Royal College of Nursing

Tools of the Trade

Guidance for health care staff on glove use and the prevention of contact dermatitis

CLINICAL PROFESSIONAL RESOURCE

Royal College of Nursing

Acknowledgements

The Royal College of Nursing would like to thank the following for their contribution to this publication:

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Note: This is a revision of the 2012 Tools of the Trade guidance which acknowledges original contributors.

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Publication

This is an RCN clinical professional resource.

Description

This publication offers guidance on the importance of maintaining skin health and the importance of early recognition and management of work related dermatitis. It also highlights the importance of appropriate glove use to prevent dermatitis and support effective hand hygiene.

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Evaluation

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Foreword

There are a number of skin conditions that can be caused or made worse by work or that affect a health care worker's ability to work in a health and social care environment. This guidance focuses on contact dermatitis, the main work-related skin condition affecting the hands of health care workers; glove use; infection prevention and control practice; and the importance of considering glove use from a holistic perspective.

Protection of health care workers' hands is crucial for both their own protection and the protection of patients. It lies at the heart of an integrated approach to infection prevention, occupational health and health and safety policies and strategies.

The guidance highlights the importance of using a risk assessment process to decide when to use gloves and the type of glove required. It also draws attention to biological hazards in the form of micro-organisms (germs) and chemical hazards, such as those present in disinfectants, and the relevant quality standards required to support purchasing and availability of gloves.

The close relationship between glove use and infection prevention and control has been emphasised in this resource, as inappropriate glove use (over or under use of gloves) can place staff at risk of contact dermatitis. It can also place patients and staff at risk of infection and lead to missed opportunities for hand hygiene. Glove use is widespread throughout health care, and in the NHS in excess of 1.5 billion boxes of examination gloves are purchased annually at a cost of £35 million (NHS Business Services Authority, 2016). Creating a culture of appropriate glove use creates additional opportunities to avoid unnecessary financial costs through unwarranted use and preventable risks to patients.

We have developed this guidance for RCN members and safety representatives, but it is relevant to all managers of clinical services and health care staff across the UK, including those who work in non-hospital settings such as the community, social care environments and patients' homes. We hope the resource will provide readers with the necessary information to support the prevention, recognition and management of contact dermatitis.

The RCN recognises this guidance represents a first step in addressing glove use issues in a holistic way, and that further work is required to understand the behavioural aspects affecting glove use and the impact on staff and patient outcomes.

The term health care worker is used generically throughout this document to indicate staff that provide direct patient care who may need to use gloves – for RCN members this includes registered nurses, midwives, student nurses, health care assistants, assistant practitioners and trainee nursing associates. A glossary of terms used in this publication has been included on page 30.

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1. Introduction and recommendations

For health care workers protecting the integrity of the skin on their hands is critical. Damaged or non-intact skin places both the patient and the health care worker at risk because it prevents effective hand hygiene. It also provides opportunities for micro-organisms to be transferred between patients and staff, and for skin lesions to become colonised by bacteria, potentially leading to infection.

Health care workers, including nursing staff, are known to have a high incidence of work related skin disease (HSE, 2018a). Prevention of this condition is therefore critical to protect staff and patients – and to retain health care staff and skills. Staff who are unable to perform hand hygiene will not be allowed to work in clinical environments and may be relocated from their usual workplace, impacting on staffing availability in that area.

Historically the importance of glove use has been associated with preventing contact with blood and body fluids, excreta/secretions and potential disease causing micro-organisms. However, it is equally important to protect health care workers' hands from chemicals and hazardous drugs. Although the importance of protection has always been acknowledged through risk assessments (COSHH, 2002), the increased use of chemicals in clinical settings (eg environmental disinfectants such as chlorine releasing agents and chlorine dioxide) and in particular the use of pre-prepared disinfectant wipes exposes staff to a cocktail of chemicals and substances that could increase the risk of work related dermatitis if not managed carefully. This, combined with increased emphasis on hand hygiene compliance and financial scrutiny on consumables such as gloves, soap and hand towels requires both staff and managers to manage all elements and risks in an integrated way.

Glove use as an element of infection prevention and control practice is at the heart of the RCN's Principles of nursing practice, 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. The principles 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).

How to use this guidance

This guidance has been updated to reflect current evidence and best practice in 2018, and focuses on the use of non-sterile examination gloves as these are most widely used to deliver nursing care.

Although this document can be used to support the development of local policies and guidance, readers must be aware of, and comply with their organisational or employer policies.

Recommendations

As a result of developing this guidance the following recommendations have been made to identify current gaps in knowledge and support improved use of gloves in clinical practice.

1. Hand hygiene education should include information to support staff maintain the integrity of skin as a result of work-based activities. This should include the importance of skin care and skin surveillance, the importance of good hand hygiene techniques and the use of hand moisturisers.
2. Gloves should never be used as an alternative to hand hygiene and employers must make clear their expectations regarding glove use and misuse through policies and procedures, education and assurance processes such as audit.
3. Skin surveillance should be undertaken every few months, using visual checks to determine if signs of dermatitis are present among staff. Annual questionnaires may be suitable to support skin surveillance programmes, but should not considered a substitute for regular visual checks.
4. Organisations' glove use policies should include information on local skin surveillance programmes purpose, requirements and reporting mechanisms.
5. Cases of work-related dermatitis and trends in skin surveillance results should be reported and discussed locally at health and safety/infection control committees/ meetings. Concerns should be escalated through local governance systems.

6. Hand hygiene observational assurance processes such as audit should include observation of glove use with joint reporting on both to support improvement in both practice elements.

7. A validated easy to use method to measure glove use is required to support improvements in and assurance of appropriate glove use.

8. Clinical evaluation of all products relating to gloves and hand hygiene must be included in procurement decisions in order to create a holistic approach and management of glove use. This should include occupational health, health and safety and infection prevention and control as well as users of products.

9. Further work is required to address glove use by non-clinical staff, for example cleaners and portering staff, in relation to risks in health care.

10. Research is required on the best methods to deliver education and assure compliance with glove use by clinical staff. To support appropriate glove use consensus is required at the UK level regarding terminology and use of language when describing standard, contact or transmission based precautions.

2. Understanding the role and function of skin

The skin is a complex organ and has several functions including temperature regulation, sensation and synthesis of vitamin D. The main function of the skin, however, is protection and if the skin is disrupted or damaged it cannot undertake this function effectively.

The protective role of the skin occurs by acting as a barrier to prevent fluid loss, preventing micro-organisms from entering the body, and also to modify the effects of pressure, radiation, heat, chemicals and trauma on internal tissues and organs.

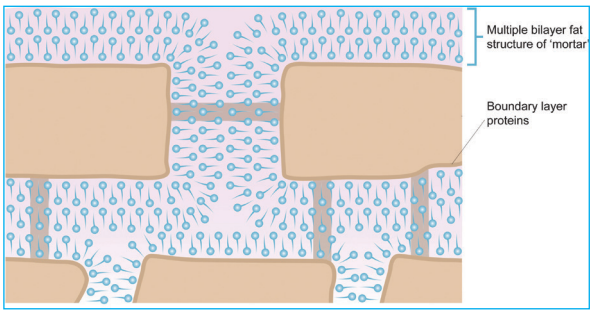
Skin structure

There are two layers to the skin:

Epidermis: composed mainly of keratinocytes (cells containing keratin). These are continually produced at the bottom of this layer and migrate to the surface of the skin as part of a continuous process of cell renewal and wearing off (shedding) of skin. This layer is normally about one tenth of a millimetre thick, but in areas such as the soles of the feet and palms can be one millimetre thick. The stratum corneum, part of the outer layer of the epidermis, is central to the skin's protective role including preventing dehydration of underlying tissues.

Keratin is a protein that helps to prevent water evaporation from the skin. It can also absorb water when the skin is exposed to moisture, which is why hands and feet can appear wrinkled after immersion such as after swimming, bathing etc. It takes approximately 14 days for skin cells to journey through the layers of the epidermis until being shed at the surface.

Dermis: contains the supporting structures for the skin, collagen fibres, blood vessels, sweat glands and hair follicles. This layer is about four times the thickness of the epidermis. The subcutaneous tissues of the skin lie beneath the dermis.



Cross section of the skin showing epidermis; bricks and mortar concept (image © HSE)

When things go wrong: dermatitis

When the skin's barrier defences are not effective, the skin reacts and the most common symptom is inflammation. This is known as dermatitis, which is a type of eczema. The signs and impact of dermatitis are described in table below. It is important to note that not all these symptoms will occur at the same time.

Table 1: Signs of dermatitis and associated impact

Symptom/indication	Rationale or impact
Redness and warmth.	Blood vessels in the hands are dilated.
Formation of swelling and tiny blisters.	Leakage of plasma from the blood vessels occurs and the skin may 'weep'.
Itching.	Disrupted functioning of the nerves in the skin.
Infection with potential thickening of the skin, crusting and bleeding.	Colonisation of the skin – bacteria and fungi may enter the skin via open areas and cause infection to develop.

Some people have an inherited tendency to dermatitis known as atopic dermatitis, which is a group of skin conditions that results in dry, irritated skin. It mainly affects children but can continue into adulthood. It is often associated with other conditions such as hayfever and asthma, and can be triggered by environmental factors such as pollen and animal fur. Individuals with atopy may be more at risk of allergic skin conditions following exposure to certain substances in the workplace such as natural rubber latex.

Atopy is not a barrier to employment as a nurse or health care worker, but work conditions or exposure to certain substances may aggravate the condition.

Reddening of skin after hand washing (image © HSE)

Contact dermatitis – understanding different terminology

People who experience dermatitis may do so naturally without any contact with substances that provoke a skin reaction. However, if the dermatitis is due to exposure to substances outside of the body, the condition is known as contact dermatitis.

If a substance acts as an irritant to the skin this is irritant contact dermatitis. As well as causing a general inflammation of the skin, it is possible for some substances to cause an allergic over-reaction of the body's immune system in the skin. The substance is then known as an allergen or sensitiser, and the skin condition is called allergic contact dermatitis. Sensitisation of the skin may occur at the first contact, or it may be many months or years of contact before it happens. This can lead to a sense of complacency because the process of sensitisation over time does not appear to change the skin, so health care workers may not realise that harm is occurring.

It is perfectly possible to have both irritant and allergic dermatitis at the same time, and it is often impossible to tell what type is occurring from just looking at the skin.

It is important to acknowledge that not all dermatitis is work-related, and exposure to substances outside work such as domestic chores and hobbies may contribute to the condition. It has been shown that there is an increased risk of dermatitis in people who have children under the age of four, and who wash dishes by hand. These factors may increase the susceptibility to work related dermatitis (Nilsson et al., 1985).

Allergic dermatitis

There are two types of allergic dermatitis, and they tend to appear over different time spans. For both conditions there must have been previous exposure to the substance and sensitisation, which then led to an immune reaction. Once sensitised, exposure to even very small amounts of the substance may cause an allergic reaction. The reaction is likely to occur for the rest of the person's life. For example, a person sensitised to natural rubber latex from glove use may have a severe reaction if in contact with latex balloons. Allergic contact dermatitis is often more difficult manage and treat than irritant contact dermatitis. It is important that the difference between the two types of allergic dermatitis (type 1 and type IV reactions) are understood, recognised and managed appropriately.

Irritant dermatitis from excessive hand washing (image © HSE)

Dermatitis showing crusting/thickening of skin (image © HSE)

Allergic dermatitis

Urticaria type I: immediate hypersensitivity reaction. Occupational contact urticaria develops rapidly after exposure to a substance, often a sensitiser. The name urticaria comes from the Latin name for the stinging nettle, and most people are familiar with the wheal (bump) and flare (reddened skin) of nettle rash. Once sensitised, immunoglobin E (IgE) cells react with the sensitiser to cause the release of substances such as histamine by mast cells. This results in changes in the blood vessels of the skin and the reddened raised appearance of the skin. It is also possible to get urticaria when exposed to some irritants.

Type IV: delayed hypersensitivity

This reaction occurs when the sensitiser enters the skin and combines with immune cells called Langerhans cells. These leave the skin and travel to nearby lymph nodes. Here they react with T-lymphocytes (or T-cells), which reproduce and form memory cells that remember the structure of that particular sensitiser. In the second phase of the reaction when the substance is encountered again, the T-cells recognise the sensitiser and multiply. This leads to the release of substances such as histamine and inflammation. The second phase can happen many hours after the contact and is considered a delayed response.

Understanding the causes of dermatitis

There are a number of irritants and allergenic substances that people come into skin contact with, depending on the type of work they carry out. Examples include detergents, metals such as nickel, perfumes and even some plants.

Friction, rubbing the hand against the allergen or irritant can also make the condition worse. In addition to contact with irritant and allergenic substances, repeated contact with water can have an effect on the skin. Cold weather and low humidity can also have a drying affect on the dermis and can lead to an increased risk of skin problems.

Table 2 Substances that could provoke a skin reaction

Substance	Examples of use in health care	Allergen or irritant
Accelerators eg thiurams, carbamates	Used in glove manufacturing	Allergen
Aldehydes	Formalin used as a preservative in pathology specimens	Allergen and irritant
Diphencyprone	Used to treat alopecia	Allergen
Enzymatic detergents	Used to clean equipment such as endoscopes	Irritant and allergen
Topical steroids or topical antibiotics	Treatment of patients	Allergen
Soaps	Hand washing	Irritant
Solvents	Acetone (nail varnish remover)	Irritant
Antibiotics	Antibiotic solutions prepared at local level	Allergen

The effect of water on the skin

Preventing dehydration of underlying tissues of the skin is important. Water retention is supported by substances in the skin called natural moisturising factors (NMFs). If the moisture content is too high or too low, it can affect the skin's barrier properties (HSE, 2018b). If the water content of the skin is too low (as in low humidity environments) or too high (over exposure to wetness), the skin may lose its effectiveness as a barrier.

Prolonged contact with water or wearing gloves for extended periods prevents sweat evaporation, and can lead to skin becoming over hydrated or soggy. This causes the production of fewer NMFs, which disrupts the intact skin and its barrier function.

Certain jobs or occupations are characterised by prolonged exposure to water wet work or prolonged glove use. Hairdressers and health care workers are among these groups, and for this reason are thought to be at greater risk of skin disruption.

In the UK, wet work is defined as work that involves hands being wet for significant periods during the working day; as a guide – more than two hours a day or about twenty hand washes a day (HSE, 2018b). However, guidance has been developed in Germany that gives an insight into to the type of situation or exposures, which may put skin at risk (Flyvholm et al., 2006). For example, where staff spend:

- a large part of their work time, that is more than one-quarter of the daily shift (two hours) with their hands in wet environments
- a corresponding amount of time wearing moisture-proof protective gloves, or must frequently clean their hands.

The epidermis layer of skin also is generally acidic, which assists in protecting the body by neutralising contaminants such as micro-organisms that are usually alkaline in nature. If the skin is repeatedly washed with alkaline soaps, then this pH balance can be disturbed resulting in a reduction of its protective ability.

Why is work-related dermatitis an issue in health care?

Health care workers are often exposed to a cocktail of irritants and allergens. Frequent exposure to soaps and cleaners, wet work, glove use, hazardous agents found in gloves, disinfectants, preservatives and fragrances present risks to health care workers' skin.

The nature of health care work means that there may be exposure to more than one irritant and more than one sensitiser at any one time. At times there is a clue to the cause of the problem because of the distribution of the rash. For example, sometimes with glove-related dermatitis there may be a clear demarcation at the wrist where exposure stops. But, this is not always the case. When the substance is not directly in contact with the skin such as when the irritant is a fume, eyelids may be affected.

With all these potential variables, it is essential to get expert advice in identifying the offending substance(s) and how to avoid future exposures.

How big a problem is it?

It is likely that dermatitis in health care workers is under reported. There are few formal health surveillance schemes in operation where workers are routinely asked if they are having problems with their skin, and their skin is inspected. Perceptions may also result in an acceptance that irritated skin is part of the job and is not important.

It is estimated that each year in the UK, 1,000 health care workers develop work-related contact dermatitis (HSE, 2018c), and are reported to have an incidence of diagnosable work-related contact dermatitis and may represent the tip of the iceberg. This is nearly seven times higher than the average for all professions.

An analysis of the reported skin problems by researchers at the University of Manchester (Stocks et al., 2015) found that health care workers were 4.5 times more likely to suffer from irritant contact dermatitis in 2012 as in 1996.

The researchers attributed the rise to the drive to improve hand hygiene. Whilst recognising the importance of good hygiene, they stress that increased awareness of the prevention and management of irritant dermatitis is also very important.

Therefore, half of all health care workers may experience dermatitis in any year. Does it matter "it is just a bit of red skin"? It does matter, for several reasons. For some individuals dermatitis can be a painful condition with cracked, bleeding skin that may prevent them from undertaking normal day-to-day personal and work activities. It also makes them more susceptible to pick up infections in the open areas of skin as the protective function of the skin is broken. Depending on where they work, health care workers may have to take time off work to recover because the cracked or open skin on hands from dermatitis can prevent hand hygiene.

This has an impact on clinical care because staff will be unable to work with patients or in other clinical areas. It also reduces staffing levels in the workplace. Additionally, dermatitis may make the person affected miserable and withdrawn if their dermatitis is evident to others. Psychological distress is a known issue for people with dermatitis. In the worst cases, dermatitis may go on to become a chronic condition that does not resolve even if exposure to the substance causing it is removed.

Under health and safety law an employer has a legal duty to protect employees and others (agency workers, contractors) from the risks of workplace injuries and ill health including work-related dermatitis. Further information on the employer's duties can be found in **Section 4 on page 19**.

3. Introduction to using gloves in health care

Glove use in health care originated within surgery over 150 years ago with the emphasis of use on protecting the surgeon from infection. As an understanding of micro-organisms (germs) and infection increased, notably to reflect the work of Lister on antisepsis in surgery, recognition of patient protection and knowledge of how this might be achieved through contact with sterile sites or transfer of germs improved.

Today, gloves are considered a control measure for protecting both patients and health care staff. The protection of staff includes preventing exposure to disease causing micro-organisms, as well as hazardous chemicals and drugs. Examples of patient protection may include (but is not confined to) the prevention of infection as a result of surgery, aseptic procedures or where the transfer of micro-organisms from staff, patients or the environment needs to be prevented.

This section explores the definition of personal protective equipment (PPE) in relation to examination and protective gloves, and looks at the current standards required to ensure that gloves are fit for purpose. The relationship between glove use and hand hygiene and indications for glove use is also discussed.

Glove use is a central part of standard precautions, and is one element of what is known as personal protective equipment (CDC, 2007; NHSSS, 2016; Loveday et al., 2014). Gloves act as a physical barrier to prevent contamination of hands by blood and body fluids, chemicals and micro-organisms. The integrity of any glove cannot be taken for granted, and staff should be aware that complete protection or contamination prevention of their hands cannot be guaranteed.

Prolonged use of gloves can increase the risk of work related dermatitis because of exposure to the substance or chemicals used to manufacture gloves. Also if skin becomes over-hydrated (see section 1 on page 5) it can cause soggy skin.

Glove use has risen dramatically since recommendations were made following the discovery of HIV/AIDS in the mid-1980s, and the development of standard precautions – a term that evolved from universal precautions.

As mentioned previously, it is estimated that 1.5 billion boxes of gloves are supplied to the NHS in England alone annually. Gloves may be worn as part of standard precautions or transmission based precautions (see section 4 for more information).

Gloves used as personal protective equipment (PPE)

What is PPE?

Where a risk to workers' health and safety cannot be controlled adequately in other ways, employers have a duty to provide personal protective equipment for situations where there is a need to manage such risks. In health and social care exposure to micro-organisms and chemicals cannot be completely removed, therefore protective equipment such as gloves are provided in order to manage this risk.

PPE is defined as:

- all equipment that is intended to be worn or held by a person at work and which protects them against one or more risks to health or safety.

This can include items such as safety helmets, gloves, eye protection, and safety footwear.

The Control of Substances Hazardous to Health Regulations (COSHH, 2002) requires PPE to be:

- suitable
- maintained and stored properly
- provided with instructions on how to use it safely
- used correctly by employees.

CE As one element of PPE available to health care workers, gloves help to protect the wearer from biological and chemical hazards. Gloves worn as PPE must meet certain standards, comply with the Personal Protective Equipment Regulations (1992) and carry a CE mark. The European Commission CE marking directives

ensure free movement in the European market of products that conform to the requirements of EU legislation. This includes safety, health and environmental protection, and is a key indicator of a product's compliance with legislation.

It is important however to note that gloves used for patient protection are not classified as PPE, and are certified under medical devices regulations. In practice, this means that health care staff may wear gloves both as PPE and as a method of protecting patients during their work (see section 4).

Health care staff must understand the subtle differences in glove types and their intended purpose otherwise they may be lulled into a false sense of security, and could assume that all gloves protect them from all hazards when this is not necessarily the case.

European standards for gloves

Gloves used in UK health care fall into two main categories (non-sterile examination or sterile procedure gloves) and are covered by two different European directives to ensure that they meet the necessary quality standards. Some gloves used in healthcare may be labelled to more than one directive and it is important to consider the differences between the two standards to ensure you have the right glove available for your requirements.

EU standard EN455 Medical Gloves for Single Use

- Examination gloves or medical examination gloves are classified as Class 1 medical devices and need to comply with the Medical Devices Directive, which is concerned with protecting patients. The European standard for single use medical gloves is EN455. EN455 is divided into four parts which are individually tested to ensure compliance with the standard. The requirements are listed below:
    - EN455-1 (2000) defines the requirements and testing for freedom from holes. The acceptable quality level (AQL) for this test is 1.5, meeting the requirements of the Medical Devices Directive 93/42/EEC.
    - EN455-2 (2015) defines the requirements and testing for physical properties of medical gloves. This is the dimension of a glove in terms of length and width and the strength based on the force at break, which is ≥6 newton for latex and nitrile gloves and ≥3.6 newton for gloves made of thermoplastic materials i.e. vinyl.
    - EN455-3 (2015) defines the requirements and testing for evaluation of biological safety as part of a risk management process. Testing methodology is provided for endotoxin units, powder content and leachable protein levels.
    - EN455-4 (2009) defines the requirements and testing for shelf life determination using stability tests to test properties that are reasonably expected to alter over the shelf life of the product. This includes but is not limited to force at break, freedom from holes and pack integrity in the case of sterile gloves.

EU Standard EN374 Protective gloves against dangerous chemicals and micro-organisms

- This standard specifies the capability of gloves to protect the user against chemicals and/or microorganisms by testing for water penetration and resistance to permeation by chemicals. (NHS BSA, 2016). The Standard stipulates the requirements for Permeation, Penetration and Degradation and gloves will be classed depending on their performance level and number of chemicals they can protect against. It is important to review the range of tasks that gloves may be used for and select the correct glove that can meet your local requirements.

It is crucial to carry out a risk assessment to decide whether, and which type of glove to use.

Which type of glove to wear

In health care, gloves are usually made of latex or a non-latex material such as nitrile, neoprene or vinyl. All gloves are disposable, single-use items and can be sourced sterile or non-sterile.

Polythene gloves are not suitable for clinical use.

The effectiveness of different glove materials has been reviewed in the UK and Canada (Canadian Review, 2011). They suggest that latex may offer increased barrier protection compared with non-latex alternatives in a surgical context. However, no evidence was found to suggest differences in allergy potential, cost-effectiveness, effectiveness to prevent pathogen transmission, or recommended duration of use of latex versus non-latex gloves. In addition, the Canadian review concluded that vinyl gloves are not suitable for use when exposure to cytotoxic agents is possible.

The Health and Safety Executive (HSE, 2018d) has produced guidance on glove selection to minimise the risk of latex glove allergy to health care staff. The RCN supports the evidence-based approach taken by the HSE.

Key issues to consider when deciding on the choice of gloves include the following, and form the basis of a risk assessment for glove use:

- task to be performed
- anticipated contact and compatibility with chemicals and to cytotoxic drugs
- latex or other sensitivity
- glove size required
- your organisation's policies for creating a latex-free environment.

Gloves used to handle chemicals and hazardous drugs

Where health care workers are exposed to chemical solutions or other hazardous substances, the employer must carry out a COSHH assessment. The employer must assess the risks of exposure to the substance in question, and see whether the risks can be reduced and contact with the skin avoided. Where contact cannot be avoided, for example, manual cleaning or drug preparation, gloves and other protective equipment such as goggles may be necessary.

Examples of chemicals where protective gloves will be needed include those listed below. However, any chemical exposure, even if not considered hazardous should be assessed to ensure that the right glove is provided (eg chlorine releasing disinfectants, pre-prepared disinfectant wipes, etc.):

- enzyme-based cleaning solutions eg for cleaning endoscopes prior to disinfection
- diphencyprone for treating aloplecia
- cytotoxic drugs used in chemotherapy treatments.

It is vital that the right type of glove is selected to protect staff, and this is central to the COSHH assessment by the employing organisation. Some chemicals may leak or break through examination gloves making them unsuitable for use. Always seek advice from manufacturers of chemicals and gloves to ensure the right type of glove is provided.

The Health and Safety Executive provides further information on glove selection see the resources and further reading in section 7, on page 29.

When to use gloves

In health care there may be many occasions when health care workers may need to consider whether or not to wear gloves. This can result in confusion about when exactly to use gloves, and can lead to the potential risk of over-use, rather than under-use occurring as staff attempt to manage risks by being over cautious. Reinforcing messages that there are multiple situations in health care where gloves are not required can be equally complex. A detailed summary of indications based on current national and international recommendations has been included in Appendix 1.

Non-adherence to glove use policies includes failing to wear gloves at the right times, and wearing them too often and/or for too long.

Inappropriate glove use also represents a potential waste of financial resources, as well as resulting in less effective infection prevention and control.

The use of gloves should be based on a risk assessment. To support health care staff make the right decision on when to use gloves, the following table has been developed based on current World Health Organization (WHO) literature.

Table 4: Indications for glove use (adapted from WHO, 2009)

	Indication
Gloves on	1. When anticipating contact with blood or another body fluid, e.g. touching or emptying urinary catheter, cleaning a person who has been incontinent, vaginal or rectal examination, regardless of the existence of sterile conditions and including contact with non-intact skin, mucous membrane and mouth care. 2. As part of transmission based precautions (contact, airborne or droplet precautions) where local policy requires this. 3. When anticipating contact with chemical hazards such as disinfectants or preserving agents. Note: any cuts or abrasions present on hands should be covered (eg plaster) prior to donning gloves.
Gloves off	1. As soon as gloves are damaged (or non-integrity suspected). 2. When contact with blood, another body fluid, non-intact skin and mucous membrane has occurred and has ended. 3. When contact with a single patient and his/her surroundings, or a contaminated body site on a patient has ended. 4. When there is an indication for hand hygiene. 5. When contact with chemicals has ended.

The above indications table does not specify the type of glove required, and staff are responsible for undertaking a risk assessment to ensure the correct glove choice. This includes the decision as to whether sterile or non-sterile gloves are required. WHO has developed a glove pyramid to help inform health care staff about when it is appropriate to use gloves (WHO, 2009a) – see appendix 2 on page 33.

The importance of protecting health care workers' hands from exposure to hazardous substances (eg chemicals and hazardous drugs), and the potential need for protective gloves must also be considered.

4. Glove use and infection prevention and control

Clarifying standard and transmission based precautions (TBP)

In health care, decisions on when to wear gloves are often associated with the need to consider standard or transmission precautions. Glove use in these circumstances should be considered a control measure for patient protection, and as part of the process for managing biological risks to staff related to patient care.

Standard precautions

Standard precautions are a set of principles to support safe clinical practice, and are designed to prevent transmission of micro-organisms (and therefore potential infection) and to minimise risks of exposure to health care workers from potentially infectious or offensive material (i.e. blood and body fluids and excretions such as faeces, etc.). Standard precautions apply to all patients'/persons' blood and body fluids regardless of their suspected infection status, and should be implemented in all health care settings.

Glove use however represents only one part of standard precautions. PPE is used in conjunction with other practices such as hand hygiene and prevention of sharps injuries to ensure that standard precautions are effective at all times. It is the responsibility of the health care worker to decide on which practices are required at any particular moment, based on the potential level of exposure to blood, body fluids and excretions.

Transmission based precautions (TBP) – including contact precautions

Standard precautions are a fundamental element of clinical nursing practice and are applied in all settings and situations where possible or actual exposure to blood or body fluids is expected. Health Protection Scotland (HPS, 2017) define TBP as a set of infection prevention and control measures that should be implemented when patients are known or suspected to be infected with an infectious agent. These should be implemented, as required, in addition to Standard Infection Control Precautions in all care settings. TBPs are categorised according to the route of transmission of the infectious agent i.e. airborne, droplet or contact transmission. This applies when there is potential for, or an actual outbreak of, infection that could be spread through contact. Contact precautions can be implemented for individual patients only, or occasionally for a group of patients (for example, those in a cohort area).

Contact precautions are one way to interrupt the spread of potentially harmful micro-organisms that are important because of their impact in health care settings. They are usually associated with patients in source isolation. Examples include infections such as: chickenpox; norovirus; *Clostridium difficile*; colonisation/infection with multi-resistant organisms such as Carbapenemase Producing Enterobacteriaeae (CPE); MRSA and glycopeptide-resistant enterococci (GRE). However, this will be determined locally in line with your organisational policies.

In such circumstances gloves and aprons are the main components of PPE for contact precautions where the aim is to protect staff from infection. Where the aim is also to protect the spread of infection to other patients there is a dual purpose for gloves and health care staff should be aware that language can be used interchangeably. PPE should be put on before entering the patient or patients' room/bay, and disposed of into the appropriate waste bin when leaving.

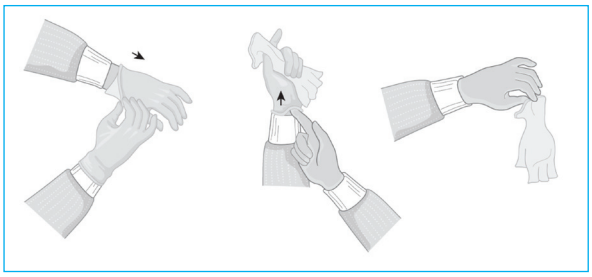
> It is important to remember that gloves may need to be changed between different care activities for a particular patient while contact precautions are in place to prevent distribution of bacteria from one body site (eg groin) to another (eg face), which could potentially result in infection.

Confusion over whether contact and standard precautions are one and the same may contribute to inappropriate glove use. The importance of standard precautions is well recognised and intended to promote safe, appropriate and rationale use of PPE. However, the adoption of a wider principle of considering all patients potentially infectious is not supported by

evidence. This may contribute to increased glove use, and has also in been shown to reduce compliance with hand hygiene requirements (Fuller et al., 2011).

Glove use and hand hygiene

Gloves are not a substitute for hand hygiene and do not provide a failsafe method of preventing hand contamination. Glove use must be coupled with appropriate and timely hand hygiene to prevent spread of microorganisms between patient contacts and staff. Health care workers should either wash their hands or use an alcohol hand sanitiser immediately after taking off gloves. If alcohol hand sanitisers are used they must be allowed to evaporate completely before new gloves are put on. Careful removal of gloves will help reduce contamination of hands. See below for more details.



Suggested method for removing gloves to reduce contamination of hands – adapted from WHO, 2009.

Gloves can act as a vehicle for the transmission of micro-organisms, and this has been highlighted in health care literature. However, the impact of glove use on hand hygiene has not yet been definitively established (WHO, 2009).

Research into glove wearing and compliance with hand hygiene in the UK (Fuller et al., 2011) has revealed a decrease in compliance. This is important because contemporary observational audits are focusing on reporting rates of hand hygiene compliance only. Many organisations do not observe glove use as an integral component of hand hygiene compliance. This, combined with a lack of validated audit tools, means that the impact of glove use on hand hygiene compliance is not yet fully understood within the UK.

Glove use and hand hygiene: the specifics

It is clear from available evidence and literature that the impact of glove use on hand hygiene compliance requires further study. The following bullet points highlight some key best practice for glove use and hand hygiene:

- hand hygiene involves hand washing or using a hand sanitiser such as an alcohol hand rub whether gloves have been, or are intended to be worn. The choice of hand hygiene method may be influenced by patient specific conditions such as caring for patients who have or are suspected of having *Clostridium difficile*, norovirus or other infections where alcohol gel is not recommended
- carry out hand hygiene before putting gloves on, for example, when about to perform an aseptic procedure where there is possible exposure to blood/body fluids such as urinary catheter of intravenous device insertion
- gloves are not a substitute for hand hygiene. When gloves are worn, hand hygiene must be performed after the gloves are removed, in line with the indications for hand hygiene (see table 4)
- staff should be reminded to change gloves between multiple patients where contact precautions are in place (eg in an isolation ward or caring for a group of patients), and to perform hand hygiene each time gloves are removed. Failure to do so places patients at risk from potentially harmful micro-organisms and infection
- health care workers must perform hand hygiene when an indication (see table 4) occurs while they are caring for the same patient and are already wearing gloves. For example, before undertaking another task such as moving from emptying a urinary catheter bag to performing mouth care. Under such circumstances gloves should be removed between tasks because blood/body fluid exposure risk has occurred. After hand hygiene new gloves should be worn as appropriate for the next task
- hand hygiene should never be performed while wearing gloves.

Placement of gloves

Health care staff must consider how and where easy access to the right type and size of gloves and alcohol hand sanitisers can be ensured by having them available in an appropriate place at all times, eg glove boxes placed on trolleys. They should also ensure supplies are replenished when low.

Good practice points for glove use

The following good practice points have been identified to support health care workers to practise safely and efficiently:

- gloves are single use items and should be disposed of after each task is complete in line with local waste policies
- the type of glove selected must be fit for purpose and well fitting to avoid interference with dexterity, friction, excessive sweating and finger and hand muscle fatigue
- double gloving is not recommended for non-surgical procedures or practices (eg manual evacuation of faeces). Double gloving does not obviate the need for hand hygiene
- the supply of gloves must include a choice of glove size eg small, medium or large
- expiry dates/lifespan of gloves should be adhered to and according to manufacturers' instructions
- follow manufacturer and local recommendations to store gloves to avoid contamination and to ensure health and safety
- staff must be trained in how to put on and remove gloves.

Patient and public perceptions of glove use

As with hand hygiene, patients are able to observe practice and formulate views on compliance and appropriateness of nursing practice. Wilson et al., 2017, highlight how patients were able to discriminate between appropriate and inappropriate glove use in a student nurse population and describe the activities where which patients report feeling uncomfortable. The activities include helping patients to dress or walk to the toilet, helping patients to eat or serving tea and coffee. The activities described by patients as making them feel uncomfortable do not align with recommendations for glove use where exposure to blood or body fluids are anticipated. The influences that affect decisions on when to wear gloves will be varied, and can include peer pressure (observing the practice of others), interpretation of local policies, and perceptions of what constitutes a clean or dirty activity or patient. Likewise self-protection can be a key driver for use of gloves when not clinically indicated.

Nursing staff should be mindful of the patient or persons feelings when gloves are used to deliver care and make decisions on when to use gloves based on risk assessment as suggested in table 4.

Responsibilities for ensuring safe glove use

The appropriate use of gloves depends on the clear delineation of individual and organisational/ employer responsibilities.

Table 5: Roles and responsibilities for glove use (adapted from HPS, 2009)

Roles and responsibilities in relation to glove use	
All health care staff providing direct care	• Apply the principles of standard precautions to ensure patient and health care worker safety. • Help all colleagues working in their practice setting adhere to appropriate glove use (this may form part of glove use assurance monitoring and feedback). • Choose the correct gloves for the task • Use hand creams as instructed. • Explain the reasons for, and importance of appropriate glove use to colleagues, including patients and visitors if asked/required. • Report any issues related to inappropriate glove use including incidents, lack of supplies and lack of knowledge so that future training and education can be targeted and effective. • Consider own role in appropriate glove use and hand hygiene and role-modelling these aspects of clinical care as part of continuing professional development/performance reviews. • Reporting any personal ill health issues relating to skin or respiratory system that may be related to glove use. • Comply with local occupational health surveillance requirements, including visual checks of your skin. • Report concerns regarding glove leakage or tearing to manager, local procurement team (if available) and infection prevention control (IPC) adviser.
Managers	• Ensure that all staff are offered and receive instruction/education on the use of gloves and hand hygiene. • Undertake risk assessments to ensure the correct standard of glove is available for staff, and liaise with local infection prevention and control teams, and occupational health and safety staff as required. • Ensure and monitor the availability of gloves to attain the recommended indications. • Support staff to understand and improve their practices following failures to adhere to the indications described, or incidents. • Ensure staff participate in any health surveillance programmes. • Provide support to staff with any skin or respiratory issues in relation to work activity. • Ensure the provision of hand creams at all times.
Infection prevention and control staff	• Provide specialist advice for staff and management. • Act as a resource for guidance and support when advice on glove use and hand hygiene is required. • Work collaboratively with occupational health staff to provide advice on individual risk assessments for glove use and purchasing decisions. • Contribute to reports for senior management on glove use, including patient and health care worker safety.
Occupational health staff	• Provide advice on safe glove selection and risk assessment on latex glove use. • Introduce and facilitate health surveillance programmes. • Provide guidance on hand care. • Work collaboratively with infection prevention and control , management and procurement staff. • Report dermatitis rates to relevant governance committees e.g. health and safety committee.
Health and safety representatives or staff	• Encourage employees to follow local policies on glove use. • Ensure that you are consulted on risk assessments and glove selection. • Raise any concerns on glove use and PPE to managers or via local risk register. • Liaise with local infection prevention and occupational health staff as required.
Procurement staff	• Work collaboratively with occupational health, procurement teams, users and infection prevention teams on purchasing decisions and product reviews. • Liaise with national or local suppliers regarding product selection and pricing. • Respond to any concerns on behalf of the organisation regarding glove quality and safety eg MHRA (Medicines and Healthcare products Regulatory Agency) notifications.

Glove selection and latex sensitivity

Prolonged or over use of latex gloves can put a health care worker at risk of contact dermatitis. Much of the earlier research into the hazards of gloves centred on natural rubber latex and powdered gloves. But, it is now recognised that accelerators and chemicals contained in many different types of gloves can also cause problems. So, it is even more important to select the correct type of glove for the substance being exposed to/ handled and the task being carried out.

The Health and Safety Executive (HSE, 2018d) recommend that employers consider the risks carefully when selecting gloves to use in their workplaces by:

- deciding whether or not protective gloves are required at all to perform the task (follow local policies)
- providing suitable gloves for the intended purpose. This means there is a requirement for employers to provide adequate protection against the hazard, and that gloves are suited to the wearer, the work and the environment in which they are used. To ensure suitability, employers must consider the work (substances handled, other hazards, type and duration of contact), the wearer (comfort and fit) and the task (eg need for dexterity, sterility issues).

If the employer's assessment is that latex is the most suitable glove type for protection against the hazard, then the following should be in place:

- single use latex gloves should be low-protein and powder free
- individuals with existing allergy to natural rubber latex proteins should be supported by employers to take latex avoidance measures and should not use single use or reusable gloves that contain latex (eg reusable rubber gloves used for washing up dishes). Employers may need to provide gloves in an alternative material
- where the use of gloves could result in direct or indirect exposure to a member of the public, the employer must undertake an assessment of the risks of exposure and adopt suitable measures to ensure the health of the public is protected.

These actions are essential to ensure that individuals with existing allergy to natural rubber latex (NRL) are protected as a result of their work duties.

Latex glove allergy

Proteins present in natural rubber latex can cause allergies either through direct contact with the skin, or by inhalation from powdered latex gloves. True latex allergy is a type I hypersensitivity reaction. Sometimes the chemical accelerators in latex (or non-latex) gloves can cause a type IV delayed hypersensitivity reaction and this can be confused as being a latex allergy when it is not. It is very important to know if you are truly allergic to latex for your own health and safety particularly if undergoing health care or dental treatment so as to avoid inadvertent exposure during your own treatment.

Glove disposal

After use gloves must be disposed of in line with local policies for waste management. Depending on the purpose for which the gloves have been used, a number of disposal methods may be used. The following table/diagram illustrates possible options for disposal based on *The safe management of health care waste* (DH, 2013).

Note: *The safe management of health care waste* is relevant to all four UK countries. However, some countries have adapted the guidance to suit their devolved health systems and developed different practices and waste bag colour coding.

Glove use summary	Disposal option	Colour coding
Gloves exposed to blood body fluids where infection is assessed as present or suspected.	Infectious waste for alternative treatment.	Orange. 
Gloves exposed to blood or body fluids (eg urine, faeces, blood from a screened population, ie screened maternity patients) where risk assessment identifies no infection present.	Offensive.	Yellow and black stripe. 
Gloves used for routine cleaning (non-outbreak conditions) or protection from chemicals (eg general purpose cleaning of equipment with wipes/hypochlorite solutions).	Municipal.	Black. 
Gloves exposed to chemicals as part of a disinfection process (eg laboratories, endoscopy and theatre environments).	Infectious waste for incineration.	Yellow. 

Further information can be found in *RCN guidance on the management of waste arising from health, social and personal care* (RCN, 2014).

Glove use and immunisation

WHO guidance advises that gloves should not be worn for routine intradermal, subcutaneous or intramuscular injections providing the health worker's skin is intact as gloves do not provide protection against needle stick injury. See *Best Practices for Injections and related procedures Toolkit* (WHO, 2010).

Glove use and venepuncture

In line with WHO guidance (2010), the RCN recommends that gloves are worn for venepuncture. The gloves should be well fitting and non-sterile.

However, the RCN recognises that some health care workers with long experience of performing venepuncture without gloves may prefer not to wear them to avoid a perceived reduction of manual dexterity and possible consequent increased risk of percutaneous or needlestick injury.

5. Prevention and management of occupational dermatitis

Occupational dermatitis can, and should be prevented by following this three-step approach *Avoid–Protect-Check*.

Avoid direct contact between unprotected hands and hazardous substances and/or wet work where this is sensible and practical.

Protect the skin if you cannot avoid contact.

Check hands regularly for the first signs of itchy, dry or red skin.

By following the *Avoid, Protect and Check* principles employers and employees can work together to reduce the risks of occupational dermatitis.

Employers have specific legal duties to ensure that the risks of developing occupational dermatitis are managed. Under the Health and Safety at Work Act (1974) employers have a broad duty to protect the health of employees, and others who may be affected from work activities such as contractors or agency staff. The COSHH regulations also place specific duties on employers to assess the risk of exposure to substances hazardous to health including chemicals and biological agents in the workplace. The regulations require employers to carry out a COSHH risk assessment to establish what could be hazardous, and how workers could be exposed to the hazards (eg through skin contact or inhalation).

The employer's main responsibility is to consider how to prevent exposure to harmful substances. The best way to prevent exposure is to eliminate the use of the harmful substance. For example, an employer could substitute the harmful substance with something less harmful such as replacing powdered latex gloves with low protein powder free alternatives.

Where exposure to the hazardous substance cannot be eliminated or substituted, the next step for the employer is to control exposure by designing appropriate work process. This could include providing clear guidelines on hand hygiene or introducing work equipment to reduce skin contact with the harmful substances such as enclosed automated processes for cleaning endoscopes. Where adequate controls cannot be achieved by other means, personal protective equipment such as gloves and goggles should be used. The goal of the COSHH regulations is to ensure that exposure to the substance is as low as reasonably practicable.

Employers should also provide workers with appropriate health and safety information and training. This includes: safe systems of work; the use of equipment and gloves; the correct removal of gloves to prevent skin contamination by the substances on them; and correct hand cleaning and skin care measures. This must happen when health care workers start in a job that exposures them to risk, and be repeated throughout their employment. There is clear evidence that this has an effect on the behaviour of workers and leads to improved outcomes (BOHRF, 2010).

Prevention of dermatitis and hand hygiene

Safe systems at work

If hand hygiene is not done correctly it can increase the risk of dermatitis. Hand hygiene products such as soap should be provided because they are effective in cleaning hands and minimise the risk of skin disease. However, staff should be aware that they need to wet their hands first before applying soap, and that they should rinse them in water that is neither too hot nor too cold. The optimum temperature for rinsing is 32 degrees centigrade – temperatures over 40 degrees centigrade may be too hot for some staff, and could exacerbate skin problems and prevent staff from complying with hand hygiene. This reinforces the need to install mixer taps on hand washing sinks. The most effective way of drying hands is to use soft and absorbent paper towels. Skin should be patted dry, paying attention to each finger and the skin between the fingers. Hot air dryers must not be used in clinical settings because of the risk of re-circulating micro-organisms via air currents.

The regular use of hand creams or conditioning creams should be encouraged after hand washing and at the end of each work period.

There is some evidence that workers who already have damaged skin benefit from using hand conditioning creams (BOHRF, 2010; Nicholson PJ & Llewellyn D, 2010).

The containers used to dispense soap and hand cream should be pump-operated to prevent cross-contamination. The major industrial suppliers of soap and after work hand conditioning cream often give advice on integrated systems and provide training materials.

Hand sanitising products (eg alcohol-based hand rubs) are available as an alternative to soap and water for hand hygiene, and provide an effective and efficient hand hygiene alternative for many indications (see table 4). In the past these were thought to contribute to skin disruption, but improvements in formulations to include emollients mean that contraindications to the use of alcohol rubs are now very few.

Top tips for hand hygiene

- Wash hands with soap and water when visibly dirty or obviously soiled with blood or other body fluids or after using the toilet.
- Wash hands with soap and water where alcohol hand rubs are known to be less effective such as when caring for patients with known or suspected *Clostridium difficil*e or norovirus infections.
- Wash hands with soap and water if alcohol-based hand rub is not available.
- Use an alcohol-based hand rub as the preferred means of routine hand hygiene in all other clinical situations.

(Adapted from WHO, 2009)

The importance of skin surveillance: secondary prevention

Secondary prevention aims to detect the disease at an early or pre-symptomatic stage. Under the COSHH regulations, employers should put in place procedures to check the skin of workers exposed to the risk of occupational contact dermatitis. Known as health surveillance, skin checks are used to identify cases of occupational contact dermatitis at an early and reversible stage. They are also used to monitor that the precautions or control measures put in place to reduce risks are working.

Some organisations carry out skin surveillance at regular intervals such as monthly or yearly and six weeks after starting a role where there is exposure to known irritants or allergens. They do this by training individuals or responsible persons to check the hands of workers, document that they have done so and refer on to an occupational health nurse or doctor if any unusual symptoms are found. It is important that the workers take responsibility for their own health. If they identify skin problems they should inform their supervisor and seek appropriate advice, rather than waiting for the next planned health surveillance.

Employers should have a system in place to refer an affected worker to an occupational health practitioner or dermatologist with expertise in occupational skin disease to recommend appropriate workplace adjustments. Under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR, 2013) employers also have a duty to report cases of occupational skin disease. Cases must first be confirmed by a registered medical practitioner such as the person's GP or occupational health physician.

Responsibilities of the individual employee

Employees too have a legal duty to co-operate with their employer. In particular, they must follow procedures and safe systems of work and use equipment correctly, including PPE provided by the employer.

What can you do to prevent yourself from acquiring dermatitis?

Starting employment:

- if you know that you have had contact dermatitis in the past then you are at greater risk of developing it at work if your job involves, among other things, contact with irritants or allergens. Make your employer aware of this and comply with any risk assessments under your organisation's COSHH requirements
- if you know you will be using a substance that causes occupational urticaria, and you have a history of asthma, eczema or hay fever you are at increased risk of developing urticaria, which is caused by immune response
- you must pay special attention to caring for your skin.

During employment:

- ensure you understand your employer's policies and procedures regarding glove use, including infection prevention and occupational health policies
- ensure that you attend training as required
- understand the substances that you use, handle or come into contact with and the impact of your employer's COSHH and other risk assessment findings
- understand the precautions and control measures that are in place and use them. This may include gloves for the protection of those you care for, or for the protection of your own skin
- participate in skin checks and questionnaires (health surveillance)
- regularly apply hand cream after hand washing and at the end of each work period.

If problems occur:

- tell your manager as soon as possible. Most dermatitis affects the hands, so show them your hands
- follow your organisation's policies regarding skin care. If you cannot find these you may wish to contact your occupational health department and/or local health and safety adviser for further advice
- you can also get support and advice from your local RCN safety representative or steward. Contact RCN Direct on 0345 772 6100 for further information
- your employer should review your work activity and exposure to substances and seek advice from occupational health or health and safety as appropriate.

It is advisable to take pictures of your hands, top and bottom with the fingers spread out, so that the nature and distribution of the skin disruption can be seen. A photograph of your hands can be helpful if there is a delay in getting an appointment, by which time some healing may have taken place. It will also give an indication if recovery is taking place or the problem is getting worse.

The affected health care worker should contact their occupational health services as soon as possible by referring themselves, or being referred by their manager for advice.

Occupational health advisers (nurses) and doctors are the specialists. Their role is not only to provide treatment for the condition, but also to find out what is causing it and to try to prevent it from recurring. Their role is not to provide treatment for the condition, as this is the responsibility of your GP. They are useful in liaising with managers if changes need to be made, such as providing alternative gloves or temporary redeployment if required to allow for healing, or to reduce the risk to those you care for.

If dermatitis occurs you must consult a health care professional such as your GP or specialist in dermatology as soon as possible. Treatment may

include steroid creams and antibiotics if the skin is infected, and discussion about possible referral for further advice or treatment.

If your employer does not have access to an occupational health (OH) service, you can still ask them to refer you to an OH service. Many OH services provide a one-off consultation for advice, but your employer will need to pay for this. There are also free government-funded advice services:

- Fit for Work Advice Line (0800 032 6235)
- Healthy Working Lives Advice Line Scotland (0800 019 2211)
- Healthy Working Wales Advice Line (0800 032 6235 English, 0800 032 6233 Cymraeg).

If your employer will not fund an OH referral then you and your GP will need to work closely to improve the situation. Your GP may wish to contact your employer to notify them that a case of work-related dermatitis has occurred, but this should not be done without your permission. It would be beneficial for you to give your GP this permission so that management becomes aware of the issue and puts in place steps to reduce the risk to you and other employees. If you do not feel that you are getting the support you require contact RCN Direct for further advice.

Collecting relevant information about your dermatitis

Whichever health care professional you see, they will want to know some basic information. So, write down relevant information and take it along to the consultation. Here are some tips about the kind of information you may need to provide:

- if you use gloves for work, make a note of the brand, material (latex/nitrile) and if they are powdered. Take one to the consultation
- make a list of all the substances, chemicals and gloves that you come into contact with – keeping a diary for a week may be useful
- the list should include things used at home such as washing-up liquid, shampoo, liquid and hard soaps and cleaning agents, as well as cosmetics and hand cream
- note if the skin rash gets better or worse in relation to work. If you are on leave for a week or two does the eruption disappear? How quickly does it return?
- make a list of the tasks you do as part of your work, it may be that you are exposed to a substance infrequently during a task that is a small part of the job. Again a diary may help
- take along photos of your skin from the affected areas.

You will find useful information to take with you to your GP in the resources and further reading section 7 of this guidance.

If your dermatitis does not resolve with treatment and modifications at work you should insist on being referred to dermatologist for patch testing to identify, or exclude sensitisers that may be causing the problem.

Getting help from RCN safety representatives

RCN safety representatives represent the health and safety concerns of members and employees. Employers are legally required to consult safety representatives on specific matters that affect the health, safety and welfare of employees such as the introduction of new chemicals or products to the workplace.

Under the Safety Representative and Safety Committee Regulations (1977), RCN safety representatives can attend health and safety committee meetings.

For further advice and to find out who your RCN safety representative is please contact RCN Direct on 0345 772 6100.

Practical steps for safety representatives

- Find out whether COSHH assessments have been carried out on harmful substances used in the work environment.
- Ensure that you are consulted on the introduction of new chemicals, products or work processes that could affect the health of members you represent.
- Find out if regular skin health surveillance is undertaken regarding skin exposures. This may be by questionnaire and/or skin inspection.
- Access specialist occupational health providers.
- Ask for all new cases of dermatitis to be discussed in health and safety meetings.
- Ask for anonymous collective results by area to identify any hot spots and call for a review of risk assessments and health surveillance in those areas.
- Investigate any new cases and ensure contact dermatitis cases are reported under RIDDOR (urticaria is not a reportable disease). Find out what the process is for identifying cases, and who is responsible for reporting them. The requirement for reporting under RIDDOR does not override medical confidentiality, and if the employee does not wish to be named, it can be reported anonymously.
- When undertaking workplace inspections, check product labels or safety data sheets for hazards statements, including the health hazard symbol of an exclamation mark.
- Assist management in raising awareness about dermatitis in health care workers and remind them of their responsibility to use the control measures put into place.

Claiming industrial injuries benefit

Workers who are exposed to an irritant at work and have developed occupational dermatitis may be able to get benefit even if they are able to carry on working. They will be assessed by a doctor for the Department of Work and Pensions. If the disability is perceived to be more than 14 per cent, benefit will be payable.

For further information go to **https://www.gov.uk/government/publications/industrial-injuries-disablement-benefits-technical-guidance/industrial-injuries-disablement-benefits-technical-guidance#appendix-1-list-of-diseases-covered-by-industrial-injuries-disablement-benefit**

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Further resources

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Health and Safety Executive – provides a variety of materials on glove use and related topics at **www.hse.gov.uk**

US National Library of Medicine National Institutes of Health at **www.ncbi.nlm.nih.gov/pubmed/12749603**

Net Doctor at **www.netdoctor.co.uk**

NHS Choices website at **www.nhs.uk/conditions**

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Glossary

The following are definitions to use with this guidance:

Biological agent – this term is used to describe microorganisms (bacteria, viruses and fungi) that pose a risk to patients or health care staff.

Body fluids – a term used to describe bodily fluids such as amniotic fluid, semen, vaginal fluids, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid and pericardial fluid. These fluids are associated with the potential for transmission of infection by blood-borne viruses such as HIV, hepatitis B and hepatitis C.

Chemical agent – this term is used to describe chemicals that pose a risk to staff who may come in contact with them in the workplace. The term chemical includes drugs (pharmaceutical agents) and chemicals such as those present in disinfectant or cleaning solutions.

Contact precautions – contact precautions are implemented for individual patients only, or occasionally for a group of patients when there are potential or actual outbreaks of infection that are primarily spread through contact.

COSHH – the Control of Substances Hazardous to Health Regulations 2002.

Cross infection – the transmission of infection from one individual to another

Doff – to remove (gloves)

Don – to put on (gloves)

Hand cream – also known as moisturising cream or conditioning cream

Hand hygiene – hand hygiene relates to the removal of visible soil and the removal or killing of transient microorganisms. Hands can be washed using soap and running water or disinfected using an alcohol based hand sanitiser.

Hand sanitiser – an antiseptic that can be used instead of soap and water to disinfect hands. Sanitisers can be liquid such as gels or foam. In health care, sanitisers tend to contain alcohol to kill transient bacteria on the hands. Not all hand sanitisers are effective against bacterial spores or viruses, and when used in health care must meet certain standards of effectiveness.

Health care worker – this is used as a generic term that includes registered nurses, health care assistants, midwives and students.

PPE – personal protective equipment, a requirement under the COSHH regulations.

Protective isolation – a term used to describe the isolation of a patient from others for their own protection such as patients with a weakened immune system.

Risk assessment – a systematic method of looking at work activities, considering what could go wrong and taking suitable control measures to prevent damage or injury. This requires controls being put in place to eliminate reduce or minimise the risks. A risk assessment is not necessarily a formal process, and it can be undertaken informally and quickly in the workplace.

Skin lesion – A skin lesion is a part of the skin that has an abnormal appearance or texture compared to the skin around it (can include breaks in the skin, lumps, blisters or redness)

Soap – can also be referred to as hand cleanser

Source isolation – a term used to describe the physical isolation of a patient who is known or suspected to have an infection (the patient is a source of infection) that may be transmitted to others. It also refers to situations where there is a need to isolate patients physically who carry multiresistant organisms that could be transmitted to others.

Standard precautions – a set of principles to support safe practice designed to prevent transmission of infection and minimise risks of exposure of health care workers from potentially infectious or offensive material (i.e. blood and body fluids and excretions such as faeces, etc.). Standard precautions apply to all patients' blood and body fluids regardless of their known or suspected status with regard to carriage of blood-borne infections.

Transmission based precautions (TBP) – including contact precautions - a set of infection prevention and control measures that should be implemented when patients are known or suspected to be infected with an infectious agent.

Glove use terminology

A number of different terms currently exist in health care literature to describe gloves used for different purposes. Gloves are most commonly used to protect patients and staff from: biological agents (micro-organisms) found in blood and body fluids; some patient environments; exposure to chemicals such as disinfectants and drugs (eg cytotoxic or tetragenic drugs).

The following terms are used in this resource:

Medical gloves – an overarching term used to describe single-use gloves used during medical or nursing procedures. Medical gloves include examination and surgical gloves.

Examination gloves – sterile or non-sterile disposable gloves. These are used for non-surgical medical or nursing procedures and are to protect the patient and/or health care worker from contamination by micro-organisms via exposure to blood/body fluids or the health care environment.

Surgical gloves – sterile gloves designed specifically to meet the requirements of users under surgical conditions.

Protective gloves – gloves used to protect the health care worker from chemical hazards such as those found in disinfectants, chemicals used in the decontamination of endoscopes or surgical instruments and drugs such as chemotherapy agents.

Note: a number of different gloves types are used in health care including surgical, examination, reusable utility (eg reusable rubber gloves used for washing up dishes or cleaning and heavy duty gloves). This resource has focused on the use of examination gloves and protective gloves. It has not been written to address issues associated with surgical and non-clinical use of gloves such as those used in general cleaning, food handling/catering or prevention of sharps injuries (i.e. gauntlet gloves). However, the principals discussed in this document may be relevant in some scenarios and non-health care settings.

8. Appendices

Appendix 1: Comparison of current national and international guidelines for glove use

Recommendations from national and international guidelines

CDC (2017)	Loveday et al. (2014)	CANADA: CADTH (2011)	NHS Services Scotland (2016)	WHO Guidelines on hand hygiene in health care (2009)
• It may be necessary to change gloves during the care of a single patient to prevent cross-contamination of body sites • It may also be necessary to change gloves if the patient interaction also involves touching of associated items, such as portable computer keyboards or other mobile equipment including case records that are transported from room to room, bed space to bed space. • When gloves are worn in combination with other PPE, they are put on last. • Proper removal will prevent hand contamination. • Hand hygiene is necessary following glove removal to account for breaches in glove integrity as well as contamination through the process of removal. • Gloves should not be reprocessed (i.e. reused).	• Indications relate to invasive procedures contact with sterile sites and non-intact skin or mucous membranes, and all activities that have been assessed as carrying a risk of exposure to blood, body fluids, secretions or excretions, or to sharp or contaminated instruments. • Gloves are single use items. • Gloves should be donned immediately before an episode of patient contact or treatment and removed as soon as the activity is completed. • Gloves should be changed between caring for different patients, or between different care/treatment activities for the same patient. • Gloves must be disposed of into the appropriate waste stream in accordance with local policies for waste management • Gloves conforming to European Community (CE) standards and of an acceptable quality must be available in all clinical areas. • Alternatives to natural rubber latex (NRL) gloves must be available for use by practitioners and patients with NRL sensitivity.	• If latex products are used in the workplace, employers should provide powder-free latex products, if such alternatives exist. Employers should particularly ensure that powdered latex gloves are not used in the workplace. • Users of latex gloves and purchasers should be aware that the risk of developing latex allergy is highest with the use of powdered latex gloves, and that examination gloves may contain more latex allergen than surgical gloves. • Those concerned with glove purchasing policy should be aware that alternatives to latex gloves may have other associated problems, particularly with failure rates, user satisfaction,and barrier effectiveness. • Those concerned with glove purchasing policy should be aware that a switch to powder-free latex gloves can be cost effective (in terms of glove costs, and compensation). • Those concerned with glove purchasing policy should be aware that a switch to non-latex gloves can also be cost effective.	• Gloves must be appropriate for use, fit for purpose and well fitting to avoid interference with dexterity, friction, excessive sweating and finger and hand muscle fatigue. Therefore, the supply and choice of the correct size of glove, eg small, medium or large, is important. • Never use disposable latex gloves that contain powder due to the risks associated with aerosolisation and an increased risk of latex allergies. • Gloves should be worn when contamination might occur. • Gloves should be changed between patients/clients/procedures. • It may be necessary to change gloves between tasks on the same patient/client to prevent unnecessary cross-contamination. • Do not keep on PPE, such as gloves that have been used for a procedure, once you have finished the task. Remove these immediately. • Gloves are not a substitute for employing good hand hygiene, this should be performed each time gloves are removed. • Torn, punctured or otherwise damaged gloves should not be used and should be removed immediately (safety permitting) if this occurs during a procedure. • Never perform hand washing while wearing gloves. • Never use products such as alcohol based hand rub to clean gloves or wash single-use disposable gloves. • Gloves worn for protection when exposure to blood/other body fluids may occur are single-use and should be removed and replaced as appropriate, with hand hygiene performed in between times.	• The use of gloves does not replace the need for hand hygiene. • Wear gloves when it can be reasonably anticipated that contact with blood or other potentially infectious materials, mucous membranes, or non-intact skin will occur • Gloves are a single-use item and should be changed after each use or upon completion of a task. • Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient. • When wearing gloves, change or remove gloves during patient care if moving from a contaminated body site to either another body site (including non-intact skin, mucous membrane or medical device) within the same patient or the environment. • The reuse of gloves is not recommended.

Appendix 2: Glove pyramid

Appendix 3: Putting in place a skin surveillance programme for contact dermatitis

1. Use the COSHH assessment process to identify whether staff are exposed to substances or work processes that could cause contact dermatitis.
2. Where the risk of contact dermatitis has been identified, and that risk cannot be eliminated, put in place a health surveillance programme.
3. Visual skin inspections are important part of health surveillance for workers exposed to substances that cause contact dermatitis, and should be included in health surveillance programmes.
4. The type and frequency of the surveillance programme should be determined by a health professional with sufficient expertise in occupational health.
5. Assess worker's skin condition as soon as possible after they start a relevant job to provide a baseline, for example, within six weeks of starting. This should include those who are students on clinical placements.
6. The Health and Safety Executive suggest routine skin inspections every few months and an annual skin surveillance questionnaire to support visual inspections.
7. A responsible person should carry out visual skin checks. A responsible person can be a nominated employee with suitable training eg a registered nurse or health care assistant or occupational health support worker.
8. The role of the responsible person is to: check the skin on the hands and forearms for early signs of dermatitis; keep secure records of these checks locally; advise an employee with symptoms how to seek help; and alert the employer to any problems.
9. The responsible person should have suitable training and competence assessment by an occupational health adviser (nurse or doctor). Training should include: the causes of dermatitis; early signs and symptoms and their recognition; what to do in the event of identifying problems; and the need for discretion in recording personal information about employees.
10. Train employees at risk to recognise symptoms of contact dermatitis and report these. Photographs of damaged skin may be helpful in training staff. This could be undertaken by the occupational health adviser or responsible person in line with local protocols.
11. Results of skin inspections should be reported to occupational health service to collate and identify trends or problem areas.

12. Results of health surveillance need to be retained for a period of 40 years from the last entry.

Adapted from HSE (2011) *G403 Health Surveillance for Occupational Dermatitis.*

Appendix 4: Tips for selecting and buying gloves

Decisions taken to buy gloves should exclude any cost pressures that could lead to cheap and inappropriate gloves being bought. All gloves should:

- conform to European Standard EN455 (parts 1-4 medical gloves for single use)
- must compy to European Standard EN374: protective gloves against dangerous chemicals and micro-organisms
- carry the CE mark
- be powder free.

Additional considerations

- Consider the purpose for gloves that you intend to purchase – are they for patient protection (purely exposure to blood and body fluids) only, staff protection (protection from exposure to chemicals or hazardous drugs) or both?
- Consult your organisations' infection prevention and occupational health/health and safety policies.
- Ensure the type of glove required meets the necessary EN standard.
- Do not buy powdered latex gloves – refer to your local policy on the management of latex.
- Work with local staff to establish:
  - intended purpose
  - comfort
  - fit
  - level of dexterity required
  - cuff fitting
  - requirements for specific tasks eg is a longer cuff required to protect wrists?

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