

Bedpan Management must become part of Patient Safety



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Disclaimer/Disclosure

Consultant Infection Prevention current & in past for:
 Diversey the Netherlands, Vernacare UK, Hakeman Turkey, Medwaste Control the Netherlands, Meiko Germany, Meiko China, Sigex Brazil,
 Pilasi Y Errázuriz Limitada Chile, SCA Hygiene Products Sweden,

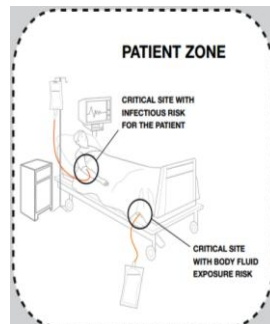


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 30 April 2015, Berlin, EUNETIPS meeting

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

Sax H, Pittet D et al. Journal of Hospital Infection, 2007



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



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What is the Environment ?

The Environment is everything that cannot walk and cannot talk

Dr. Peter Hoffman London , UK

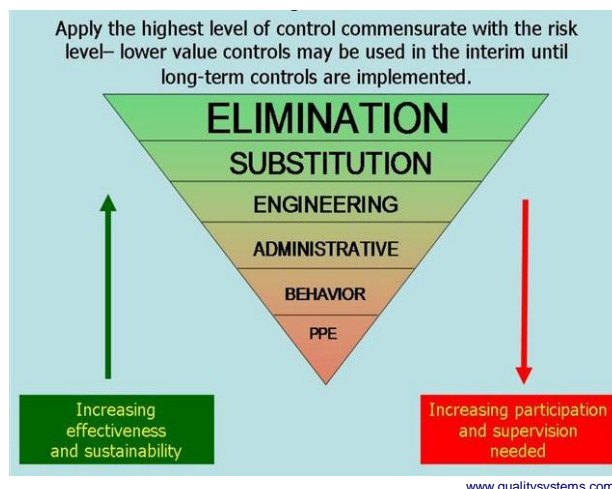
- Growing appreciation that environmental contamination makes a contribution to Healthcare Associated Infections with multi drug resistant organisms (MDRO)
- Surface disinfection practices are currently not effective in eliminating environmental contamination



<http://cleanspaces.site.apic.org/about-the-project/>

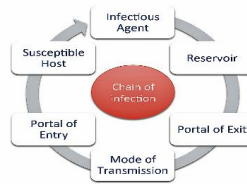
Infection Control Professionals do mostly not consider Bedpans as part of the Environment

Facts 1.3



Apply to
Bedpan Management?

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

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)

Bristol Stool Chart		
Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges (passed easily)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely liquid

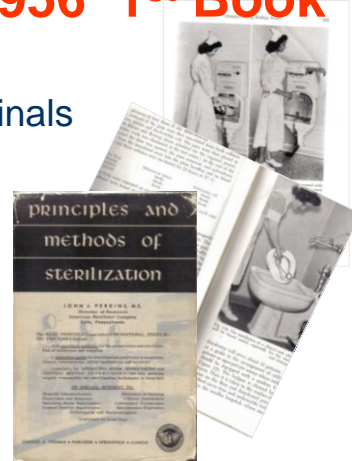
- 150 à 300 gram faeces per person per day
In case of diarrhea: liters fluid stool
- Bedpans and urine bottles are medical devices
- 4-21 % reported HAI related to unclean bedpans and urinals (*KNIP consult 2010*)
- **Bedpan Management is an Infection Prevention item**

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



Not many Publications in PubMed about the Risks of Bedpans

Search: 16 April 2015
<http://www.ncbi.nlm.nih.gov/pubmed>

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



Cleaning, Disinfection, Sterilization

Classification scheme: Spaulding, USA, 1968

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

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.**



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

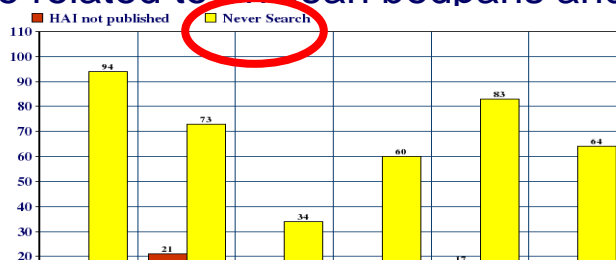
- Scheme ignored the risk of working with bedpans:
1. Heavenly bacterial load of faeces and urine
 2. Transmission and Contamination Risks during manual emptying & decontamination of bedpans and urine bottles

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



International Survey 2010: Bedpan management
KNIP Consultancy Infection Prevention
www.info@knip-consult.eu

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-slucce rooms

2010-2014 Global Observation Bedpan-Management

Observation carried out by:
KNIP Consultancy Infection Prevention
www.info@knip-consult.eu

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

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Bedpan Management Patient Care



Who is caring if defecation is done in bed

- Patient himself 6 %
- Relatives or friends or caregivers 24 %
- Nurses 76 %
- Other hospital staff 41 %

<http://www.ijic.info/article/view/13605/9521>

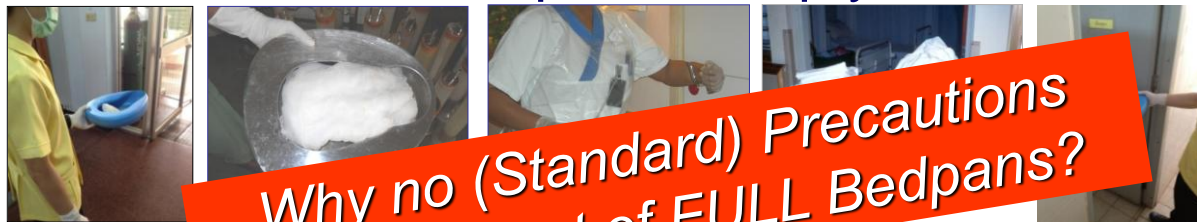


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Bedpan Management

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



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 here. When you were with Elin, 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

Protective clothing

Respiratory protection

Reality:
Majority only gloves, sometimes plastic apron

Tool Link on EUNETIP website:
http://host.learnways.com/sll/vardhygien_EN/template.htm

Bedpan Management

Emptying

Contamination Risks



HCW

- Hands
- Eyes
- Uniforms

Environment

- Floors
- Walls
- Surfaces
- Clean items



Environment mostly not cleaned direct afterwards

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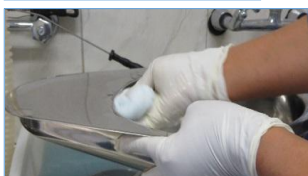


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Bedpan Management

Cleaning by rinsing or spraying or brushing with water



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International Federation
of Infection Control

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: $\pm 30\%$

Dr. William A. Rutala: $\pm 50\%$



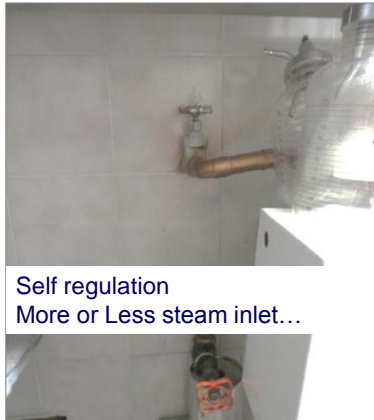
Will Bedpans 100% touched ?



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Bedpan Management Disinfection



No attention for the right procedures

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Bedpan Management Drying

Wet bedpans Potential Reservoirs!



Bedpans and Urine-bottles are Medical devices



Preferable



**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?

Bedpans, urinals and commodes are not clean

Shape and Material effects the decontamination process



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Recommendations Based on Spauldings Scheme



No specification for Bedpan Management

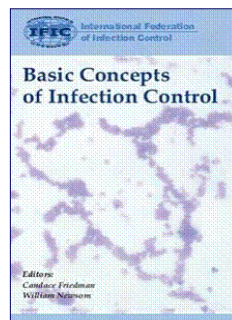
All recommendations and guidelines do have language for:

- 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

Recommendations Based on Spauldings Scheme



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

**No specification
Bedpan Management!**

Clostridium difficile
infection in Europe

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

- Environmental Cleaning
- Use of Medical Equipment
- Good Antibiotic Stewardship
- Specific measures in outbreaks

http://www.ecdc.europa.eu/en/activities/sciadvise/Lists/ECDC%20Reviews/ECDC_DispForm.aspx?List=512f74f%2D77d4%2D4ad8%2Db6d6%2Dbf0f23083f30&ID=1201&RootFolder=%2Fen%2Factivities%2Fsciadvise%2FLists%2FECDC%20Reviews



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Infection control measures to limit the spread of *Clostridium difficile*

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 plays a role in *C. difficile* transmission.

Apart from isolation procedures, **No Mentioning Bedpan Management** that patients suffering from any form of diarrhoea have a dedicated toilet or commode; they should not be allowed to use general toilet facilities.

Table 7. Environmental cleaning

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

<http://onlinelibrary.wiley.com/doi/10.1111/j.1469-0691.2008.01992.x/full>



Clinical Microbiology and
Infection
Special Issue: Infection control
measures to limit the spread of
Clostridium difficile
Volume 14, Issue Supplement
s5, pages 2–20, May 2008

R.-P. Vonberg, E. J. Kuijper, M. H. Wilcox, F. Barbut, P. Tüll, P. Gastmeier
on behalf of the European *C. difficile*-Infection Control Group
and the European Centre for Disease Prevention and Control (ECDC)

P. J. Van Den Broek, A. Colville, B. Coignard, T. Daha, S. Debast,
B. I. Duerden, S. Van Den Hof, Van Der Kooi, H. J. H. Maarleveld,
E. Nagy, D. W. Notermans, J. O'Driscoll, B. Patel, S. Stone, C. Wiuff



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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

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.

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).

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**)

* Working Party Infection Prevention
Professional Standard for Dutch Inspectorate of Healthcare

http://www.rivm.nl/Onderwerpen/W/Werkgroep_Infectie_Preventie_WIP

BS-EN-ISO 15883-Standard (2006) *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***

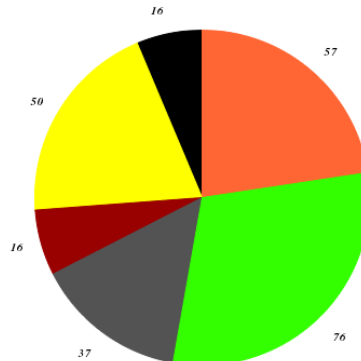
1. Emptying behind closed door direct in sanitary sewer system
2. Flushing with cold water
3. Cleaning with water pressure and (possible) detergent
4. Thermal disinfection (minimal 1 minute 80°C.)
5. Rinsing
6. Cooling down
7. Drying

* 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

■ Netherlands ■ West Europe ■ East & South Europe
■ Afr, As, L. America, East Med Reg ■ Australia, New Zealand ■ USA, Canada



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

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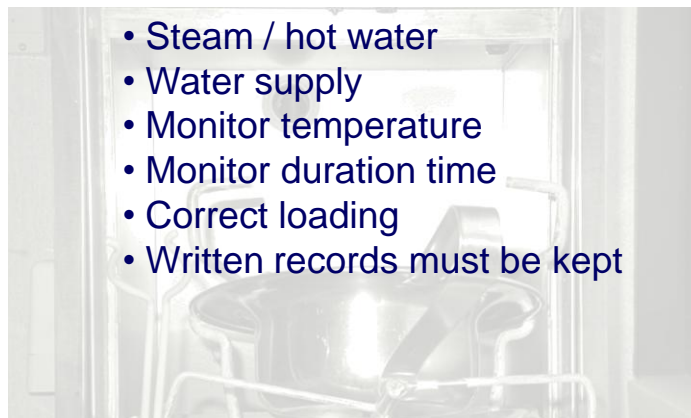


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Washer Disinfectors

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

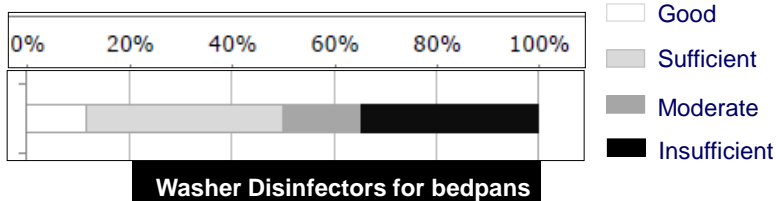


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Report Dutch Healthcare Inspection December 2013 Infection Prevention in Hospitals

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



www.igz.nl/zoeken/document.aspx?doc=Keten+van+infectiepreventie+in+ziekenhuizen+breekbaar%3A+meerdere+zwakke+schakels+leiden+tot+onveilige+zorg&docid=6677

> 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 disinfectant

Bedpan Management



Unsafe Method



Safe Method

Bedpan management

Issue	Manual handling	Mechanical handling
Odour/Smell	Bad smell	No smell
Emptying content	Via toilet or slop hopper into sewer	Behind closed doors into sewer
Occupational safety	Exposure Splash, Spills Aerosols	No exposure
Contamination	Environment, hands	No risk
Flushing	Splashes, spills, aerosols	Behind closed doors
Cleaning	Spraying, soaking, brushing	100%
Disinfection	No monitored liquid disinfectant	Monitored thermal >80 °C/ 176°F
Effectiveness	Only 30-50% effective	Standard Operated Procedure
Drying	(Dirty, wet) Towel	Automatically
Validation process	No	Yes
Chemotherapy in urine	Exposure risk HCW	No risk for HCW
Environment	<ul style="list-style-type: none"> Chemicals can cause risk Contamination MDRO 	Environmental protection
Residue Spores C.diff	Possible	Reduction factor $\geq 4\log$.
(Human) Error	Possible	Possible

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?

Recommendations 2.2

All countries need a 'Bedpan Queen/King' to Raise Awareness for Bedpan Management



France



Ecuador



Singapore

Where will be the next one?

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