

# National Infection Prevention and Control Manual

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**Version History:**

This literature review and/or National Infection Prevention and Control Manual will be updated in real time if any significant changes are found in the professional literature or from national guidance.

<b>Version</b>	<b>Date</b>	<b>Summary of changes since previous version</b>
2.4	January 2015	<p>Section 1.7 – inclusion of recommendation that linen deemed unfit for re-use should be returned to the laundry for disposal.</p> <p>Chapter 2. Transmission Based Precautions the distance for droplet precautions has been changed from “less than 3 feet (1 metre)” to “at least 3 feet (1 metre)”.</p> <p>Addition of section 2.5 Infection Prevention and control during Care of deceased</p> <p>Appendix 14 - Inclusion of Viral Haemorrhagic Fever</p> <p>Addition of Appendix 15 - Key Infections from HSE Guidance “Controlling the risks of infection at work from Human Remains”.</p>
2.3	April 2014	Wider Consultation changes SLWG Appendix 14 and Section 2.4. Update and agreed content.
2.2	October 2013	Insertion of Chapter 2, TBPs and Glossary Add Appendix on Glove changes Add care homes consensus
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<b>Description:</b>	This evidence based National Infection Prevention and Control (NIP&C) Manual for Scotland is intended to be used by all those involved in care provision. The manual currently contains information on Standard Infection Control Precautions (SICPs), Chapter 1 and Transmission Based Precautions (TBPs), Chapter 2. It is planned to further develop the content of the manual.
<b>Update/review schedule:</b>	Updated in real time with changes made to practice recommendations as new evidence emerges and/or legislation changes.
<b>Cross reference:</b>	<a href="#">Standard Infection Control Precautions (SICPs) Literature Reviews</a> <a href="#">Transmission Based Precautions (TBPs) Literature Reviews</a>

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## Introduction

The National Infection Prevention and Control Manual was first published on 13 January 2012, by the Chief Nursing Officer (CNO (2012)1):

[http://www.sehd.scot.nhs.uk/cmo/CNO\(2012\)01.pdf](http://www.sehd.scot.nhs.uk/cmo/CNO(2012)01.pdf), and updated on 17 May 2012:  
[http://www.sehd.scot.nhs.uk/cmo/CNO\(2012\)01update.pdf](http://www.sehd.scot.nhs.uk/cmo/CNO(2012)01update.pdf).

This national manual provides guidance to all those involved in care provision and should be adopted for infection prevention and control practices and procedures. The national manual is mandatory for NHS employees and applies to all NHS healthcare settings. In all other care settings the content of this manual is considered best practice.

The manual aims to:

- Make it easy for care staff to apply effective infection prevention and control precautions.
- Reduce variation and optimise infection prevention and control practices throughout Scotland.
- Help reduce the risk of Healthcare Associated Infection (HAI).
- Help align practice, monitoring, quality improvement and scrutiny.

The literature reviews that underpin and inform the practical application of the national manual and highlight implications for research are available at

<http://www.hps.scot.nhs.uk/haic/ic/standardinfectioncontrolprecautions-sicps.aspx>

## **Responsibilities for the content of this manual**

### **HPS must ensure:**

- that the content of this manual remains evidence based.

## **Responsibilities for the adoption and implementation of this manual**

### **Organisations must ensure:**

- the adoption and implementation of this manual in accordance with their existing local governance processes;
- systems and resources are in place to facilitate implementation and compliance monitoring of infection prevention and control as specified in this manual in all care areas. Compliance monitoring includes all staff (permanent, agency and where required external contractors); and
- there is an organisational culture which promotes incident reporting and focuses on improving systemic failures that encourage safe working practices

### **Managers of all services must ensure that staff:**

- are aware of and have access to this manual;
- have had instruction/education on infection prevention and control through attendance at events and/or completion of training e.g. via [NHS Education for Scotland \(NES\)](#) and/or local board/organisation;
- have adequate support and resources available to enable them to implement, monitor and take corrective action to ensure compliance with this manual;
- with health concerns (including pregnancy) or who have had an occupational exposure are timeously referred to the relevant agency e.g. General Practitioner, Occupational Health or if required Accident and Emergency;
- have undergone the required health checks/clearance (including those undertaking Exposure Prone Procedures (EPPs); and
- include infection prevention and control as an objective in their Personal Development Plans (or equivalent).

### **Staff providing care must ensure that they:**

- understand and apply the principles of infection prevention and control set out in this manual;
- maintain competence, skills and knowledge in infection prevention and control through attendance at education events and/or completion of training e.g. [NHS Education for Scotland \(NES\)](#) and/or local board/organisation;
- communicate the infection prevention and control practices to be taken by colleagues, those being cared for, relatives and visitors without breaching confidentiality;
- have up to date occupational immunisations/health checks/clearance requirements as appropriate;
- report to line managers and document any deficits in knowledge, resources, equipment and facilities or incidents that may result in transmission of infection; and
- do not provide care while at risk of potentially transmitting infectious agents to others. If in any doubt they must consult with their line manager, Occupational

Health Department, Infection Prevention and Control Team (IPCT) or Health Protection Team (HPT).

**Infection Prevention and Control Teams (IPCTs) and Health Protection Teams (HPTs) must:**

- engage with staff to develop systems and processes that lead to sustainable and reliable improvements in relation to the application of infection prevention and control practices; and
- provide expert advice on the application of infection prevention and control in the care setting and on individual risk assessments as required.

**Disclaimer**

**When an organisation e.g. NHS board or care home uses products or adopts practices that differ from those stated in this National Infection Prevention and Control Manual, that individual organisation is responsible for ensuring safe systems of work including the completion of a risk assessment.**

## Chapter 1: Standard Infection Control Precautions (SICPs)

Standard Infection Control Precautions (SICPs), covered in this chapter are to be used **by all staff, in all care settings, at all times, for all patients**<sup>1</sup> whether infection is known to be present or not to ensure the safety of those being cared for, staff and visitors in the care environment.

SICPs are the basic infection prevention and control measures necessary to reduce the risk of transmission of infectious agent from both recognised and unrecognised sources of infection. Sources of (potential) infection include blood and other body fluids secretions or excretions (excluding sweat), non-intact skin or mucous membranes and any equipment or items in the care environment that could have become contaminated.

The application of SICPs during care delivery is determined by an assessment of risk to and from individuals and includes the task, level of interaction and/or the anticipated level of exposure to blood and/or other body fluids.

To be effective in protecting against infection risks, SICPs must be used continuously by all staff. SICPs implementation monitoring must also be ongoing to ensure compliance with safe practices and to demonstrate ongoing commitment to patient, staff and visitor safety.

Further information on using SICPs for Care at Home can be found at

<http://www.nes.scot.nhs.uk/education-and-training/by-theme-initiative/healthcare-associated-infections/training-resources/preventing-infection-in-care-@-home.aspx>.

There are ten elements of SICPs:

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### 1.1. Patient Placement/Assessment for infection risk

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Patients must be promptly assessed for infection risk on arrival at the care area (if possible, prior to accepting a patient from another care area) and should be continuously reviewed throughout their stay. This assessment should influence placement decisions in accordance with clinical/care need(s).

Patients who may present a cross-infection risk include those:

- With diarrhoea, vomiting, an unexplained rash, fever or respiratory symptoms.
- Known to have been previously positive with a Multi-drug Resistant Organism (MDRO) e.g MRSA, CPE.
- Who have been hospitalised outside Scotland in the last 12 months.

For assessment of infection risk see [Section 2.1: Transmission Based Precautions](#).

Further information can be found in the [patient placement literature review](#).

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### 1.2. Hand Hygiene

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Hand hygiene is considered an important practice in reducing the transmission of infectious agents which cause HAIs.

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<sup>1</sup> The use of the word 'Persons' can be used instead of 'Patient' when using this document in non-healthcare settings.



**Before performing hand hygiene:**

- expose forearms;
- remove all hand/wrist jewellery (a single, plain metal finger ring is permitted but should be removed (or moved up) during hand hygiene);
- ensure finger nails are clean, short and that artificial nails or nail products are not worn; and
- cover all cuts or abrasions with a waterproof dressing.

**To perform hand hygiene:**

Alcohol Based Hand Rubs (ABHRs) must be available for staff as near to point of care as possible. Where this is not practical, personal ABHR dispensers should be used.

**Perform hand hygiene:**

- before touching a patient;
- before clean/aseptic procedures;
- after body fluid exposure risk;
- after touching a patient; and
- after touching a patient's immediate surroundings.

Wash hands with non-antimicrobial liquid soap and water if:

- hands are visibly soiled or dirty; or
- caring for a patient with a suspected or known gastro-intestinal infection e.g. norovirus or a spore forming organism such as *Clostridium difficile*.

In all other circumstances use ABHRs for routine hand hygiene during care.

Hand wipes **should not** be used by staff in the hospital or care home setting for hand hygiene unless there is no running water available. Staff may use hand wipes followed by ABHR and should wash their hands at the first available opportunity.

**For how to wash hands see [Appendix 1](#).**

**For how to hand rub see [Appendix 2](#).**

**Skin care:**

- Dry hands thoroughly after hand washing using disposable paper towels.
- Use an emollient hand cream during work breaks and when off duty.
- Do not use or provide communal tubs of hand cream in the care setting.

**Surgical Hand Antisepsis**

Surgical scrubbing/rubbing: (applies to persons undertaking surgical and some invasive procedures)

- Perform surgical scrubbing/rubbing before donning sterile theatre garments or at other times e.g. prior to insertion of vascular access devices.
- Remove all hand/wrist jewellery.
- Nail brushes (if used) must only be used for decontamination of nails. Nail picks can be used if nails are visibly dirty.
- Use an antimicrobial liquid soap licensed for surgical scrubbing or an ABHR licensed for surgical rubbing (as specified on the product label).
- ABHR can be used between surgical procedures if licensed for this use.

**Follow the technique in [Appendix 3](#) for Surgical Scrubbing.**

**Follow the technique in [Appendix 4](#) for Surgical Rubbing.**

Hand Hygiene posters/leaflets can be found at  
<http://www.washyourhandsofthem.com/home.aspx>

Further information can be found in the Hand Hygiene literature reviews:

- [Hand hygiene products in hospital settings](#)
- [Hand washing in hospitals settings](#)
- [Indications for hand hygiene in the hospital setting](#)
- [Skin care](#)
- [Surgical hand scrubbing/rubbing in the hospital setting](#)
- [Use of alcohol based hand rub in the hospital setting](#)

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### 1.3. Respiratory and Cough Hygiene

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Respiratory and cough hygiene is designed to minimise the risk of cross-transmission of respiratory illness (pathogens):

- Cover the nose and mouth with a disposable tissue when sneezing, coughing, wiping and blowing the nose.
- Dispose of all used tissues promptly into a waste bin.
- Wash hands with non-antimicrobial liquid soap and warm water after coughing, sneezing, using tissues, or after contact with respiratory secretions or objects contaminated by these secretions.
  - Hand wipes **should not** be used by staff in the hospital or care home setting for hand hygiene unless there is no running water available. Staff may use hand wipes followed by ABHR and should wash their hands at the first available opportunity.
- Keep contaminated hands away from the eyes nose and mouth.

Staff should promote respiratory and cough hygiene helping those (e.g. elderly, children) who need assistance with this e.g. providing patients with tissues, plastic bags for used tissues and hand hygiene facilities as necessary.

Further information can be found in the [cough etiquette/respiratory hygiene in the hospital setting literature review](#).

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### 1.4. Personal Protective Equipment (PPE)

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Before undertaking any procedure staff should assess any likely exposure and ensure PPE is worn that provides adequate protection against the risks associated with the procedure or task being undertaken.

**All PPE should be:**

- located close to the point of use;
- stored to prevent contamination in a clean/dry area until required for use (expiry dates must be adhered to);
- single-use only items unless specified by the manufacturer; and
- disposed of after use into the correct waste stream i.e. healthcare waste or domestic waste.

Reusable PPE items, e.g. non-disposable goggles/face shields/visors must have a decontamination schedule with responsibility assigned.

**Gloves must be:**

- worn when exposure to blood and/or other body fluids is anticipated/likely;<sup>2</sup>
- changed immediately after each patient and/or following completion of a procedure or task;
- changed if a perforation or puncture is suspected; and
- appropriate for use, fit for purpose and well-fitting to avoid excessive sweating and interference with dexterity.

**Double gloving** is recommended during some Exposure Prone Procedures (EPPs) e.g. orthopaedic and gynaecological operations or when attending major trauma incidents.

**For appropriate glove use and selection see [Appendix 5](#).**

**Further information can be found in the [Gloves literature review](#).**

**Aprons must be:**

- worn to protect uniform or clothes when contamination is anticipated/likely e.g. when in direct care contact with a patient; and
- changed between patients and/or following completion of a procedure or task.

**Full body gowns/Fluid repellent coveralls must be:**

- worn when there is a risk of extensive splashing of blood and/or other body fluids e.g. in the operating theatre; and
- changed between patients and immediately after completion of a procedure or task.

**Further information can be found in the [Aprons/Gowns literature review](#)**

**Eye/face protection (including full face visors) must be:**

- worn if blood and/or body fluid contamination to the eyes/face is anticipated/likely e.g. by members of the surgical theatre team and always during [Aerosol Generating Procedures](#). Regular corrective spectacles are not considered eye protection.

**Further information can be found in the [eye/face protection literature review](#).**

**Fluid repellent surgical face masks must be:**

- worn if splashing or spraying of blood, body fluids, secretions or excretions onto the respiratory mucosa (nose and mouth) is anticipated/likely;
- worn to protect patients from the operator as a source of infection e.g. when performing an epidural or inserting a Central Vascular Catheter (CVC);
- well fitting and fit for purpose (fully covering the mouth and nose) (manufacturers' instructions must be adhered to ensure effective fit/protection); and
- removed or changed;
  - at the end of a procedure/task;
  - if the integrity of the mask is breached, e.g. from moisture build-up after extended use or from gross contamination with blood or body fluids; and
  - in accordance with specific manufacturers' instructions.

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<sup>2</sup> Scottish National Blood Transfusion Service (SNBTS) adopt practices that differ from those stated in the National Infection Prevention and Control Manual.

Further information can be found in the [surgical face masks literature review](#).

**Footwear must be:**

- non-slip, clean and well maintained, and support and cover the entire foot to avoid contamination with blood or other body fluids or potential injury from sharps; and
- removed before leaving a care area where dedicated footwear is used e.g. theatre.

Further information can be found in the [footwear literature review](#)

**Headwear must be:**

- worn in theatre settings/clean rooms e.g. Central Decontamination Unit (CDU);
- well fitting and completely cover the hair; and
- changed/disposed of between sessions or if contaminated with blood and/or body fluids.


For the recommended method of putting on and removing PPE see [Appendix 6](#)  
Further information can be found in the [headwear literature review](#).

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## 1.5. Safe Management of Care Equipment

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Care equipment is easily contaminated with blood, other body fluids, secretions, excretions and infectious agents. Consequently it is easy to transfer infectious agents from communal care equipment during care delivery. Care equipment is classified as either:

- **Single-use** – equipment which is used once on a single patient and then discarded. Must never be reused even on the same patient. The packaging carries this symbol. 
  - Needles and syringes are single use devices. They should never be used for more than one patient or reused to draw up additional medication.
  - Never administer medications from a single-dose vial or intravenous (IV) bag to multiple patients.
- **Single patient use** – equipment which can be reused on the same patient.
- **Reusable invasive equipment** - used once then decontaminated e.g. surgical instruments.
- **Reusable non-invasive equipment** (often referred to as communal equipment) - reused on more than one patient following decontamination between each use e.g. commode, patient transfer trolley.

**Before using any sterile equipment check that:**

- the packaging is intact;
- there are no obvious signs of packaging contamination; and
- the expiry date remains valid.

**Decontamination of reusable non-invasive care equipment must be undertaken:**

- between each use;
- after blood and/or body fluid contamination;
- at regular predefined intervals as part of an equipment cleaning protocol; and
- before inspection, servicing or repair.

Adhere to manufacturers' guidance for use and decontamination of all care equipment.

All reusable non-invasive care equipment must be rinsed and dried following decontamination then stored clean and dry.

Decontamination protocols should include responsibility for; frequency of; and method of environmental decontamination.

**For how to decontaminate reusable non-invasive care equipment see [Appendix 7](#)**

**For an equipment decontamination status certificate; required if any item of equipment is being sent to a third party for e.g. inspection, servicing or repair see [Appendix 8](#)**

**For guidance prior to procuring, trialling or lending any reusable non-invasive equipment, see [Appendix 9](#)**

**Further information can be found in the [management of patient care equipment literature review](#)**

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## **1.6. Safe Management of the Care Environment**

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It is the responsibility of the person in charge to ensure that the care environment is safe for practice (this includes environmental cleanliness/maintenance). The person in charge must **act** if this is deficient.

The care environment must be:

- visibly clean, free from non-essential items and equipment to facilitate effective cleaning;
- well maintained and in a good state of repair; and
- routinely cleaned in accordance with the Health Facilities Scotland (HFS) National Cleaning Specification:
  - A fresh solution of general purpose neutral detergent in warm water is recommended for routine cleaning. This should be changed when dirty or at 15 minutes intervals or when changing tasks.
  - Routine disinfection of the environment is not recommended. However, 1,000ppm available chlorine should be used routinely on sanitary fittings.

Staff groups should be aware of their environmental cleaning schedules and clear on their specific responsibilities. Cleaning protocols should include responsibility for; frequency of; and method of environmental decontamination.

**Further information can be found in the [routine cleaning of the environment in hospital setting literature review](#)**

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## **1.7. Safe Management of Linen**

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Clean linen should be stored in a clean, designated area, preferably an enclosed cupboard. If clean linen is not stored in a cupboard then the trolley used for storage must be designated for this purpose and completely covered with an impervious covering that is able to withstand decontamination.

Clean linen that is deemed unfit for re-use e.g. badly torn, should be returned to the laundry for disposal.

Any linen used during patient transfer e.g. blankets, should be categorised at the point of destination.

For all **used linen** (previously known as soiled linen):

- Ensure a laundry receptacle is available as close as possible to the point of use for immediate linen deposit.
- Do not:
  - rinse, shake or sort linen on removal from beds/trolleys;
  - place used linen on the floor or any other surfaces e.g. a locker/table top;
  - re-handle used linen once bagged;
  - overfill laundry receptacles; or
  - place inappropriate items in the laundry receptacle e.g. used equipment/needles.

For all **infectious linen (this mainly applies to healthcare linen)** i.e. linen that has been used by a patient who is known or suspected to be infectious and/or linen that is contaminated with blood and/or other body fluids e.g. faeces:

- Place directly into a water-soluble/alginate bag and secure; then place into red terylene hamper. Any heavily soiled item(s) unlikely to be fit for reuse place directly into a water soluble/alginate bag and secure; then place into a clear plastic bag before placing into the red terylene hamper.
- Used and infectious linen bags/receptacles must be tagged (e.g. hospital ward/care area) and dated.
- Store all used/infectious linen in a designated, safe, lockable area whilst awaiting uplift. Uplift schedules must be acceptable to the care area and there should be no build-up of linen receptacles.

For how to manage linen at care area level see [Appendix 10](#)

Further information can be found in the [safe management of linen literature review](#)

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## 1.8. Safe Management of Blood and Body Fluid Spillages

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Spillages of blood and other body fluids may transmit blood borne viruses. Spillages must be decontaminated immediately by staff trained to undertake this safely. Responsibilities for the decontamination of blood and body fluid spillages should be clear within each area/care setting.

For management of blood and body fluid spillages see [Appendix 11](#)

Further information can be found in the [management of blood and body fluid literature review](#)

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## 1.9. Safe Disposal of Waste (including sharps)

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Scottish Health Technical Note (SHTN) 3: NHSScotland Waste Management Guidance contains the regulatory waste management guidance for NHSScotland including waste classification, segregation, storage, packaging, transport, treatment and disposal. The Health and Safety (Sharp Instruments in Healthcare) Regulations 2013 outline the regulatory requirements for employers and contractors in the healthcare sector in relation to the safe disposal of sharps.



### Categories of waste:

- **Healthcare (including clinical) waste** – is produced as a direct result of healthcare activities e.g. soiled dressings, sharps.
- **Special (or hazardous) waste** – arises from the delivery of healthcare in both clinical and non-clinical settings. Special waste includes a range of controlled wastes, defined by legislation, which contain dangerous or hazardous substances e.g. chemicals, pharmaceuticals.
- **Domestic waste** – must be segregated at source into:
  - **Dry recyclates** (glass, paper and plastics, metals, cardboard).
  - **Residual waste** (any other domestic waste that cannot be recycled).

### Waste Streams:

- **Black – Trivial risk**
  - Domestic waste or yellow and black stripes (small quantities of hygiene waste). Final disposal to Landfill. Clear/opaque receptacles may also be used for domestic waste at care area level.
- **Orange, Light Blue(laboratory) – Low risk<sup>3</sup>**
  - **Orange** - consists of items which are contaminated or likely to be contaminated with infectious blood and/or body fluids. Final disposal following heat disinfection is to landfill.
  - **Light Blue** – laboratory/microbiological waste that must be autoclaved before disposal via the orange stream.
- **Yellow– High risk**
  - Waste which poses ethical, highly infectious or contamination risks. This includes anatomical and human tissue which is recognisable as body parts, medical devices and sharps waste boxes that have red, purple or blue lids. Disposal is by specialist incineration.
- **Red – Special waste**
  - Chemical waste.

**For care/residential homes waste disposal may differ from the categories described above and guidance from local contractors will apply. Refer to SEPA guidance <http://www.sepa.org.uk/waste.aspx>.**

### Safe waste disposal at care area level:

Always dispose of waste:

- immediately and as close to the point of use as possible; and
- into the correct segregated colour coded UN 3291 approved waste bag (either orange/yellow for healthcare waste or black/clear/opaque for domestic) or container (sharps box).

Liquid waste e.g. blood must be rendered safe by adding a self-setting gel or compound before placing in a healthcare waste bag.

Waste bags must be no more than 3/4 full or more than 4 kgs in weight; and use a ratchet tag/or tape (for healthcare waste bags only) using a 'swan neck' to close with the point of origin and date of closure clearly marked on the tape/tag.

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<sup>3</sup> Not required for boards with an on-site incinerator facility. This applies only to NHS Borders.

Store all waste in a designated, safe, lockable area whilst awaiting uplift. Uplift schedules must be acceptable to the care area and there should be no build-up of waste receptacles.

Sharps boxes must:

- have a dedicated handle;
- have a temporary closure mechanism, which must be employed when the box is not in use;
- be disposed of when the manufacturers' fill line is reached; and
- be labelled with point of origin and date of closure.

**For management of waste at care area level see [Appendix 12](#)**

**Further information can be found in the [safe management of waste in the hospital setting literature review](#)**

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## **1.10. Occupational Safety: Prevention and Exposure Management (including sharps)**

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The Health and Safety (Sharp Instruments in Healthcare) Regulations 2013 outline the regulatory requirements for employers and contractors in the healthcare sector in relation to: arrangements for the safe use and disposal of sharps; provision of information and training to employees; investigations and actions required in response to work related sharps injuries.

Sharps handling must be assessed, kept to a minimum and eliminated if possible with the use of approved safety devices. Manufacturers' instructions for safe use and disposal must be followed.

Needles must not be re-sheathed.<sup>4</sup>

A significant occupational exposure is:

- a percutaneous injury e.g. injuries from needles, instruments, bone fragments, or bites which break the skin; and/or
- exposure of broken skin (abrasions, cuts, eczema, etc); and/or
- exposure of mucous membranes including the eye from splashing of blood or other high risk body fluids.

There is a potential risk of transmission of a Blood Borne Virus (BBV) from a significant occupational exposure and staff must understand the actions they should take when a significant occupational exposure incident takes place.

**For the management of an occupational exposure incident see [Appendix 13](#)**

**Further information can be found in the [occupational exposure management \(including sharps\) literature review](#)**

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<sup>4</sup> **Only** exception is local anaesthetic administration in dentistry.



## Chapter 2: Transmission Based Precautions (TBPs)

SICPs may be insufficient to prevent cross transmission of specific infectious agents. Therefore additional precautions (TBPs) are required to be used by staff. SICPs must still be applied with these additional considerations.

TBPs should be applied when caring for:

- patients with symptoms of infection;
- asymptomatic patients who are suspected or incubating an infection; or
- patients colonised with an infectious agent.

TBPs are categorised by the route of transmission of infectious agents (some infectious agents can be transmitted by more than one route):

- **Contact** precautions: Used to prevent and control infections that spread via direct contact with the patient or indirectly from the patient's immediate care environment (including care equipment). This is the most common route of cross-infection transmission.
- **Droplet** precautions: Used to prevent and control infections spread over short distances (at least 3 feet (1 metre)) via droplets ( $>5\mu\text{m}$ ) from the respiratory tract of one individual directly onto a mucosal surface or conjunctivae of another individual. Droplets penetrate the respiratory system to above the alveolar level.
- **Airborne** precautions: Used to prevent and control infections spread without necessarily having close patient contact via aerosols ( $\leq 5\mu\text{m}$ ) from the respiratory tract of one individual directly onto a mucosal surface or conjunctivae of another individual. Aerosols penetrate the respiratory system to the alveolar level.

Further information on Transmission Based Precautions can be found in the definitions of [Transmission Based Precautions literature reviews](#).

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### 2.1 Patient Placement/Assessment for Infection Risk

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The potential for transmission of infection or infectious agents must be assessed at the patient's entry to the care area and should be continuously reviewed throughout their stay. The assessment should influence placement decisions in accordance with clinical /care need(s).

Patients who may present a cross-infection risk include those:

- With diarrhoea, vomiting, an unexplained rash, fever or respiratory symptoms.
- Known to have been previously positive with a Multi-drug Resistant Organism (MDRO) e.g. MRSA, CPE.
- Who have been hospitalised outside Scotland in the last 12 months.

These patients should be prioritised for placement in a suitable area to minimise cross transmission pending investigation e.g.

- In a single room with a clinical wash hand basin; or
- Cohort area/room with a clinical wash hand basin.

Patients being transferred by ambulance should be transported in accordance with SAS local guidance.

Isolation within a care home for a known/suspected infection may be necessary to prevent spread. In most cases this can be achieved in the persons' bedroom.

**The clinical judgement and expertise of the staff involved in a patient's management and the Infection Prevention and Control Team (IPCT) or Health Protection Team (HPT) should be sought particularly for patient placement decisions such as the application of TBPs e.g. isolation prioritisation when single rooms are in short supply.**

**For patients with a suspected/known infectious agent.** [Appendix 14](#) provides details of the route of transmission, optimal patient placement, duration of isolation and type of precautions required.

### **Patient/Staff cohorting**

If multiple patient cases of the same infection are confirmed or if single rooms are unavailable, cohorting of patients may be appropriate. Patients should be separated by at least 3 feet (1m) if cohorted.

Consider assigning a dedicated team of care staff to care for patients in isolation/cohort rooms/areas as an additional infection control measure (staff cohorting). This can only be implemented if there are sufficient levels of staff available (so as not to have a negative impact on non-affected patients' care).

### **Duration of isolation/cohort**

Patient(s) should remain in isolation/cohort whilst they remain symptomatic and/or are considered infectious and the door must remain closed.

Before discontinuing isolation; individual patient risk factors should be considered (e.g. there may be prolonged shedding of certain microorganisms in immunocompromised patients); and the clinical judgement of those involved in the patient's management should be sought.

**Avoid unnecessary transfer of patients within/between care areas.**

**All patient placement decisions and assessment of infection risk (including isolation requirements) must be clearly documented in the patient notes.**

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## **2.2 Safe Management of Patient Care Equipment in an Isolation Room/Cohort Area <sup>5</sup>**

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- Use single-use items if possible.
- Reusable non-invasive care equipment should be dedicated to the isolation room/cohort area and decontaminated prior to use on another patient.
- An increased frequency of decontamination should be considered for reusable non-invasive care equipment when used in isolation/cohort areas.

**For how to decontaminate non-invasive reusable equipment see [Appendix 7](#)**

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## **2.3 Safe Management of the Care Environment <sup>5</sup>**

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### **Routine environmental decontamination**

Patient isolation/cohort rooms/area must be decontaminated **at least daily** using either:

- a combined detergent/disinfectant solution at a dilution of 1,000 parts per million available chlorine (ppm available chlorine (av.cl.)); or

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<sup>5</sup> Scottish Ambulance Service (SAS) and Scottish National Blood Transfusion Service adopt practices that differ from those stated in the National Infection Prevention and Control Manual.

- a general purpose neutral detergent in a solution of warm water followed by disinfection solution of 1,000ppm av.cl.

Increased frequency of decontamination should be incorporated into the environmental decontamination schedules for areas where there may be higher environmental contamination rates e.g.

- toilets/commodes particularly if patients have diarrhoea; and
- “frequently touched” surfaces such as door/toilet handles and locker tops, over bed tables and bed rails.

Equipment used for environmental decontamination must be either single-use or dedicated to the affected area then decontaminated following use e.g. mop and bucket.

### **Terminal decontamination**

Following patient transfer, discharge, or once the patient is no longer considered infectious:

Remove from the vacated isolation room/cohort area, all:

- healthcare waste and any other disposable items (bagged before removal from the room);
- bedding/bed screens/curtains and manage as [infectious linen](#) (bagged before removal from the room); and
- reusable non-invasive care equipment (decontaminated in the room prior to removal) [Appendix 7](#).

The room should be decontaminated using either:

- a combined detergent disinfectant solution at a dilution (1,000ppm av.cl.); or
- a general purpose neutral detergent clean in a solution of warm water followed by disinfection solution of 1,000ppm av.cl..

The room must be cleaned from the highest to lowest point and from the least to most contaminated point.

Manufacturers’ guidance and recommended product “contact time” must be followed for all cleaning/disinfection solutions<sup>6</sup>.

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## **2.4 Personal Protective Equipment (PPE): Respiratory Protective Equipment (RPE)**

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PPE must still be used in accordance with SICPs when using Respiratory Protective Equipment. See [Chapter 1.4 for PPE use for SICPs](#).

Where it is not reasonably practicable to prevent exposure to a substance hazardous to health (as may be the case where healthcare workers are caring for patients with suspected or known airborne micro-organisms) the hazard must be adequately controlled by applying protection measures appropriate to the activity and consistent with the assessment of risk.

Respiratory Protective Equipment (RPE) i.e. FFP3 and facial protection, must be considered when a patient is admitted with a known/suspected infectious agent/disease

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<sup>6</sup> Scottish Ambulance Service (SAS) and Scottish National Blood Transfusion Service adopt practices that differ from those stated in the National Infection Prevention and Control Manual.

spread wholly or partly by the airborne or droplet route and when carrying out aerosol generating procedures (AGPs) on patients with a known/suspected infectious agent spread wholly or partly by the airborne or droplet route.

**For a list of organisms spread wholly or partly by the airborne (aerosol) or droplet routes see [Appendix 14](#).**

**All tight fitting RPE i.e FFP3 respirators must be:**

- Fit tested on all healthcare staff who may be required to wear a respirator to ensure an adequate seal/fit according to the manufacturers' guidance.
- Fit checked (according to the manufacturers' guidance) every time a respirator is donned to ensure an adequate seal has been achieved.
- Compatible with other facial protection used i.e. protective eyewear so that this does not interfere with the seal of the respiratory protection. Regular corrective spectacles are not considered adequate eye protection.
- Donned and removed in a safe area (e.g. outside the isolation/cohort room/area).

Further information regarding fitting and fit checking of respirators can be found on the Health and Safety Executive website at: <http://www.hse.gov.uk/respiratory-protective-equipment/basics.htm>

Powered respirator hoods are an alternative to tight-fitting FFP3 respirators for example when fit testing cannot be achieved.

FFP3 respirator or powered respirator hood:

- may be considered for use by visitors if there has been no previous exposure to the infected person or infectious agent; **but**
- must never be worn by an infectious patient(s) due to the nature of the respirator filtration of incoming air not expelled air.

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## **2.5 Infection Prevention and Control during care of the deceased**

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The principles of SICPs and TBPs continue to apply whilst deceased individuals remain in the care environment. This is due to the ongoing risk of infectious transmission via contact although the risk is usually lower than for living patients.

Washing and/or dressing of the deceased should be avoided if the deceased is known or suspected to be harbouring invasive streptococcal infection, viral haemorrhagic fevers or other Group 4 infectious agents. See [Appendix 15. Key Infections from HSE Guidance "Controlling the risks of infection at work from Human Remains"](#).

Staff should advise relatives of the precautions following viewing and/or physical contact with the deceased and also when this should be avoided.

Deceased individuals known or suspected to be harbouring a Group 4 infectious agent should be placed in a sealed double plastic body bag with absorbent material placed between each bag. The surface of the outer bag should then be disinfected with 1000ppm av.cl before being placed in a robust sealed coffin.

Post mortem examination should not be performed on a deceased individual known or suspected to have Group 4 infectious agents. See [Appendix 15. Key Infections from HSE Guidance "Controlling the risks of infection at work from Human](#)

[Remains](#)". Blood sampling can be undertaken in the mortuary by a competent person to confirm or exclude this diagnosis. Refer to [Section 2.4](#) for suitable PPE.

## Glossary

**Abrasion** – A graze. A minor wound in which the surface of the skin or a mucous membrane has been worn away by rubbing or scraping.

**Aerosols** – See Airborne Particles.

**Aerosol Generating Procedures (AGPs)** – Certain medical and patient care activities that can result in the release of airborne particles (aerosols). AGPs can create a risk of airborne transmission of infections that are usually only spread by droplet transmission. See [Appendix 14, footnote 3](#) for further information.

**Airborne particles (aerosols)** – Very small particles that may contain infectious agents. They can remain in the air for long periods of time and can be carried over long distances by air currents. Airborne particles can be released when a person coughs or sneezes, and during aerosol generating procedures (AGPs).

**Airborne (aerosol) transmission** – The spread of infection from one person to another by airborne particles (aerosols) containing infectious agents.

**Alcohol based hand rub (ABHR)** – A gel, foam or liquid containing alcohol that is rubbed into the hands as an alternative to washing hands with soap and water.

**Alert organism** – An organism that is identified as being potentially significant for infection prevention and control practices. Examples of alert organisms include Methicillin Resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* (C.diff) and Group A *Streptococcus*. See Local Infection Surveillance of Alert Organisms and Alert Conditions <http://www.hps.scot.nhs.uk/haic/ic/guidelinedetail.aspx?id=42506>

**Alveolar** – Refers to the alveoli which are the small air sacs in the lungs. Alveoli are located at the ends of the air passageways in the lungs, and are the site at which gas exchange takes place.

**Antimicrobial** – An agent that kills microorganisms, or prevents them from growing. Antibiotics and disinfectants are antimicrobial agents.

**Antimicrobial hand wipes** – Hand wipes that are moistened with an antimicrobial solution/agent at a concentration sufficient to inactivate microorganisms and/or temporarily suppress their growth.

**Aseptic technique** – A healthcare procedure designed to minimise the risks of exposing the person being cared for to pathogenic micro-organisms during simple (e.g. dressing wounds) and complex care procedures (e.g. surgical procedures).

**Asymptomatic** – Not showing any symptoms of disease but where an infection may be present.

**Autoclave** – Machine used for sterilising re-usable equipment using superheated steam under pressure.

**Body fluids** – Fluid produced by the body such as urine, faeces, vomit or diarrhoea.

**Blood Borne Viruses (BBV)** – Viruses carried or transmitted by blood, for example Hepatitis B, Hepatitis C and HIV.

**Carbapenemase Producing Enterobacteriaceae (CPE)** - A group of bacteria that have become extremely resistant to antibiotics including those called carbapenems.

**Care areas/environment** – Any place where care is carried out. This includes hospital wards, treatment rooms, care homes and care at home.

**Care staff** – Any person who cares for patients, including healthcare support workers and nurses.

**Central Decontamination Unit (CDU)** – A large, centralised facility for the decontamination and re-processing of re-usable medical equipment e.g. surgical instruments.

**Central Vascular Catheter (CVC)** – An intravenous catheter that is inserted directly into a large vein in the neck, chest or groin to allow intravenous drugs and fluids to be given and to allow blood monitoring.

**Chlorine** – A chemical that is used for disinfecting, fumigating and bleaching.

**Cleaning** – The removal of any dirt, blood, sickness, etc by use of an appropriate cleaning agent such as detergent.

**Clinical setting** – Any area where a patient is observed or treatment is carried out such as a treatment room or hospital ward.

**Clinical wash hand basin** – A sink designated for hand washing in clinical areas.

***Clostridium difficile (C.diff)*** – An infectious agent (bacterium) that can cause mild to severe diarrhoea which in some cases can lead to gastro-intestinal complications and death.

**Cohorting** – Placing a group of two or more patients (a cohort) with the same confirmed infection in the same room or area.

**Cohort area** – A bay or ward in which two or more patients (cohort) with the same confirmed infection are placed. A cohort area should be physically separate from other patients.

**Cohort nursing** – A dedicated team of healthcare staff who care for a cohort of patients, and do not care for any other patients.

**Colonisation** – The presence of bacteria on a body surface (such as the skin, mouth, intestines or airway) that does not cause disease in the person or signs of infection.

**Conjunctivae** – Mucous membranes that cover the front of the eyes and the inside of the eyelids.

**Contact transmission** – The spread of infectious agents from one person to another by contact. When spread occurs through skin-to-skin contact, this is called direct contact

transmission. When spread occurs via a contaminated object, this is called indirect contact transmission.

**Contaminated** – Dirty, soiled or stained.

**Cross-infection/Cross-transmission** – Spread of infection from one person to another.

**Decontamination** – Removing, or killing pathogens on an item or surface to make it safe for handling, re-use or disposal by cleaning, disinfection and/or sterilisation.

**Detergent** – A chemical cleansing agent that can dissolve oils and remove dirt.

**Diarrhoea** – 3 or more loose or liquid bowel movements in 24 hours or more often than is normal for the individual.

**Direct contact transmission** – Spread of infectious agents from one person to another by direct skin-to-skin contact.

**Disinfectant** – A cleaning chemical used to remove infectious agents from objects and surfaces.

**Disinfection** – A process, for example using a chemical disinfectant, to reduce the number of infectious agents from an object or surface to a level that means they are not harmful to your health.

**Domestic waste** – Waste produced in the care setting that is similar to waste produced in the home.

**Droplet** – A small drop of moisture, larger than airborne particle, that may contain infectious agents. Droplets can be released when a person talks, coughs or sneezes, and during some medical or patient care procedures such as open suctioning and cough induction by chest physiotherapy. It is thought that droplets can travel around 1 metre (3 feet).

**Droplet transmission** – The spread of infection from one person to another by droplets containing infectious agents.

**Emollient** – An agent used to soothe the skin and make it soft and supple.

**En-suite** – A room containing a sink and toilet and sometimes a shower/wetroom or bath.

**Excretions** – Waste products produced by the body such as urine and faeces (bowel movements).

**Exposure** – The condition of being exposed to something that may have a harmful effect such as an infectious agent.

**Exposure Prone Procedures (EPPs)** – Certain medical and patient care procedures where there is a risk that injury to the healthcare worker may result in exposure of the patient's open tissues to the healthcare worker's blood e.g. the healthcare worker's



gloved hands are in contact with sharp instruments, needle tips or sharp tissues inside a patient's body.

**Fit testing** – a method of checking that a tight-fitting facepiece respirator fits the wearer and seals adequately to their face. This process helps identify unsuitable facepieces that should not be used

**FFP3** – Respiratory protection that is worn over the nose and mouth designed to protect the wearer from inhaling hazardous substances, including airborne particles (aerosols). FFP stands for filtering facepiece. There are three categories of FFP respirator: FFP1, FFP2 and FFP3. An FFP3 respirator or hood provides the highest level of protection, and is the only category of respirator legislated for use in UK healthcare settings.

**Fluid repellent** – Does not absorb liquid.

**GP** – 'General practitioner' (your family doctor).

**Hand Hygiene** – The process of cleaning your hands by using either alcohol based hand rub or liquid soap and water.

**Health Protection Team (HPT)** – A team of healthcare professionals whose role it is to protect the health of the local population and limit the risk of them becoming exposed to infection and environmental dangers. Every NHS board has a HPT.

**Healthcare Associated Infection (HAI)** – Infections that occur as a result of medical care, or treatment, in any healthcare setting.

**Healthcare Waste** – Waste produced as a result of healthcare activities for example soiled dressings, sharps.

**Hygiene Waste** – Waste that is produced from personal care. In care settings this includes feminine hygiene products, incontinence products and nappies, catheter and stoma bags. Hygiene waste may cause offence due to the presence of recognisable healthcare waste items or body fluids. It is usually assumed that hygiene waste is not hazardous or infectious.

**Hypochlorite** – A chlorine-based disinfectant such as bleach.

**Immunisation** – To provide immunity to a disease by giving a vaccination.

**Immunocompromised patient/individual** – Any person whose immune response is reduced or deficient, usually because they have a disease or are undergoing treatment. People who are immunocompromised are more vulnerable to infection.

**Impervious** – Cannot be penetrated by liquid.

**Indirect contact transmission** – The spread of infectious agents from one person to another via a contaminated object.

**Infection** – Invasion of the body by a harmful organism or infectious agent such as a virus, parasite or bacterium.

**Infectious agent** – Any organism, such as a virus, parasite, or bacterium, that is capable of invading body tissues, multiplying, and causing disease

**Invasive device** – A device which penetrates the body, either through a body cavity or through the surface of the body. Central Venous Catheters (central line), Peripheral Arterial Lines and Urinary Catheters are examples of invasive devices.

**Invasive procedure** – A medical/healthcare procedure that penetrates or breaks the skin or enters a body cavity.

**Isolation** – Physically separating patients to prevent the spread of infection.

**Isolation suite/room** – An isolation suite comprises a single-bed room, en-suite facilities and a ventilated entry lobby.

**Microorganism (microbe)** – Any living thing (organism) that is too small to be seen by the naked eye. Bacteria, viruses and some parasites are microorganisms.

**Mode of transmission** – The way that microorganisms spread from one person to another. The main modes or routes of transmission are airborne (aerosol) transmission, droplet transmission and contact transmission.

**MRSA** – Strains of the infectious agent (bacterium) *Staphylococcus aureus* that are resistant to many of the antibiotics commonly used to treat infections.

**Mucous membranes/mucosa** – The surfaces lining the cavities of the body that are exposed to the environment such as the lining of the mouth and nose.

**Needle safety device** – Any device designed to reduce the risk of injury from needles. This may include needle-free devices or mechanisms on a needle, such as an automated resheathing device, that cover the needle immediately after use.

**Nitrile** – A synthetic rubber material used to make non-latex gloves.

**Non-sterile procedure** – Care procedure that does not need to be undertaken in conditions that are free from bacteria or other microorganisms.

**Occupational exposure** – Exposure of healthcare workers or care staff to blood or body fluids in the course of their work.

**Organism** – Any living thing that can grow and reproduce, such as a plant, animal, fungus or bacterium.

**Outbreak** – When there are two or more linked cases of the same confirmed infection or illness or when there are more cases than the number expected.

**Pathogen** – Any disease-producing infectious agent.

**Percutaneous injury** – An injury caused by a sharp instrument or object such as a needle or scalpel, cutting or puncturing the skin.

**Personal Protective Equipment (PPE)** – Equipment a person wears to protect themselves from risks to their health or safety, including exposure to infections e.g. disposable gloves and disposable aprons.

**Pyrexia** – Fever. Rise in body temperature above the normal level  $>37.2^{\circ}$ .

**Respiratory droplets** – A small droplet, such as a particle of moisture released from the mouth during coughing, sneezing, or speaking.

**Respiratory Protective Equipment (RPE)** – There are two main types of RPE: respirators and breathing apparatus. Respirators are devices worn over the nose and mouth or head and are designed to filter the air breathed in to protect the wearer from inhaling hazardous substances, including airborne particles (aerosols). Breathing apparatus provides a supply of breathing quality air from an external source such as a cylinder or an air compressor. The most commonly used item of RPE in healthcare settings is an FFP3 respirator.

**Re-sheath** – To put a needle or other sharp object back into its plastic sheath.

**Sanitary fittings** – Pieces of furniture that are in a bathroom, such as a toilet, bath etc.

**Secretions** – Any body fluid that is produced by a cell or gland such as saliva or mucus.

**Segregated** – Physically separating or isolating from other people.

**Sharps** – Sharp instruments used in healthcare settings such as needles, lancets and scalpels.

**Sharps injury** – See **percutaneous injury**.

**Spore** – A form that some types of bacteria take under certain environmental conditions. Spores can survive for long periods of time and are very resistant to heat, drying and chemicals.

**Sterile** – Free from live bacteria or other microorganisms.

**Sterile procedure** – Care procedure that is undertaken in conditions that are free from bacteria or other microorganisms.

**Sterilisation** – The procedure of making some object free of all germs, live bacteria or other microorganisms (usually by heat or chemical means).

**Surgical face mask** – A disposable fluid repellent mask worn over the nose and mouth to protect the mucous membranes of the wearer's nose and mouth from splashes and infectious droplets and also to protect patients.

**Swan-neck** – Way of closing bag by tying in a loop and securing with a zip tie to make a handle.

**Terminal decontamination** – Cleaning/decontamination of an area or room following transfer/discharge of patient or when they are no longer considered infectious to ensure

the area safe for the next patient or for the person to go back into their room in a care home setting.

**Vascular access devices** – Any medical instrument used to access a patient's veins or arteries such as a Central Venous Catheter or peripheral vascular catheter.

## **Appendices**

[Appendix 1 – How to hand wash step by step images](#)

[Appendix 2 – How to hand rub step by step images](#)

[Appendix 3 – Surgical Scrubbing: surgical hand preparation technique using antimicrobial soap – step by step images](#)

[Appendix 4 – Surgical rubbing: surgical hand preparation technique using alcohol based hand rub \(ABHR\) – step by step images](#)

[Appendix 5 – Glove use and selection](#)

[Appendix 6 – Putting on and removing PPE](#)

[Appendix 7 – Decontamination of reusable non-invasive patient care equipment](#)

[Appendix 8 – Decontamination status certificate](#)

[Appendix 9 – Procuring, trialling or lending any reusable non-invasive patient care equipment](#)

[Appendix 10 – Management of linen at care level](#)

[Appendix 11 – Management of blood and body fluid spillages](#)

[Appendix 12 – Management of waste at care area level](#)

[Appendix 13 – Management of occupational exposure incidents](#)

[Appendix 14 – List of infectious agents and/or diseases that require Transmission Based Precautions \(TBPs\) in addition to SICPs](#)

[Appendix 15 –Key Infections from HSE Guidance “Controlling the risks of infection at work from Human Remains.](#)

## Appendix 1 – How to hand wash step by step images

**Steps 3 – 8 should take at least 15 seconds**

Source: World Health Organisation



Adapted from the World Health Organization



**Germs. Wash your hands of them.**

## Appendix 2 – How to hand rub step by step images

# How to handrub?

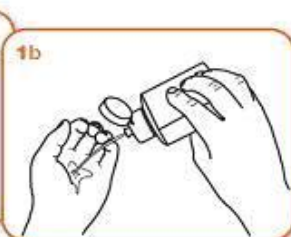
**RUB HANDS FOR HAND HYGIENE! WASH HANDS ONLY WHEN VISIBLY SOILED!**



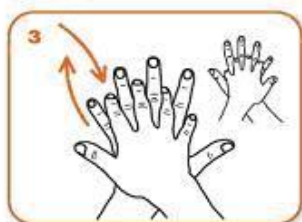
Duration of the entire procedure: **20-30 sec.**



Apply a palmful of the product in a cupped hand and cover all surfaces.



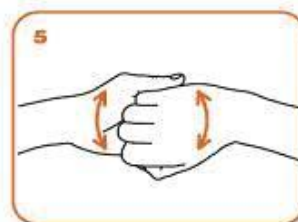
Rub hands palm to palm



right palm over left dorsum with interlaced 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



...once dry, your hands are safe.

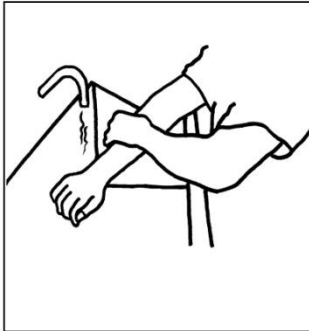


Adapted from the World Health Organization

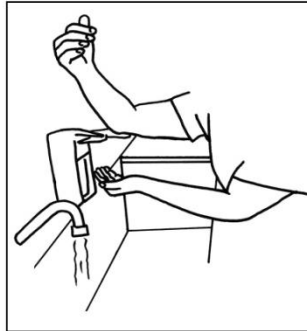


**Germs. Wash your hands of them.**

## Appendix 3 – Surgical Scrubbing: surgical hand preparation technique using antimicrobial soap - step by step images



1. Wet hand and forearms.



2. Put antimicrobial liquid soap onto the palm of each hand using the elbow of your other arm to operate the dispenser.

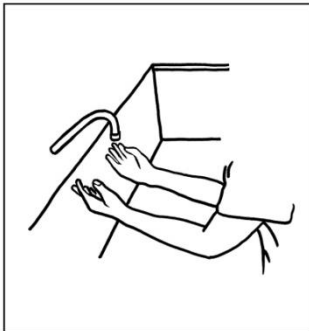


3. Scrub each side of each finger, between the fingers and the back and front of each hand for 2 minutes in total.

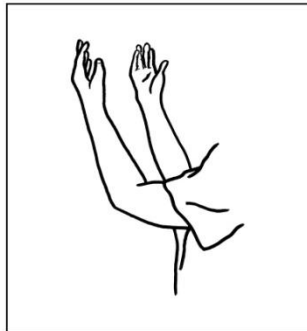


4. Put antimicrobial liquid soap onto the palm of your left hand using the elbow of your other arm to operate the dispenser. Use this to scrub the right arm for 1 minute keeping the hand higher than the arm at all times to prevent recontamination of the hands by water.

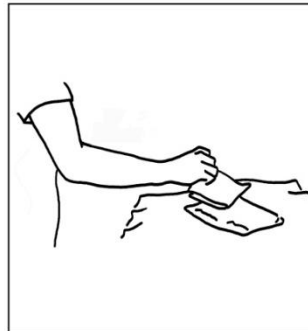
5. Repeat the process for the other arm keeping hands above elbows at all times.  
If the hand touches anything at any time, the scrub must be lengthened by 1 minute for the area that has been contaminated.



6. Rinse hands and arms by passing them through the water in one direction only, from fingertips to elbow. Do not move the arm back and forth through the water.



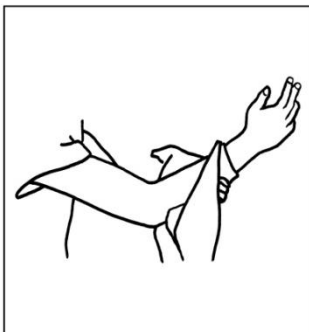
7. Hold hands above elbows.



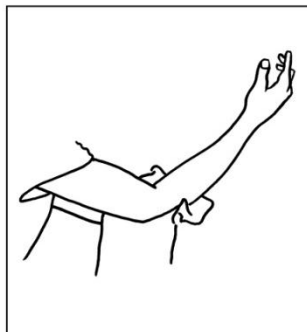
8. Hands and arms should be dried using a sterile disposable towel and aseptic technique before donning sterile gown and gloves.



9. The skin should be blotted dry with sterile disposable towels. Using one towel per hand work from fingertips to elbows.



10. Hands are dried firstly by placing the opposite hand behind the towel and blotting the skin – then using a corkscrew movement to dry from the hand to the elbow.










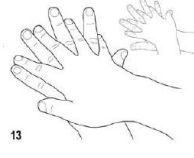
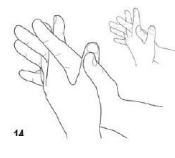

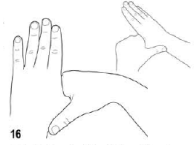



11. The towel must not be returned to the hand once the arm has been dried and must be discarded immediately.

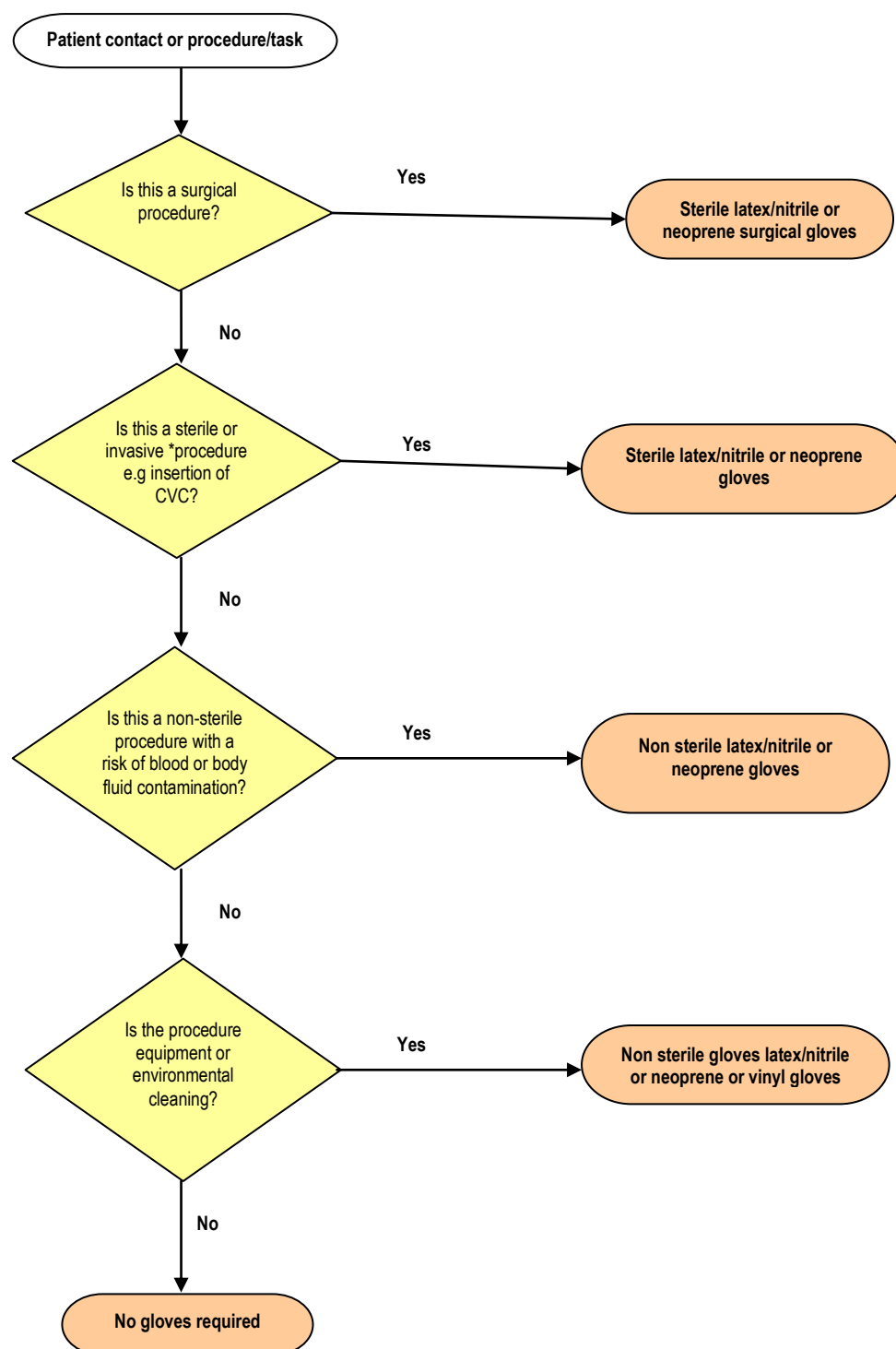


## Appendix 4 - Surgical rubbing: surgical hand preparation technique using alcohol based hand rub (ABHR) - step by step images

- The hand rubbing technique for surgical hand preparation must be performed on clean, dry hands.
- On arrival in the operating theatre and after having donned theatre clothing (cap/hat/bonnet and mask), hands must be washed with soap and water.
- After the operation when removing gloves, hands must be rubbed with an alcohol-based formulation or washed with soap and water if any residual talc or biological fluids are present (e.g. the glove is punctured).
- Surgical procedures may be carried out one after the other without the need for hand washing, provided that the hand rubbing technique for surgical hand preparation is followed (Images 1 to 14)

<p>1.</p> 	<p>2.</p> 	<p>3.</p> 
<p>Put approximately 5ml (3 doses) of alcohol-based hand rub in the palm of your left hand, using the elbow of your other arm to operate the dispenser.</p>	<p>Dip the fingertips of your right hand in the hand rub to decontaminate under the nails (5 seconds).</p>	<p>3. Images 3 – 7. Smear the hand rub on the right forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the hand rub has fully evaporated (10-15 seconds). Repeat for opposite hand and arm.</p>
<p>4.</p> 	<p>5.</p> 	<p>6.</p> 
<p>7.</p> 	<p>8.</p> 	<p>9.</p> 
<p>10.</p> 	<p>Put approximately 5ml (3 doses) of alcohol-based handrub in the palm of your left hand, using the elbow of your other arm to operate the distributor. Rub both hands in the same time up to the wrists, and ensure that all the steps presented in images 9 – 14 are followed. Repeat for opposite hand and arm.</p>	<p>Cover the whole surface of the hands up to the wrist with alcohol-based hand rub, rubbing palm against palm with a rotating movement.</p>
<p>11.</p> 	<p>12.</p> 	<p>13.</p> 
<p>Rub the back of the hands up to the wrist with alcohol-based handrub, rubbing palm against palm with a rotating movement.</p>	<p>Rub the back of the left hand, including the wrist, moving the right palm back and forth and vice-versa.</p>	<p>Rub palm against palm back and forth with fingers interlinked.</p>
<p>14.</p> 	<p>When the hands are dry, sterile surgical clothing and gloves can be donned.</p>	<p>Adapted from World Health Organization</p>

## Appendix 5 – Glove use and selection



\* sterile gloves are not required e.g for insertion of a PVC or obtaining blood cultures or when a safety device/technique is used

## Appendix 6 – Putting on and removing PPE

**Use safe work practices to protect yourself and limit the spread of infection**

- Keep hands away from face and PPE being worn
- Limit surfaces touched in the patient environment
- Change gloves when torn or heavily contaminated
- Regularly perform hand hygiene
- Always clean hands after removing gloves

NB Masks and goggles are not routinely recommended for contact precautions. Consider the use of these under standard infection control precautions or if there are other routes of transmission.


The type of PPE used will vary based on the type of exposure anticipated, and not all items of PPE will be required. The order for putting on PPE is Apron or Gown, Surgical Mask, Eye Protection (where required) and Gloves. The order for removing PPE is Gloves, Apron or Gown, Eye Protection, Surgical Mask.

### 1. Putting on Personal Protective Equipment (PPE)

- Perform hand hygiene before putting on PPE

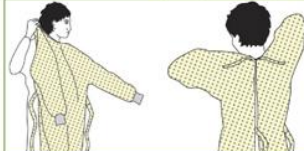
**Apron**

- Pull over head and fasten at back of waist




**Gown/Fluid repellent coverall**

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




**Surgical Mask (or respirator)**

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit/check respirator if being worn




**Eye Protection (Goggles/Face Shield)**

- Place over face and eyes and adjust to fit



**Gloves**

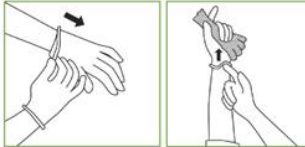
- Select according to hand size
- Extend to cover wrist



### 2. Removing Personal Protective Equipment (PPE)


**Gloves**

- Outside of gloves are contaminated
- Grasp the outside of the glove with the opposite gloved hand; peel off
- Hold the removed glove in the gloved hand
- Slide the fingers of the ungloved hand under the remaining glove at the wrist
- Peel the second glove off over the first glove
- Discard into an appropriate lined waste bin




**Apron**

- Apron front is contaminated
- Unfasten or break ties
- Pull apron away from neck and shoulders touching inside only
- Fold or roll into a bundle
- Discard into an appropriate lined waste bin




**Gown/Fluid repellent coverall**

- Gown/Fluid repellent coverall front and sleeves are contaminated
- Unfasten neck, then waist ties
- Remove using a peeling motion; pull gown/coverall from each shoulder toward the same hand
- Gown/Fluid repellent coverall will turn inside out
- Hold removed gown/coverall away from body, roll into a bundle and discard into an appropriate lined waste bin or linen receptacle



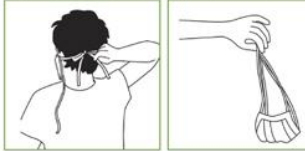
**Eye Protection (Goggles/Face Shield)**

- Outside of goggles or face shield are contaminated
- Handle only by the headband or the sides
- Discard into a lined waste bin or place into a designated receptacle for reprocessing/decontamination



**Surgical Mask (or respirator)**

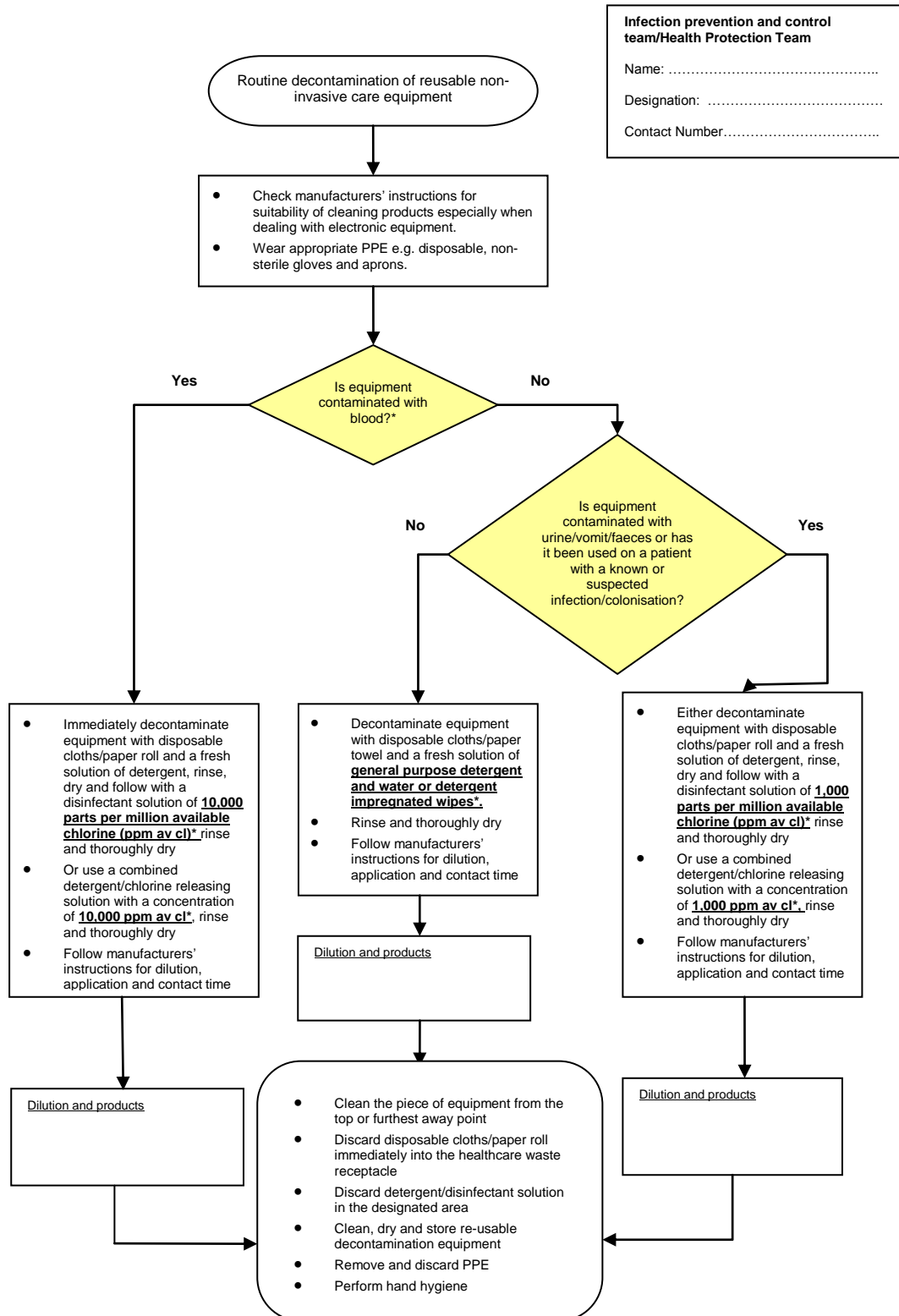
- Front of mask/respirator is contaminated – do not touch
- Unfasten the ties – first the bottom, then the top
- Pull away from the face without touching front of mask/respirator
- Discard disposable items into an appropriate lined waste bin
- For reusable respirator place in designated receptacle for reprocessing/decontamination



Perform hand hygiene immediately on removal. All PPE should be removed before leaving the area and disposed of as healthcare waste

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## Appendix 7 - Decontamination of reusable non-invasive care equipment



\* Scottish National Blood Transfusion Service and Scottish Ambulance Service use products that differ from those stated in the National Infection Prevention and Control Manual,

## **Appendix 8 - Decontamination status certificate**

[Local Equipment Decontamination Status Certificate](#)

[Mattresses and cushions](#)

[Phase III dynamic air mattresses](#)

Further information can be found at <http://www.hfs.scot.nhs.uk/services/incident-reporting-and-investigation-centre-iric/how-to-report-adverse-incidents/>

## **Appendix 9 – Procuring, trialling or lending any reusable non-invasive care equipment**

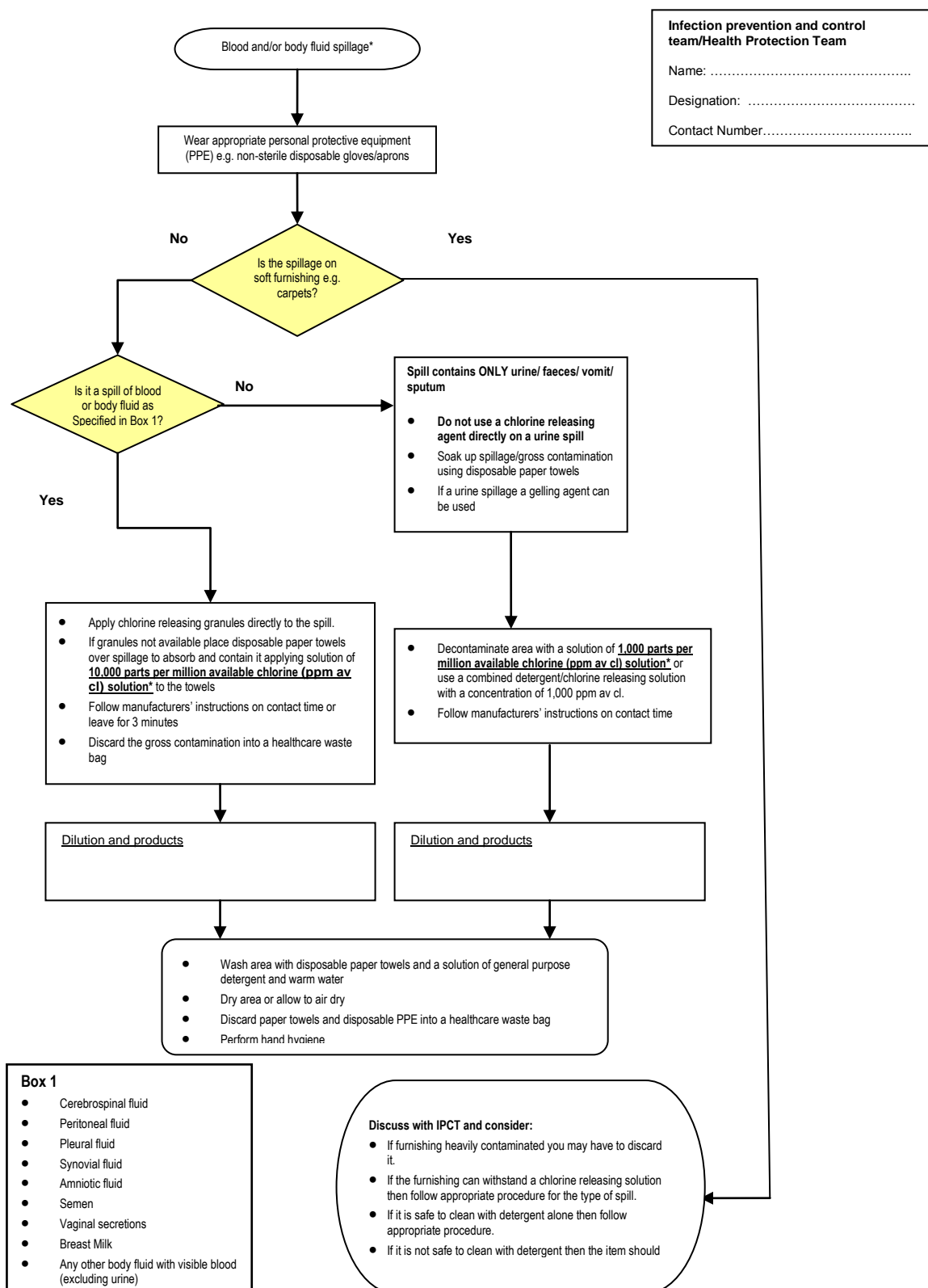
[Master Indemnity Agreement for Suppliers](#)

## **Appendix 10 – Management of linen at care area level**

[NHS Borders Used Linen Supporting Information](#)

[Hamper coding for Used Linen](#)

## Appendix 11 – Management of blood and body fluid spillages



\* Scottish National Blood Transfusion Service and Scottish Ambulance Service use products that differ from those stated in the National Infection Prevention and Control Manual

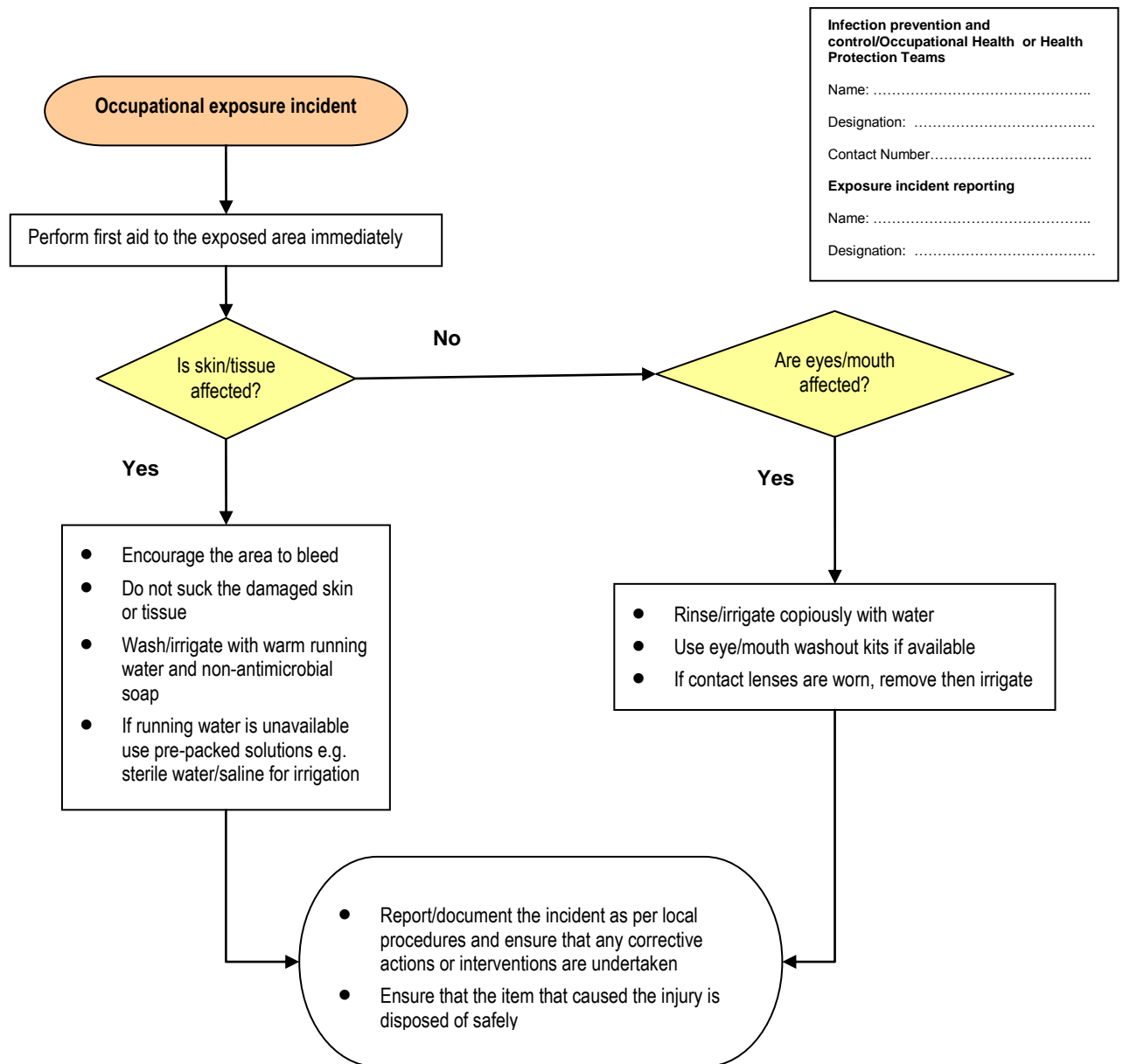


## **Appendix 12 – Management of waste at care area level**

BGH [Waste Segregation](#)

Community and other [Waste Segregation](#)

## Appendix 13 – Management of occupational exposure incidents



## **Appendix 14 – List of infectious agents and/or diseases that require Transmission Based Precautions (TBPs) in addition to SICPs.**

The following table outlines:

1. Main route of transmission for a number of infectious agents/diseases;
2. Optimal patient placement whilst the patient is considered infectious; and
3. The appropriate RPE to minimise risk of infection to staff, patients and visitors. Clinical decisions made by staff regarding use/non-use of RPE will depend on a risk assessment which should include e.g. the risk of infection acquisition and the severity of the illness caused.

The clinical judgement and expertise of the Infection Prevention and Control Team or the Health Protection Team should be sought for novel, unusual or an increase in cases of known or suspected infectious agents in any care setting.

Pathogen	Disease	Main route of transmission	Notifiable ( <a href="#">see footnote 4</a> )	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
Adenovirus ( <a href="#">see footnote 1</a> )	Upper +/- lower respiratory tract infection	Droplet		✓		✓	✓
	Conjunctivitis	Contact		✓		✓	
<i>Bordetella pertussis</i>	Pertussis/Whooping Cough	Droplet	✓	✓		✓	✓
<i>Chlamydia pneumoniae</i>	Pneumonia	Droplet		✓		✓	✓
<i>Clostridium difficile</i>	<i>Clostridium difficile</i> infection (CDI)	Contact	✓	✓		✓	
Coronavirus ( <a href="#">see footnote 1 and 5</a> )	Acute respiratory syndrome (Non-SARSCoV)	Droplet		✓		✓	✓
<i>Corynebacterium diphtheriae</i>	Diphtheria – Cutaneous	Contact	✓	✓		✓	

Pathogen	Disease	Main route of transmission	Notifiable (see footnote 4)	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
<i>Corynebacterium ulcerans</i>	Diphtheria – Pharyngeal toxigenic strains	Droplet	✓	✓		✓	✓
Gastrointestinal infections e.g salmonella		Contact	✓ (some GI Infections are notifiable. Refer to guidance)	✓		✓	
<i>Haemophilus influenzae</i> type b	• Epiglottitis	Droplet		✓		✓ and until patient has received 24 hours of appropriate antibiotics	✓
	• Meningitis	Droplet	✓	✓			
Herpes zoster (varicella-zoster) (see footnote 2)	Shingles (vesicle fluid)	Contact		✓ If lesions cannot be covered		✓	
	Shingles (lesions in the respiratory tract)	Droplet / airborne			✓	✓	✓

Pathogen	Disease	Main route of transmission	Notifiable (see footnote 4)	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
Influenza virus (Endemic strains) (see footnote 5)	Influenza	Droplet	✓	✓		✓	✓
Measles virus (see footnote 2)	Measles (rubeola)	Droplet/airborne	✓		✓	✓	✓
Mumps virus (see footnote 2)	Mumps (infectious parotitis)	Droplet	✓	✓		✓	✓
<i>Mycobacterium tuberculosis</i>	Extrapulmonary Tuberculosis	Contact	✓	✓		✓	✓
	Pulmonary or laryngeal disease Tuberculosis	Airborne	✓		<ul style="list-style-type: none"> <li>Until patient has received 14 days of appropriate antibiotics</li> <li>If the patient has MDR or XDR TB</li> </ul>	✓	✓ and always if the patient has MDR or XDR TB

Pathogen	Disease	Main route of transmission	Notifiable (see footnote 4)	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
<i>Mycoplasma pneumoniae</i>	Pneumonia	Droplet		✓		✓	✓
<i>Neisseria meningitidis</i>	Meningitis – meningococcal (Or presentation of clinical meningitis of unknown origin)	Droplet	✓	✓		✓ and until patient has received 24 hours of appropriate antibiotics	✓
Norovirus		Contact/Droplet	✓	✓		✓	
Parainfluenza virus (see footnote 1)	Upper +/- lower respiratory tract infection	Droplet		✓		✓	✓
Parvovirus B19 – (Erythema infectiosum – Erythrovirus B19)	Slapped cheek syndrome	Droplet		Not required if the rash+/- arthralgia has developed		✓	Not required if the rash+/- arthralgia has developed

Pathogen	Disease	Main route of transmission	Notifiable (see footnote 4)	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
Respiratory syncytial virus (RSV) (see footnote 1)	Upper +/- lower respiratory tract infection	Droplet		✓		✓	✓
Rhinovirus (see footnote 1)	Upper +/- lower respiratory tract infection	Droplet		✓		✓	✓
Rotavirus	Gastroenteritis	Droplet / contact		✓		✓	
Rubella virus (see footnote 2)	German Measles	Droplet	✓	✓		✓	✓
<i>Staphylococcus aureus</i> (Enterotoxigenic)	Scalded skin syndrome	Contact	✓	✓ If lesions cannot be covered		✓	
Methicillin resistant <i>Staphylococcus aureus</i> (MRSA)	Infection	Contact	✓	✓		✓	



Pathogen	Disease	Main route of transmission	Notifiable (see footnote 4)	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
	Colonisation (either swab positive or positive as per <a href="#">clinical risk assessment criteria</a> )						
<i>Streptococcus pyogenes</i> (Group A Strep)	Respiratory	Droplet		✓		✓	✓
	Bacteraemia, meningitis, wound i.e. blood, cerebrospinal fluid or other normally sterile site	Contact	✓	✓		✓	
<i>Streptococcus pneumoniae</i>	<ul style="list-style-type: none"> <li>Pneumonia</li> <li>Meningitis</li> </ul>	Droplet	✓	✓		✓	✓
	Bacteraemia, meningitis, wound i.e. blood, cerebrospinal fluid or other normally sterile site	Contact	✓ (presence in the wound is not notifiable)	✓		✓	
Varicella virus (see footnote 2)	Chickenpox	Droplet/airborne	✓		✓	✓	✓

Pathogen	Disease	Main route of transmission	Notifiable (see footnote 4)	Optimal placement whilst patient is considered infectious		Respiratory and facial protection (RPE) for healthcare workers whilst patient is considered infectious	
				Single en-suite room	Isolation room	Surgical Facemask (If there is a risk of splashing or spraying of blood / body fluids from patient contact or procedure)	FFP3 respirator or Hood for AGPs
Viral Haemorrhagic Fever (VHF)	See <a href="http://www.hps.scot.nhs.uk/travel/viralhaemorrhagicfever.aspx?subjectid=00C">http://www.hps.scot.nhs.uk/travel/viralhaemorrhagicfever.aspx?subjectid=00C</a>						

#### Footnote 1

In routine clinical practice healthcare workers do not commonly wear masks when dealing with patients presenting with the “common cold” or “influenza – like illness”. However, in a patient with undiagnosed respiratory illness where coughing and sneezing are significant features, or in the context of known widespread respiratory virus activity in the community or a suspected or confirmed outbreak of a respiratory illness in a closed or semi closed setting, the need for appropriate respiratory and facial protection to be worn should be considered.

#### Footnote 2

In relation to childhood illnesses and use of masks, no vaccine offers 100% protection and a small proportion of individuals acquire/become infected despite vaccination. PPE i.e. facial/respiratory protection should be used as a means of protecting from the risks that remain. For those staff who are unaware of their IgG immunity or vaccination history a FFP3 respirator must be worn at all times during contact with the patient.

#### Footnote 3

Aerosol Generating Procedures (AGPs) can produce droplets <5 microns in size which may cause infection if they are inhaled. These small droplets, containing pathogens, can remain in the air, travel over a distance and still be infectious. AGPs procedures should only be carried out when essential. Where possible, these procedures should be carried out in well-ventilated single rooms with the doors shut. Only those healthcare workers who are needed to undertake the procedure should be present.

Aerosol Generating Procedures (AGPs) are defined as:

- Intubation, extubation and related procedures, for example manual ventilation and open suctioning.
- Cardiopulmonary resuscitation.
- Bronchoscopy.
- Surgery and post mortem procedures in which high-speed devices are used.
- Some Dental procedures (e.g drilling)
- Non Invasive Ventilation (NIV) e.g. Bilevel Positive Airway Pressure Ventilation (BiPAP) and Continuous Positive Airway Pressure Ventilation (CPAP).

- High Frequency Oscillatory Ventilation (HFOV).
- Induction of sputum.

### **Footnote 4**

A list of notifiable diseases and organisms can be found in the Public Health etc. (Scotland) Act 2008. Schedule 1 <http://www.legislation.gov.uk/asp/2008/5/contents>

### **Footnote 5**

Additional guidance should be followed for known/suspected cases of novel influenza viruses, including avian influenza, MERS CoV.

## Appendix 15 – Key Infections from HSE Guidance “Controlling the risks of infection at work from Human Remains”.

<i>Infection</i>	<i>Causative agent</i>	<i>Is a body bag needed?</i>	<i>Can the body be viewed?</i>	<i>Can hygienic preparation* be carried out?</i>	<i>Can embalming be carried out?</i>
<b>Intestinal infections:</b> Transmitted by hand-to-mouth contact with faecal material or faecally contaminated objects					
Dysentery (bacillary)	Bacterium – <i>Shigella dysenteriae</i>	Advised	Yes	Yes	Yes
Hepatitis A	Hepatitis A virus	No	Yes	Yes	Yes
Typhoid/ paratyphoid fever	Bacterium – <i>Salmonella typhi/ paratyphi</i>	Advised	Yes	Yes	Yes
<b>Blood-borne infections:</b> Transmitted by contact with blood (and other body fluids which may be contaminated with blood) via a skin-penetrating injury or via broken skin. Through splashes of blood (and other body fluids which may be contaminated with blood) to eyes, nose and mouth					
HIV	Human immunodeficiency virus	Yes	Yes	Yes	No
Hepatitis B and C	Hepatitis B and C viruses	Yes	Yes	Yes	No
<b>Respiratory infections:</b> Transmitted by breathing in infectious respiratory discharges					
Tuberculosis	Bacterium – <i>Mycobacterium tuberculosis</i>	Advised	Yes	Yes	Yes
Meningococcal meningitis (with or without septicaemia)	Bacteria – <i>Neisseria meningitidis</i>	No	Yes	Yes	Yes
Non-meningococcal meningitis	Various bacteria including <i>Haemophilus influenza</i> and also viruses	No	Yes	Yes	Yes
Diphtheria	Bacteria – <i>Corynebacterium diphtheria</i>	Advised	Yes	Yes	Yes
<b>Contact:</b> Transmitted by direct skin contact or contact with contaminated objects					
Invasive Streptococcal infection	Bacterium – <i>Streptococcus pyogenes</i> (Group A)	Yes	Yes	No	No
MRSA	Bacterium – methicillin-resistant <i>Staphylococcus aureus</i>	No	Yes	Yes	Yes
<b>Other infections</b>					
Viral haemorrhagic fevers (transmitted by contact with blood)	Various viruses, eg Lassa fever virus, Ebola virus	Yes	No	No	No
Transmissible spongiform encephalopathies (transmitted by puncture wounds, ‘sharps’ injuries or contamination of broken skin, by splashing of the mucous membranes)	Various prions, eg Creutzfeldt Jacob [sic] disease/variant CJD	Yes	Yes	Yes	No

\*“Hygienic preparation” refers to the washing and/or dressing of the deceased.