

What if you could see organisms?

Infection Prevention and Control
Course Frontline Hospital Staff

Theme: Setting the scene
3rd Sept 2019
Lisa Fetherstone


WHY?

They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patient*

Standard precautions are a set of principles to minimise the transmission of healthcare associated infections.

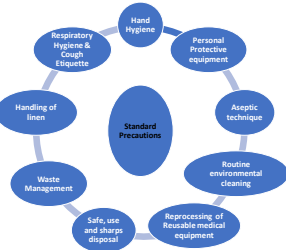
- patients may be placed at risk of infection from others who carry infectious agents
- patient may be infectious before they develop signs or symptoms of the disease or before laboratory tests are confirmed in time to contribute to care
- patient may be at risk from infectious agents present in the surrounding environment including environmental surfaces or from equipment
- there may be an increased risk of transmission associated with specific procedures and practices.

Ref: Don't Wash Your Chicken! Germ-Vision Animation
<https://www.youtube.com/watch?v=2K2st04jgk>



What are the key points of Standard Precautions?

What If You Could SEE The Organisms, Would You Approach The Delivery Of Care Differently???



What if bacteria were NOT invisible?

The Invisible Challenge 11- Spread of bacteria in hospital setting

<https://www.youtube.com/watch?v=9R8fHo6WfzY>

Hand Hygiene and Antimicrobial Resistance: The Invisible Challenge 111.

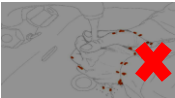
<https://www.youtube.com/watch?v=s9lygrezZ88> (lack of HH in 2 bed bay)

Videos produced by Norwegian Institute of Public Health

How standard precautions are implemented

Hand hygiene

- Effective hand hygiene is key to reduce HCAI's



- Skin Care
- Patient involvement in hand hygiene

Clean hands save lives

Image source: Donskey CJ & Eckstein BC (2009).
REF: Donskey CJ, Eckstein BC (2009) Images in clinical medicine. The hands give it away. The New England Journal of Medicine 2009;361:1000-1001.

Personal Protective Equipment (PPE)

- PPE - variety of barriers worn by staff to protect the mucous membrane, airways, skin and clothing from coming into contact with infectious agents.

What is the risk?

- Health care worker becoming contaminated with infectious agent.
- Transmission of disease/illness between patients if PPE not removed and hand hygiene performed.

Manage the risk?

- Selection of PPE is based on the task or risk of transmission of the infectious agent (Anticipation)
- Apply prior to the delivery of the care to the patient. Hand hygiene
- Removal of PPE and hand hygiene post completion of the care.
- PPE purchased meets relevant standards (ref to Appendix 1 Technical specification https://www.hpsc.ie/a-z/vectorborne/viralhaemorrhagicfever/guidance/vhfguidancechapters/File_14958_en.pdf) and awareness around fit testing of respirator masks

Personal Protective Equipment (PPE)

• Example:
Lumbar procedure performed, PPE applied to protect the healthcare worker and the patient (aseptic technique)

Potential Risk?

contamination of the gloves, long sleeve gown with blood/bodily fluids and the ongoing transmission of the environment if PPE not removed and hand hygiene post procedure.

Introduction of resident flora if breach in skin asepsis
Inappropriate removal of PPE

Manage the risk?

Allowing skin antiseptic to dry, Segregate the waste, Removal of PPE & Hand hygiene prior to leaving area, decontamination of trolley used for procedure, use of clean PPE for handling specimen. Importance of donning and doffing PPE

Personal Protective Equipment (PPE)

Donning and Doffing

Donning PPE		Doffing PPE	
1. Perform hand hygiene		1. Perform hand hygiene	
2. Put on gown		2. Grasp the wrist of the glove	
3. Put on mask		3. Grasp the wrist of the glove	
4. Put on cap		4. Grasp the wrist of the glove	
5. Put on gloves		5. Grasp the wrist of the glove	
6. Perform hand hygiene		6. Grasp the wrist of the glove	
7. Perform hand hygiene		7. Grasp the wrist of the glove	
8. Perform hand hygiene		8. Grasp the wrist of the glove	
9. Perform hand hygiene		9. Grasp the wrist of the glove	
10. Perform hand hygiene		10. Grasp the wrist of the glove	

Glove awareness

Indications for gloving and glove removal

GLOVES ON

- When anticipating contact with blood or body fluids, non-intact skin or mucous membranes (Standard precautions)
- Contact with a patient (and his/her immediate surroundings) during contact precautions.
- Contact with hazardous chemicals such as disinfectants, cytotoxic drugs or preserving agents
- Before a sterile procedure
- Must be worn when handling sharps or contaminated instruments
- Don gloves **after** performing hand hygiene when hands are dry

GLOVES OFF

- If gloves are damaged
- When contact with blood, body fluid, non-intact skin and mucous membrane has ended
- When contact with a single aspect of patient care/treatment has ended, eg Change gloves and perform hand hygiene after providing mouth care and before employing a urinary catheter
- When there is an indication for hand hygiene (5 Key moments)
- When contact with hazardous chemical has ended
- Perform hand hygiene when gloves removed

KEY MESSAGES FOR GLOVE USE

- A. Gloves are effective in preventing contamination of hands and helping reduce transmission of harmful micro-organisms.
- B. However, gloves do not provide complete protection against hands becoming contaminated and if gloves are not removed immediately after a care episode in which they were indicated, they may contribute to transmission of micro-organisms.
- C. The unnecessary use of gloves in situations where their use is not appropriate should be avoided. Remember Gloves are Single Use.



Gloves are **not** an alternative to hand Hygiene

Safe use and sharps disposal



- The use of sharps expose staff to the risk of injury and potential exposure to BBV and risk to patients
- Safe injection practice is key to prevent BBV transmission
- Use of safety devices
- Transportation of samples
- Dealing with Blood Spill
- Hepatitis B vaccine

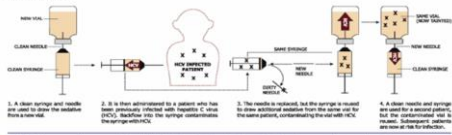


Outbreak of Hepatitis B at an oncology practice occurred as a result of a variety of unsafe injection practices. (USA 2009) Greeley et al 2011

Unsafe injection practices

Unsafe Injection Practices and Disease Transmission

Reuse of syringes combined with the use of single-dose vials for multiple patients undergoing chemotherapy can transmit infectious diseases. The syringe does not have to be used on multiple patients for this to occur.



http://www.southernnevadahealthdistrict.org/outbreaks/download/syringe-graphics_color.pdf

Routine Environmental cleaning

Figure 11. Cleaning cycle: all factors are essential!



What are the risks?

- Contaminated surfaces play an important role in the transmission of certain pathogens, which can cause a healthcare associated infection.
- Transmission can occur through equipment, hands.

How to manage the risk?

- Cleaning specification
- Correct methodology
- Product choice
- Contact time of disinfectants.
- Integrity of surfaces is key
- Compatibility of the surface
- PPE when dealing with blood and body fluid spillages

18 Green's Guide (© Robert Stone, 1999)

Reprocessing Reusable medical equipment

What are the risks?

- Micro organism introduced into a body site can establish infection.

Assess the risk

- Single used medical devices are NOT to be reused
- Any medical device that is to be reused MUST be reprocessed.
- The level of reprocessing is dependent on the body site and nature that equipment is being used for - Spaulding classification

Classification	Examples	Level of Processing	Required Level of Processing/Reprocessing
Critical	Heart valves, catheters that enter sterile sites, intra-ocular lenses, implants	Autoclave	Autoclave
Semiacritical	Endoscopes, bronchoscopes, laryngoscopes, fiberoptic scopes, cystoscopes, otoscopes, ophthalmoscopes, otolaryngoscopes, otitis media scopes, otitis media scopes, otitis media scopes	High-level disinfection	High-level disinfection
Noncritical	Stethoscopes, blood pressure cuffs, crutches, gait belts, wheelchairs, bedpans, commodes, reusable respiratory circuits, reusable respiratory circuits, reusable respiratory circuits	Low-level disinfection	Low-level disinfection

Reprocessing Reusable medical equipment (cont'd)

- Adherence to National standards for decontamination- to ensure reliability of the decontamination of Invasive Medical Devices



Respiratory Hygiene & Cough Etiquette



What are the risks?

- Influenza virus can survive on hard , non porous surfaces for 24- 48 hours, and 12-18 hours on cloth, paper, tissues

How to manage the risk?

- Covering sneezes and coughs to prevent infected persons from dispersing respiratory secretions into the air and onto surfaces.

Case study

- A cluster of cases of confirmed influenza occurred in a long-term care facility; group activity held in the dining room. It was observed that a number of residents who had been unwell had attended the group activity and had sat at the dining tables.
- Lack of waste receptacles in the dining room, lead to used tissues being placed on the dining room tables.
- Residents reported signs and symptoms consistent with influenza at least two days following the event,
- vaccination coverage of the staff was 41.7%.
- lack of hand hygiene facilities in the immediate vicinity

Aseptic Technique

What are the risks?

- Introduction of pathogenic organism into a susceptible site by hands, surfaces or equipment

How to manage the risk?

- Implementing aseptic technique by identifying and protecting key parts and key sites by hand hygiene, non touch technique, using sterilised equipment and/or disinfecting key parts to standard that renders them aseptic prior to use.



Protect patients every time with... 6 Actions for Safe Aseptic Technique The ANTT-Approach

- 1 Risk Assessment**
Identify elements of targeted ANTT according to the technical difficulty of achieving asepsis
- 2 Manage the Environment**
Avoid or mitigate contamination risks
- 3 Decontaminate & Protect**
Hand hygiene, personal protective equipment (PPE), disinfecting equipment, surfaces and Key-Parts
- 4 Use Aseptic Fields**
Covered, Central and Above Central Aseptic Fields protect Key-Parts & Key-Sites
- 5 Use Non-Touch Technique**
Key-Parts must only come into contact with other Key-Parts & Key-Sites
- 6 Prevent Cross Infection**
Safe equipment disposal, decontamination & hand hygiene

ANTT Clinical Practice | Copyright 2012 The Association for Safe Aseptic Practice (ASAP) www.asap.org

Waste Management

- Having a system that is safe, efficient, cost effective and respectful of the environment

What are the risks?

- Waste not being placed into the appropriate waste stream

How to manage the risk?

- Understand the waste streams
- Occur at the point of generation
- Handling of waste
- Access to sharp boxes & waste receptacles
- Assembly of sharp box

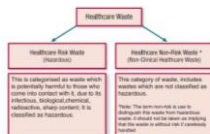


Figure 1. Healthcare Waste Categorised

References

- Survival of influenza viruses on environmental surfaces. *J Infect Dis.* 1982 Jul;146(1):47-51 <https://www.ncbi.nlm.nih.gov/pubmed/6282993>
- HSE (2014) Waste Management Awareness Handbook <https://www.hse.ie/eng/services/news/newfeatures/healthsustainabilityoffice/wasteprevention/waste-management-handbook-2014.pdf>
- HSE (2015) Irish guidelines on Personal Protective Equipment (PPE) to be used in suspected or confirmed Ebola virus disease (EVD) scenarios https://www.hpsc.ie/a-z/vectorborne/viralhaemorrhagicfever/guidance/vhiguidancechapters/File_14958_en.pdf
- Hepatitis B outbreak associated with a hematology-oncology office practice in New Jersey, 2009. *Am J Infect Control.* 2011 Oct;39(8):664-670. <https://www.ncbi.nlm.nih.gov/pubmed/21638812>
- <https://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/infectioncontrolandhai/guidelines/>
- Decontamination of Reusable Invasive Medical Devices Programme (2018) <https://www.hse.ie/eng/about/who/qid/nationalsafetyprogrammes/decontamination/>

Thank you
Any Questions