# Responding to risk Standard and transmission-based precautions





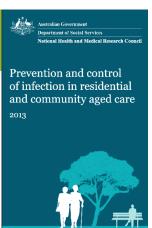


### Aims

- Explore standard and transmission-based precautions
- Benefits and issues with hand hygiene
- Hygienic handling of invasive devices (aseptic technique)
- Correct use of personal protective equipment
- Environmental cleaning and decontamination
- Safe food handling
- Management of linen and waste
- Transport of equipment and residents
- Equipment storage and handling



AGED CARE QUALITY STANDARDS









# Chain of infection

















### Standard precautions

- Prevent the transmission of infection therefore to 'break the chain of infection'
- Standard Precautions components basic underlying activities of the Infection Control programs
- Can be adapted to any healthcare environment and any activity



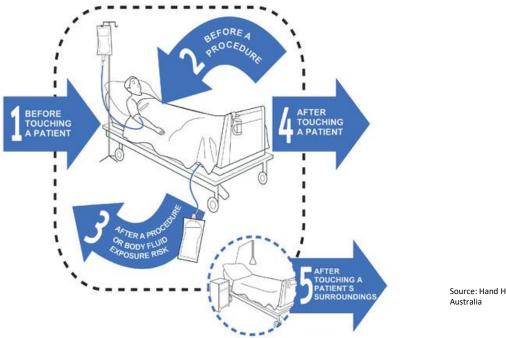
Standard precautions should be used for:

- all residents/clients
- **all** work practices
- all of the time.
- Transmission-based precautions are applied over and above standard precautions when SP alone are unable to prevent the spread of infection





# WHO - 5 Moments for Hand Hygiene



Source: Hand Hygiene

Most important message is to perform hand hygiene BEFORE and AFTER patient contact – every time!





### Hand Hygiene

Improved hand hygiene practices have been associated with

Reductions in healthcare-associated Infections of up to 45% in a range of healthcare settings

Greater than 50% reduction in the rates of nosocomial disease associated with MRSA and other multi-resistant organisms, after 1-2 years (Grayson et al 2009; Johnson et al 2005)

Sustained decreases in the incidence of serious infections caused by Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin-resistant enterococcus (VRE)

Hand Hygiene practices alone are not sufficient to prevent and control infection







# Your 5 moments for

### **HAND HYGIENE**



1	BEFORE PATIENT CONTACT	WHEN? Clean your hands before touching a patient when approaching him or her WHY? To protect the patient against harmful germs carried on your hands
2	BEFORE AN ASEPTIC TASK	WHEN? Clean your hands immediately before any aseptic task WHY? To protect the patient against harmful germs, including the patient's own germs, entering his or her bod
3	AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal) WHY? To protect yourself and the health-care environment from harmful patient germs
4	AFTER PATIENT CONTACT	WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving WHY? To protect yourself and the health-care environment from harmful patient germs
5	AFTER CONTACT WITH PATIENT SURROUNDINGS	WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient  WHY? To protect vourself and the health-care environment from harmful patient perms







# As well, you should ALWAYS perform hand hygiene:

- · before putting on gloves
- after removing gloves
- before touching food and eating
- after going to the toilet
- after your lunch or other breaks
- after blowing your nose or coughing
- after handling rubbish
- after handling unwashed linen or clothing
- after handling animals
- when your hands are visibly dirty.





# Your opinion

### **Think Point**





# So what are we trying to remove?





# Pre and post hand hygiene











### **Hand of a Doctor**

### Hand of a Nurse



Image source: B Henderson

### Why are older people at risk?

Older people are vulnerable because their immune systems may not be able to fight infection.

People with chronic diseases may spend time in hospital where they are exposed to infectious agents.

Surgical wounds and invasive devices such as catheters also increase the risk of infection.







Drug Keys

# Drug prep area







# Blood pressure cuffs









### **Under False Nails**





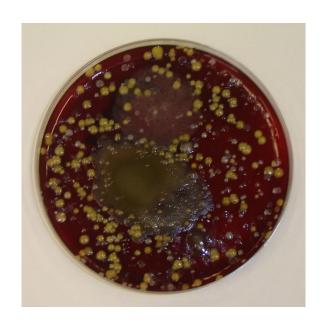
# **Under Watch**







# Telephone Anyone?









# Soap and water versus alcohol-based hand rub







### **Effective Hand Cleaning**

Alcohol-based hand sanitizer – product of choice

Washing hands with soap and water (particularly when hands are visibly soiled)

Alcohol-based hand rub (AHBR) if applied correctly, is considered more effective - eliminates microbes as opposed to reducing them

AHBR is not recommended for use on bacterial sporeforming pathogens such as CDI – washing with soap & water NO maximum times that ABHR can be used





# **How to Handwash?**

#### WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the handwash (steps 2-7): 15-20 seconds

Duration of the entire procedure: 40-60 seconds



Wet hands with water;



Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interfaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.

Source: WHO, clean care is safe care





# **How to Handrub?**

#### RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

Duration of the entire procedure: 20-30 seconds





Apply a painful of the product in a cupped hand, covering all surfaces;

Rub hands palm to palm;



interfaced fingers and vice versa;



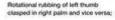




Paim to paim with fingers interlaced:

Backs of fingers to opposing palms with fingers interlocked:







Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa:



Once dry, your hands are safe.



Patient Safety

SAVE LIVES

Source: WHO. clean care is safe care





# Hand Hygiene







### For HH to be effective.....

- Nails should be kept short, clean & void of nail polish
- Artificial nails (gel or acrylic) must not be worn
- No watches, bangles or other jewellery
- Non-intact skin (cuts, dermatitis or abrasion) should be covered with a waterproof film dressing
- Staff with dermatitis should seek evaluation/assessment





### Effective Hand Hygiene program

- Must have an acceptable ABHR product that provides activity against bacteria, coated viruses and yeasts
- Product placement and availability considered
- Peer review and feedback on product including level of dermal irritation, should be considered
- Negative product feedback = failure of HH practice
- Regular HH education and practical training sessions
- Regular auditing





### Bare Below the Elbows

An initiative to facilitate effective of hand hygiene

- All staff having direct contact with residents
- Completely bare from the elbows down
- Neck ties and lanyards are also not recommended. Retractable (or similar) ID card holders are recommended in place of lanyards and should be cleaned regularly
- If ties are worn they should be tucked in/secured







### Issues with HH products

- The main type of skin irritation associated with hand hygiene is called CONTACT DERMATITIS
- The other type is less common allergic dermatitis

### Symptoms include:

- Dryness
- Itching
- Irritation
- Cracking and bleeding



Intact skin is a natural defense against infection



### Skin Irritation and Contact Dermatitis

- Irritation may be associated with poor hand hygiene technique,
- Detergent base of the HH preparation, too frequent use of ABHR
   or using AHBR immediately after performing a soap and water
   hand wash

- Frequent hand washing and washing in hot water can damage the skin and cause a disturbance to the normal skin flora
- The duration of hand hygiene activity
- The use of rubbing to cause friction
- Ensuring that the hands are completely dry





### **Education and Management**

- May need alternate products
- Review of hand hygiene technique
- Risk assess current clinical activities risk to patients





Saves Lives

So why are HH rates poor ?







### Caring for your hands

An emollient hand cream should be applied regularly throughout the shift

- Before morning tea
- Before lunch
- Before going home
- In the evening before going to bed

Ensure an appropriate moisturiser is readily available in clinical areas

Hands are worth looking after





# Personal Protective Equipment PPE





### Personal Protective Equipment

- Personal protective equipment (PPE) refers to a variety of barriers that are either used alone or in combination to protect mucous membranes, airways, skin and clothing from contact with infectious agents, namely blood and other body fluids
- Gloves
- Eye protection
- Masks
- Apron
- Gown





### Wearing PPE – what when

#### Mask

- risk of splash with body fluids ( -emptying catheter bag)
- risk of airborne infection (TB)
- risk of droplet contamination (risk of coughing, or within 1 m of resident)

Masks may also be placed onto clients/residents who are coughing, especially if they are unable to cover their mouths. Before doing this, consider whether wearing a mask will cause distress

(e.g. if the client or resident is unable to understand the purpose of wearing it).







### **Golden rules—masks**

- Check manufacturer's instructions before use.
- Don't touch front of the mask with your hands once the mask is in place.
- Use each mask for the care of one person only and change if a care activity is taking a long period of time.
- Don't leave mask dangling around your neck.
- Discard after use and perform hand hygiene after discarding.







### Protective eyewear

Protective eyewear is used to protect a care worker's eyes from exposure to infectious agents.

It is used when there is a risk of:

- droplets or aerosols (e.g. from oral suctioning)
- splashes or sprays of blood or body fluids (e.g. when emptying catheter bags).

Eyewear is worn during care of people who have an infection that is spread by the droplet or airborne route.







### Golden rules—gowns or aprons

- Hand hygiene must be performed before and after using gowns or aprons.
- Gowns must fully cover the torso from neck to knees, arms to end of wrists and adequately wrap around the back. Tie all fastenings on the gown and fasten at the back.
- Remove and dispose of the gown as soon as care is completed.
- Plastic aprons can be used:
  - when clothes may be exposed to blood or body fluids and there is a low risk that arms will be contaminated
  - when the care worker's clothes might get wet (e.g. when showering a resident/client)
  - aprons should be used once and disposed of as soon as care is completed.





#### SEQUENCE FOR PUTTING ON PPE

Put on PPE before patient contact and generally before entering the patient room

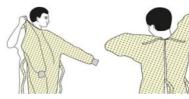
#### HAND HYGIENE

· Wash hands or use an alcohol based hand rub.



#### GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back.
- Fasten at the back of neck and waist.



#### MASK

Secure ties or elastic bands at middle of head and neck.



#### PROTECTIVE EYEWEAR OR FACE SHIELD

Place over face and eyes and adjust to fit.



#### GLOVES

Extend to cover wrist of isolation gown.





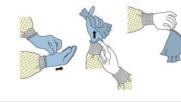


#### SEQUENCE FOR REMOVING PPE

#### Remove PPE at doorway or in anteroom

#### GLOVES

- · Outside of gloves is contaminated!
- · Grasp outside of glove with opposite gloved hand; peel off.
- · Hold removed glove in gloved hand.
  - · Slide fingers of ungloved hand under remaining glove at wrist.
  - · Peel glove off over first glove.
  - · Discard gloves in waste container.



#### HAND HYGIENE

· Wash hands or use an alcohol based hand rub.



#### PROTECTIVE EYEWEAR OR FACE SHIELD

- · Outside of eye protection or face shield is contaminated!
- · To remove, handle by head band or ear pieces.
- · Place in designated receptacle for reprocessing or in waste container.



#### GOWN

- · Gown front and sleeves are contaminated!
- · Unfasten ties.
- · Pull away from neck and shoulders, touching inside of gown only.
- · Turn gown inside out.
- · Fold or roll into a bundle and discard.



#### MASK

- Front of mask is contaminated—DO NOT
- TOUCH! Grasp bottom, then top ties or elastics and remove.
- · Discard in waste container.



#### HAND HYGIENE

· Wash hands or use an alcohol based hand rub immediately after removing all PPE.







#### Glove Use

- Gloves can protect both patients and healthcare workers from either perceived or real contact with blood and other body fluids that could be infectious
- They are an essential component of standard precautions and are based on a risk assessment of the clinical or non-clinical task that is being undertaken

#### A risk assessment may include

- · Who is at risk
- Potential for exposure to blood and/or other body fluids
- If there will be contact with non-intact skin or mucous membranes
- Whether contaminated items will be handled
- What type of gloves are required (- sterile, non-sterile or utility)





#### Golden rules—gloves

- Gloves are not used instead of hand hygiene.
- Perform hand hygiene before and after using gloves.
- Remove gloves when a care activity is finished. Change gloves before starting a different care activity.
- Dispose of used gloves immediately.
- Do not use multiple gloves at the same time.





### Rules with glove use

- Hand hygiene before applying gloves and after removal
- Gloves can only be worn as a singleuse item and must be changed between episodes of patient care
- Gloves should also be removed if a staff member is touching resident equipment or portable keyboards that are transported from room to room
- When gloves are worn with other PPE, they need to be put on last
- Prolonged use of gloves can lead to skin sensitivity.
- Gloves CANNOT be cleaned!!

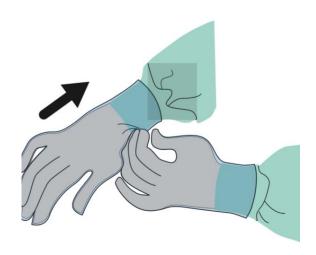


Image source: National Health and Medical Research Council (NHMRC) (2013) Prevention and control of infection in aged care. https://nhmrc.gov.au/about-us/publications/prevention-and-control-infection-aged-care





## Don't wear gloves when

#### Don't wear gloves when

Transporting a resident/client

Pushing trolleys

Making the bed (unless the person has known infectious disease)

Moving furniture

Writing in a person's notes

Giving oral medicines

Assisting with oral feeding/eating unless there is a risk of being exposed to blood or body substances





## Selection of glove type

glove	Indications for use	examples
Non-sterile gloves	Potential for exposure to blood, body substances, secretions or excretions     Contact with non-intact skin or mucous membranes	<ul> <li>Venepuncture</li> <li>Vaginal examination</li> <li>Dental examination</li> <li>Emptying a urinary catheter bag</li> <li>Naso-gastric aspiration</li> <li>Management of minor cuts and abrasions</li> </ul>
Sterile gloves	Potential for exposure to blood, body substances, secretions or excretions Contact with susceptible sites or clinical devices where sterile conditions should be maintained	Surgical aseptic technique procedures e.g.  •Urinary catheter insertion  •Complex dressings  •Central venous line insertion site dressing  •Lumbar puncture  •Clinical care of surgical wounds or drainage sites  •Dental procedures requiring a sterile field
Reusable utility gloves	Indicated for non-patient-care activities	<ul> <li>Handling or cleaning contaminated equipment or surfaces</li> <li>General cleaning duties</li> <li>Instrument cleaning in sterilising services unit</li> </ul>





#### Latex vs Nitrile

- Facility policies now take into account a latex-free environment due to the increase in staff and patients with latex allergies (a reaction to certain proteins in the latex rubber)
- Synthetic materials such as nitrile have become the glove of choice – powder-free nitrile
- Healthcare workers should inform their manager of their latex allergy
- If latex gloves are used, they should be powder-free
- Negotiate with your suppliers





#### Care of invasive devices

#### **Golden rules—medical devices**

- Perform hand hygiene before any contact with the device or where the device enters the body.
- Select personal protective equipment (e.g. wear gloves and a mask and gown if there is a risk of exposure to blood or body fluids).
- Touch the device as little as possible.
- The longer the device is in place, the greater the risk of infection.
- Medical devices that are designed for single use must not be used multiple times and manufacturer's instructions should be followed.





## Cleaning and decontamination/disinfection

- Cleaning is the removal of foreign material (soil/organic materials) from objects or surfaces and is normally completed using a neutral detergent chemical solution
- General surfaces are divided into two groups
  - minimal hand contact (floors and ceilings)
  - frequent hand/skin contact called 'frequently touched' or 'high risk' surfaces
- Described as those surfaces that are in close proximity to the resident (door handles, patient call bell, bed rails, over-bed table, light switch, toilet/bathroom railings)





#### **Routine Environmental Cleaning**

- The immediate area around a resident and those items repeatedly touched by numerous staff are the most contaminated in the hospital environment
- Routine environmental cleaning and maintenance is necessary -dustfree healthcare environment
- Cleaning removes dust and food sources and therefore potentially harmful micro-organisms
- A well maintained and clean healthcare facility also creates confidence with consumers and other visitors – aesthetics/trust
- Every facility should have trained staff and a comprehensive cleaning program which is monitored, evaluated – audits, reported and any required actions for improvement taken without delay.





## Shower chair









#### The Cleaning Process

- A one step or two step process involves a physical clean with neutral detergent followed by a chemical disinfectant
- One step method is more time saving and cost effective
- The key to an effective cleaning process is thoroughness and 'elbow grease'
- Staff should be trained to handle cleaning chemicals
- Chemicals must be safely stored as per manufacturer instructions
- Detergent/disinfectant wipes small patient equipment
- Surface wipes, for small areas, bed table rails etc one surface one wipe one direction
- Take advice of your supplier and have the MSDS available to all staff at all times.





### Cleaning agents

- Frequently touched surfaces should be cleaned on a daily basis with a TGA registered hospital-grade
   neutral detergent solution, as well as floors
- Disinfectants blood or other body fluid spills or the presence of MRO's and other significant organisms
- In these events, a TGA registered disinfectant with label claims against specific infectious organisms including a sporicidal component, should be used



## Assessing the need for disinfectant

 In long term care facilities, risk assessment should be undertaken when determining if detergent or disinfectant is the appropriate cleaning agent

 Cluster of infections or an outbreak –increase the frequency and level of environmental cleaning to break the chain of infection



## Handling of Shared Resident Equipment

- Frequently used throughout the day in an aged care/healthcare setting
- Multiple resident and staff contact
- Last to use cleans it!

### Clean between patient use!

- Clean directly after each use with a detergent wipe, consider single patient use only for suspicion of an infectious condition, OR for MROs
- 2. Wipes on trolley, or placed on corridors for use with waste disposal and HH product
- 3. Cleaning all the relevant parts, including hand touch areas











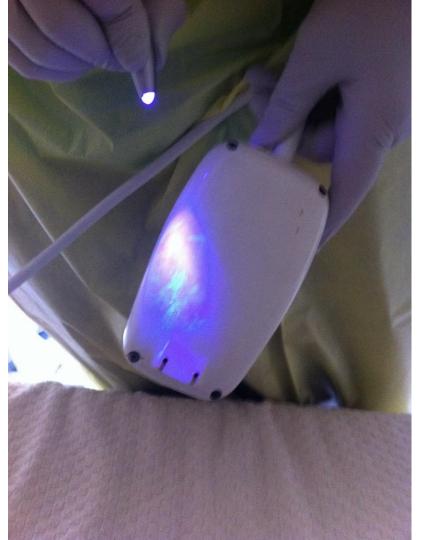


## Auditing environmental cleaning

- Hotel cleaning facility visual checks, checklists, colour coding to reduce the chance of cross infection, cleaning manuals, model cleaning contracts, infection control guidance, and monitoring strategies
- Currently, more objective methods of assessing surface cleanliness and benchmarking (such as black-spot auditing and detection of bacterial load with ATPase) are being investigated
- Fluorescent marking
- Microbiological sampling not appropriate-costly, interpreting results







Source: ACIPC image

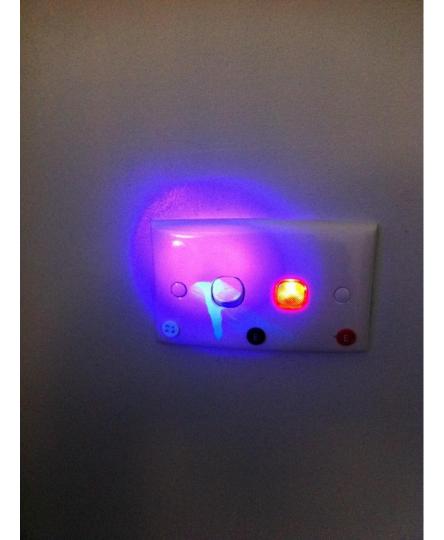






Source: ACIPC image





Source: ACIPC image



## Remember ...

 Multi-resistant pathogens such as MRSA, VRE, ESBL and gastro bugs such as norovirus can be transmitted via contaminated hands, surfaces and equilibrium.

- CLEAN equipment between use
- CLEAN hands every time

 Hand hygiene after touching room surfaces such as benches, tables, light switches, call bell (patient environment)

You can't see the organisms but they are there





### Regulations for Food Services

- Your facility should have a food handling policy
- HACCP stands for Hazard Analysis and Critical Care Points
- All food services must follow HACCP and be accredited as per the accreditation process
- HACCP personal and environmental hygiene control, staff training, record keeping, food monitoring processes; verification processes, establishing the critical time limits of food, safe food storage, and any corrective action that is required
- Regular auditing is extremely important routine screening of the environment is not cost-effective and is not required





### **Food Handling**

#### Hazards in food can be

- Biological bacteria, viruses and parasites
- Chemical pesticides, antibiotics, cleaners
- Physical bone, rock and metal

Food hygiene in healthcare settings is of critical importance

HAI food borne illnesses and outbreaks are a huge cost and are
preventable - HAI Salmonella infection in a healthcare setting may cost
\$120,000

Cooking kills microbes

Rapid cooking prevents microbial growth

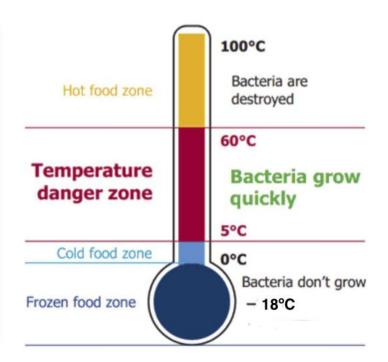
Store at the correct temperature





### Food handling and food safety

- The temperature danger zone is between 5°C and 60°C, when it is easiest for harmful bacteria to grow in food
- Minimise the time that food spends at these temperatures in order to keep food safe
- Refrigerated food needs to be kept at 5°C or below
- Hot food needs to be kept at 60°C or above







## Food handling and food safety

#### Common causes of food poisoning are

- Storage of food at sub-optimal temperatures
  - hot food below 65 degrees
  - cold food above 4 degrees
  - frozen food above -3 degrees
- Cooling food too slowly before refrigeration
- Not re-heating to the correct temperature
- Using contaminated food sources
- Poor food handler hygiene
- Cross- contamination between foods (raw to cooked)





#### Linen



- Ensure linen is protected from dust/contamination
- Linen should be protected by your laundry (external/internal) moment of receipt right through the transportation process to the storage areas in the facility
- Linen trolleys should therefore be covered with a protective cover upon transport around the facility and on reaching their destination/storage point
- Linen should not be decanted leave on the trolley until needed
- Cupboards





# Question







## Laundering

- Routine linen for can be laundered in a regular commercial washing machine however needs to be washed at a high heat (70 degree c) using neutral detergent and a rinse cycle
- Linen should be dried as soon as possible to inhibit bacterial growth – clothes dryer
- Cannot be hung to dry in a room risk of fungal growth
- Regulated under AS 4146





## Linen tips for safe handling

- Only take necessary linen into a resident's room
- Linen bags should only be filled ¾ full
- Segregate clean and dirty
- Linen that is soaked or has heavy exudate of blood or other body fluids should be placed in a plastic bag BEFORE placing in a linen bin
- Infectious resident linen does not have to be separated or laundered any differently to any other patient
- Staff handling dirty linen must perform hand hygiene and wear appropriate PPE







#### Waste Management

- In a hospital each patient may generate up to 75 kg waste per day
- Waste Management Policy
- General items such as cardboard, paper, glass and some plastics
- Environmentally friendly 'green' facilities more and more hospitals etc are becoming accredited for recycling purposes





#### **Waste Disposal**

- General waste is disposed of as landfill
- Chemical waste is treated according to its nature
- Used sharps are disposed of in puncture-resistant containers as clinical waste
- Waste containers or bags are colour-coded, leak-proof and puncture-resistant in the case of sharps
- True clinical waste products need to be sterilised or incinerated by. Your contractor

Staff who handle waste must wear thick rubber gloves, not clinical gloves. They need to be trained
in safe waste handling



#### Handling of sharp items

- Handling of sharps ongoing area of concern
- Use 'point of use' containers
- Never re-cap
- Never walk with a used sharp looking for a bin
- When transporting a full sharps container, ensure the lid is secure and discard in the clinical waste bin
- Replace a sharp container when it is ¾ full
- Use correct PPE to avoid blood and other body fluid exposure





## Stock - storage and handling

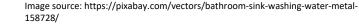
- Storage of non-sterile & sterile stock
- Appropriate environment for clean/sterile stock, and appropriately wrapped
- Hand hygiene before handling

Dispose of urine/excrement in patient ensuite toilet & never in a hand washing sink

Disposal of medications NEVER in a handwash basin











## Handling and transporting of equipment

- Ensure that staff involved in equipment transport are trained
- Separate clean and dirty utility rooms labels/containers to house used equipment
- Contaminated equipment does not come into contact with clean equipment or surfaces therefore cleaned equipment only to be moved through the facility
- Equipment should be protected whilst transporting through the facility





#### Transportation of a resident

- PPE when transporting a resident with a MRO is only necessary when
  - preparing the resident for transfer
  - receiving the resident at the point of destination (regardless of the resident's perceived or real infectious status)
- Communication to the receiving ward/unit/department/hospital or aged care facility in Transfer Summary
- PPE should always be removed BEFORE leaving the resident's room –
   performing hand hygiene post removal
- Orderlies/ward assistants or external providers paramedic/transport staff must follow the same guidelines







#### Summary

- Benefits and issues with hand hygiene
- Correct use of personal protective equipment
- Environmental cleaning and decontamination
- Safe food handling
- Management of linen
- Safe management of waste
- Equipment storage and handling
- Transport of equipment and residents







#### Resources and information links

National Health and Medical Research Council (NHMRC) (2019) Australian Guidelines for the Prevention and Control of Infection in Healthcare. Commonwealth of Australia <a href="https://nhmrc.gov.au/health-advice/public-health/preventing-infection">https://nhmrc.gov.au/health-advice/public-health/preventing-infection</a>

National Health and Medical Research Council (NHMRC) (2013) Prevention and control of infection in aged care.

https://nhmrc.gov.au/about-us/publications/prevention-and-control-infection-aged-care

Hand Hygiene Australia

https://www.hha.org.au

Aged Care Quality Standards (2019)

https://www.agedcarequality.gov.au/providers/standards/quality-standardssummary

State and Territory Health Guidelines on infection prevention and control.



Thank you

Any questions?



