

Essential Practice for Infection Prevention and Control

Guidance for nursing staff

CLINICAL PROFESSIONAL RESOURCE



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Publication

This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.

Description

This publication provides important information and guidance on the essential principles of infection prevention and control and highlights why other issues, such as nutrition and hydration, should be viewed as an essential complementary component of nursing practice.

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Evaluation

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Foreword

People, including patients receiving health and social care, are at risk of developing infections as a result of their compromised state of health, underlying medical conditions, or as a result of contact with health care interventions such as surgery, diagnostic testing or invasive devices.

Care is provided in a wide range of settings including a person's own home, hospital day and inpatient units and long term care facilities. Inpatient/care home settings can provide ideal conditions for micro-organisms to be transferred between those who receive and give care. The close proximity and frequent physical contact in a shared working and living environment all contribute to increased risk of transmission.

Micro-organisms by their very nature are opportunistic, exploiting chances to colonise or enter the body, which may result in infection. Health care associated infections (HCAIs) may be caused by a large number of different micro-organisms, a significant proportion of which are avoidable if sustainable and robust processes and systems are in place to manage risks associated with infection.

HCAIs are not confined to hospitals, and health care workers who practice in community settings (including GP surgeries, patients' own homes and care homes) have the same professional and clinical responsibilities as staff working in hospitals to prevent opportunities for infection to occur, although the type and level of risk may vary.

The prevention of infections is a key strategy to reduce the risk of antimicrobial resistance (AMR) and support the preservation of effective antibiotics.

Infection prevention and control should not be viewed as a stand alone element of professional practice, but rather a set of principles which, when implemented, reduce the risks of a patient or person acquiring an infection. This includes principles relevant to clinical practice as well as broader health promotion elements to support general well being. The focus should always be the prevention of infection first, with control applying to outbreak or management scenarios.

As nurses, midwives and health care support workers (including health care assistants, health practitioners and trainee nursing associates) we have a professional and ethical responsibility to ensure our knowledge and skills are up-to-date and that we practice safely and competently at all times.

This guidance is intended as a reference document for use by RCN members, and highlights essential elements of good infection prevention and control practice.

Note about terminology

The word patient has been used throughout this text, but can also be understood to mean client, service user or resident.

Health care associated infections (HCAI): As per NICE (2011) guidance, HCAIs cover any infection contracted as a direct result of treatment in, or contact with, a health or social care setting as a result of health care delivered outside a health care setting (for example, in the community) and brought in by patients, staff or visitors and transmitted to others (for example, norovirus).

Introduction

Prevention and management of infection is the responsibility of all staff working in health and social care, and an integral element of patient safety programmes. It is applicable to all health and social care organisations, regardless of the patient setting or care provider.

Infection prevention and control is the clinical application of microbiology in practice. Infection or disease may be caused by different groups of micro-organisms such as bacteria, fungi, viruses or prions and can result in a wide variety of infections that include, for example, urinary tract, wound, respiratory, blood, bone and skin infections. Not all infections are transmissible, however some, such as clostridium difficile (*C. difficile*), influenza and norovirus, have the potential to spread from one patient to another causing infection with additional significant implications for health and social care facilities.

Current data on the number of HCAs is based on estimates derived from prevalence studies and surveillance within the UK and Europe. The European Centre for Disease Control (ECDC) estimate that 4.1 million patients per year develop infections within the European Union (EU) as a result of health care, and that 37,000 deaths result annually due to such infections. The economic burden of HCAs is significant. Annual losses associated with HCAI is estimated at 7 billion euros and 16 million extra days in hospital for patients (WHO, 2011). A large proportion of this cost is attributed to additional nursing costs (42%) resulting from extended patient stay times.

Understanding how infections occur and how different micro-organisms act and spread is crucial to preventing infections. As nurses, midwives, and health care assistants, prevention is our primary aim.

Infection prevention and control is at the heart of the RCN's *Principles of Nursing Practice (2010)*, as enshrined in Principle C – *Nurses and nursing staff manage risk, are vigilant about risk*, and help to keep everyone safe in the place they receive care. These principles of nursing practice provide an overarching framework for achieving quality nursing care and clarifying nursing's contribution to improving health care outcomes and patient experiences (Currie et al., 2011).

This publication provides important information and guidance on the essential principles of infection prevention and control and highlights why other issues, such as nutrition and hydration, should be viewed as an essential complementary component of nursing practice. This guidance is not intended as an in-depth reference document, but instead provides an overview of the core elements and rationale for infection prevention practice and associated activities. It is applicable to all nurses, midwives and health care assistants, regardless of their practice setting.

As a final point, it is important to note that local policies and guidance should always be followed and all staff have a duty to be aware of, and comply with, their organisation's requirements.

Highlighting good practice areas

The following section outlines some of the key areas that help to minimise the risk of infection. No one area of practice area should be considered as a single solution to reducing the risk of infection, rather they should be viewed as parts of a whole as an approach to reducing the risk to patients.

Organisational requirements

The potential human and financial burden of health care associated infections (HCAIs) and AMR is immense and is a priority area for health and public health around the world. The impact of infection for the patient can range from superficial to life threatening, and includes social, psychological and physical effects. Patients may suffer pain, require additional interventions, or experience extended length of stay and long-term physical effects as a result of infection.

All health and social care organisations in the UK are required to comply with national statutory or regulatory standards for infection prevention and control.

Providers of regulated health activities in all UK countries are required to meet or exceed national regulatory requirements, accompanied by external scrutiny by bodies such as the Care Quality Commission (CQC) in England, Health Inspectorate Wales, Healthcare Improvement Scotland and Regulatory and Quality Improvement Authority (Northern Ireland).

All staff, including nurses and health care assistants, need to be aware of their national regulatory or statutory requirements in order to support their employing organisation to meet and improve the expected standards which provide assurance to patients and the public that safe and quality health care systems are in place.

Nutrition and hydration

Malnutrition can be defined as a state of nutrient-deficiency, whether of protein, energy or micro-nutrients, that causes measurable harm to body composition, function and clinical outcome (NICE, 2006). Good hydration is a fundamental aspect of good nutritional care (RCN, 2007).

In the British Association of Parenteral and Enteral Nutrition's (BAPEN) screening week survey in 2011, malnutrition was found to be present in 29% of adults on admission to hospital. Malnutrition is common in all types of care homes and hospitals, wards and diagnostic categories, and spans all ages (BAPEN, 2014).

Although not always directly associated with infection prevention strategies, malnutrition and dehydration can compromise patients and contribute to the development of infection. Malnutrition predisposes patients to delays in recovery from illness, and adversely affects body function, wellbeing and clinical outcome (BAPEN, 2003).

From an infection prevention perspective, the consequences of malnutrition include:

- prolonged wound healing due to lack of protein
- increased risk of skin breakdown and pressure sores
- the depletion of fat stores leading to lethargy and muscle wastage. (RCN, 2007) This may place patients at risk of wound, skin and respiratory infection.

The body's immune system is highly dependent on nutritional status and research shows that malnourished medical and surgical patients experience higher rates of complications and stay in hospital 30 per cent longer than nourished patients (Stratton et al., 2005). This is due to cells in the immune system requiring nutrients such as amino acids, vitamins and lipids to function effectively, which may be depleted due to malnutrition.

Broader complications of malnutrition can include:

- impaired wound healing
- impaired gastrointestinal tract function
- muscle atrophy
- impaired cardiac function
- impaired respiratory function. (Shepherd, 2009)

A patient who is malnourished may present as being sleepy, and therefore may be reluctant to eat and drink. Dehydration contributes to the development of urinary tract infections, constipation and the increased risk of pressure ulcers and falls (RCN, 2007).

Patients on antibiotics are additionally at risk of complications such as oral fungal infections (for example, *Candida*) and disruption to gut flora resulting in antibiotic associated diarrhoea or *C. difficile* infection. Other medications can also produce side effects – such as lack of appetite, nausea and vomiting which may further increase the risk of malnutrition (Shepherd, 2009).

It is vital that on admission to hospital patients are screened to assess their nutritional status using a recognised tool such as the malnutrition universal screening tool (MUST), (NICE, 2006). If found to be at risk, an individual nutrition plan should be implemented. Food and fluid intake should be monitored and a scheme such as the 'red tray system' may be helpful for staff to support vulnerable patients (Age UK, 2010). If a patient is at risk of malnutrition, early referral to a dietitian should be considered for timely support.

Management of specimens for investigation

The common specimens that are collected and managed by nursing staff include blood, urine, faeces, sputum and wound swabs. Nursing staff may also undertake screening for MRSA, Carbapenemase-producing Enterobacteriaceae (CPE) or other multi-resistant bacteria according to local policies.

The correct collection, handling, and labelling of specimens is important as the quality of the specimen collected has implications for any microbiological diagnosis that may be reported and the subsequent prescribing of anti-microbial drugs such as antibiotics.

Incorrectly collected, stored, or handled specimens can result in inappropriate or unnecessary antibiotics being prescribed which can cause a patient to become susceptible to infections such as *C. difficile* and increase the possibility of antimicrobial resistance developing.

Specimens that are delayed in reaching the laboratory may cause 'false' results to be reported, as overgrowth of bacteria present in the original specimen in small numbers can cause other bacteria of significance to be 'hidden' and not identified. This can be a particular problem with urine and sputum specimens.

A written local policy should be in place for the collection and transportation of laboratory specimens. You should be aware of this policy and its contents and:

- be trained and competent to collect and handle specimens safely
- ensure that specimens are collected in an aseptic manner (see asepsis and aseptic technique) to avoid contamination with other bacteria that may influence the laboratory result
- collect samples (wearing protective clothing if indicated) in an appropriate sterile and properly sealed container
- complete specimen laboratory form and check that all relevant information is included and correct – this includes all information on current or recent antibiotic prescriptions
- take care not to contaminate the outside of the container and the request forms as this places laboratory staff at risk
- ensure that specimens are transported in accordance with the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment regulations (HSE, 2009) – refer to your local policy
- make sure specimens are sent to the laboratory as soon as possible; specimens should not be left by nurses stations/offices, sluices, GP reception areas or placed in staff pockets
- check regularly for results and once available enter into the patient's records; any results outside of normal limits should be highlighted to the patient's clinician team for review and possible action
- act on any results with infection prevention and control implications immediately

- ensure that specimen equipment, including viral media, is stored correctly and is not out of date.

It is important to note that it is essential to avoid contamination of normally sterile samples, such as blood and urine. However, faeces consist mainly of bacteria and contamination with a small amount of urine should not prevent submission of a specimen for investigation. To obtain further information on the collection, handling and labelling of specimens, refer to your local specimen collection or laboratory policies or speak to your infection prevention advisor or laboratory staff who will be able to provide you with advice.

The essential principles of infection prevention and control: standard infection control precautions

Standard infection control precautions, formerly known as universal precautions, underpin routine best practice, protecting both staff and patients from micro-organisms that may cause infection.

By applying standard precautions at all times and to all patients, best practice becomes embedded as a core element of professional practice and the risks of infection are minimised. Note: the use of standard infection control precautions should not be confused with a suspicion that all patients/clients are contagious or are carrying a transmissible infection. The use of equipment or practices described below reduces the risk of transfer of micro-organisms between people and the care environment that may cause infection in vulnerable patients/staff.

The elements of key nursing practice points are summarised in the following sections.

Hand hygiene

Hand hygiene is a term used to describe processes that render the hands of health care workers safe (having reduced the number of micro-organisms present that are acquired through activities that involve touching patients, equipment or the environment in the workplace). The term hand hygiene includes handwashing, surgical scrub and the use of alcohol gel. The type of hand hygiene performed is dependent on the type of care that will or has been carried out.

As mentioned previously no one area of nursing practice should be viewed as a stand alone solution to the prevention of infection, however evidence shows that improving hand hygiene contributes significantly to the reduction of HCAs (Loveday et al., 2014). Evidence suggests that many health care professionals, including nursing staff, do not perform hand hygiene as often as is required or use the correct technique.

Health care workers have the greatest potential to spread micro-organisms that may result in infection due to the number of times they have

contact with patients or the patient environment. Hands are therefore a very efficient vehicle for transferring micro-organisms.

Hospitals should be considered unique places that differ considerably in terms of the risk of potential infection spread compared to a 'normal' home environment. Although risks occur wherever direct contact between people or equipment occurs, hospitals have a large number of people living in a relatively small physical area. Additionally, patients may have direct contact with a large number of people (staff) as a result of their 24 hours a day care needs – this allows for many more opportunities for micro-organisms, some of which may be resistant to antibiotics, to be passed from one person to another than occurs in 'normal' daily life at home.

Infection can occur when micro-organisms are transferred from one patient to another, from equipment or the environment to patients or between staff. Disruption to the patient's 'normal bacterial flora' can also predispose infection if bacteria are moved from one part of the body to another where they are not normally resident; for example, moving faecal bacteria from the groin to the face during washing, or performing mouth care without hand hygiene or changing gloves.

Throughout this guidance the term 'hand hygiene' refers to both hand washing and hand decontamination with alcohol hand gels.

When to perform hand hygiene

Hand hygiene can be undertaken using soap and water or hand sanitisers, namely alcohol hand rubs. Alcohol hand rubs provide an efficient and effective way of disinfecting hands and are actively promoted by health and social care organisations. Hand hygiene is relevant in all health care settings including hospitals, GP surgeries/ clinics, patients' homes, mental health and care homes. Personal hand rub dispensers are available for settings where end-of-bed or free-standing dispensers are not appropriate

for use. Care should be taken to avoid risks of patients or visitors ingesting hand sanitisers as these can cause harm including death as highlighted in a recent coroners statement (HM Coroners, 2017).

All health care organisations (including GP surgeries, hospitals and care homes) should have policies or guidance relating to hand hygiene in place. All staff should be familiar with these and comply with them.

Hand hygiene at the point of care

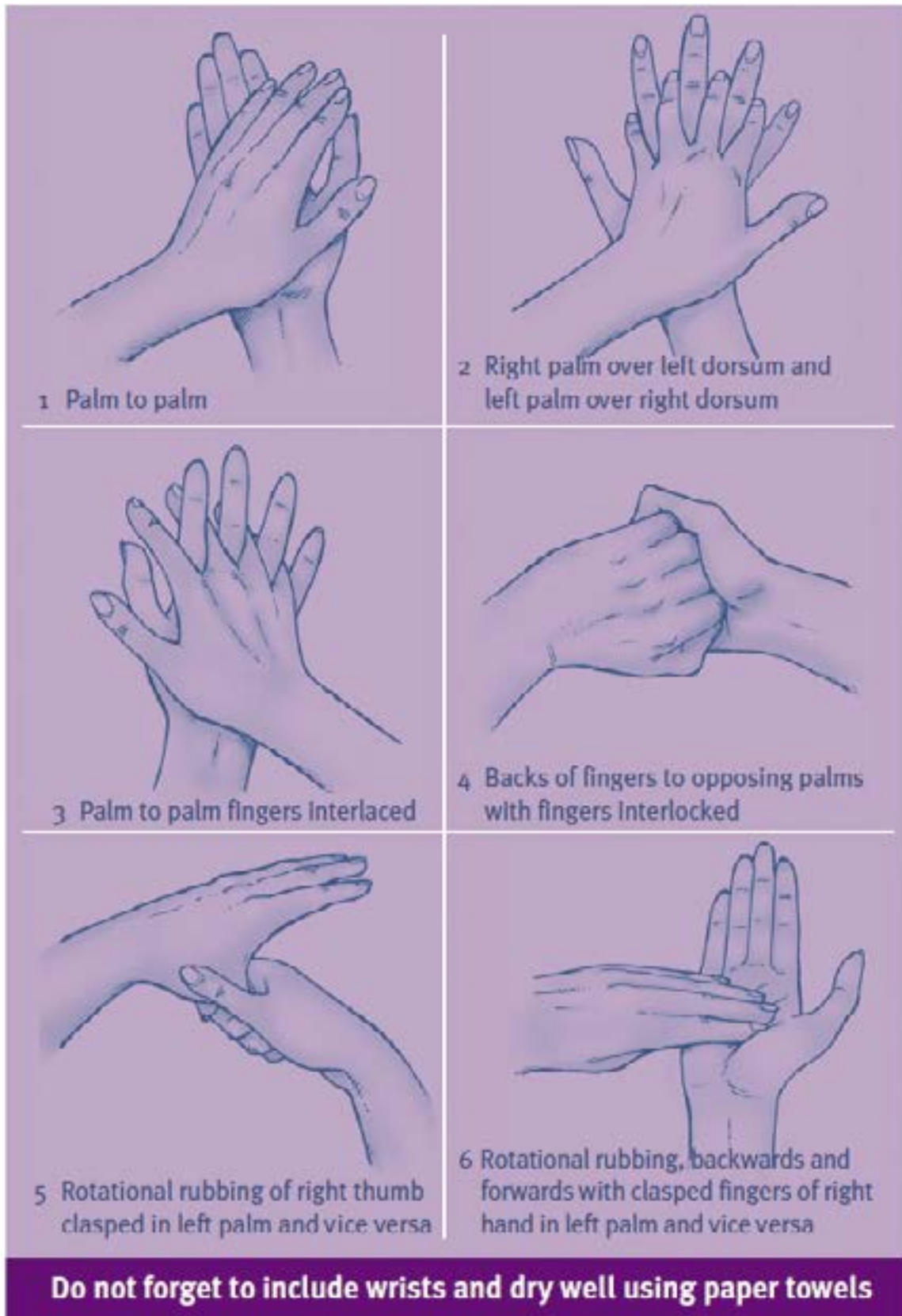
It is important to recognise that the hands of health care staff will always carry bacteria, be it their own bacteria or those that have attached as a result of activities (handling equipment, touching surfaces or patients).

Although it is not possible to 'sterilise' hands, the number of bacteria present can be reduced significantly through good hand hygiene practice. While it is not possible to perform hand hygiene on every occasion during the working day or night, there are a number of occasions when hand hygiene is specifically recommended to guide staff in best practice.

Situations that pose the greatest risks include, but are not limited to:

- before patient contact
- before contact with a susceptible patient site (such as an invasive device or wound)
- before undertaking an aseptic technique or procedure
- after exposure to body fluids (blood, vomit, faeces, urine and so on)
- after glove removal
- after patient contact
- after contact with the patient's immediate environment.

Figure 1: Hand washing and gel application



Use of alcohol hand rubs in health and social care

Hand sanitisers including alcohol hand rubs provide an effective and convenient alternative to hand washing with soap and water, and are used in both health and social care settings to support hand hygiene. While very effective as destroying micro-organisms on 'socially clean hands', these are not effective in all circumstances (Pittet et al 2009, Loveday et al 2014).

Alcohol is not a cleaning agent. Alcohol based hand rub should not be used for hand hygiene when hands are visibly dirty, or gastrointestinal infections (eg, norovirus or *C. difficile*) is suspected or proven. In this instance hand hygiene should be performed using liquid soap and water before hand rubs can be applied. This is because few current hand rub products have been shown to be effective with such infections.

Supporting hand hygiene

To support compliance with hand hygiene in the workplace, health care workers should meet the following standards while working:

- keep nails short, clean and polish free
- avoid wearing wrist watches and jewellery
- avoid wearing rings with ridges or stones (a plain wedding band is usually acceptable, but refer to local policies)
- do not wear artificial nails or nail extensions
- cover any cuts and abrasions with a waterproof dressing
- wear short sleeves or roll up sleeves prior to hand hygiene (refer to local dress code or uniform policies)
- report any skin conditions affecting hands (for example, psoriasis or dermatitis) to your occupational health provider for advice (see section on hand care below).

Hand hygiene facilities (sinks, hand towels, soap and alcohol hand gel dispensers)

Adequate hand washing facilities must be available and easily accessible in clinical areas.

Hand washing sinks be provided with liquid soap dispensers, soft paper hand towels and waste bins.

Alcohol hand gel must also be available at the 'point of care' in all primary and secondary care settings (National Patient Safety Agency, 2008).

All health care workers should bring any lack of, hand hygiene products (hand gels, soap or hand towels), or obstruction/malfunction of sinks to the notice of their facilities staff or managers to ensure that these remain available at all times, and are not obstructed by bins or equipment.

Health care staff working in community settings, such as patients' own homes, should have access to equipment (hand wipes, hand sanitisers) should hands become soiled or in circumstances where facilities do not exist or may not be suitable to use.

Hand drying and conditioning

Wet hands transfer micro-organisms more effectively than dry ones, multi drug resistant gram negative bacteria favour wet and damp environments so effective hand drying is an important method in preventing spread of infection. Inadequately dried hands can also be prone to developing skin damage. Disposable paper hand towels should be used to ensure hands are dried thoroughly. Fabric towels are not suitable for use in health care facilities as these quickly become contaminated with micro-organisms which can then recontaminate hands after washing.

Disposable hand towels should be conveniently placed in wall-mounted dispensers close to hand washing facilities. Excessive refilling of paper towel dispensers should be avoided as it prevents towels being easily dispensed.

Hand cream should be provided to help staff maintain the skin of hands in good condition. Communal tubs of hand cream should be avoided due to the contamination potential. Pump or wall mounted dispensers are preferred, with individual dispensers or tubes in community settings. Refer to further information on hand care and occupational dermatitis.

What if a patient or carer asks you ‘are your hands clean?’

Seeing staff perform hand hygiene is often perceived as a measure of confidence of overall hygiene by patients and their carers, and in recent years the right for patients to ask staff if they have cleaned their hands has received increased attention.

Ideally, although not always possible, health care staff should perform hand hygiene where the patient or carers can see this being undertaken. Staff should be aware that some patients and carers may challenge them as a result of observing practice or general concerns over HCAs as a consequence of their care. We should always aim to make patients and carers feel it is acceptable to ask staff if they have any concerns.

Hand care and occupationally acquired dermatitis

Staff that have or develop skin conditions on their hands, such as psoriasis or dermatitis, require support. Non-intact skin prevents staff from performing hand hygiene effectively, placing both patients and themselves at risk of infection, and staff who are unable to perform hand hygiene due to skin conditions may need to move to non-clinical duties while receiving assessment or treatment. This situation may have implications for both the staff member and staffing levels within the employing organisation.

Nurses and health care assistants are recognised as being at risk of developing work-related contact dermatitis which can be caused by an allergic reaction (sensitisation) or an irritant reaction. It usually affects the hands but can affect any other part of the body which has contact with the allergen or irritant.

The signs and symptoms of work-related dermatitis can range from dry, red, itchy skin to painful blistering, cracking and weeping of the skin. Risk factors include prolonged glove use, use of soaps and skin care products, exposure to chemicals and repeated hand washing.

Under UK health and safety law, organisations need to assess the risks of dermatitis from work activity, carry out proactive and regular skin checks of their staff, and encourage staff to report any signs and symptoms to their

occupational health department or manager. Organisations should incorporate advice on work-related dermatitis, its signs and symptoms, prevention and control, in any instruction and training programmes on hand hygiene. Further information can be found in RCN guidance Tools of the Trade. Available from RCN Infection Control Publications are of the website at: www.rcn.org.uk/clinical-topics/infection-prevention-and-control/publications The Health and Safety Executive (HSE) provides advice to workers who are at risk of developing dermatitis as a result of their work. Further information can be found at www.hse.gov.uk/healthservices

Using personal protective equipment

Personal protective equipment (PPE) includes items such as gloves, aprons, masks, goggles or visors.

PPE is used to protect health care workers from harm, in this case from risks of infection. PPE such as gloves may also be required for contact with hazardous chemicals and some pharmaceuticals, for example, disinfectants or cytotoxic drugs.

Disposable gloves

Gloves are not a substitute for hand hygiene and should be used when appropriate. Overuse of gloves is an increasing concern.

Wearing gloves only when required is important, as the incorrect use of gloves can lead to several problems including:

- undermining local hand hygiene initiatives
- risk of skin problems such as contact dermatitis or exacerbation of skin problems on hands.

As one element of PPE, gloves act as a control measure to reduce identified risks to health care workers including nursing staff. *The Control of Substances Hazardous to Health Regulations* (HSE, 2002) require employers to assess any substances hazardous to health, including biohazards within blood and body fluids (such as blood-borne viruses) and take steps to reduce the risk of exposure. Where exposure cannot be

avoided, as is the case with a number of health care related activities, personal protective equipment, including gloves should be used. Gloves should only be used if a risk assessment identifies them as necessary. Typically the use of gloves is justified when the wearer is at risk of exposure to blood/bodily fluids, non-intact skin or mucous membranes. In such circumstances the risk is exposure to blood borne viruses (BBV) which can be referred to as a biological risk. Health care workers also need to protect themselves from chemical risks such as cytotoxic drugs and chemicals, in these cases gloves should also be worn.

Gloves should be worn whenever contact with blood and body fluids, mucous membranes or non-intact skin is a risk, but should not be considered a substitute for hand hygiene. Hand hygiene must always be performed following the removal of gloves.

Gloves should be put on immediately before the task is to be performed, then removed and discarded in the relevant waste stream as soon as that procedure is completed. Gloves should never be worn 'just in case' as part of routine nursing care.

The choice of glove should be made following a risk assessment of the task about to be undertaken, the suitability of the gloves (including fit, comfort and dexterity) and any risks to the patient or to the health care worker.

Glove good practise points

- gloves are not an alternative to hand hygiene
- gloves should only be worn if a risk assessment identifies the need
- gloves are not required for routine bed making or feeding patients

Types of gloves

Natural rubber latex (NRL) proteins found in latex gloves can cause severe allergic reactions in patients and staff with existing allergies. Latex can also lead to allergic contact dermatitis and occupational asthma in sensitised individuals.

Powdered latex gloves increase the risk of allergic reactions and should never be used.

Following a risk assessment for suitability and safety, if latex gloves are selected for use these must be low protein and single use (see HSE 2011 *Selecting latex gloves*, available at www.hse.gov.uk)

Polythene gloves are not suitable for use in health care.

Neoprene and nitrile gloves are good alternatives to natural rubber latex. These synthetic gloves have been shown to have comparable in-use barrier performance to natural rubber latex gloves in laboratory and clinical studies.

Vinyl gloves can be used to perform many tasks in the health care environment, but may not be appropriate when handling cytotoxic drugs or other high-risk substances. Please check the local policy and risk assessments for your workplace for further guidance. Also refer to the HSE's website.

Health surveillance

In addition to latex other chemicals, known as accelerators, found in gloves can present a risk of work-related dermatitis.

Frequent wet work, including hand washing, can also present a risk. Where a risk assessment identifies a risk of dermatitis or asthma there is a requirement to carry out a health check, known as health surveillance, on those exposed to hazardous substances. It is recommended that health surveillance is carried out on a regular basis.

The surveillance can be carried out by occupational health practitioners or other individuals who have received training in this area.

Where cases of occupational dermatitis are identified staff should be referred to an appropriate practitioner.

These cases should also be appropriately reported. Under the Reporting of Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995, there is a legal requirement to report occupational asthma or dermatitis related to NRL to the HSE.

Further information can be found in RCN Guidance Document: Tools of The Trade.

Glove use and hand hygiene improvement programmes

Glove use is an integral element of safe health care practice, however evaluation of compliance with glove use has not to date received an equivalent amount of attention as compliance with hand hygiene.

The RCN recommends that, in order to try to understand compliance and this practice issue, that audits of glove use are incorporated within organisation's programmes of hand hygiene or associated practice areas.

Disposable plastic aprons

Disposable plastic aprons provide a physical barrier between clothing/skin and prevent contamination and wetting of clothing/uniforms during bathing/washing or equipment cleaning.

Aprons should be worn whenever there is a risk of contamination of uniforms or clothing with blood and body fluids and when a patient has a known or suspected infection.

As with gloves, aprons should be changed as soon as the intended individual task is completed. Aprons should not be worn routinely during shifts as part of normal activity but should be reserved for when required. Aprons are classified as single use items and should be disposed of immediately after use in accordance with local waste policies.

Gowns

Impervious (i.e. waterproof) gowns should be used when there is a risk of extensive contamination of blood or body fluids or when local policy dictates their use in certain settings. For example, maternity or A&E settings, or when there are high risk respiratory infections or infections caused by some multi-resistant bacteria. Consult your local infection prevention policies for more information.

Facial mucocutaneous protection

Masks, visors and eye protection should be worn when a procedure is likely to result in blood and body fluids or substances splashing into the eyes, face or mouth – for example, childbirth, trauma, or operating theatre environments.

Masks

Masks may be necessary if a suspected or confirmed infection may be spread by an airborne route – for example, multi-drug-resistant tuberculosis or other high risk infections transmitted via the respiratory route. You should ensure that masks are always fitted correctly, are handled as little as possible, and changed at required time intervals, as recommended by manufacturer, between patients or operations.

Masks should offer reliable, effective protection when used correctly. Health care respirator masks must be:

- CE marked to the European Community Directive 89/686 for Personal Protective Equipment (PPE). the European Standard EN14683:2005 and comply with the requirements of the Medical Devices Directive (93/42/EEC) as Class 1 devices.
- tested and approved to the European Standard; EN149:2001. They are classified into one of three categories (FFP1, FFP2, and FFP3)

Note: surgical masks are not PPE as defined under the European Directive 89/686.

Staff should be trained in the use of masks that require 'fit testing', such as those used during the influenza pandemic or other high risk respiratory infections, as these are not routinely used by many staff. Your infection prevention advisor will provide guidance on this. All masks should be discarded immediately after use in accordance with local waste policies, and you should always check your local policies for guidance on masks and their use.

Visors or goggles

Visors or goggles can be utilised to protect the eye membranes. Some visors can offer full face protection. The choice of visors or goggles will depend on task/ procedure to be undertaken, a risk assessment of likely exposure, local policy and availability.

If personal protective equipment is required it must be provided free of charge by the employer (Section 9, Health and Safety at Work Act 1974).

Safe handling and disposal of sharps

Sharps include needles, scalpels, stitch cutters, glass ampoules, bone fragments and any sharp instrument. The main hazards of a sharps injury are blood borne viruses such as hepatitis B, hepatitis C and HIV.

It is not uncommon for staff to be injured by the unsafe or poor practice of others; for example, cleaners who sustain injuries as a result of sharps being placed in waste bins. Sharps injuries are preventable and learning following incidents should be put in place to avoid repeat accidents.

Between 2004 and 2014, there were just under 5,000 significant occupational exposure incidents reported to the Public Health England (PHE, 2014). Significant exposures are percutaneous or mucocutaneous where the source patient is hepatitis B, hepatitis C or HIV positive.

To reduce the risk of injury and exposure to blood borne viruses, it is vital that sharps are used safely and disposed of carefully, following your workplace's agreed policies on use of sharps. Education and guidance should be available through your employer on how to manage sharps safely.

Some procedures have a higher than average risk of causing injury. These include surgery, intra-vascular cannulation, venepuncture and injection. Devices involved in these high-risk procedures include:

- IV cannulae
- needles and syringes
- winged steel needles (known as butterfly needles)
- phlebotomy needles (used in vacuum devices).

To reduce the use of needles and syringes, the use of 'safety engineered devices' to support staff undertaking cannulation, phlebotomy and so on should be supported by employing organisations. Safety engineered devices have a built in feature to reduce the risk of a sharps injury before, during and after use. Devices can be passive or active. For example, passive devices have an

automatic safety mechanism that is activated after use, such as when a cannula is withdrawn from a patient's vein. An active device needs to be manually activated by the member of staff.

Legislation and sharps injuries

In May 2010 a new European Directive 2010/32/EU – prevention from sharp injuries in the hospital and healthcare came into force. In the UK, this was transposed into the Health and Safety (Sharps Injuries in Healthcare) Regulations 2013. The regulations require employers to assess the risks of sharps injuries and where possible eliminate the use of sharps – for example, through the use of needleless systems. Where sharps cannot be eliminated, steps should be taken to reduce the risk of injuries through the use of safety engineered sharps devices. Clinical staff and their representatives should be involved in the selection and evaluation of such devices. The directive applies to all workers in the hospital and health care sector including those working in the private and public sector. Students and agency nurses are also covered.

The Health and Safety (Sharps Injuries in Healthcare) Regulations 2013 place specific requirements on employers, however the requirements of the [Health and Safety at Work Act 1974](#) and the [Control of Substances Hazardous to Health Regulations 2002](#) also apply and cover those handling sharps who work outside the hospital and health care sector. Employers are also required to report certain types of sharps injuries under the [Reporting of Diseases Injuries and Dangerous Occurrences Regulations 1995](#) (RIDDOR).

Consequences of not complying with the law

Health care organisations can be subject to criminal law enforcement action if they fail to comply with the requirements of the law in relation to the prevention of sharps injuries. In 2010 a hospital trust was fined more than £20,000 after a health care worker contracted hepatitis C following a sharps injury. The trust was found guilty of breaching the Health and Safety at Work Act (1974) and the Control of Substances Hazardous to Health Regulations (2002).

Sharps best practice points

You should ensure that:

- handling of sharps is kept to a minimum
- syringes or needles are not dismantled by hand and are disposed of as a single unit straight into a sharps container for disposal
- sharps containers are readily available as close as possible to the point of use (sharps trays with integral sharps boxes are a useful resource to support this practice point)
- needles are never re-sheathed/recapped
- needles are not broken or bent before use or disposal
- arrangements should be put in place to ensure the safe disposal and transport of sharps used in a community setting such as patients' homes (RCN, 2013)
- single use sharps containers should conform to BS EN ISO 23907
- sharps containers are not filled to more than two thirds or to the fill line
- sharps boxes are signed and dated on assembly and disposal
- sharps containers are placed at eye level and within arms' reach
- establish a means for the safe handling and disposal of sharps before the beginning of a procedure
- sharps bins are stored safely away from the public and out of reach of children (in other words, not stored on the floor or at low levels)
- staff report sharps injuries in line with local reporting procedures/policies
- staff attend training on the safe use of sharps and safety engineered devices
- staff are aware and comply with their local sharps or inoculation injury policy.

If you notice any of the above are not being followed properly by colleagues you should seek

advice from your infection control team who will provide guidance for staff on the safe use and disposal of sharps.

In addition to assessing and putting in measures to reduce the risk of sharps injuries, employers must offer hepatitis B vaccinations free of charge to at risk groups who are exposed to blood and body fluids including nurses and health care assistants. Nurses and health care workers should avail themselves of this vaccination and any necessary follow-up blood tests or boosters (DH, 2007).

The RCN has published guidance on *Sharps safety* (publication code: 004 135) which can be downloaded from www.rcn.org.uk/clinical-topics/infection-prevention-and-control

Safe handling and disposal of waste

Any health care worker that produces waste as part of their job is classified as a 'waste producer'; this effectively applies to all nurses, health care assistants and midwives. The waste generated may be one of a number of types of waste including sharps, hazardous, offensive, municipal (household) and pharmaceutical (medicinal) waste.

Nurses have a professional and moral obligation to protect the health of their patients and share the responsibility to sustain and protect the natural environment (RCN, 2014). Waste reduction, segregation and disposal are all crucial to sustaining a healthy environment and reducing subsequent public health implications and financial costs. Nursing staff are central to efforts on green issues such as waste management as they represent the largest proportion of the health care worker workforce that purchase equipment and manage subsequent waste generated. The ineffective management of health care waste can also result in additional costs related to the disposal of waste if not segregated appropriately (RCN, 2014).

Your workplace should have a written policy on waste segregation and disposal which provides guidance on all aspects, including special waste, like pharmaceuticals and cytotoxic waste,

segregation of waste, and audits. This should include the colour coding of bags used for waste, for example:

- municipal/domestic waste (black bags)
- offensive waste (tiger striped)
- infectious waste (orange).

All health care and support staff should be educated in the safe handling of waste, including segregation, disposal and dealing with spillages. Organisations should consider systems for segregating waste that allows it to be recycled.

If any of the above are not being implemented, health care staff should raise this with their employers due to the potential impact on finances (increased costs as a result of poor waste management), non-compliance with waste, pre-acceptance audits, and unnecessary carbon costs as a result of incineration or transport processes.

RCN guidance (RCN, 2014) on *The Management of Waste arising from Health, Social and Personal Care* (publication code 004 187) is currently being updated (due for publication February 2018).

Spillage management

Spillages of blood and bodily fluids should be dealt with quickly, following your workplace's written policy for dealing with spillages.

The policy should include details of the chemicals staff should use to ensure that any spillage is disinfected properly, taking into account the surface where the incident happened – for example, a carpet in a patient's home, or a hard surface in a hospital.

Other practises that contribute to reducing the risk of HCAs

Asepsis and aseptic technique

Asepsis is a process that seeks to prevent or reduce micro-organisms from entering a vulnerable body site such as a wound in surgery, or during the insertion of invasive devices such as urinary catheters or intra-vascular devices. Asepsis reduces the risk of an infection developing as a result of the procedure being undertaken.

An aseptic technique includes a set of specific actions or procedures performed under controlled conditions. The ability to control conditions will vary according to the practice setting, however the following principals should be applied in all cases:

- ensure the area where the procedure is to take place is as clean as possible
- ensure as little disturbance as possible occurs during the procedure which could cause air turbulence and the distribution of dust – for example, bed making, floor sweeping or buffing, estates work
- perform hand hygiene prior to and during the procedure as required, gloves are not always required and prior to their use a risk assessment should be conducted to decide if gloves are needed
- use sterile equipment for contact with the vulnerable site

If staff are expected to undertake aseptic procedures, they should receive appropriate training and be deemed competent to practice in line with local policies.

Decontamination of equipment

Decontamination is an umbrella term used to describe processes that make equipment safe for re-use which includes the destruction or removal of micro-organisms. Inadequate decontamination is frequently associated with outbreaks of infection in health care settings, and all health care staff must be aware of the implications of ineffective decontamination and their responsibilities to patients, themselves and their colleagues.

Decontamination is a combination of processes – cleaning, disinfection and/or sterilisation – that are used to ensure a reusable medical device or patient equipment is safe for further use.

Equipment used in health care may be designated as single use, single patient use or reusable multi-patient use. Any equipment not designated as a single use item must be made safe following use to prevent micro-organisms being transferred from equipment to patients and potentially resulting in infection. Decontamination is the method for achieving this.

Every health and social care provider (hospital, GP surgery, clinic or nursing home) should have in place clear systems for identifying which staff are responsible for cleaning which equipment (for example, nurses, cleaners or dedicated equipment cleaning teams). All staff should be aware and comply with local policies for decontamination of equipment.

Cleaning is the critical element of the process and should always be undertaken thoroughly regardless of the level of decontamination required.

Single use equipment

Single use equipment (where the item can only be used once) must not be re-processed or re-used. Examples include disposable jugs, thermometer covers, syringes and needles.

Single use equipment will be clearly marked with the following symbol:



Single patient use equipment

Single patient use equipment (where the item can be repeatedly used for the same patient) includes items such as nebulisers and disposable pulse oximeter probes. Between use, items must be cleaned in line with local policies. The decontamination of such items must not be performed in hand washing sinks.

Single patient use equipment should be clearly identified for use by that specific patient only.

Reusable multi-patient use equipment

Reusable, multi-patient use equipment such as commodes, beds, pressure relieving mattresses and blood pressure cuffs, requires decontamination after each episode of use by a patient. This must be undertaken in line with local policies in appropriate facilities.

Cleaning

This process uses water and detergent to remove visible contamination but does not necessarily destroy micro-organisms, although it should reduce their numbers. Effective cleaning is an essential prerequisite to both disinfection and sterilisation.

Disinfection

This process uses chemical agents or heat to reduce the number of viable organisms. It

may not necessarily inactivate all viruses and bacterial spores. Where equipment will tolerate sterilisation, disinfection should not be used as a substitute. The use of disinfectants is governed by the Control of Substances Hazardous to Health (COSHH) Regulations 2002 which require employers to assess and manage the risks from exposure to disinfectants and provide staff with information, instruction and training. Refer to your local policies for more information.

Sterilisation

This guidance does not include specific information relating to the sterilisation of reusable items. This process requires additional measures and greater scrutiny and validation of processes involved. For further information, consult your local infection prevention policies or seek advice from your infection prevention advisers.

Use of wipes for the decontamination of equipment

Wipes are increasingly being used to decontaminate low risk patient equipment or environmental surfaces. Currently there is little evidence to support the wide scale use of disinfectant wipes, as opposed to detergent only products, as an effective infection prevention beyond specific manufacturers decontamination instructions. Dirt removal should be considered the main purpose of a detergent wipe, but antimicrobial activity as a result of the inclusion of a disinfectant may be of use in some circumstances.

The appropriate selection of disinfectant wipes is important as infection prevention efforts may be compromised if the wipe is not fit for its intended purpose. The selection of an appropriate product can be a complex process that includes the consideration of available evidence on effectiveness of the product in clinical practice and the interpretation of laboratory test data. The need for rigor in purchasing any item for use in a health care setting is important to ensure financial resources are used appropriately.

The RCN's guidance on the selection and use of wipes (RCN, 2011) is currently being updated.

Table 1: Level of decontamination required according to risk for reusable equipment

Risk level	Equipment use description	Level of decontamination needed	Examples
High risk	In close contact with a break in the skin or mucous membrane. Introduced into sterile body areas.	Equipment must be cleaned and sterilised after each patient use. Equipment should be stored in a sterile state for subsequent use.	Examples include surgical instruments.
Intermediate risk	In contact with mucous membranes. Contaminated with particularly virulent or readily transmissible organisms. Prior to use on immune compromised patients.	Cleaned and sterilised or disinfected between each patient.	Examples include a bedpan, flexible endoscope.
Low risk	In contact with healthy skin. Not in contact with patient.	Cleaning after each use satisfactory under normal circumstances. Disinfection may be undertaken in outbreak situations on advice of the infection control team.	Examples include a bed frame or patient chair/wheelchair, toilet.

Adapted from the Medical Devices Agency publication, *MAC manual (Part 1) 2010*

Achieving and maintaining a clean clinical environment

A dirty or contaminated clinical environment is one of the factors that may contribute to HCAs. Exposure to environmental contamination with spores of *C. difficile* is one example of an occasion when the environment contributes to the development of infection.

Many micro-organisms can be identified from patients' environments and these usually reflect bacteria carried by patients or staff (for example as with *S. aureus*). Contact with the immediate patient or a contaminated environment by the hands of staff can also be a route for transmission of micro-organisms. High standards of cleanliness will help to reduce the risk of cross-infection and are aesthetically pleasing to patients and the public.

Good design in buildings, fixtures and fittings is also important to support efficient and effective cleaning. Guidance on building design is available throughout the UK via organisations such as Health Facilities Scotland (HFS), NHS Wales Shared Services Partnership, Facilities Services, Health Estates (Northern Ireland). The health technical memorandums (HTM) and health building notes (HBN) also provide advice including HBN 00-09 Infection Control in the Built Environment (2013).

Relevant documents should always be consulted for new builds and refurbishment projects, and infection prevention and control advice sought to help ensure that buildings are fit for purpose and comply with the necessary standards regardless of whether these are NHS organisations or not.

Cleaning of the environment

Cleaning removes contaminants, including dust and soil, large numbers of micro-organisms, and the organic matter that may shield them – for example, biofilms, faeces, blood and other bodily fluids. Cleanliness applies to the inanimate environment as well as equipment and fixtures and fittings.

A number of different methods are available for cleaning, which include traditional cleaning with cloths and detergent or microfiber technology.

Wipes are occasionally used for some items of equipment; refer to RCN guidance on the selection of wipes for further information. Additional technologies are also available for specialist use after outbreaks of infection or as part of a routine environmental decontamination programme, for example, hydrogen peroxide vapour.

The following principles are important for ensuring a clean and safe care environment is maintained:

- ensure up to date COSHH assessments are completed by a competent person and shared with and followed by staff
- ensure an appropriate cleaning specification is in place to meet the needs of the environment where patients are cared for or use; this applies to inpatient and outpatient environments. For acute and community facilities a risk assessment should be performed to identify the cleaning needs and frequency. Further information can be found from PAS5758
- a local cleaning policy should be in place clearly defining which areas are cleaned and by whom
- any staff whose role includes responsibility for cleaning of equipment should receive training on how to clean
- local policies for the cleaning of patient equipment which defines who cleans what equipment, how often and where this should be undertaken should be available
- regular monitoring or audits of cleanliness contracts should be in place to provide assurance that systems are working well
- any issues with cleanliness or the cleaning contract (in-house or external contracts) should be reported immediately as per local policy to ensure that standards of cleanliness are maintained
- all nurses, midwives and health care assistants have a responsibility to be aware of their local cleaning specification to ensure that any issues are highlighted immediately should they occur; while overall responsibility usually lies with the

ward/department manager, all staff have a responsibility to support them and ensure that patients are cared for in a clean safe environment.

- cleaning equipment such as vacuums, floor scrubbing machines and polishers should be cleaned regularly and properly maintained
- appropriate dedicated facilities for storage of cleaning equipment should be in place and these should be maintained in a clean and tidy condition.

Appropriate use and management of indwelling devices

Indwelling devices are common in health care and when used appropriately provide valuable assistance to providing patient care and positive patient outcomes.

However, the use of indwelling devices is not without risk and the development of infection occurs by their very nature as they bypass the body's natural defence mechanisms such as skin and mucous membranes.

Common invasive devices (for example, urinary catheters, IV cannula or central venous catheters) are frequently responsible for HCAs such as urinary tract, insertion site infections or bloodstream infections.

Prevention of intravascular line associated infections

These devices provide direct access to the bloodstream. The use of peripheral or central vascular devices is a common cause of infection which can lead to life threatening blood stream infections (bacteraemia).

The types of organisms implicated in these infections vary but frequently involve members of the staphylococcus family such as Staphylococcus aureus, meticillin-resistant staphylococcus aureus (MRSA), or coagulase negative staphylococci (CNS) in neonates.

These may enter the device insertion site as a result of contamination from the skin during insertion of the device or as a result of contamination on staff hands during manipulation of the device.

Peripheral intravascular cannulas represent the most common invasive device used and these may be temporary (for a few hours) or longer term provided they are clinically indicated and there are no complications identified.

Prevention of infection is complex, and good practice is required at all stages of care whilst these devices are in situ. This includes, but is not limited to, insertion and ongoing management.

Insertion

Appropriate and thorough disinfection of the skin is crucial prior to insertion of any intravascular device – such as a central, peripheral, peripherally inserted central catheter (PICC) or femoral line.

The proper use of an appropriate skin disinfectant product will reduce the number of viable micro-organisms present at the site of insertion, reducing the risk of contamination at the insertion site at the time of introduction. The use of 2% chlorhexidine in 70% isopropyl alcohol is recommended for skin disinfection unless a known sensitivity is present (Loveday et al., 2014).

Best practice points

For detailed guidance on management of infusion therapies please refer to the RCN guidance 'Standards for Infusion Therapy (RCN, 2016)

The following best practice points should be observed:

- the skin disinfectant used should meet the requirements of a medicinal product as per MHRA requirements. See MHRA for further clarification: www.gov.uk/guidance/decide-if-your-product-is-a-medicine-or-a-medical-device
- skin disinfectant solution should be applied using gentle friction – repeated up and down, back and forth strokes for 30 seconds – to reduce the number of resident bacteria present at the insertion site which could serve as a source of infection
- the solution should be allowed to fully air dry
- use of single-use preparations to prevent contamination of multi-use containers

- use of an aseptic technique when inserting devices, including hand hygiene
- compliance with local policy for selection of insertion sites
- application of a transparent semi-permeable dressing to the site to permit ongoing observation of the site
- documentation of the process.

Note: due to the variety of skin disinfection products available, users and purchasers should ensure that the product they select is intended by the manufacturer for use in skin disinfection prior to invasive procedures such as line insertion.

Ongoing management

Day-to-day management of the device is important in order to assess patency (that the device is open and unrestricted) and to detect any signs or symptoms of infection. As with insertion principles, staff must follow local policies/guidance which should include the following recommendations:

- a daily review (at a minimum) to assess the continuing need for the device; this review and the rationale for continuity should be documented
- regular documented checks for patency of the device, signs of infection and status of dressing
- hand hygiene prior to any contact with the device or associated administration sets
- cleaning/disinfection of any add-on devices/ attachments
- the replacement of peripheral intravascular devices after 72 hours (or according to local policy) is no longer routinely required and devices only changed if clinically indicated.

Staff should always follow local workplace policy on the use and management of intravascular devices and ensure that such devices are only ever used if required, and removed as soon as no longer required.

The *RCN Infusion Standards* (2016) provide further information on the management,

insertion and care of all type of vascular access devices. These are available at www.rcn.org.uk/publications

Managing accidental exposure to blood-borne viruses

Blood borne infections are most frequently associated with those caused by hepatitis B, hepatitis C and HIV which may be found in blood and other body fluids such as amniotic fluid, synovial fluid, vaginal fluid, semen, and breast milk. They are not associated with excretions such as saliva, urine, vomit or faeces unless blood is present.

Accidental exposure to blood and body fluids can occur by:

- percutaneous injury – for example, from used needles, instruments, bone fragments or significant bites that break the skin
- exposure of broken skin – for example, abrasions, cuts or eczema
- exposure of mucous membranes, including the eyes and the mouth.

Figure 3 illustrates the actions to be taken immediately following any accidental exposure to bodily fluids, including blood.

Managing the risk of HIV

The risk of acquiring HIV infection following occupational exposure to HIV-infected blood is low (PHE, 2014). A risk assessment needs to be made urgently by someone other than the exposed worker about the appropriateness of starting post exposure prophylaxis (PEP), ideally an appropriately trained doctor designated according to local arrangements for the provision of urgent post-exposure advice. Counselling should also be considered for the individual exposed.

If a health care worker is exposed to blood, high risk blood and body fluids or tissue known or strongly suspected to be contaminated with HIV, the use of antiretroviral post exposure prophylaxis (PEP) is recommended. Ideally, this is given within an hour of exposure (the incident), hence the importance in undertaking first aid

immediately, followed by prompt reporting of the incident.

Staff should ensure they are familiar with their local policies and procedures should such an incident occur in order to ensure prompt treatment for themselves or co-workers if affected. Advice and follow-up care from your occupational health provider will also be essential.

Managing the risk of hepatitis B (HBV) and C (HCV)

Hepatitis B (HBV)

The risk of contracting HBV from a sharps injury in a health care setting is much higher than HIV because the virus is more infectious and has greater prevalence.

All nurses and health care assistants should be vaccinated against hepatitis B. Those at risk of occupational exposure, particularly health care and laboratory workers, should have their antibody titres checked one to four months

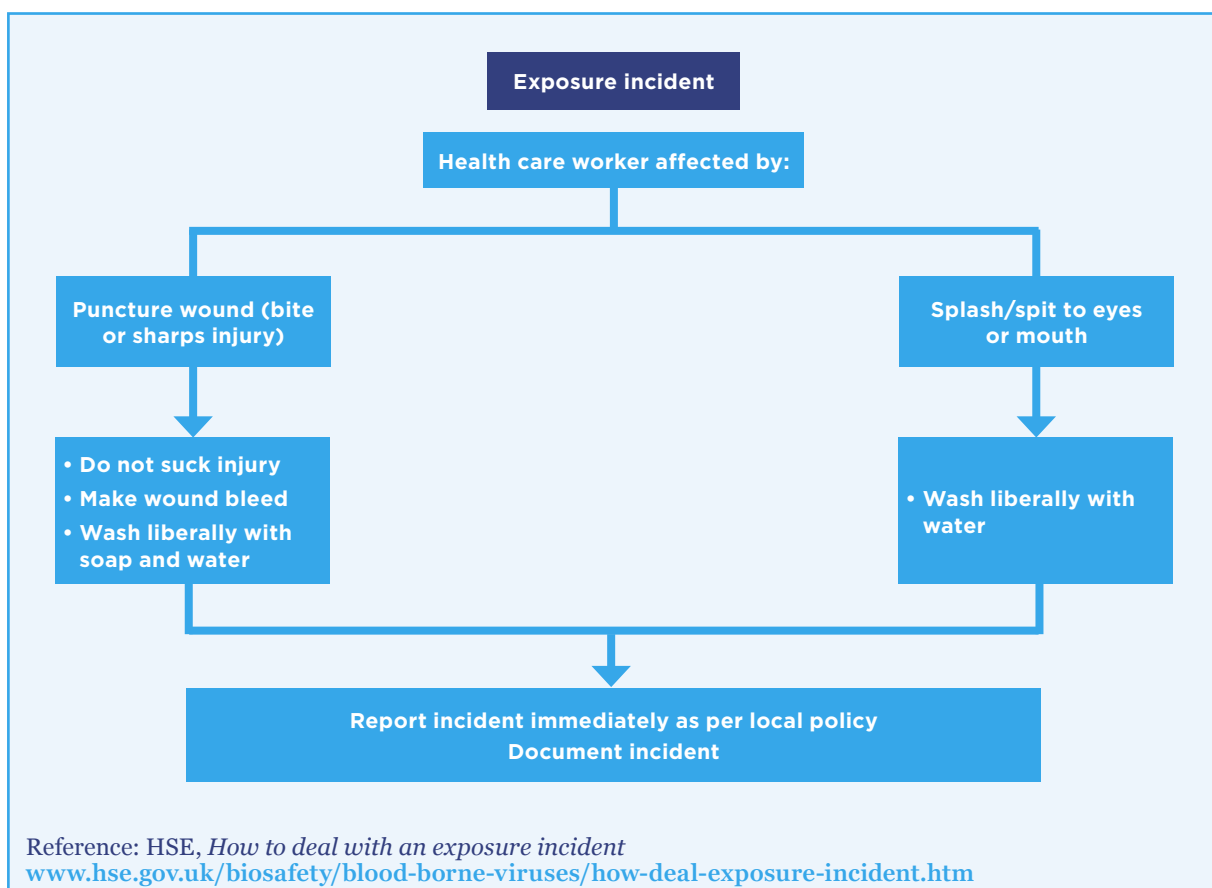
after the completion of a primary course of vaccine (DH, 2014 [The Green Book](#)). Refer to local policies for information on monitoring of antibody titre levels and boosters following exposure incidents.

Hepatitis C (HCV)

There is currently no vaccine available that can prevent infection following exposure to the hepatitis C virus. Prevention is the key to avoiding exposure and subsequent infection, and staff should ensure they comply with local blood borne diseases policy, sharps safety (see page 16) and wear appropriate protective clothing, reporting any exposure incidents as these occur.

Figure 3: Managing accidental exposure to blood and body fluids

The following actions are recommended following accidental exposure to blood and body fluids, regardless of whether or not the source is known to pose a risk of infection.



Antimicrobial resistance (AMR)

It is estimated that 10 million lives a year could be lost as a result of AMR by 2050 if we do not tackle this problem (O'Neill, 2016). Antimicrobial resistance occurs when micro-organisms become resistant to the drugs used to treat them. Some micro-organisms, especially those found in the environment are naturally resistant to antibiotics. Other micro-organisms have adapted to survive and developed mechanisms and changes within their genetic structure to allow them to become resistant as a method of their survival. As a result of AMR infections are harder to treat; this can lead to longer stays in hospital, longer courses of antimicrobials and ultimately treatment failure.

Antimicrobial agents include antibacterials/antibiotics (for bacterial infections), antifungal agents (for fungal infections) and antivirals (for viral infections). Antimicrobial agents can be used either systemically (within the body) or topically (for example, creams) and can be used as a prophylaxis (as a preventative measure, for example, before surgery) or as treatment when infection is present. Regardless of the method of use, antimicrobial agents are unique in that they only have an effect on the micro-organism causing the infection and not the host (patient).

Antimicrobials are important because they allow the treatment of simple and complex infections. If antimicrobials such as antibiotics stop working then common medical procedures such as surgical treatments could be a greater risk of infections developing and we could once again see patients dying of infections, as occurred in the pre-antibiotic era.

In order to reduce AMR a number of initiatives are underway locally, nationally and globally. This includes a requirement in the updated Health and Social Care Act (DH, 2015) for antimicrobial stewardship programmes to be demonstrated when organisations in England are inspected by the Care Quality Commission (CQC). Information on the activities undertaken by Scotland, Wales and Northern Ireland can be found by following the web links for these countries in the Further Resources section. It is important to refer to your local guidelines and procedures or contact your infection control team if you have any queries. This section of the

document will highlight the main interventions which have been identified nationally across the United Kingdom to control AMR.

Raising public awareness of AMR.

It is important that everybody knows what they can do as individuals to help stop AMR. European antibiotic awareness days and a global antibiotic awareness week have highlighted the importance of this. Information is available regionally to support health care workers provide self-help information for patients who present to medical facilities with a range of common illnesses eg, NHS Choices. Public Health England has launched a new campaign aimed at the general public on raising awareness of the need for appropriate use of antibiotics – see <https://campaignresources.phe.gov.uk/resources/campaigns/58-keep-antibiotics-working>

1. Improve hygiene and prevent the spread of infection. This intervention really highlights the importance of infection prevention and public health actions. Hand hygiene is a key intervention that all staff should be able to achieve to prevent the spread of infection. Other important factors within this intervention will include the cleanliness of the health care environment and knowledge of staff to prevent the spread of infection.
2. Improve the surveillance of AMR in humans and animals and measure the amount of antimicrobials that are consumed. Efforts to understand drug resistance and consumption are underway nationally. England collect data on both of these interventions via data collected routinely from laboratories displayed on the PHE Fingertips portal (<https://fingertips.phe.org.uk/profile/amr-local-indicators>) and via CQUIN (England only) collection on antimicrobial usage. It is important to collect and use this data as a means to measure the effects of interventions.
3. Rapid diagnostics to detect individuals with infections more quickly and treat them appropriately need to be developed. Alongside ensuring people need antimicrobials receive them this will also help reassure the patients that they do not need antimicrobials for the symptoms with which they present.
4. Other measures include reducing antimicrobial usage across the world including

in agriculture. A great deal of antimicrobials are used for animals so it is important that efforts are made to reduce this. Other interventions include encouraging more individuals into infectious disease and associated specialities and carrying out global research into antimicrobial development.

Further information on the interventions mentioned above and AMR can be found at: <https://amr-review.org>

Infection Prevention and Control Commissioning Toolkit Guidance and information for nursing and commissioning staff in England

The RCN and the Infection Prevention Society (IPS) have published an infection prevention and control toolkit, aimed at reducing infections and managing the risks associated with antimicrobial resistance. The toolkit highlights the importance of sepsis and its two main causes – pneumonia and urinary tract infections, estimated to be responsible for a third of all health care associated infections, and a leading cause of ill health outside of hospitals.

Highlighting that infections are not confined to hospitals, the toolkit acknowledges the size of the challenge and the requirement of a clear, effective national plan of action. The toolkit is the first step towards reducing two serious burdens of infection in England, combatting antibiotic resistance and, most importantly, improving public health and patient care.”

The **toolkit** is supported by NHS England.

Communication

Patient and public anxiety about HCAs, including those caused by MRSA and *C. difficile*, is often based on misperceptions about the risks of infection and the precautions to prevent transmission. Nursing staff can do a great deal to allay fears by communicating effectively, without breaching confidentiality. For example, nurses can:

- display notices which describe the precautions needed if a patient is in isolation
 - talk to patients about how they can help themselves and support staff in preventing infection
 - include multi-disciplinary support staff in team meetings during outbreaks
 - ensure all staff understand the actions they need to take, for example, following discharge or involvement of other multi-disciplinary staff
 - inform general practitioners on discharge or transfer if their patient has an infection or an infectious condition and ensure all documentation is completed.
- make available information for patients, visitors and staff and answer any questions that may arise from this

References

- National Institute for Clinical Excellence (2011) *Healthcare associated infection: Prevention and control. Public health guideline (PH36)* London: NICE. Available at: www.nice.org.uk/guidance/ph36 (accessed 21 September 2017).
- Age UK (2010) *Still hungry to be heard*, Age UK: London. Available at: www.ageuk.org.uk (accessed 23 January 2017).
- British Association of Parenteral and Enteral Nutrition (2003) The 'MUST' report. *Nutritional screening of adults: a multidisciplinary responsibility*, Redditch: BAPEN (Chairman of MAG and editor: M Elia).
- British Association for Parenteral and Enteral Nutrition (2014) *Nutrition screening survey in hospitals in the UK in 2007- 2011: a report based on the amalgamated data from the four Nutrition Screening Week surveys undertaken by BAPEN in 2007, 2008, 2010 and 2011*, Redditch: BAPEN. (Editors: CA Russell and M Elia on behalf of BAPEN and collaborators).
- Council of the European Union (2010) Council Directive 2010/32/EU. Implementing the framework agreement on prevention from sharps injuries in the hospital and healthcare sector concluded by HOSPEEM and EPSU, *Official Journal of European Union*, 1.6.2010, L134/66. Available at: <https://osha.europa.eu/en/legislation/directives> (accessed 23 January 2017).
- Currie L, Lecko C, Gallagher R and Sunley K (2011) Safety: principle of nursing practice C, *Nursing Standard*, 25 (30), pp.35-37.
- Department of Health (2007) *Health clearance for tuberculosis, hepatitis B, hepatitis C and HIV: New healthcare workers*, London: DH. Available at: www.gov.uk/government/publications/new-healthcare-workers-clearance-for-hepatitis-b-and-c-tb-hiv (accessed 23 January 2017).
- Department of Health (2013a) Health Technical Memorandum 07-01: *Safe management of healthcare waste*, London: DH. Available at: www.gov.uk/government/publications/guidance-on-the-safe-management-of-healthcare-waste (accessed 23 January 2017).
- Department of Health (2013b). HBN 00-09 – *Infection control in the built environment*, London: DH. Available at: www.gov.uk/government/publications/guidance-for-infection-control-in-the-built-environment (accessed 26 October 2016)
- Department of Health (2014) *Immunisation against infectious disease – 'The Green Book': 2006 updated edition*, London: DH. Available at: www.gov.uk/government/collections/immunisation (accessed 23 January 2017).
- Department of Health (2015) *The Health and Social Care Act 2008: code of practice for health and adult social care on the prevention and control of infections and related guidance*, London: DH. Available from: www.gov.uk/government/publications (accessed 23 January 2017).
- Health and Safety Executive (1974) *Health and Safety at Work Act*, London: HSE. Available at: www.hse.gov.uk (accessed 23 January 2017).
- Health and Safety Executive (2002) *The Control of Substances Hazardous to Health Regulations*, London: HSE. Available at: www.hse.gov.uk (accessed 23 January 2017).
- Health and Safety Executive (2009) *Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations*, London: HSE. Available at: www.hse.gov.uk (accessed 23 January 2017).
- Health and Safety Executive (2011) *Selecting latex gloves*, London: HSE. Available at: www.hse.gov.uk (accessed 23 January 2017).
- Health and Safety Executive (2013) *Health and Safety (Sharp Instruments in Healthcare) Regulations*, London: HSE. Available at: www.hse.gov.uk (accessed 23 January 2017).
- HM Coroners report (2017) www.judiciary.gov.uk/wp-content/uploads/2017/06/Haughey-2017-0116.pdf (accessed 4 June 2017)
- O'Neill J (2016) *Tackling drug-resistant infections globally: Final report and recommendations*. Available at: https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf

Loveday HP, Wilson JA, Pratt RJ, Golsorkhi M, Tingle A, Bak A, Browne J, Prieto J and Wilcox M (2014) epic3: National Evidence-Based Guidelines for Preventing Healthcare-associated Infections in NHS Hospitals in England, *Journal of Hospital Infection*, 86S1, S1–S70.

Medicines and Healthcare products Regulatory Agency (2010) *Sterilization, disinfection and cleaning of medical equipment: guidance on decontamination from the Microbiology Advisory Committee (3rd edition)*, London: MHRA. Note: this publication is also known as the 'Mac Manual'.

National Institute for Clinical Excellence (2006) *Nutrition support in adults: oral nutrition support, enteral tube feeding and parental nutrition*, London: NICE. Available at: www.nice.org.uk/guidance/cg32 (accessed 23 January 2017).

National Patient Safety Agency (2008) *Clean hands save lives: patient safety alert*, London: NPSA. Available at: www.nrls.npsa.nhs.uk/resources (accessed 23 January 2017).

Pittet D, Allegranzi B and Joyce J (2009) The World Health Organization Guidelines on Hand Hygiene in Health Care and Their Consensus Recommendations, *Infection Control Hospital Epidemiology*, 30, 611–622.

Plowman R, Graves N, Griffin M, Roberts JA, Swan A, Cookson B and Taylor L (1999) *The socio-economic burden of hospital acquired infection*, London: PHLS.

Public Health England (2014) *Eye of the Needle*, London: PHE. Available at: www.gov.uk/government (accessed 23 January 2017).

Royal College of Nursing (2007) *Water for health: hydration best practice toolkit for hospitals and health care*, London: RCN. Available at: www.rcn.org.uk/publications (accessed 23 January 2017).

Royal College of Nursing (2010) *Principles of Nursing Practice*, London: RCN. Available at: www.rcn.org.uk/publications (accessed 23 January 2017).

Royal College of Nursing (2011) *The selection and use disinfectant wipes*, London: RCN. Available at: www.rcn.org.uk/publications (accessed 23 January 2017).

Royal College of Nursing (2013) *Sharps Safety*, London: RCN. Available at: www.rcn.org.uk/publications (accessed 23 January 2017).

Royal College of Nursing (2014) *The management of waste from health, social and personal care*, RCN. Available at: www.rcn.org.uk/publications (accessed 23 January 2017).

Royal College of Nursing (2016) *Standards for infusion therapy*, London: RCN. Available at: www.rcn.org.uk/publications (accessed 23 January 2017).

Shepherd A (2009) Nutrition support 1: risk factors, causes and physiology of malnutrition, *Nursing Times*, 3 February 2009, Vol 105 No. 4.

World Health Organization (2011) *Report on the burden of endemic health care-associated infection worldwide: clean care is healthy care*, Geneva: WHO. Available at: www.who.int/iris/bitstream/10665/80135/1/9789241501507_eng.pdf (accessed 23 January 2017).

Further resources

BAPEN

www.bapen.org.uk

BAPEN MUST tool (malnutrition universal screening tool)

www.bapen.org.uk

Care Quality Commission

www.cqc.org.uk

Department of Health: Northern Ireland

www.dhsspsni.gov.uk

Health and Safety Executive – dermatitis in health and social care.

www.hse.gov.uk/healthservices/dermatitis.htm

Health Inspectorate Wales

www.hiw.org.uk

NHS Quality Improvement Scotland

www.healthcareimprovementscotland.org

Public Health England

www.gov.uk/government/organisations/public-health-england

RCN Infection Prevention and Control

www.rcn.org.uk/ipc

RCN Safety Representatives

Information on the role of an RCN safety representative can be found on the RCN website at www.rcn.org.uk/get-help

Review on Antimicrobial Resistance

<https://amr-review.org>

World Health Organization: Save Lives: Clean your Hands Campaign

www.who.int/gpsc/5may/en

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