Bedpan Management must become part of Patient Safety

**Nurse…!**

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**Disclaimer/Disclosure**  
Consultant Infection Prevention current & in past for:  
Diversey the Netherlands, Vernacare UK, Hakerman Turkey, Medwaste Control the Netherlands, Meiko Germany, Meiko China, Sigex Brazil, Pilasi Y Emazar Limited Chile, SCA Hygiene Products Sweden.

Since surfaces in the “patient zone” are contaminated with pathogens and both Hand Hygiene and Isolation have limitations… **What more can be done?**


While optimizing hand hygiene and isolation practice is clearly important there is **no reason why the effectiveness and thoroughness of environmental hygienic cleaning should not also be optimized**

Philip C. Carling, M.D. Boston University School of Medicine, 2010
What is the Environment?

The Environment is everything that cannot walk and cannot talk

Dr. Peter Hoffman, London, UK

- Growing appreciation that environmental contamination makes a contribution to Healthcare Associated Infections with multi drug resistant organisms (MDRO)

- Surface disinfection practices are currently not effective in eliminating environmental contamination

Infection Control Professionals do mostly not consider Bedpans as part of the Environment

Facts 1.3

Apply the highest level of control commensurate with the risk level – lower value controls may be used in the interim until long-term controls are implemented.

Apply to Bedpan Management?

www.qualitysystems.com
**Facts 2.3**

- Full Bedpans are huge **Reservoirs**
- Full Bedpans can **Contaminate** Hands & Environment
- Hands can **Contaminate** Environment & Patients
- **Contaminated** Environment can **Contaminate** Hands
- Bedpans & Hands can **Transmit** Microorganisms

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**Facts 3.3**

- People do not like to talk about: stool, poop, shit, body waste
- Bowel: largest human microbiome ($10^{14}$ per gr. faeces)
  - 10-20 % of patients may be colonized with *Clostridium difficile*
  - 10% estimated Carrier of multidrug-resistance organisms (MDRO)
- 150 à 300 gram faeces per person per day
  
  *In case of diarrhea: liters fluid stool*
- Bedpans and urine bottles are medical devices
- 4-21 % reported HAI related to unclean bedpans and urinals (*KNIP consult 2010*)
- **Bedpan Management is an Infection Prevention item**
**Bedpan Management as Infection Prevention item**

*Not a new insight: 1956 1st Book*

“The objective in the handling of bedpans & urinals is to dispose of the excreta under the most sanitary and least offensive conditions and at the same time to disinfect the utensils”

USA: Dr. John J. Perkins, Director of Research American Sterilizer Company

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**Not many Publications in PubMed about the Risks of Bedpans**

Search: 16 April 2015


- **Endoscopes and hospital infections**
  - 509 + (12 search with HAI)

  - **Flexible Endoscopes**
    - Interesting topic
    - International accepted Risk
    - Preventive Precautions

- **Bedpans and hospital infections / HAI**
  - 20 + (1 search with HAI)

  - **Bedpans and Urine-bottles**
    - No ‘sexy’ topic
    - (Not yet) International accepted Risk
    - No Preventive Precautions
Critical Items: Sterilization
Affect normally sterile tissues or the blood system and represent the highest level of infection risk. Surgical instruments, catheters, probes, etc.

Semi-critical Items: High level disinfection
Second in importance and affect mucous membranes and small areas of non-intact skin and represent a high level of infection risk. Anaesthesia equipment, endoscopes, etc.

Non-critical Items: Low Level disinfection
Items and practices that involve intact skin and represent the lowest level of risk: Bedpans, blood pressure cuffs, etc.

Cleaning, Disinfection, Sterilization
Classification scheme: Spaulding, USA, 1968

Spauldings’ Scheme is in 2015 NOT SUFFICIENT for bedpans and urine-bottles

1. Heavenly bacterial load of faeces and urine
2. Transmission and Contamination Risks during manual emptying & decontamination of bedpans and urine bottles

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30 April 2015, Berlin, EUNETIPS meeting
Bedpan Management

1. Patient care
2. Transport to Empty
3. Emptying *(manual or mechanical)*
4. Flushing *(manual or mechanical)*
5. Cleaning *(manual or mechanical)*
6. Loading in Machine
7. Disinfection *(manual or mechanical)*
8. Drying *(manual or mechanical)*
9. Storage

4-21 % reported HAI from Source related to unclean bedpans and urinals

Reported Microorganisms:
- MDR *Pseudomonas aeruginosa*
- MRSA
- *Clostridium difficile*
- Norovirus
- Salmonella species

Nobody wanted (or was allowed) to make these findings public

Responding Countries: 55
In case of Negligent Bedpan Management

Risk for All Types of Healthcare Associate Infections

Outbreak with multi resistant Pseudomonas aeruginosa

DUE TO IMPROPER BEDPAN MANAGEMENT

2010-2014

Global Observation Bedpan-Management

• In 21 low- and high income countries
• 39 Standardized 10 minutes interviews about real practice of bedpan-care
• 321 experience exchanges with IP professionals about the risk of
• 34 planned and ‘secret shopper’ observations in hospital-sluice rooms
RESULTS

1. Overlooked issue at surveillance and outbreaks
2. Risks for contamination for staff and environment
3. Mostly cleaning only by rinsing or spraying with (cold) water
4. Poor disinfection procedures
5. Practice based on habits and rituals
6. Not visible clean products
7. Lack of guidelines / work-instructions
8. Weak recommendations in MDRO guidelines
9. Sluice rooms not well designed and equipped
10. Lacking validation and maintenance of machines
Bedpan Management

Transport to empty

Why no (Standard) Precautions for Transport of FULL Bedpans?

Specimens of blood or other potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, and transport.

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Standard Precautions

Basic level of infection control precautions which are to be used, as a minimum, in the care of all patients.

- Patient
- Patient
- Patient

And now it’s time to see Farid. You’ll be emptying a bedpan. When you were with Elif, she spilled a glass of water on her bedside table which you had to clean up. The front of your work clothes got wet.

- Click on the hygiene procedures that you think are right for the situation!

- Hand disinfection
- Handwashing
- Gloves

Reality:
Majority only gloves, sometimes plastic apron

Tool Link on EUNETIP website:
http://host.learnways.com/sli/wardhygien_EN/template.htm
Bedpan Management

Emptying

Contamination Risks

**HCW**
- Hands
- Eyes
- Uniforms

**Environment**
- Floors
- Walls
- Surfaces
- Clean items

Environment mostly not cleaned direct afterwards

2010-2014 Global Observation Bedpan-Management
Observation carried out by:
KNIP Consultancy Infection Prevention
www.info@knip-consult.eu

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Cleaning by rinsing or spraying or brushing with water

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IFIC SURVEY 2012-2013
on global practices related to disposal of faeces and urine

If bedpans are cleaned manually, it is done
- in dirty utility room 61%
- in patient’s bathroom 44%
- other rooms 10%

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Percentage of Surfaces touched by Manual Cleaning

Dr. Philip C. Carling: ± 30%
Dr. William A. Rutala: ± 50%

Will Bedpans 100% touched?
Bedpan Management

Disinfection

Self regulation
More or Less steam inlet...

Hot water 76° Celsius....

No attention for the right procedures

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Bedpan Management

Drying

Wet bedpans Potential Reservoirs!
Bedpans and Urine-bottles are Medical devices

Shape and Material of Bedpans and Urine-bottles 

**effects the decontamination process**

But they don’t get the proper attention

Sluice rooms not well designed and equipped, maintained

Responsibilities?

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Dirty Utility / Sluice Room

- Focus on **what people DO**
- Audit regular
- Separation between clean & not clean
- Take photographs
- Use nose and eyes
- Microbial check?
- ATP?

Don’t Hear?  Don’t See?  Don’t Speak?

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Bedpans, urinals and commodes are not clean

*Shape and Material effects the decontamination process*

2010-2014  Global Observation Bedpan-Management

Observation carried out by:

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Recommendations Based on Spauldings Scheme

No specification for Bedpan Management

All recommendations and guidelines do have language for:

– Diarrhoea (around hand hygiene)
– Toilet, Environment cleaning
– Commode (if no toilet)
– Disinfection (mattresses, endoscope, etc.)

Urgent Need for Upgrading and Specification Bedpan Management
To prevent the risks for Transmission and Contamination MDRO
National & International

Weak Recommendation for Bedpan Management

Reusable bedpans, also noncritical items, require more rigorous cleaning, washing, and disinfection
ECDC Guidance document 2008

- Early diagnosis
- Surveillance
- Education and Communication
- Isolation Precautions
- Hand hygiene
- Protective Clothing
- Environmental Cleaning
- Use of Medical Equipment
- Good Antibiotic Stewardship
- Specific measures in outbreaks

ECDC welcomes suggestions and further information on existing guidance
arhai@ecdc.europa.eu

It is well-documented that environmental contamination occurs as a result of CDAD, especially if patients have large amounts of liquid stool or stool incontinence.

Remarkably heavy contamination takes place on floors, commodes, toilets, bed pans, and bed frames. There is good evidence that environmental contamination is important in C. difficile transmission.

Apart from isolation procedures, it is essential that patients suffering from any form of diarrhoea have a dedicated toilet or commode, as they should not be allowed to use general toilet facilities.

Table 7. Environmental cleaning

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>CMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Regular environmental disinfection of rooms of CDAD patients should be done using sporcidial agents, ideally chlorine-containing agents (at least 1000 p.p.m. available chlorine). The choice of cleaning regimen will depend on local policy.</td>
<td>IIB</td>
</tr>
<tr>
<td>2. Hospital wards should be cleaned regularly (at least once a day), concentrating on frequently touched surfaces.</td>
<td>IIB</td>
</tr>
<tr>
<td>3. Cleaning staff should be notified immediately when environmental faecal soiling has occurred. Cleaning needs to be done as soon as possible.</td>
<td>IIB</td>
</tr>
<tr>
<td>4. Toilets and items such as commodes and bed pans, which are likely to be fecally contaminated, are important sources of Clostridium difficile spores and must therefore be cleaned scrupulously. Cleaned commodes and bed pans should be stored under dry conditions.</td>
<td>IIB</td>
</tr>
<tr>
<td>5. After discharge of a CDAD patient, rooms must be cleaned and disinfected thoroughly.</td>
<td>IIB</td>
</tr>
</tbody>
</table>

Recommendations Mandatory or Request?

**The Netherlands WIP Guideline Clostridium difficile (revision 2011)**

In that case a bedpan must be used, which the nurse **MUST** then immediately empty, clean and disinfect in a bedpan washer.

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**Public Health Agency of Canada Fact Sheet - Clostridium difficile (2012)**

1.a Engineering Measures

iv. To avoid contamination of the environment with *C. difficile* spores, systems **SHOULD BE** in place to manage the disposal of fecal matter when bedpans or commodes are required.

**Some options for consideration are:**

- Installation of bedpan washers/disinfector systems on patient units;
- Utilization of disposable bedpans for patients with acute diarrhea and the installation of macerator systems for the disposable bedpans.

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**Guidance Clostridium difficile infection: how to deal with the problem UK (2009)**

6.5 Medical equipment **SHOULD IDEALLY BE** for single patient use, but if that is not possible it should be thoroughly cleaned before and after each new patient use.

6.28 All commodes, toilets and bathroom areas of CDI patients **SHOULD BE** cleaned after each use with chlorine-containing cleaning agents (at least 1,000 ppm available chlorine).

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### Bedpan Management in the Netherlands

1967 Ministry of Health: "*Urine-bottles and bedpans have to be automatically cleaned, rinsed and sanitized with steam or hot water at least 1 minute for 80° C.*"

1980 Development of automatic bedpan Washer Disinfector (WD)

1990 - 1st Dutch survey: "Bedpan washer disinfector - a forgotten problem? (Awareness)"

1995 Working Group Infection Prevention (WIP)* developed guidelines for WD

2006 International Standard BS- EN- ISO 15883 Part 1-6 WD

2010 - 2nd Dutch survey Bedpan management - 1st International survey Bedpan management (Awareness)

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* Working Party Infection Prevention
Professional Standard for Dutch Inspectorate of Healthcare
http://www.rivm.nl/Onderwerpen/W/Werkgroep_Infectie_Preventie_WIP

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Washer Disinfectors (WD) Part 1-6

- **Part 1** General requirements, terms and definitions and tests
- **Part 2** Requirements and tests for WD employing thermal disinfection for surgical instruments, anaesthetic equipment
- **Part 3** Requirements and tests for WD employing thermal disinfection for human waste containers
- **Part 4** Requirements and tests for WD employing chemical disinfection for thermo-labile endoscopes
- **Part 5** Test soils and methods for demonstrating cleaning efficacy
- **Part 6** Requirements and tests for WD employing thermal disinfection for non-invasive, non-critical medical devices and healthcare equipment

ISO/FDIS 15883 - Part 3
WD for human waste containers*

1. Emptying behind closed door direct in sanitary sewer system
2. Flushing with cold water
3. Cleaning with water pressure and (possible) detergent
4. Thermal disinfection (minimal 1 minute 80°C.)
5. Rinsing
6. Cooling down
7. Drying

* Intended for reusables such as: Bedpans, Urine-bottles, Suction bottles, Wash bowls etc.
Awareness of ISO 15883-3 WD

Survey 2010 Bedpan Management
KNIP Consultancy Infection Prevention
www.info@knip-consult.eu

Interviews: <10% knew BS-EN-ISO 15883-Standard part 3

2010-2014 Global Observation Bedpan-Management
Observation carried out by:
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Washer Disinfectors

Invisible Process is Only Reliable
if regular Validation and Maintenance is proceeded

- Steam / hot water
- Water supply
- Monitor temperature
- Monitor duration time
- Correct loading
- Written records must be kept

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Chain of infection prevention in hospitals fragile: Several weak links lead to unsafe care

<table>
<thead>
<tr>
<th>Washer Disinfectors for bedpans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Sufficient</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Insufficient</td>
</tr>
</tbody>
</table>

> 90 % Lacking Validation and/or Maintenance WD

Research in your own country needed

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Optimizing Bedpan Management

Safe Handling Human Waste
at Any Patient at Any time by Any HCW

• Education
• System change
• Motivation

Nurses hands are made for Care
Not for Manual Emptying Bedpans & Urine-bottles
Not for Cleaning Bedpans & Urine-bottles

Systems Bedpan Management

• Manual
• Bedpan liner
• Pharmafilter
• Macerator
• Washer disinfecter
## Bedpan Management

### Unsafe Method

![Image of unsafe method](image_url)

### Safe Method

![Image of safe method](image_url)

### Bedpan management

<table>
<thead>
<tr>
<th>Issue</th>
<th>Manual handling</th>
<th>Mechanical handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour/Smell</td>
<td>Bad smell</td>
<td>No smell</td>
</tr>
<tr>
<td>Emptying content</td>
<td>Via toilet or slop hopper into sewer</td>
<td>Behind closed doors into sewer</td>
</tr>
<tr>
<td>Occupational safety</td>
<td>Exposure Splash, Spills Aerosols</td>
<td>No exposure</td>
</tr>
<tr>
<td>Contamination</td>
<td>Environment, hands</td>
<td>No risk</td>
</tr>
<tr>
<td>Flushing</td>
<td>Splashes, spills, aerosols</td>
<td>Behind closed doors</td>
</tr>
<tr>
<td>Cleaning</td>
<td>Spraying, soaking, brushing</td>
<td>100%</td>
</tr>
<tr>
<td>Disinfection</td>
<td>No monitored liquid disinfectant</td>
<td>Monitored thermal &gt;80 °C/ 176°F</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Only 30-50% effective</td>
<td>Standard Operated Procedure</td>
</tr>
<tr>
<td>Drying</td>
<td>(Dirty, wet) Towel</td>
<td>Automatically</td>
</tr>
<tr>
<td>Validation process</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Chemotherapy in urine</td>
<td>Exposure risk HCW</td>
<td>No risk for HCW</td>
</tr>
<tr>
<td>Environment</td>
<td>• Chemicals can cause risk</td>
<td>Environmental protection</td>
</tr>
<tr>
<td></td>
<td>• Contamination MDRO</td>
<td></td>
</tr>
<tr>
<td>Residue Spores C.diff</td>
<td>Possible</td>
<td>Reduction factor ≥ 4log.</td>
</tr>
<tr>
<td>(Human) Error</td>
<td>Possible</td>
<td>Possible</td>
</tr>
</tbody>
</table>
Awareness Rising

Publish results from outbreaks and list how faeces and urine is managed by

Use of
• Toilet
• Diaper
• Commode
• Macerator
• Liner

Method of
• Empty
• Cleaning
• Disinfection

Recommendations 1.2

• Spauldings Scheme is not sufficient for bedpans & urinals
• Bedpan Management must become part of Patient Safety
• Need for (inter)national guidelines for bedpan management
• Who will take the lead?
All countries need a 'Bedpan Queen/King' to Raise Awareness for Bedpan Management

Where will be the next one?

France                      Equador                       Singapore

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