure cuffs and nurse call. EVS used the UV light in isolation rooms post discharge/transfer clean a total of for April, for March, and for June. The Luminator was under repair for part of the month, which resulted in less tests.
  - 3rd QTR - Goal met. All failed tests were retested and passed after cleaning to assure a passing score. Scores remained consistent except for July, which had a slight dip. The analyses showed that the top 2 items that failed the most in the quarter were blood pressure cuffs and nurse call. The Luminator was under repair for part of the quarter, the months of July and August, which resulted in less tests.

**Improve**
- Necessary future actions to resolve or follow-up on this issue?
  - Detailed corrective action plan.
- 1st QTR - EVS Supervisors are in place for all shifts. EVS Supervisors have been oriented to frequent unit rounding that includes visual cleaning checks, hand hygiene, and AIDOT observations of staff. EVS Leads also do daily inspection reports. EVS will continue to share information regarding highest fail surfaces, specifically on overbed tables and blood pressure cuffs. We will continue to discuss at EVS start-up meetings and monthly staff meetings for engagement with EVS Associates on how to improve cleaning on these highest fail rate surfaces.
  - 2nd QTR - EVS will continue to share information regarding highest fail surfaces, specifically nurse call and blood pressure cuffs. The Luminator was under repair for part of the month, which resulted in less tests.
  - 3rd QTR - EVS will continue to share information with EVS Associates regarding highest fail surfaces, specifically nurse call and blood pressure cuffs and will look at ways to emphasize the cleaning of these items to get better compliance. We will be putting in a capital budget request for a 2nd luminator in 2020.
### CDC Environmental Checklist for Monitoring Terminal Cleaning

<table>
<thead>
<tr>
<th>High-touch Room Surface</th>
<th>Cleaned</th>
<th>Not Cleaned</th>
<th>Not Present in Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed rails / controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tray table</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV pole (grab area)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call box / button</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside table handle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room sink</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room light switch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room inner door latch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathroom mirror door Knob / plate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathroom light switch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathroom handrails by toilet</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Bathroom sink</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Toilet seat</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Toilet flush handle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toilet bidet cleaner</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Evaluate the following additional sites if these equipment are present in the room:

<table>
<thead>
<tr>
<th>High-touch Room Surface</th>
<th>Cleaned</th>
<th>Not Cleaned</th>
<th>Not Present in Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV pump control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-module monitor controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-module monitor touch screen</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Multi-module monitor cables</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ventilator control panel</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Mark the monitoring method used:

- Direct observation
- Fluorescent gel
- Swab cultures
- ATP system
- Agar slide cultures

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[https://www.cdc.gov/hai/pdfs/toolkits/environmental-cleaning-checklist-10-6-2010.pdf](https://www.cdc.gov/hai/pdfs/toolkits/environmental-cleaning-checklist-10-6-2010.pdf)
Collaborations with IP and Clinicians:

• IP & EVS Task Force
  – Strategize and work closely to implement HAI reduction plans.
    • Cleaning and Disinfectant Product Evaluation
    • Updates EVS policies
    • Participate in Hand Hygiene Taskforce
    • Cubicle curtain cleaning initiatives.
    • Infection Prevention advocate for future project planning.
Summary

• A properly disinfected environment is essential to prevent HAIs
• EVS staff must be competent to ensure infection prevention and patient safety
  – Empower EVS staff to be part of your HAI prevention team
• Engage with EVS leadership to develop robust program
Resources

https://www.ahe.org/designations/chest
https://www.cdc.gov/infectioncontrol/training/strive
https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/EnvironCleanRoleOfEnvironSurfaces.aspx
https://apic.org/resources/topic-specific-infection-prevention/environmental-services/

Environmental Cleaning Resources

CDC/HICPAC Guidelines for Environmental Infection Control in Health-Care Facilities, 2003


CDC Options for Evaluating Environmental Cleaning Toolkit

CDC Environmental Checklist for Monitoring Terminal Cleaning

CDC Environmental Checklist (scroll to bottom of page and download word doc)

CDC Environmental Cleaning Eval Worksheet (scroll to bottom of page and download excel doc)

CDC/HICPAC Guidelines for Hand Hygiene in Healthcare Settings Published 2002

mamta.desai@pvhmc.org
909-630-7704