HOSPITAL INFECTION CONTROL POLICY

Policy no: ICU/02Pol/2009v01.0

Hand Hygiene Policy

TITLE	Hand Hygiene Policy
SUMMARY	This document provides instruction and guidance to hospital personnel on how to manage Infection Control in their ward or section.
	All Clinical Directors, Departmental Managers, Heads of Sections and Nursing Officers in charge of wards are required to instigate action to ensure the successful implementation of the policy within their area(s) of control.
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APPROVED VIA	Hospital Infection Control Team
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RELATED DOCUMENTS	
AUTHOR(S) / FURTHER INFORMATION	Infection Control Team Ext: 4540
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1 Introduction

Hand hygiene is the simplest, most effective measure for preventing the transmission of micro-organisms causing infections in the healthcare setting. It is the principal element of Standard Precautions for all patient care activities. However, many studies show that adherence to recommended hand hygiene practice is unacceptably low in healthcare workers, presenting a risk to patients. Hand hygiene is therefore an important component of risk management and should become part of a culture of patient safety.

2 Aims and Objectives

Aim: To promote hand hygiene as evidence-based practice and to define responsibilities and actions required for compliance with good hand hygiene practice throughout the hospital.

Objectives:

- To identify the importance of hand hygiene in the prevention of healthcare associated infection.
- To describe the key elements of good hand hygiene practice.
- To identify strategies to implement the policy and improve compliance with good hand hygiene practice.

3 Skin Care

The skin provides a waterproof barrier against micro-organisms, including blood-borne viruses, provided it is healthy and intact. Healthy skin is a pre-condition for effective hand hygiene. Healthcare professionals are at increased risk of developing irritant contact dermatitis and eczema due to frequent hand washing. When the skin is irritated and inflamed, its natural barrier properties are compromised. This also poses a risk to colonisation by bacteria, such as MRSA, which can then be passed on to patients. Staff with any active skin lesions or rashes on the hand or forearms must seek advice from Infection Control Doctor. Staff with chronic skin conditions, such as eczema and psoriasis on the hands and/or arms should seek further advice from Infection Control Doctor regarding the safety of further exposure and the precautions that should be taken on an individual basis.

3.1 Reducing Skin Irritation

To minimise the risk of skin damage, hands should be wetted before applying any soap solution. Rinsing and drying the hands thoroughly will also help to protect the skin. Alcohol hand rubs with emollients are associated with less skin damage than soap and water.

3.2 Use of Moisturising Skin Care Products

It is important to keep the skin as supple as possible. Hand creams should be applied regularly to protect the skin from drying. Hand creams used at work should ideally be approved by the Infection Control Unit since petroleum based hand lotions or creams may adversely affect the integrity of latex gloves. Communal pots/jars of hand cream should be avoided as the contents can become contaminated and become a source of cross-infection.

3.3 Allergy by latex and starch

The increased use of gloves containing natural rubber latex (NRL) to comply with standard infection control precautions has increased the incidence of latex sensitivity and irritant reactions. The risks relate to the proteins found in NRL, accelerators added during manufacture, and the addition of cornstarch powder. Therefore latex gloves that are powder-free, with the lowest possible levels of extractable proteins and residual accelerators should be made available. Synthetic gloves are available for healthcare workers who have developed latex sensitivity confirmed by a dermatologist.

3.4 Feedback on Hand Hygiene Products

Any adverse reactions and allergies to hand hygiene products used at Mater Die Hospital can be documented in the Product Feedback Form available on KURA and forwarded to Infection Control Unit.

4 Rings

Several studies have shown that skin underneath rings is more heavily colonized than comparable areas of skin on fingers without rings. Hence ring wearing increases the frequency of hand contamination with potential pathogens because ridges and stones of jewellery are impossible to decontaminate properly. Rings with sharp surfaces may also puncture gloves.

The only acceptable item of hand jewellery is one plain ring with no ridges and stones. This is in stated in the MDH Dress Code Policy (HRA/1/POL2006). During hand hygiene, this plain ring must be moved and the area beneath the ring washed and dried thoroughly.

However in high risk settings, such as the operating theatre, all rings and other jewellery should be removed. A simple and practical solution allowing effective hand hygiene is for healthcare workers to wear their ring(s) around their neck on a chain as a pendant.

5 Other hand jewellery

Wristwatches and other jewellery worn on the hands and wrists become contaminated during work activities. In addition they prevent thorough hand hygiene practices. The wearing of any hand jewellery is not permitted by the hospital dress code.

6 Nails

Since natural fingernails harbour micro-organisms, fingernails should be kept short and clean and free from nail polish. Nail polish hides visible dirt, and if it flakes can become a source of infection.

Artificial nails, nail extensions, gel nails and nail art harbour higher levels of micro-organisms than natural fingernails and these organisms are not removed easily during hand hygiene. Such nail technology is also known to discourage vigorous hand hygiene. Hence all nail technology is incompatible with clinical work and must not be worn.

6.1 Nail brushes

The routine use of nail brushes is not recommended. Regular use of nail brushes has been shown to result in micro abrasions of the nail beds which predispose to the transient carriage of pathogenic organisms. Furthermore nail brushes can become colonised by bacteria; therefore if deemed necessary on an exceptional basis, a single-use sterile nail brush should be used.

7 Facilities for Hand hygiene

The following facilities should be present at every hand hygiene point in patient care areas:

- Sink specifically allocated for hand hygiene, which is not to be used for instrument washing or any procedure other than hand washing.
- Lever-operated mixer taps with hot and cold water
- Liquid soap in wall-mounted dispenser
- Good quality paper towels in wall-mounted dispenser
- Domestic waste bin with appropriate bag
- Alcohol hand rub
- Hand hygiene poster in Appendix 2 indicating correct technique to be used.

8 Indications for Hand Hygiene

WHO (2006) recommends 5 moments for Hand Hygiene (Appendix 3):

1. Before patient contact	E.g. direct physical contact: helping a patient move around, clinical examination
2. Before aseptic technique	E.g. wound dressing, catheter insertion, chest drain insertion, secretion aspiration
3. After body fluid exposure risk	E.g. drawing and manipulating blood, clearing up urine, faeces, handling waste
4. After patient contact	E.g. helping a patient move around, clinical examination
5. After contact with patient surroundings	E.g. after touching any object or furniture in the patient's immediate surroundings, even if the patient has not been touched such as changing bed linen and adjusting intravenous fluid or equipment

9 Preparations used for Hand Hygiene

9.1 Alcohol hand rub

Although alcohol handrubs do not remove dirt and organic material, they provide rapid hand disinfection when the hands are not visibly contaminated and are recommended for routine care. Handrubs have been found to increase hand hygiene compliance. They are available in free-standing and wall-mounted pump containers and normally contain emollients to prevent skin drying.

Hands will need to be washed with soap and water after several applications of alcohol hand rub to prevent the build-up of emollients on the skin. It must be remembered that alcohol is not a cleansing agent and is not recommended in the presence of physical dirt.

Alcohol solutions may not be effective against enteroviruses due to the relatively short exposure time of the agent on the hands. For this reason washing with soap and water is needed after handling bedpans from patients with gastroenteritis.

There is no evidence that alcohol handrubs are effective in killing *Clostridium difficile* spores on hands. Health care professionals must wash their hands with liquid soap and water when *C. difficile* infection is suspected or confirmed.

9.2 Liquid Soap and Water

Washing hands with soap and water is only necessary when hands are visibly soiled, or if there is potential exposure to spore-forming microbes and after using the toilet. Hand washing with soap suspends transient micro-organisms in solution, allowing them to be rinsed off effectively (mechanical removal). The more important aspects in removing bacteria from the hands are the contact time and the friction applied during hand washing.

Wall-mounted liquid soap dispensers should be used in clinical settings. They should be operated using the wrist or elbow. The healthcare professional in charge is responsible for daily checking and replenishment of liquid soap dispensers.

N.B. Bar soaps are not appropriate for any clinical setting as they easily become contaminated with bacteria.

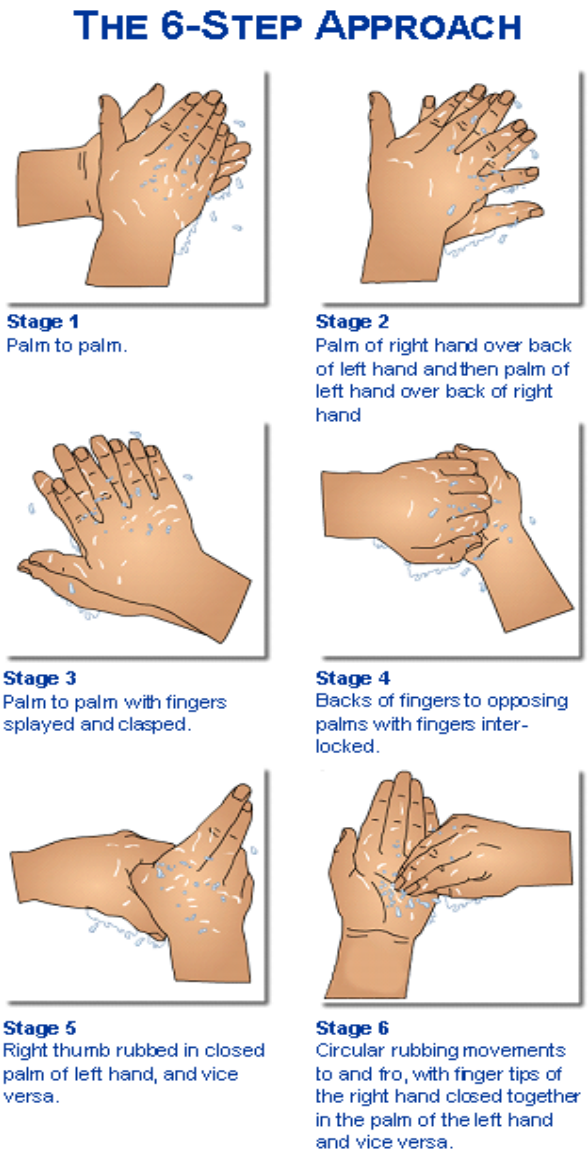
10 Hand Hygiene Technique

A good hand hygiene technique should cover all areas of both hands using a systematic method (Refer to The 6 step approach). Preparation of the skin before hand hygiene is important and the following principles must be adhered to while carrying out clinical work.

1. Cuts or abrasions should be covered by a waterproof plaster for clinical work and should be replaced when it becomes wet.
2. Nails must be kept short and clean.
3. Nail varnish and any nail technology must not be worn.
4. No hand jewellery other than a plain wedding band should be worn.
5. Clinical staff must not wear wristwatches and bracelets or charity bands.
6. Sleeves must be rolled up.

Alcohol-based hand rub: Apply approximately 3mls (2 pump actions) of handrub. Cover all the surfaces of the hands and rub together until the hands are completely dry.

Soap and water: First wet hands with water, then apply the amount of product recommended by the manufacturer to hands, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel. Use towel to turn off the faucet. It is important not to recontaminate hands.



- Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis.
- It is important to let hands dry completely after handrubbing or handwashing before putting on gloves.
- Effective drying of the hands is important as wet skin surfaces transfer micro-organisms more readily than dry ones. Hands should be dried thoroughly using good quality paper towels.

11 Glove use

Gloves are effective in preventing contamination of healthcare workers' hands and helping to reduce transmission of pathogens (WHO, 2006). However gloves do not provide complete protection against hand contamination.

- The use of gloves does not replace the need for hand hygiene.
- Gloves should not be used for more than one patient.
- Gloves should be discarded after each task after which hand hygiene should always be performed.
- Gloves should be also changed or removed if moving from a contaminated body site to a clean site on the same patient.

11.1 Indications for sterile gloves

1. Procedures which remove the skin's innate defences e.g.: surgical operations.
2. Invasive manipulations into sterile cavities e.g.: vaginal delivery; invasive radiological procedures; performing vascular access and procedures (central lines); preparing total parenteral nutrition and chemotherapeutic agents; insertion of urinary catheters.
3. Direct contact with non intact skin, such as open non infected wounds.

11.2 Indications for clean gloves

Non sterile, clean gloves are indicated when there is potential for touching blood, body fluids, secretions, excretions and items visibly soiled with body fluids.

Direct patient exposure:

Contact with blood, body fluids, mucous membranes and non intact skin; potential presence of highly infectious and dangerous organism; iv insertion and removal; drawing blood, pelvic and vaginal examination; suctioning non-closed systems of endotracheal tubes.

Indirect patient exposure:

Emptying emesis basins; handling or cleaning instruments; handling waste; cleaning up spills of body fluids.

11.3 Gloves not indicated: (except for contact precautions)

Direct patient exposure:

Contact with intact skin such as washing and turning continent patients.

Indirect patient exposure

Handling equipment which is not in direct contact with the patient – such as iv lines, patient furniture, replacing linen on patients' beds.

PROCEDURE	Gloves needed	Glove type
Ambulating patients	No	
Bathing: incontinent patients	Yes	Non-sterile
Bed cleaning: no visible soiling	No	
Bed cleaning: soiled with blood, urine or faeces	Yes	Non-sterile
Bed making	No	
Bed tables/lockers: cleaning	Yes	Household
Bedpan: emptying	Yes	Non-sterile
Bedpan: giving	No	
Blood Culture	Yes	Sterile
Central line insertion	Yes	Sterile
Colostomy bag: changing	Yes	Non-sterile
Drains: removing	Yes	Non-sterile
Dressing change using forceps	No	
Emptying: urine bags and bottles	Yes	Non-sterile
Emptying: vomit bowls	Yes	Non-sterile
Enemas	Yes	Non-sterile
Feeding: Naso-gastric	No	
Feeding: Oral	No	
Food: serving	No	
Floor mopping	Yes	Household
Glucose monitoring	Yes	Non-sterile
Instrument cleaning	Yes	Non-sterile
IVI: care of line dressings	Yes	Non-sterile
IVI: setting up and changing infusion bags	No	
Lumbar puncture	Yes	Sterile
Manual evacuation	Yes	Non-sterile
Mouth care with forceps	No	
Naso-gastric tubes - insertion & removal	Yes	Non-sterile
Observations: BP, Pulse, temp	No	
Per-rectum examination	Yes	Non-sterile
Position changing	No	
Redivac drain: emptying	Yes	Non-sterile
Refuse bin: emptying	Yes	Household
Room disinfection	Yes	Household
Shrouding	Yes	Non-sterile
Sluice room: cleaning	Yes	Household
Specimen taking: urine	Yes	Non-sterile
Spillages: removal	Yes	Non-sterile
Suction through mouth, nostrils	Yes	Non-sterile
Suppositories: inserting	Yes	Non-sterile
Suture removal	No	
Suturing	Yes	Sterile
Toilet cleaning	Yes	Household
Treatment administration - I.M. injection	No	
Treatment administration - tablets	No	
Urinary catheters: inserting	Yes	Sterile
Urinary catheters: removing	Yes	Non-sterile
Urine testing	Yes	Non-sterile
Venepuncture	Yes	Non-sterile
Venous cannula (peripheral) insertion	Yes	Non-sterile
Wound dressing: clean or infected wounds	Yes	Non-sterile

In instances marked “No”, alcohol rub must be applied to hands just before procedure.

Appendix 1

1 The importance of Hand Hygiene

The spread of infection via hands is well established. The current spread of antibiotic-resistant organisms can be attributed, at least in part, to a failure by health care professionals to comply with hand hygiene either as often or as efficiently as the situation requires. Hands are the principal route by which cross infection occurs. They have even been implicated in the indirect spread of both enteric and respiratory viral infections to both patients as well as healthcare workers themselves.

2 The microbiology of the hands

There are two groups of micro-organisms on the hands: the transient micro-organisms that are carried temporarily on the surface of the skin, and the resident micro-organisms that colonise (or live on) the skin.

Transient skin flora

- Transient micro-organisms can be bacterial or viral.
- Micro organisms which are acquired on the hands through contact with other sites on the same individual, from other people, or from the environment.
- Easily acquired by touch and readily transferred to the next person or surface touched, so may be responsible for the transmission of infection.
- Removal of transient micro-organisms is therefore essential in preventing cross infection.

Resident skin flora

- Normal microbial flora present on the hands.
- Micro-organisms found deeply seated within the epidermis, in skin crevices, hair follicles, sweat glands and beneath finger nails.
- They are not readily transferred to other people and most are not easily removed by washing with soap.
- They do not need to be removed from the hands during routine clinical care.
- During invasive procedures, e.g. surgery, there is a risk that resident micro-organisms may enter the patient’s tissues and cause an infection.

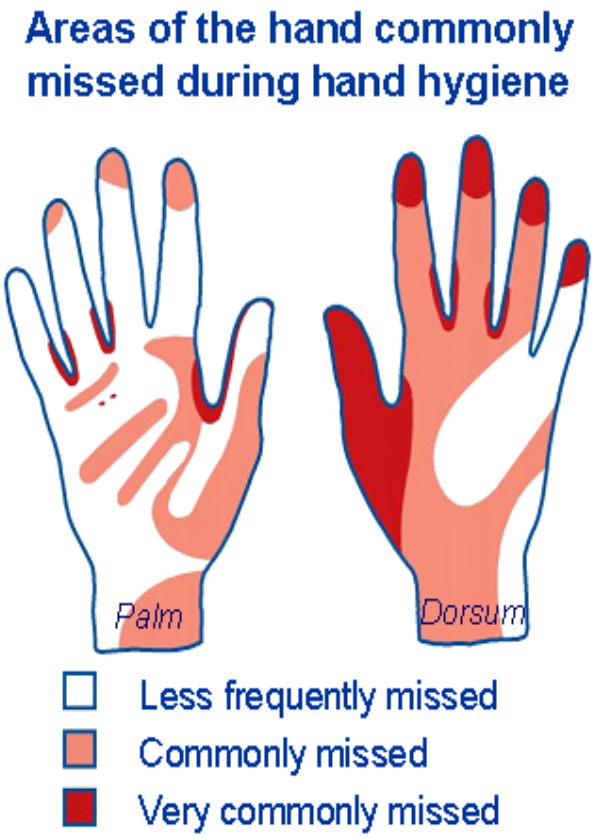
3 Transmission of pathogens on hands

Hand carriage of bacteria, for example, methicillin resistant *Staphylococcus aureus* (MRSA) and various Gram-negative organisms, can result from everyday activities, including:

- Any form of examination or intervention involving direct skin contact
- Handling patients' clothing
- Bed making
- Sluice room activities

The ability of transient micro-organisms to easily transfer to and from hands results in hands becoming extremely efficient vectors of infection. Hands are contaminated with both transient and resident flora. Cross contamination via the hands of healthcare workers has been estimated to be responsible for more than 80% of nosocomial infections in hospitals and other healthcare facilities. However, unlike resident flora, transient micro-organisms can be easily removed with simple hand hygiene which immediately reduces the risk of cross infection during normal contact and activities. On the other hand, removal of resident bacteria by means of scrubbing is required before surgical operations where sterile parts of the body would be exposed.

4 Areas of the hand commonly missed during hand hygiene



5 Advantages of alcohol hand rub

When compared to traditional soap and water hand washing, alcohol hand rubs have the following advantages:

- take less time to use
- can be made more accessible than sinks
- cause less skin irritation and dryness
- are more effective in reducing the number of bacteria on hands

The efficacy of alcohol hand rub is affected by a number of factors including the type of alcohol used, the concentration of alcohol, the contact time, the volume of alcohol used and whether the hands are wet when the alcohol is applied.

6 Surgical Hand Disinfection

The aim of surgical hand disinfection is the elimination of transient and the reduction of resident micro-organisms. This process is required for all surgical procedures and for some invasive medical procedures, such as central line insertion, to prevent serious infections associated with mortality, morbidity and high costs.

6.1 Surgical hand antisepsis using aqueous antiseptic solutions

The most commonly used products for surgical hand antisepsis are soaps containing chlorhexidine gluconate or povidone-iodine. Chlorhexidine is more efficacious than povidone-iodine, induces less allergic reactions and has more residual effect. During hand scrubbing both hands, interdigital spaces and arms from the wrist to the elbows should be scrubbed and this procedure should not take less than 3 minutes.

The use of brushes is discouraged. Any debris from underneath fingernails should be removed using a sterile nail cleaner.

6.2 Surgical hand preparation using alcohol-based handrub

The antimicrobial activity of alcohol-based rubs is superior to that of all other currently available methods of preoperative surgical hand preparation. It is recommended that the surgical team wash their hands with soap and water before entering the operating theatre to eliminate any risk of colonisation with bacterial spores, since alcohol is not effective against spores.

After the application of the alcohol-based product, the hands should remain moist for the entire application which is approximately 2 minutes. Hands and arms must be rubbed until they are thoroughly dry before sterile gloves are worn.

Appendix 2


How to handrub?
With alcohol-based product
1a
Apply a palmful of the product in a cupped hand and cover all surfaces.
2
Rub palm to palm.
3
Right palm over left dorsum with interlaced fingers and vice versa.
4
Palm to palm with fingers interlaced.
5
Backs of fingers to opposing palms with fingers interlocked.
6
Rotational rubbing of left thumb clasped in right palm and vice versa.
7
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.
8
...once dry, your hands are safe.
Duration of procedure:
Hand Rub
Handwash
40 secs.
20 secs.
Alcohol rub is preferable unless
hands are dirty,
soiled with body fluids or
after possible contact with faeces.
Stop Rub Go
Hand Hygiene Campaign Malta
For further information phone (2545) 4540
Infection Control Unit
How to handwash?
With soap and water
Remove all hand jewellery and keep your nails short and clean.
0
Wet hands with water.
1
Apply enough soap to cover all hand surfaces.
8
Rinse hands with water.
9
Dry thoroughly with a single use towel.
10
Turn off tap using elbow.
11
...and your hands are safe.
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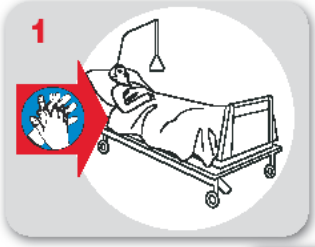
Appendix 3

Your 5 moments for HAND HYGIENE

1



BEFORE
PATIENT CONTACT

Clean your hands before touching a patient when, approaching him/her

2

BEFORE
AN ASEPTIC TASK

Clean your hands immediately before any aseptic task

3

AFTER
BODY FLUID EXPOSURE RISK

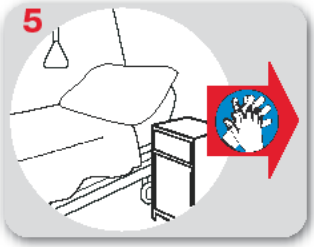
Clean your hands immediately after an exposure risk to body fluids (and after glove removal)

4

AFTER
PATIENT CONTACT

Clean your hands after touching a patient and her/his immediate surroundings when leaving the patient's side

5



AFTER
CONTACT WITH PATIENT SURROUNDINGS

Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even if the patient has not been touched

WORLD ALLIANCE *for* PATIENT SAFETY

WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.

October 2006, version 1.

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