

INFECTION PREVENTION AND CONTROL POLICY AND PROCEDURES
Sussex Partnership NHS Foundation Trust (The Trust)

IPC9
INFECTION CONTROL PRINCIPLES, PRECAUTIONS AND PERSONAL
PROTECTIVE EQUIPMENT (PPE)

THE SPREAD OF INFECTION

The spread of infection requires three elements:

- a source of infecting organisms (bacteria, viruses, fungi)
- a susceptible host
- a route of transmission of the organism from one person / site to another

SOURCE

The source may be service users, staff or visitors and may include persons with obvious acute illness, or those who are asymptomatic or colonized by the infectious agent. Another source may be the service user's own microbial flora. Other potential sources are objects within the environment that have become contaminated, including health care equipment.

SUSCEPTIBLE HOST (THE INDIVIDUAL SERVICE USER, STAFF MEMBER, VISITOR)

It is important to remember that it is not only service users that may be susceptible to infection but also staff members and visitors to the facility.

An individual's resistance to pathogenic micro-organisms can vary greatly. Some individuals may be immune to or able to resist colonization by an infectious agent, others may simply be colonized and become asymptomatic carriers, whereas others will develop a clinical disease. Persons with underlying disease such as diabetes, lymphoma, leukaemia, etc. or treated with certain antimicrobial agents, corticosteroids, irradiation or immunosuppressive agents are particularly prone to infection. Extremes of age, chronic debilitating disease, shock, coma, traumatic injury or surgical procedures and the presence of invasive devices can also make an individual more susceptible to infection.

TRANSMISSION

Micro-organisms can be transmitted by a variety of routes and the same micro-organism may be transmitted by more than one route. For example the Varicella Zoster virus which causes chickenpox can spread via the airborne route as well as

by direct contact and gastro-intestinal infections e.g. norovirus can spread by both indirect contact (with contaminated equipment and surfaces e.g. commodes and horizontal surfaces) as well as via the airborne route where virus particles are propelled through the air (and inhaled) and then drop onto surfaces where they contaminate hands and are then ingested.

There are four main routes of transmission:

- contact
- droplet/airborne
- infected food and water
- vectors

CONTACT TRANSMISSION

The most important and frequent means of transmission of infection can be divided into two main subgroups:

- **Direct contact:** Involves direct physical transfer of the micro-organism from person to person e.g. sexually transmitted diseases or from one site to another in the same individual e.g. bowel flora contaminating the urinary tract
- **Indirect contact:** This is the most significant route of spread in healthcare and involves contact with a contaminated object such as bed linen, instruments, equipment, dressings, etc. It is also the route by which the hands of healthcare workers transmit micro-organisms during service user care

AIRBORNE/ DROPLET TRANSMISSION

- **Droplet transmission:** by large droplets during coughing, sneezing, talking and during procedures which may generate droplets such as suctioning. The droplets are propelled only a short distance through the air
- **Airborne transmission:** caused by dispersal of smaller micro-organisms, e.g. viruses, contaminated water particles or airborne dust particles containing the infectious agent. These organisms can be widely dispersed by air currents before being inhaled or deposited on the susceptible host; by aerosolisation of water particles which are then inhaled e.g. in shower heads and in the case of dust particles, by airborne spread onto horizontal surfaces, equipment, etc.

FOOD AND WATER TRANSMISSION

Infection can occur via contaminated food or water supplies. Organisms can be transmitted via the food chain e.g. salmonella in eggs or by inappropriate handling of contaminated raw food or inadequate cooking. Secondary spread (cross-infection) can then occur if surfaces are contaminated by food-stuff e.g. chopping board used

to cut contaminated poultry then used to chop salad vegetables. Additionally, infected food handlers can transfer micro-organisms on their hands to food.

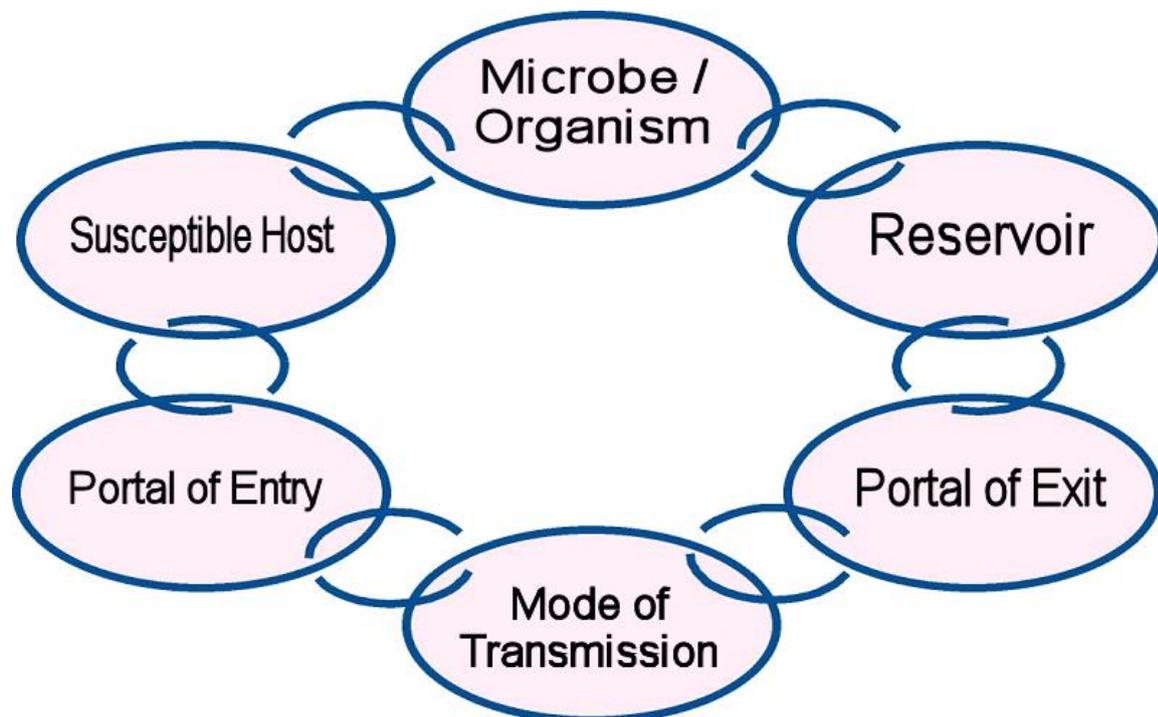
Water provides an ideal breeding ground for some micro-organisms, which can then be colonized if the water supply has not been appropriately treated. In the case of *Legionella pneumophila* the bacteria forms a biofilm in pipes / shower-heads etc. and can then be dispersed in water particles and inhaled.

VECTOR BORNE TRANSMISSION

This occurs when vectors such as flies, mosquitoes, rats and other pests transmit infection. This route of transmission is rare in healthcare in the UK although it is a route of spread requiring containment in food preparation areas.

Breaking the chain of infection

The spread of micro-organisms from their source to a susceptible host is frequently referred to as the chain of infection.



The principles of infection control relate to the implementation of a series of basic control measures whose aim is to break the links in the chain thus reducing the likelihood of spread. These control measures are referred to as standard infection control precautions.

In the prevention of spread via the **direct or indirect contact** route, the following measures apply:

- effective hand hygiene is the single most important measure in the prevention of the spread of infection

- health care staff should wear suitable gloves and other protective clothing whenever there is any possibility of direct contact with infected blood, body fluids or contaminated material
- strict adherence to the principles of aseptic technique will minimise the likelihood of contamination during the insertion and management of invasive devices and other clinical procedures such as wound care
- effective environmental cleaning and good housekeeping techniques together with appropriate cleaning, disinfection and sterilization of medical equipment
- appropriate segregation and disposal of healthcare waste and contaminated laundry

In the prevention of infection by **food and water** the following additional measures are important:

- provision of adequate hand washing facilities, especially when handling or preparing food
- strict adherence to food hygiene regulations
- healthcare environments are subject to strict controls to minimise the risk of *Legionella pneumophila*
- food handlers suffering from septic conditions of the skin or gastro-intestinal infections **MUST** be excluded from work until proven to be microbiologically free from infection

In the prevention of spread of infection by the **airborne** route the following additional measures are important:

- adequate un-crowded housing
- Segregation of infected service users to minimise the risk of cross-infection. This is usually achieved by either physical segregation in a single room or by measures such as keeping affected service users together (cohort nursing)
- vaccination/ immunisation programmes where appropriate

In the prevention of infection by **vectors** the following additional measures are important:

- Whilst most people readily associate rats and mice with risks to health, the part played by cockroaches, flies and other insects is not always appreciated. They have been implicated in the transmission of infection in food stores and food preparation areas as well as in medical supplies and in the home. Vigilance for signs of vector infestations is needed and measures such as covering foods and keeping food surfaces and floors clean is also important.

STANDARD INFECTION CONTROL PRECAUTIONS

INTRODUCTION

The guidance contained within the following procedures is subject to change and review and is intended to direct the reader to relevant sources of appropriate advice. Staff should not hesitate to contact their relevant infection control team or infection control lead for advice on any aspect of infection control at any time – contact numbers are available in Appendix 1.

AIM

To ensure that all staff practice standard infection control precautions to reduce the potential risk of transmission of infection to another person or to another site on the same person.

BACKGROUND

In relation to the general population but in particular in a hospital setting or rehabilitation facility there is often no way of knowing which of the service users are infected. It is essential that Standard Infection Control Precautions (SICPs) are used for all service users on every contact.

SICPs, often referred to as ‘universal or standard precautions’, are a single set of activities used by **all** staff for **all** service users at **all** times, in order to reduce the transmission of micro-organisms from both recognised and unrecognised sources of infection.

In many instances, pathogenic (disease-producing) organisms have already spread prior to the confirmation of a diagnosis. Furthermore, pathogenic organisms are frequently carried by individuals in their blood or body fluids or on the skin without signs of clinical infection – known as “colonisation”. Therefore, it is important to institute appropriate precautions at all times, for all service users, rather than wait for confirmation of a diagnosis when it may be too late to prevent the spread of infection.

SICPs apply to the care of all service users regardless of diagnosis or presumed infection status, where there is possible contact with:

- blood
- all other body fluids
- secretions and excretions except sweat
- non-intact skin
- mucous membranes (conjunctivae, mouth, nose, vagina, rectum)

These precautions include:

- effective hand hygiene
- wearing appropriate protective clothing
- safe disposal of sharps and other healthcare waste
- safe management of spillages
- prevention and treatment of sharps injuries
- adequate and appropriate decontamination of the healthcare environment and service user-related equipment
- protecting cuts and abrasions on staff skin with an impermeable dressing, e.g. plaster and ensuring appropriate immunisations are up-to-date by means of routine pre-employment screening

Guidance on implementation of specific SICPs is given throughout this document in the relevant sections.

ADDITIONAL PRECAUTIONS

Additional precautions may be required in certain circumstances and are used *in addition to* SICPs. For example service users with Pulmonary TB or Influenza may pose a risk of airborne transmission requiring respiratory precautions. Guidance on implementing additional precautions is given throughout the Trust's Infection Prevention and Control Policies and Procedures; for example:

- Clinical Waste – Handling And Disposal Policy And Procedure
- Medical Devices Management Policy
- Medicines Code
- Risk, Health and Safety Policy
- Incident Reporting Procedure
- Guidelines for treating infections and infestations in wards and in residential homes – antibiotic prescribing policy
- Antimicrobial Prescribing Guidelines
- Policy for the use of Oseltamivir for the post exposure prophylaxis of influenza for at risk patients.
- An organisation-wide policy for the development and management of procedural documents
- Essential Training Policy

- Policy and Procedure for the management, reporting, recording and investigation of incidents

APPENDIX 1

INFECTION PREVENTION AND CONTROL CONTACT NUMBERS

WEST SUSSEX INFECTION PREVENTION AND CONTROL TEAM

CONTACT

Contact: Jayne Bruce
Title: Deputy Director of Nursing – Operational DIPC
Telephone: 01903 845735
Mobile: 07738758201

or

Elaine Randall
Title: Physical Healthcare & Infection Control Nurse
Mobile: 07341 737 164

Or Email: PhysicalHealthInfectionControl@sussexpartnership.nhs.uk

BRIGHTON AND HOVE INFECTION PREVENTION AND CONTROL TEAM

CONTACT

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EAST SUSSEX INFECTION PREVENTION AND CONTROL TEAM

CONTACT

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HAMPSHIRE INFECTION PREVENTION AND CONTROL TEAM

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KENT INFECTION PREVENTION AND CONTROL TEAM

CONTACT

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PERSONAL PROTECTIVE EQUIPMENT (PPE)

INTRODUCTION

Personal protective equipment (PPE) is designed to protect the healthcare worker from coming into contact with potentially infectious body fluids. It may also protect the service user from the healthcare workers own microbial flora. Personal protective clothing includes:

- gloves
- water repellent aprons
- masks
- eye protection

Personal protective equipment is governed by Health and Safety Legislation including the Personal Protective Equipment Regulations 2002 and the Personal Protective Equipment Regulations at Work 1992 (as amended) and should only be used when risks cannot be averted by other work practices.

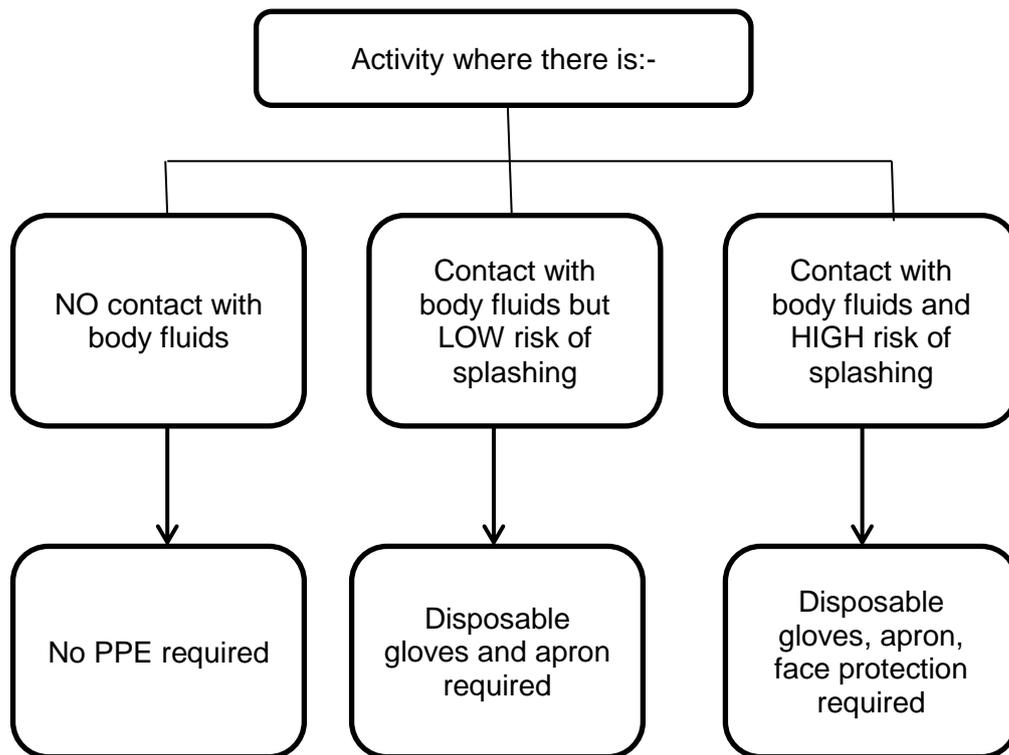
RISK ASSESSMENT FOR PPE

Risk assessment forms an integral part of Health and Safety Legislation. The choice of PPE selected depends on the activity and the anticipated risk of exposure to body fluids. Many activities pose no risk of exposure to body fluids therefore there will be no need for any PPE. An assessment of risk as to the likely degree of contact with blood and body fluids will ensure that the correct level of personal protective equipment is worn, see table overleaf and Appendix 1.

Risk assessments should consider:

- the potential risk of transmission of microorganisms to the service user or healthcare worker
- the potential risk of contamination to the healthcare workers skin or clothing by service users blood or body fluids
- the potential risk of splashing of the healthcare workers skin or clothing by chemicals
- the suitability of the personal protective equipment for the task being undertaken

ASSESS RISK OF ACTIVITY



DISPOSABLE GLOVES

Glove use has increased significantly over the last two decades mainly since the emergence of HIV and in response to the implementation of standard infection control precautions to protect both service users and staff from the potential transmission of blood-borne viruses. However, it must always be remembered that staff have a duty of care to protect their service users from risk as well as a responsibility to protect themselves. Gloves need to be changed between service users and also between tasks on the same service user to ensure that risk of transmission is reduced.

The use of latex-containing products including disposable gloves is the subject of on-going concern in relation to latex sensitisation/allergy. All healthcare providers should undertake a risk assessment relating to the provision of latex products to minimise the risk of inadvertent allergic reactions in those service users and staff known to be sensitive to latex and to prevent the acquisition of a sensitivity reaction in at-risk individuals e.g. those with known skin conditions such as eczema, dermatitis etc. These must be subject to risk assessment and a decision may be made to provide a suitable latex-free alternative. .

In addition to effective hand hygiene, disposable gloves of the recommended type play an important role in reducing the risks of transmission of micro-organisms.

GLOVES ARE WORN TO

- Reduce the likelihood of micro-organisms being transmitted to service users during invasive procedures or contact with high risk sites (e.g. wounds).
- provide a protective barrier and to prevent gross contamination of the hands when anticipating contact with blood, body fluids, secretions, excretions, mucous membranes and non-intact skin
- protect staff from potentially harmful organisms

GLOVE USE

Non sterile, powder-free latex or synthetic latex e.g. nitrile and vinyl gloves should be worn whenever contact with body fluids, contaminated equipment, non-intact skin or mucous membranes is anticipated.

For the majority of routine clinical tasks vinyl gloves provide adequate protection and should be the glove product of choice

Gloves are not required when handling unsoiled articles or for contact with intact skin in the absence of body fluids.

Gloves must be removed at the end of each individual procedure/care activity, and hands washed thoroughly.

It is essential to keep the time of wearing gloves to a minimum to avoid skin sensitization. Staff experiencing skin conditions which may be exacerbated by glove wearing should contact Occupational Health or their GP for further advice/assessment.

DISPOSABLE PLASTIC APRONS

Single-use disposable plastic aprons should be worn to protect staff uniform/clothing when contamination with body fluids is possible during care procedures. This may include:

- Assisting a service user when using the toilet or commode
- When attending to an incontinent service user
- Changing soiled bed linen
- Assisting a service user with personal care

In addition, a plastic apron should be worn during the following activities to minimise microbial contamination of clothing:

- during environmental cleaning or decontaminating/cleaning equipment
- when handling used/soiled linen
- when handling or serving food

Always remove the apron at the end of each care-giving procedure and discard into a clinical waste bag, and wash and dry hands to reduce the likelihood of transferring organisms to another site.

The same apron should not be worn between care-giving procedures or between service users.

FACE MASKS / EYE PROTECTION

These are worn when there is a possibility of splashing of blood or body fluids or chemical/detergents into the eyes and/or mucous membranes. Face masks, goggles, safety glasses or shield masks are all suitable products and the most appropriate should be chosen and should be readily available for staff. If these products are disposable they should be disposed of as hazardous waste or if non-disposable, cleaned as recommended in the disinfection policy / manufacturer's recommendations, usually with detergent and warm water. Managers should ensure that appropriate masks and eye protection are available for staff use.

In certain circumstances, respiratory masks may need to be of increased efficiency in order to minimise the risk of transmission of highly infectious micro-organisms. Currently this includes pandemic influenza and sputum-positive pulmonary TB during the first two weeks of treatment. Current guidance recommends the use of FFP3 respiratory masks which provide 99% particle filtration efficiency. These must conform to European Standard EN149 2001 (box is CE marked) and must be worn when exposed (within three feet of a service user). These masks are single use only. The Health and Safety Executive recommends that staff who are required to wear FFP3 masks are fit tested to ensure that masks adequately fit the individuals' face thus minimising the likelihood of infected respiratory droplets leaking through or around the facemask. Guidance on the use of FFP3 masks may be provided to staff by local specialists e.g. Health Protection Team (HPT) or Tb specialist team in the case of an outbreak of, for example pandemic influenza.

REMOVAL OF PPE

A new recommendation in epic 3: *National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections for NHS Hospitals in England* (2014) advises that to minimise the risk of cross or self-contamination, PPE should be removed in the following sequence:

- gloves
- apron

- eye protection if worn
- mask / respirator when worn
- following removal of PPE hands should be decontaminated.

(See Appendix 2 World Health Organisation (WHO) How to Put On and Take Off PPE).

STORAGE OF PPE

All personal protective equipment (PPE) should be stored appropriately to minimise the risk of contamination prior to use.

Wall-mounted dispensers are available for the hygienic storage and dispensing of both disposable gloves and plastic aprons. These are recommended for use in those areas where a high volume and frequent use of PPE is anticipated, subject to ligature risk assessment.

Care should be taken when removing disposable gloves from boxes in order to minimise the risk of contaminating the contents with unwashed hands.

APPENDIX 1 RISK ASSESSMENT FOR GLOVE CHOICE

