Environmental Cleaning
Top 10 Best Practices
Overview

- Environmental Cleaning – Top 10 Practices
- PIDAC document
- Auditing environmental cleaning practices
- Environmental Cleaning toolkit
WHAT DO WE KNOW?

• I.V. pumps, bedrails & linen implicated in MRSA outbreaks
  • (Boyce 1994)

• Stethoscopes, commodes, B/P cuffs, telephones, call bells, medication carts all implicated with VRE outbreaks
  • (Greene et al 1996)
Examples of environmental items that have been shown to harbour microorganisms such as MRSA, VRE, C.difficile, A. baumannii, RSV, influenza virus and others

<table>
<thead>
<tr>
<th>Bed</th>
<th>Door handle</th>
<th>Pillow/mattress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed frame</td>
<td>Electronic thermometer</td>
<td>Sink</td>
</tr>
<tr>
<td>Bed linen</td>
<td>Faucet handle</td>
<td>Stethoscope</td>
</tr>
<tr>
<td>Bedpan/bedpan cleaner</td>
<td>Floor around bed</td>
<td>Suctioning and resuscitation equipment</td>
</tr>
<tr>
<td>Bed rail</td>
<td>Hemodialysis machine</td>
<td>Table, staff work</td>
</tr>
<tr>
<td>Bedside table</td>
<td>Hydrotherapy equipment</td>
<td>table/charting area</td>
</tr>
<tr>
<td>Blood pressure cuff</td>
<td>Infusion equipment</td>
<td>Telephone, mobile phones</td>
</tr>
<tr>
<td>Call bell</td>
<td>Light switch</td>
<td>Television</td>
</tr>
<tr>
<td>Chair</td>
<td>Over bed table</td>
<td>Therapeutic and fluidized bed</td>
</tr>
<tr>
<td>Clean gloves that have touched room surfaces only</td>
<td>Patient bathroom</td>
<td>Toilet/commode</td>
</tr>
<tr>
<td>Computer keyboard</td>
<td>Patient hoist/lift and sling</td>
<td>Tourniquet</td>
</tr>
<tr>
<td>Couch</td>
<td>Pen</td>
<td>Ventilator</td>
</tr>
</tbody>
</table>
Top 10 Common Themes

• The environment plays a role in transmission of infections
  • Cleaning is an essential part of reducing healthcare-acquired infections

• Environmental cleaning best practices – Top 10:
  • Low tech
  • Low cost
  • Low glitz

• Follow the Top 10 Common Themes
  • You will meet ~40% of the PIDAC recommendations
1. **Proper hand hygiene**
   - Use alcohol-based hand rub
   - Use soap and water if hands visibly soiled
   - Always clean hands after glove removal
   - [www.oahpp.ca/services/jcyh](http://www.oahpp.ca/services/jcyh)
2. **Proper use of gloves**

- Change gloves between dirty and clean procedures
  - After removal of soiled linen/waste before cleaning the space
  - After cleaning the room and before mopping the floor
  - After cleaning the toilet
- Change gloves and wash hands when going from one resident space to another resident space
- Change gloves and wash hands when going from resident space to a shared resident bathroom
- **Do not leave the room wearing soiled gloves**
- **Do not wear gloves in common areas of the facility** (elevators, hallways)
- Always clean hands after glove removal
## Glove Selection

<table>
<thead>
<tr>
<th>Chemicals</th>
<th>MSDS requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine daily cleaning and disinfection of care areas and public washrooms</td>
<td>Disposable vinyl gloves</td>
</tr>
<tr>
<td>Wet work of long duration where durability is required</td>
<td>Nitrile gloves</td>
</tr>
<tr>
<td>Non-patient care areas (with the exception of public washrooms)</td>
<td>Household utility gloves</td>
</tr>
<tr>
<td>High risk of percutaneous injury (sorting linen, handling waste)</td>
<td>Heavy duty gloves</td>
</tr>
</tbody>
</table>
3. **Focus on frequently touched surfaces**
   - Often referred to as “high touch” items and surfaces
   - More prone to contamination
   - Examples: call bells, bedrails, door handles, telephones, bedside tables, ABHR dispensers
4. Work from clean-to-dirty and from high-to-low areas
   - Avoid contaminating already cleaned areas and surfaces
5. Avoid generating aerosols

- Roll up soiled linen carefully and away from your clothing
- Place soiled items in bins – do not throw
- Tie up waste bags without compressing air
- Keep microfibre mop in contact with floor at all times
- Do not shake mops or cloths
6. Change cleaning cloths

- When no longer saturated with solution
- When going from one resident space to another resident space
- When going from shared resident space to bathroom
- After cleaning heavily soiled area/surface (i.e. toilet)
- **Do not re-dip** in to cleaning solution ~ *Double-dipping*
- It will be necessary to use multiple cloths for each space
- Solution and buckets need not be changed between rooms as they are not re-immersed in cleaning solution
7. Ensure cleaning equipment and supplies are clean
   • All used cloths and mop heads are stored separately when soiled and sent for laundry at end of each day
   • Mops and cloths are dried thoroughly and stored in clean area
   • Clean the cleaning cart daily

8. Proper use of cleaning and disinfecting products
   • Follow instructions for dilution and calibrate automated dilution systems regularly
   • Monitor dilutions (dipsticks)
   • Allow for appropriate contact time
   • Do not top-up liquids
   • Be aware of any OH&S limitations for use
Products for Cleaning/Disinfection

Cleaning and disinfecting products must:

- Have a drug identification number (DIN) from Health Canada
- Be compatible with items and equipment to be cleaned and disinfected
- Be used according to the manufacturer’s recommendations
- Be active against the usual microorganisms encountered in the health care setting
- Ideally require little or no mixing or diluting
- Be active at room temperature with a short contact time
- Have low irritancy and allergenic characteristics
- Be safe for the environment.
9. Ensure surface or item is cleaned before disinfected
   • Presence of organic soil will alter activity of disinfectant
   • 1-step or 2-step products
   • Whenever possible, take apart items
   • Use of FRICTION to mechanically clean items and surfaces

10. Communicate issues to your supervisor
    • Cracked mattresses and pillows
    • Non-intact surfaces
    • Mould in shower grouting or bathrooms
    • Carpet or upholstery stains
    • Worn or torn finishes
    • Presence of pests
    • Improper disposal of sharps
Shared client equipment

- **Who is responsible for cleaning shared equipment between uses?**
  - Environmental services, nursing, support staff, physio staff

- **How do you know if it is clean or dirty?**
  - Signage, location

- **Where is it stored?**
  - Clean or dirty utility room, hallway, nursing station

- **How do you communicate which items are shared and which are dedicated to a specific resident?**
  - Commode chair, lift sling, walker

- **Ensure clearly written policies are in place**
  - Communicate these policies
PIDAC Best Practices

• Best Practices for Environmental Cleaning for Prevention and Control of Infections
  • December 2009, up-dated May 2012
  • Provincial Infectious Diseases Advisory Committee

• Document based on research findings and scientific evidence
  • Includes rationale for recommendations

• 73 practice recommendations
  • Combination of policy statements and practice statements
  • May involve budget considerations or capital equipment considerations
  • May require simple or complex alterations to practice
PIDAC Best Practices

• Establish a baseline
  • How many best practices does your facility currently meet?

• Prioritize those that require prompt attention versus long-term planning and implementation

• Use PIDAC document to elicit senior management support
  • Furnishing and finishes selection
  • Capital equipment selection

• Follow the Top 10 Common Themes
  • You will meet ~1/3 of the PIDAC recommendations
Environmental Cleaning Toolkit

- Toolkit binders distributed to all health care facilities in Ontario
  - December 2010
- A tool or teaching aid to assist ES managers/supervisors with training
  - Develop a consistent approach to cleaning in all settings
- 6 modules with fully narrated DVD for each topic
  - Chain of infection
  - Routine practices
  - Cleaning products and tools
  - General cleaning
  - Additional precautions
  - Audits

- For toolkit content and updates:
Demonstration DVD

• 7 video clips:
  • Discharge bed changing and cleaning (2min 40sec)
  • Bathroom cleaning (9min 45sec)
  • Daily room cleaning – Regular (15min 50sec)
  • Daily room cleaning – Contact precautions (15min)
  • Cleaning a blood/body fluid spill (3min)
  • Discharge room cleaning – Regular (15min 10sec)
  • Discharge room cleaning – Contact precautions (15min 35sec)

• Total length: 1hr 17min

• Toolkit includes the written script of the sample procedures

• Consider playing the DVD on a continuous loop

• Smaller facilities may consider lending DVD to staff
Auditing Cleaning

• should have a process in place to measure the quality of cleaning in the health care setting through auditing of housekeeping processes

• Methods of auditing should include both visual assessment and at least one of the following tools:
  • Residual bio burden or
  • Environmental marking

• Results of audits should be collated and analyzed with feedback to staff, and an action plan developed to identify and correct deficiencies
Audit Tools

• Module #6 in EC Toolkit covers topic of auditing

• Purpose of auditing:
  • To objectively measure how well we are cleaning the environment
  • To provide feedback to staff – both areas of excellence and opportunities for improvement

• A transparent process
  • Not a secretive or punitive process
  • Most effective when both management and frontline staff are involved

• Focus auditing efforts on patient care areas
Types of Audits

1. DIRECT
   • Visual assessment using a checklist
   • Staff become aware of expectations
   • Easy and cheap
   • You can’t see microorganism contamination

2. INDIRECT
   • Satisfaction surveys
   • Indicate if someone thinks the area is clean
   • Just because it looks clean, doesn’t mean it is clean

3. MEASUREMENT:
   • Environmental cultures
   • Environmental marking
   • ATP bioluminescence
Direct observation auditing

- Simple, inexpensive
- Verify cleaning is done according to written procedures
- Allows for immediate feedback
  - Start with positive comments, followed by opportunities for improvement
- Visual inspection to detect stains and general repair needs
- Use a checklist to ensure the same items/areas are evaluated each time
  - Can be used by different shift supervisors
- Does not provide reliable assessment of cleanliness
Sample Checklist

Checklist for Daily Cleaning of High Touch Surfaces

1. Bedrails, bed frame  √
2. Overbed table, bedside table  √
3. TV remote control  √
4. Nurse call button  √
5. Telephone  √
6. Bathroom – grab bars  √
7. Toilet seat  √
8. Faucet handles  √
9. Light switches  √
10. Door handles  √

* Dr. John Boyce, Principles of Environmental Cleaning and Monitoring the Adequacy of Practices
Environmental Marking

- Use environmental marking for client care areas
- Harmless, invisible product that glows under fluorescent light
- Behaves like micro organisms – easily transferred to hands and surfaces, easily removed with friction and cleaning product
- Simple, inexpensive, minimal equipment required
- [www.glogerm.com](http://www.glogerm.com) or [www.glitterbug.com](http://www.glitterbug.com)

- And other fluorescent marking products
Using Environmental Marking

- Select a pre-determined number of frequently touched surfaces in a room
  - Telephone, call bell, handrail, doorknob, toilet, commode chair, IV pump
  - Product may be inadvertently removed by clients or staff during day-to-day activities

- Apply product to selected surfaces before regular or discharge room cleaning
  - Wear gloves, obtain client consent if room occupied
  - Ensure it can be seen upon application
  - Best used on metals and non-textured materials - Leaves residual on plastics

- Room is cleaned as per policy
- Use UV light source to identify if product was removed from selected surfaces
- Document how many and which surfaces were successfully cleaned
ATP Bioluminescence

- Used for years to monitor adequacy of cleaning practices in food and beverage industries
- Will detect the presence of ATP from organic material
  - bacteria, excretions and secretions, food
- Swabs taken from surfaces are placed in luminometer
- Results available immediately
- Amount of light from luminometer is proportional to concentration of ATP present
- Equipment may be purchased or rented
- High margins of error
## Summary of Audit Types

<table>
<thead>
<tr>
<th>Method</th>
<th>Ease of Use</th>
<th>Identifies Pathogens</th>
<th>Useful for Individual Teaching</th>
<th>Directly Evaluates Cleaning</th>
<th>Published Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice observation</td>
<td>Low</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1 Hospital</td>
</tr>
<tr>
<td>Swab cultures</td>
<td>High</td>
<td>Yes</td>
<td>Not Studied</td>
<td>No</td>
<td>1 Hospital</td>
</tr>
<tr>
<td>Agar slide cultures</td>
<td>Good</td>
<td>Limited</td>
<td>Not Studied</td>
<td>No</td>
<td>1 Hospital</td>
</tr>
<tr>
<td>Fluorescent Gels</td>
<td>High</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>49 Hospitals</td>
</tr>
<tr>
<td>ATP System</td>
<td>Good</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

- Dr. Philip C. Carling, Boston University School of Medicine. Assessing and Improving Disinfection Cleaning in Healthcare
New and Coming Technologies

- Microfibres and ultra-microfibres:
  - Superior removal of germs
  - More absorbent
  - Less need for disinfectants
  - Drier
  - Reduced cleaning times

- Air disinfection
  - Hydrogen peroxide vapour
    - More effective but time consuming and expensive
  - Ozone gas

- Ultraviolet radiation

- Steam vapour

PublicHealthOntario.ca
Environmental Cleaning and Its Relevance to Infection Prevention & Control

- Primary focus must remain on protection of client/resident, staff and visitors
- Practices must help minimize spread of infections
- Practices are understandable and attainable
- Practices must incorporate workflow measurement
- Practices must be regularly reviewed to keep them current

Just because it "looks" clean does not mean it isn’t contaminated with bacteria and viruses!
Thank you

- For more information on environmental cleaning practices, please contact your local Regional Infection Control Network
- Visit [www.oahpp.ca](http://www.oahpp.ca) for RICN contact information and other supporting links