INFECTION PREVENTION AND CONTROL (IPC) 22

ROSE GALLAGHER

THIS CHAPTER COVERS

- IPC and standard precautions
- Hand hygiene
- Standard precautions and gloves
- Your responsibilities as a waste producer
- Management of used linen

REQUIRED KNOWLEDGE

Before reading this chapter, it will be helpful to:

- read key policies relating to infection prevention and control in your placement and any relevant information relating to hygiene, glove use, dermatitis or latex allergy
- spend a couple of hours with a local specialist IPC nurse to discuss hand hygiene and glove use and accompany them if audits of practice are being undertaken
- find out who your local hospital waste manager is and arrange to spend time with them to discuss the waste hierarchy and how this is being met.

> My name is Liam. I am 16 years old and have chronic kidney disease. I have dialysis four times a week and know how vulnerable I am to infection.
>
> I joined a patient group and used the internet to get information about patient safety in dialysis units. We have hand-washing drummed into us by the staff all the time! Everyone wears gloves and uses those alcohol gels. I showed my nurse a website on my iPad after finding some patient information on gloves and how they can be dirtier than hands. I was worried about this, but she was really good and explained why gloves were worn and how staff should use them. Now I am much happier! I can see that everyone does the same thing and that everyone is treated the same as everybody else.
>
> **Liam, patient**

> Infection prevention and control is the responsibility of every healthcare professional – it is very important that germs with the potential to cause infections are not passed on to patients. Knowing and adhering to your hospital's policies on IPC is a must; we need to protect our patients from dangers seen and unseen.
>
> **Charlie Clisby, NQN**

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INTRODUCTION

The prevention of infection is central to patient safety and underpins the safe provision of care in every nursing field and care setting. This chapter covers several practical clinical skills that are fundamental to nursing care and which you will need to incorporate into your everyday practice. IPC is a huge field, so it is not possible to cover all of the relevant issues within this chapter, but we can ensure that you understand the essential principles.

IPC can succinctly be described as the practical application of microbiology in clinical practice. Humans have always lived alongside micro-organisms, a relationship which can, at times, be beneficial and, at times, harmful to the host (us humans) – and possibly, and occasionally, you, as a nurse caring for a patient. Bacteria, viruses and fungi (commonly referred to as germs) deserve the greatest respect at all times. Our challenge as nurses is to manage their presence in the context of care settings wherever these may be, all of which offer opportunities for risks to patients and, on occasion, ourselves. It is important to remember that we can only ever reduce, not eradicate, the presence of germs which can lead to infection.

This chapter will assist you in thinking about the care you deliver to each patient in terms of IPC risks. Whatever care setting you are in – acute or community – and no matter what your field of nursing, the fundamental principles apply.

IPC AND STANDARD PRECAUTIONS

Several essential and commonly performed clinical practices are central to what is known as 'standard precautions'. This term is generic and describes practices that, when used consistently and routinely for all patients, regardless of known or unknown infection status, are effective at interrupting the transmission of micro-organisms. **Note: this is not the same as assuming all patients are infectious!** When used properly, these precautions prevent the transfer of germs between patients and staff, and, of course, vice versa. This principle of interrupting the development of infection is central to the 'chain of infection'.

Standard precautions commonly include but are not limited to:

- hand hygiene
- appropriate use of personal protective clothing (PPE) such as gloves, disposable aprons, respiratory masks and visors/goggles (as required for individual patients only based on the situation and risk presented)
- safe handling and disposal of sharps
- waste disposal
- management of linen.

We will start with hand hygiene, as this is a core element of standard precautions.

HAND HYGIENE

Hand hygiene is the most frequently talked about and **contentious** of IPC practices. As a student, you will witness both good and poor hand hygiene practice, so it is important that you have a sound understanding of the theoretical and practical aspects of hand hygiene and are confident both in your own practice and in recognising when others may be putting patients at risk. Think of your hands as tools that are used for work – they need to be clean, safe and cared for to maintain their use.

For the purposes of this chapter, we will define hand hygiene as a process for reducing or destroying the number of micro-organisms present on the hands through hand-washing or the use of hand sanitisers such as alcohol gel.

Hand hygiene on its own as an intervention to prevent infection will not be successful. It is one of a number of core practices that need to be undertaken together as a 'package' to protect both patients and staff. In practice, hand hygiene is frequently combined with other practices, such as the use of gloves, aprons and masks and aseptic technique. Glove use in particular is integral to hand hygiene, as gloves also have direct contact with patients and can become contaminated through care activities. Think gloves – think hands!

The importance of hand hygiene

Hand hygiene is important both within healthcare and in wider non-healthcare settings as a public health intervention to reduce the spread of communicable diseases (e.g. influenza) and infections caused via the **faecal–oral route**, such as **norovirus**.

The patient environment (be it their own home or another care setting) is important as a factor in the spread of infection. Contamination of the environment by the **bacterial flora** (for example, from the skin, bowel or respiratory tract) of patients or staff occurs easily due to their presence and the care activities undertaken. As staff move from one patient to another, or have contact with a patient's immediate care environment (the area immediately surrounding the patient's cot/bed/chair), hands 'pick up' micro-organisms which, if not removed though hand hygiene, can be passed to the next patient or deposited elsewhere. One of the most challenging aspects of hand hygiene is that the impact of not undertaking it may not become apparent for some time after the event – even if it can ever be conclusively attributed to a lack of hand hygiene. This absence of immediate visible consequences for patients, together with a lack of visible contamination of hands by micro-organisms, provides challenges to improving hand hygiene compliance.

> "Frequent hand-washing is vital for the protection and safety of all patients. If infection is spread it can be life-threatening, especially to the most vulnerable of patients. As nurses who follow the Code we are there to do no harm, and I believe excellent hand hygiene skills are an element of upholding it."
>
> **Alice Rowe, NQ RNMH**

Gloves are a central element of standard precautions and are classified as personal protective equipment (PPE) when used for the protection of staff, but not when used to protect the patient. You will see gloves being used in nearly every care setting and speciality. Concerns exist, however, that gloves are used inappropriately in nursing practice, with their use and overuse putting both patients and staff at risk.

Serious risks exist when multiple care tasks are undertaken with the same patient, which involve moving from one part of the patient's body to another. An excellent example of this is the provision of wound care following urinary catheter care. If hand hygiene is not performed following the urinary catheter care, any bacteria present on the hands (or gloves) of staff will be directly transferred to the wound area, which may result in infection with bacteria from the patient's groin/perineal area.

Understanding why hand hygiene helps reduce the risk of infection

Our hands always have germs present on them. It is impossible to physically remove or destroy all of them, although we can significantly reduce their numbers. Germs present on hands are predominantly bacteria, but occasionally may include spores (from fungi or bacteria) or viruses (e.g. the common cold) if hands are in contact with a contaminated surface, body area or fluid. The bacteria on our hands can be divided into two categories: resident and transient bacteria. Resident bacteria are those that live on our hands permanently. The resident bacterial flora (also known as microbiota) play a protective role by helping to prevent non-resident bacteria from establishing permanently on the skin.

Transient bacteria are those most frequently associated with the spread of infection in healthcare and also the home or social environments. These transient bacteria become loosely attached to the outer skin layers of the hands following physical contact with people, equipment or environmental surfaces and, if not removed or destroyed, they will easily be transferred from one place or person to another, as highlighted in Table 22.1.

WHAT'S THE EVIDENCE?

WEBLINK: KLEBSIELL SPECIES

Casewell, M.W. and Phillips, I. (1977) 'Hands as a route of transmission for *Klebsiella* species', *British Medical Journal*, 2: 1315–17.

In this seminal paper, Casewell and Phillips (1977) demonstrated a link between nursing care activities, the contamination of hands and the colonisation or infection of patients. The study focused on obtaining evidence of how one specific bacteria (***Klebsiella spp***) was being transmitted between patients and staff.

Table 22.1 Contamination of nurses' hands by different *Klebsiella spp* following care procedures

Patient	Care activity	*Klebsiella* types colonising patients	*Klebsiella* types recovered from nurses' hands
A	Lifting patient	21, 47, 10	47, 10
B	Taking blood pressure and pulse	21	21
	Physiotherapy	21	21, 28
	Washing patient	21	24, 28
	Taking oral temperature	21	21
	General nursing	21	21
C	Radial pulse	21	21
	Touching shoulder	21	21
	Touching groin	21	21
D	Washing patient	21, 45, 9	21, 45
E	General nursing	15	15
	Extubation	15	15
	Touching groin	15	15, 19
F	Touching hand	55, 47	55

Source: Adapted from Casewell and Phillips (1977)

The results showed that *Klebsiella spp* were recovered from the hands of nurses and body sites of patients. As is shown in Table 22.1, specific nursing procedures were identified that resulted in the contamination of nurses' hands following contact with patients.

The introduction of routine hand-washing with **chlorhexidine** by staff resulted in sustained reductions over time of colonisation of patients with *Klebsiella spp*.

- Reflect on the essential care activities that you undertake, such as those illustrated in Table 22.1. Do you ever think about how contaminated your hands might be, even when there are no visible signs of dirt?
- When you are next on placement, for a four-hour period keep a record of how often you wash your hands and the reasons for doing so. Reflect on the results: do you think you washed your hands too infrequently, too often, or was your practice in line with local policies?
- Now read the rest of the chapter and see if you are correct!

How and when to perform hand hygiene

In this chapter, we are considering what is known as 'social hand-washing' with non-medicated soap. There is another form, which is known as surgical hand-washing (or scrubbing). This has not been included because social hand-washing is suitable for nurses in most situations, apart from the preparation of hands for invasive procedures undertaken with strict asepsic techniques, such as in operating theatres.

The aim of hand-washing is to remove transient germs (bacteria, viruses, fungi and spores) from the surface of the hands using mechanical friction as a result of the application, rubbing and removal of soap and water during the process of washing. Hand drying using paper towels also physically removes germs from the hands. This contrasts with the application of hand sanitisers, which chemically destroy or inactivate bacteria present on the surface of the hands. Currently, the use of hand sanitisers is not promoted for patients suspected or known to have viral gastroenteritis (e.g. norovirus) or an infection due to *Clostridium difficile*. Hand-washing with soap and water is recommended in these circumstances.

Hand-washing

A technique adapted from research evidence provides a framework for hand-washing. This technique (see Figure 22.1) enables good coverage of the hands with soap or hand sanitiser and a systematic technique to support effective hand hygiene.

As a further aid to effective hand-washing, Taylor (1978) identified areas of the hands which were most frequently missed during hand-washing. Her findings are still used today to help teach and improve hand-washing techniques (see Figure 22.2).

Guidelines

There are various guidelines and expectations relating to practice that you must be aware of when cleaning your hands. These include:

- infection control policies
- local programmes such as hand hygiene campaigns/strap lines.

1. Wash palm to palm

2. Rub back of both hands

3. Rub back of fingers interlaced

4. Wash both thumbs

5. Rub palms with fingertips

6. Wash wrists

Figure 22.1 Ayliffe's six-step hand hygiene technique

Source: Adapted from Ayliffe et al. (1978)

To ensure you always wash your hands effectively, follow the steps outlined in Clinical Skill 22.1.

Figure 22.2 Areas of the hands most frequently missed during hand-washing

ACTIVITY 22.1: REFLECTION

Reflect on the effectiveness of the technique you use to wash your hands:

- Do you follow the six steps outlined by Ayliffe et al. (1978) (Figure 22.1)?
- Do you miss the areas identified by Taylor (1978) (Figure 22.2)?

Use of hand sanitisers

The use of alcohol-based hand rubs and foams has increased dramatically over the past ten years. They are far more effective than soap and water in reducing the numbers of transient bacteria on hands. The application and distribution of hand sanitiser can follow a similar technique as for the application of soap and water (Figure 22.1); however, hand sanitisers must be left to dry naturally on the hands and not washed off, because the action of evaporation is important.

Hand sanitiser gel is a convenient and highly effective method for the decontamination of hands, as you are able to apply it, rub it into your hands and move to the next patient or physical location without stopping to do hand-washing. This was a key factor in the promotion and adoption of hand sanitisers in healthcare facilities in the UK, in addition to the fact that they also offer a convenient portable alternative in environments where soap and water may not be readily available, such as in remote locations or ambulances.

It is important to remember that hand sanitisers are not suitable to use in all circumstances and that the physical contamination of hands by dirt or body fluids must be managed by first removing this by hand-washing (or use of hand wipes in community settings). This is most important as **organic material** is known to inactivate alcohol. Hand sanitisers can be applied once the hands are clean to ensure they are safe for the next patient. To ensure you always do this effectively, follow the steps outlined in Clinical Skill 22.2.

When to perform hand hygiene

When to perform hand hygiene remains a matter of much debate. Central to this are the risks that touching different potential sources of contaminants, either patient or environmental, bring. Long lists of indications about when to wash your hands have been replaced with an emphasis on assessing the potential risk. The concept of 'reference points' for hand hygiene linked to space/time (Sax et al., 2007) led to the development of the World Health Organization (WHO, 2009) framework of the '5 moments for hand hygiene', which has been widely but not exclusively adopted as a contemporary standard to apply:

1. Before touching a patient
2. Before clean/aseptic procedure
3. After body fluid exposure
4. After touching a patient
5. After touching patient surroundings.

One of the advantages of the '5 moments' is that it takes a patient-centred approach. It can also be adapted to situations outside of hospitals where the focus remains on the patient, be it a patient sitting in a chair or ambulance, or a baby in a cot.

STEP-BY-STEP CLINICAL SKILL 22.1: HAND-WASHING

☑ Before you start

Consider, is it beneficial to inform the patient that you intend to wash your hands? The patient and their relatives or carers may be reassured that you are taking steps to protect them from the transmission of infection via hands.

☑ Essential equipment

Running tepid water, soap, hand towels (preferably disposable, but patients may offer you a clean hand towel in community settings).

☑ Field-specific considerations

Washing your hands is an essential skill within the care of patients from all fields. The principles outlined in this skill will not vary depending on the field.

☑ Care-setting considerations

Facilities for hand-washing will vary considerably between care settings and patients' homes.

Always be prepared for a lack of running water, soap and clean hand towels.

In community settings, carry your own supply of hand towels or hand wipes to support hand-washing. Always carry hand sanitiser for situations when this is appropriate.

Keep hand sanitisers out of the reach of children or those with impaired mental capacity. Refer to Clinical Skill 22.2, below.

☑ What to watch out for and action to take

Do not apply soap directly to dry hands as this can result in sore hands and poor coverage of soap.

Staff with broken skin should cover it with a plaster. Staff unable to perform hand hygiene (because of sore hands) should not be working in clinical environments due to the risks to patients and themselves. Staff suffering from dermatitis and/or sore hands should seek advice from their local occupational health department.

Always use the foot pedal of the bin (if available) – never dispose of hand towels by lifting the lid using your fingers because this will result in recontamination of your hands.

STEPS AND THE REASONS FOR THEM IN HAND-WASHING

1. **Identify the need for hand hygiene to be performed**
   Undertake an assessment to ascertain whether there is a need for hand-washing to take place
2. **Turn on taps and select a comfortable temperature**
   Water that is too hot or too cold can impact on compliance with the hand-washing technique
3. **Wet hands**
   Prepare hands to receive soap and facilitate an even covering of soap for the next stage
4. **Apply soap**
   Apply one dose of liquid soap to cupped hands.
   If bar soap is the only option available, then this may be used, depending on its quality. Community staff may carry small amounts of soap with them in containers
5. **Rub hands together and evenly distribute soap coverage following steps set out in Figure 22.1**
   Rubbing hands together produces mechanical friction. This results in all areas of the hands coming into contact with soap and transient micro-organisms being lifted from the outer layers of the skin into the soap solution on the hands
6. **Rinse hands**
   To remove the transient micro-organisms present in the soap solution from the hands
7. **Dry hands**
   Dry the skin of the hands and remove any remaining transient organisms as a result of mechanical friction. Ensure all areas of the hands are dry
8. **Dispose of hand towels**
   Dispose of used materials correctly without re-contaminating your hands

Source: Loveday et al. (2013); NICE (2012)

It should be noted, however, that even though this approach offers a theoretical improvement, its application in practice for complex interactions, such as the delivery of a baby, remains controversial, and 100 per cent compliance is doubtful and unachievable in all situations.

Monitoring hand hygiene compliance

As a nursing student, it is almost certain that you will have your hand hygiene compliance monitored at some point, most likely in an inpatient setting. Hand hygiene is a priority area for the improvement and monitoring of infection prevention as it is thought to reflect overall standards of infection prevention.

Audits of hand hygiene vary in their **methodology**, but direct observation remains the current standard. This method, however, is not practical in settings where staff work alone – for example in GP surgeries, practice nurse or midwife clinics, or community settings such as patients' own homes. Direct observation is also fraught with practical difficulties and bias, particularly if staff are aware they are being observed.

Healthcare organisations frequently report high compliance scores for hand hygiene, but audits undertaken by infection prevention teams often show much lower results.

STEP-BY-STEP CLINICAL SKILL 22.2 USING HAND SANITISER

☑ Before you start

Consider whether it is appropriate to inform the patient that you are going to use sanitiser on your hands so the patient and their relatives or carers are reassured that you are taking steps to protect them from the transmission of infection via hands.

☑ Essential equipment

Hand sanitiser (this may be carried personally, available at the point of care or wall-mounted).

☑ Field-specific considerations

Ensuring your hands are free from transient micro-organisms is an essential skill within the care of patients from all fields. The steps outlined in this skill will not vary depending on the field.

☑ Care-setting considerations

Facilities for hand hygiene will vary considerably between care settings and patients' homes.

Always be prepared for a lack of running water, soap and clean hand towels. In community settings, carry your own supply of hand towels or hand wipes to support hand hygiene. Always carry hand sanitiser for situations in which this is appropriate.

Keep hand sanitisers out of the reach of children or those with impaired mental capacity. The ingestion of alcohol hand sanitisers that has resulted in the death of patients has been recorded (HM Coroner, 2017).

☑ What to watch out for and action to take

Any cuts, open wounds or dry skin on hands will sting following the application of hand sanitiser. Staff with broken skin should cover it with a plaster. Staff unable to perform hand hygiene (because of sore hands) should not be working in clinical environments due to the risks to patients and themselves. Staff suffering from dermatitis and/or sore hands should seek advice from their local occupational health department.

STEPS AND THE REASONS FOR THEM IN HAND HYGIENE

1 **Identify the requirement for hand hygiene to be performed**
Assess whether hand hygiene needs to take place.
The decision to use sanitiser will depend on being:

- confident that the hand sanitiser will be effective to decontaminate hands. Remember, if a patient has diarrhoea or a gastrointestinal infection such as *C. difficile*, hand sanitiser may not be effective. Wash hands first, if possible, then apply hand sanitiser if needed. Visibly soiled hands should be cleaned with soap and water, if available, or a hand wipe prior to application of sanitiser
- able to access hand sanitiser at the point and time of need

2 **Apply the hand sanitiser to all surfaces of the hands and rub hands together to support evaporation following steps set out in Figure 22.1**
All surfaces of the hands come into contact with the hand sanitiser to ensure transient micro-organisms are destroyed. This six-step technique is more effective than other less standardised techniques (Reilly et al., 2016)

3 **Allow the hand sanitiser sufficient time to dry (evaporate) prior to next patient contact**
The hand sanitiser needs adequate time to be effective and destroy micro-organisms on hands

Source: Loveday et al. (2013); NICE (2012)

Improving hand hygiene

A number of barriers to hand hygiene have been recognised, which include:

- a perception that other patient needs take priority
- time pressures
- the impact of hand hygiene products on staff skin
- poor role models promoting hand hygiene
- inadequate staffing
- scepticism about the benefits of hand hygiene
- inappropriate glove use.

ACTIVITY 22.2: REFLECTION

- How would you feel if you observed another member of staff not complying with hand hygiene or appropriate use of gloves?
- Do you have a responsibility to raise this issue on every occasion or just those that you feel are particularly important?
- How would your actions impact on the risk to patients?

Patient and public knowledge

Patient empowerment and knowledge of hand hygiene have increased tremendously over the past ten years, as Liam's voice at the start of the chapter showed us. This has arisen due to greater public awareness of infection prevention, media messages and education relating to hand hygiene. For patients, the focus should be both on supporting them to clean their hands so as to prevent **endogenous** infection, for instance wound infections caused by removing or picking at dressings, and on encouraging good hygiene practices such as hand-washing before meals and after using the toilet. Within both hospital and home or community settings, practical obstacles exist in encouraging good patient hand hygiene.

> "I lead by example by regularly washing my hands; I give them advice and use gentle persuasion."
>
> **Julie Davis, LD nursing student**

CASE STUDY 22.1: GRAZIELLA

Being admitted to hospital can be a very frightening time for both patients and their families. We put our trust and faith in the staff caring for us. Therefore, it is important to make patients feel safe and secure and feel that everything possible is being done.

Of course, no one wants to be in hospital; patients are there to be treated for a variety of conditions and in most cases the outcome will be fine. However, this is not always the case – complications may occur, prolonging an admission, which can make patients more susceptible to a whole host of problems. Infections are the major problem. I know this only too well because someone very dear to me sadly lost her life due to one of these infections.

My grandmother went into hospital to be treated for a urine infection, something that should have been easy enough to treat; however, antibiotics, a less than clean environment and staff who were not adhering to IPC measures were to blame for my grandmother contracting ***C. difficile*** infection. Within a period of ten weeks, my grandmother fought hard to overcome many problems but she could not fight *C. difficile*. She died as a result of the infection.

Watching her suffer in the way she did is something I will never forget. Of course, we all have to die, and at the age of 93 my grandmother had lived her life, but no one should have to suffer in the way she did.

Could my grandmother's infection have been avoided? I think so. Thirty patients became infected with *C. difficile* during the period in which my grandmother was in hospital. Staff did not know how to control it but something as simple as washing their hands could have prevented so many patients becoming infected.

Hand hygiene is one of the most basic ways of helping to keep patients safe. Something that only takes a couple of minutes of your time can be the key in ensuring that your patient is being protected from infection. That is the least any patient can expect from staff looking after them.

- Next time you are busy caring for patients, time exactly how long it takes you to perform hand hygiene.
- Performing effective hand hygiene has the potential to save a patient's life. Are you really so busy that this is a risk worth taking?

STANDARD PRECAUTIONS AND GLOVES

As mentioned previously, gloves are a core element of what is currently known as 'standard precautions'. Gloves provide a physical barrier between the user (you) and the substance originating from the patient (e.g. excreta, bodily fluids or chemicals used in care practices that they may come into contact with). The potential harm from biological risks relates to micro-organisms that may be present (e.g. blood-borne viruses or bacteria) which, when transmitted, are capable of causing infection in either other patients or staff.

We will differentiate between the two main glove types by using the term 'examination gloves' to describe disposable single-use gloves used for routine clinical practice, and 'protective gloves' to refer to single-use gloves that are used to protect the wearer from exposure to harmful chemicals or drugs. The latter are required to meet additional testing standards to those of standard 'examination' gloves, to prevent the risk of permeation of chemicals. A common example is 'nitrile' gloves. We will not be discussing the use of sterile gloves for surgical procedures.

It is important to understand the different types of gloves available and the differences between them. On your placements, you will come across many different nursing activities, and gloves may vary considerably between settings and patient groups.

Ideally, different glove types should be provided, to enable nurses to choose which to use based on a risk assessment of the requirements of the activity being undertaken. Within healthcare organisations, different staff groups will have different needs – for example, porters will need heavy-duty protective gloves when collecting or transporting waste; theatre staff require surgical gloves; nurses administering chemotherapy agents may require 'protective' gloves because of their exposure to hazardous drugs. In some settings, such as mental health, gloves may be very infrequently worn and contact with chemicals will be limited. In other nursing fields, the use of gloves may be more common.

Being clear on employer and employee responsibilities

Health and safety legislation requires both employers and employees to undertake risk assessments of potential risks in the workplace, and to eliminate these where possible. In the case of healthcare, it is not possible to remove these risks, such as caring for a patient and the micro-organisms they may be carrying, or a patient's need for chemotherapy drugs. Where risks cannot be eliminated or managed by engineering controls (e.g. safety needles), measures should be put in place to reduce the impact of those risks that remain. Gloves are, therefore, when used correctly, one example of a control measure used to protect both staff and patients from risk.

Glove types and sensitivity to their components

Single-use disposable gloves may be manufactured using different components – natural rubber latex, vinyl or synthetic rubbers such as nitrile and neoprene are all frequently used. Gloves may also be powdered or unpowdered and sterile or unsterile.

Sensitivity and reactions to glove components are important issues for those working in healthcare, particularly nurses. The most well-known example is natural rubber latex, but many people do not realise that sensitivity can also develop to other, non-latex gloves. Sensitivity to chemicals used in the manufacturing process of gloves is another example. Natural rubber latex proteins are considered hazardous to health (HSE, 2012) and therefore need to be managed under the Control of Substances Hazardous to Health Regulations (COSHH) guidelines (2002, updated 2013). Currently, the use of latex gloves is not banned but many organisations have moved away from, or are in the process of moving away from, latex.

When to use gloves

As with hands, gloves can act as a vehicle for the transmission of micro-organisms and therefore it is important to change gloves if moving from one patient to another, or when undertaking multiple care tasks on the same patients. Gloves are not a substitute for hand hygiene!

The use of gloves has increased tremendously over the past 30 years and indiscriminate use is now recognised as a significant risk to both patients and nurses (Loveday et al., 2013) which undermines hand hygiene (Fuller et al., 2011).

Indications for glove use are:

- when anticipating contact with blood or body fluids
- when anticipating contact with non-intact skin or **mucous membranes**
- when a risk of contact with hazardous chemicals or drugs exists.

Reasons for the unprecedented rise in glove use are not really known; however, in discussion with students and registered nurses, it appears that some nurses feel they must wear gloves with all patients regardless of any established risk. This means that nurses are often observed wearing gloves for routine bed-making, feeding patients or even bathing them – when no contact with specific risks, as highlighted previously, exists. It seems that a perception of a 'dirty task' overrides the rationale and evidence base that hand hygiene is sufficient for all other 'non-identified risk' situations.

> While it is our duty to ensure that our practice is up to date, at times you will experience working with practice educators who have been trained differently to us and as such may well use gloves in different circumstances to us or will not wear gloves. If this occurs and you are unsure what to do read the local policies to guide your practice or simply ask your practice educator why they are/aren't wearing gloves. At all times ensure that you are working within best practice guidelines.
>
> **Alice Rowe, NQ RNMH**

Which gloves and when?

Table 22.2 outlines some issues and considerations frequently associated with glove selection. Note: some healthcare organisations have made the decision to only provide one type of examination glove

Table 22.2 Which glove: issues and considerations

Issue	Considerations
The activity to be performed	Be clear on why gloves are needed and select the appropriate glove type
Anticipated contact and compatibility with chemicals and chemotherapeutic agents (e.g. cytotoxic drugs or disinfectant solutions or wipes)	Are gloves required to protect the skin of staff? These should comply with the relevant EU standards to meet the Personal Protective Equipment Directive
Latex or other sensitivity	Alternative gloves should be available
Glove size required	Gloves should always be available in small, medium and large sizes
Local policies for creating a latex-free environment	Refer to local infection prevention and occupational health policies for further guidance

STEP-BY-STEP CLINICAL SKILL 22.3: WHEN TO REMOVE YOUR GLOVES AND WHY

☑ Before you start

Ensure you have undertaken an assessment to determine if gloves can be retained or should be changed.

☑ Essential equipment

Hand hygiene equipment (soap and water or hand sanitiser).

☑ Field-specific considerations

Mental health – gloves are infrequently used in mental health settings but may be required at times. Indications may include caring for incontinent patients, phlebotomy or dressing wounds. Differences may also be present in practice depending on whether you are working in an inpatient or community setting.

Learning disability – depending on the patients, glove-use need will vary. For those with physical needs, the indications for glove use are the same as for adult general nursing.

Child – indications for glove use in children's settings are the same as for adults, and this includes neonates. Newborn babies may look 'clean' but the same principles and risks apply.

CHANGING GLOVES

1 **When there is an indication for hand hygiene**
Wearing gloves may afford you some protection but the patient remains vulnerable if you do not consider the risk of transfer of micro-organisms via gloves in the same way as hands

Whenever an indication for hand hygiene occurs, and gloves are being worn, these should be removed, hand hygiene performed and then clean gloves applied. This is particularly relevant when multiple care activities are undertaken on the same patient

2 **When glove integrity is breached or suspected**
Gloves are not a complete barrier and defects may be present unknown to the wearer. Gloves reduce but do not eliminate risks

3 **When**

a. **the actual or potential contact with blood, body fluids or mucous membranes is finished**
b. **contact with hazardous drugs or chemicals has finished**
c. **contact with a contaminated body site or device (e.g. infected wound, urinary catheter bag) has finished**

Once the activity is complete, gloves should be removed, disposed of and hand hygiene performed. This removes potential contamination from the hands of the nurse, protecting both them and the next patient

Source: Loveday et al. (2013); NICE (2012); RCN (2012)

for use by all staff (e.g nitrile) as a result of local risk assessment (for example, the need to deliver chemotherapy in multiple patient settings as opposed to dedicated chemotherapy suites).

Knowing when to use gloves appropriately, however, is only half the story. It is as important to understand when gloves need to be removed and either changed or disposed of. Clinical Skill 22.3 identifies when removal of gloves is required and explains why.

Glove use and hand hygiene compliance

As we have already discussed, gloves are not a substitute for hand hygiene and hand hygiene must be performed after gloves are removed, as the act of removing gloves can contaminate hands. Additionally, gloves may not provide a complete barrier to micro-organisms or chemicals (due to the presence of small breaches in glove integrity) and therefore hands may become contaminated during care activities. Most hand hygiene audits do not routinely collect data on glove use as a factor in determining hand hygiene compliance, and therefore this represents a gap in both our understanding of the extent of the issue and the available data on which to assess improvements in hand hygiene practice.

ACTIVITY 22.3: REFLECTION

There are many potential occasions when gloves may be required:

- Compile a list of occasions recently when you have determined it is necessary to wear gloves.
- Which of these were to protect the patient, and which to protect you?
- Now reflect on whether you wore gloves when perhaps they might not have been required – under what circumstances did this occur, and were you influenced by the behaviour of others to act in a similar way?

WHAT'S THE EVIDENCE?

Loveday et al. (2013) recommend that hand hygiene should be performed before and after donning gloves:

- Do you comply with this and have you seen other staff do this?
- What are the risks to you and the patient if you do not perform hand hygiene as recommended with gloves?
- Now read the guidelines and consider how you can best apply the recommendations to your practice.

ACTIVITY 22.4: REFLECTION

The promotion of patient hand hygiene and a culture of encouraging patients to challenge staff to perform hand hygiene remain core elements of many care organisations' local hand hygiene programmes. This is an extract from an article in the *Daily Telegraph*, from 18 July 2007:

Patients in hospital should challenge doctors and nurses to wash their hands before consultations, the Chief Medical Officer said yesterday. Good hand hygiene is the key to reducing hospital acquired infections such as MRSA and NHS staff are often too complacent, Sir Liam Donaldson said in his annual report. Patients on wards should be issued with their own alcohol hand gel and should ask doctors and nurses to use it before examinations and procedures, he said.

Estimates suggest that one patient is infected every two minutes in hospitals and one dies every two hours from healthcare-associated infections. Sir Liam said that even in the best hospitals compliance with hand hygiene rules is rarely above 60 per cent – yet up to three quarters of all patients do not feel comfortable challenging staff.

- What would your reaction be if you were challenged by a patient to wash your hands?
- Consider different patient groups in different settings – which groups of patients do you think might be at a disadvantage in challenging staff?
- How can this be overcome?

Skin health

In addition to placing patients at risk of infection, inappropriate (excessive) use of gloves can have a detrimental effect on the health of nurses' skin. Nurses are vulnerable to developing dermatitis due to a number of factors, including:

- exposure to a 'cocktail' of chemicals such as natural rubber latex or accelerators, disinfectant or detergent wipes, soap and alcohol hand sanitisers
- 'wet work' – where hands are frequently exposed to water, such as in bathing, showering or washing up
- frequent hand-washing or use of hand sanitisers.

Prolonged or frequent use of gloves can cause the skin to become over-hydrated and can also be a risk factor in the development of dermatitis. Combined, these potential factors place staff at risk of dermatitis on their hands (RCN, 2012), as shown in Figure 22.3.

Figure 22.3 Dermatitis and reddening of skin

Source: www.hse.gov.uk/skin/imagelibrary.htm. Copyright of HSE, contains public sector information published by the Health and Safety Executive and licensed under the Open Government Licence v1.0

WEBLINK: SKIN DISEASES LIBRARY

CASE STUDY 22.2: IDRIS

Idris has just returned from placement on a neonatal care unit. He is about to start working on a children's oncology ward but the alcohol hand sanitiser is really stinging, so he has stopped using it. He can't wash his hands properly as his hands are so sore.

- What actions should Idris take and why?
- Do you think Idris should continue caring for patients if he can't perform hand hygiene?

What is dermatitis and why is it important?

Simply put, dermatitis is inflammation of the skin on the hands, a type of eczema. It may occur naturally or as a result of contact with substances which cause a reaction, known as 'contact dermatitis'. Different terminology is used to describe different types of dermatitis.

Not all dermatitis occurs as a result of work, and some factors associated with life outside of work, such as having children under the age of 5 or washing dishes by hand, can contribute to the risk of developing dermatitis.

Roles and responsibilities relating to occupational dermatitis

Both employers and employees have responsibilities when it comes to reporting and managing occupational dermatitis. Employers have a responsibility under health and safety laws to protect staff from illness caused as a result of work, and this incudes contact dermatitis. Healthcare workers (that's you) have a legal responsibility to cooperate with employers regarding health and safety matters. This includes following your organisation's policies and procedures (for example, those around standard precautions, skincare and the appropriate use of PPE), and reporting any incidences of hand dermatitis in a timely manner to your manager and occupational health department.

Always follow the glove good practice guidelines:

- Gloves are single-use items – which means wear for one task then take them off!
- Hand hygiene should be performed prior to putting gloves on.
- Hands should never be washed with gloves on.
- Wearing gloves is not a substitute for hand hygiene.
- Gloves can transmit micro-organisms capable of causing infection in the same way hands can.
- Gloves must only be used if necessary, following a risk assessment for both patient and nurse.
- Hand hygiene should always be performed after the removal of gloves.
- Gloves should not be routinely used for bed-making.
- Only powder-free gloves should be used.
- Always wear the correct glove size for you and report a lack of suitable glove types or sizes to the person in charge.
- Be aware of the signs of dermatitis and report any that occur.
- Never wear gloves 'just in case'.

YOUR RESPONSIBILITIES AS A WASTE PRODUCER

The production of waste as a result of healthcare activities is inevitable. The waste items we will cover in this chapter are healthcare waste and used linen.

While the management of waste may not strike you as a nursing responsibility, nursing accounts for approximately 70 per cent of the UK healthcare workforce and the production of waste is an unavoidable consequence of the role and the care tasks undertaken. The International Council of Nurses (ICN) states that 'nurses must understand the hazardous consequences of improper waste handling, the "cradle to grave" waste cycle and methods that mitigate the negative impact of waste on the environment' (ICN, 2009).

The principles of good waste management – the waste hierarchy

The waste hierarchy describes options that should be considered as part of an overall strategy for waste management, so it is not just applicable to healthcare organisations. The principle of the hierarchy is that waste production should be avoided wherever possible. The overall aim, as identified in Figure 22.4, is therefore to reduce the actual amount of waste that is generated for disposal, regardless of the end point, such as landfill or incineration.

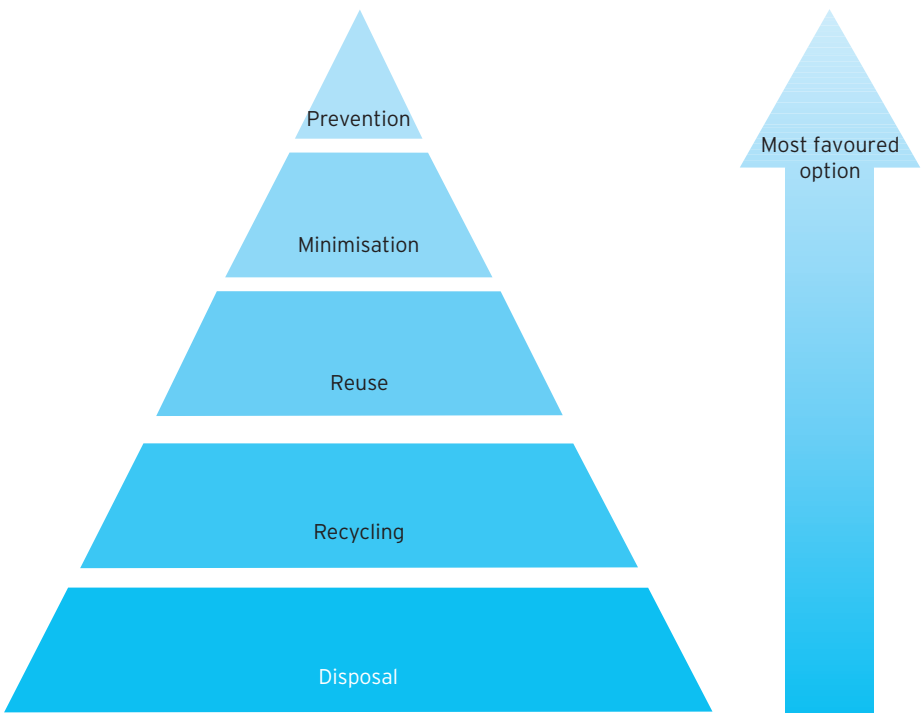

Figure 22.4 The waste hierarchy

Classification of healthcare waste

Many different types of waste are produced as a result of healthcare. Management of waste is governed by a multitude of regulations arising from both UK and EU requirements. Different types off wastes are produced, some harmful and some not. Types of waste include laboratory waste (including chemicals or growth media); human anatomical waste (e.g. limbs, used medical devices such as syringes, nebulisers); infectious waste; and household waste.

The RCN (2014) describes how the main types of waste may be classified simply into the following categories:

- clinical waste – most, but not all, of this is classified as hazardous waste. Sub-categories of clinical waste exist, such as infectious waste, medicinal waste and sharps. In healthcare, the term includes:
    - waste which contains viable micro-organisms or their toxins which can cause disease in humans or other living organisms
    - waste which contains or is contaminated with a medicine that contains a biologically active pharmaceutical agent, or is a '**sharp**', or a body fluid or other biological material (including human tissue) containing or contaminated with a dangerous substance
- offensive waste (or hygiene waste) – this is best described as waste that is non-infectious but which may be deemed to be 'offensive' due to its contents (e.g. sanitary waste, soiled incontinence pads, etc.) and possibly smell
- municipal (household) waste – waste similar to that produced in your own home, e.g. waste packaging, dead flowers, etc.

The waste producer

The waste producer is the person who generates the waste (you), whether this is a sharp after you give an injection or packaging that you are disposing of. The producer of the waste is responsible for:

- assessing what type of waste they have generated
- placing the waste in the correct, colour-coded container.

Waste in healthcare is often 'over-classified' as clinical or infectious (RCN, 2011). The consequences of this is a lack of compliance with waste legislation and a huge burden on healthcare costs, as it is currently more expensive to dispose of clinical waste than offensive or household waste. This situation has arisen partly due to efforts to ensure waste is safe 'just in case', hence over-classification, or because offensive waste bags and bins have not been made readily available to staff to support their use. In reality, the vast amount of waste produced in healthcare is not infectious.

What type of waste do you produce?

It is important that the waste produced is assessed at the time of its production, separated correctly and placed in the right container. Nurses often note confusion about the classification of infectious and offensive waste. Table 22.3 offers advice on this.

Colour-coded segregation exists to help identify which type of waste is present in a container or bag. In this way, it is possible to identify sharps, medicinal waste, waste containing cytotoxic chemicals or offensive waste, which is important for the purposes of transporting waste to its final destination. This colour scheme can vary from country to country in the UK.

The main categories of bagged waste you are most likely to come across are illustrated in Figure 22.5. Always check your local policies for more detail.

Table 22.3 Classification of common waste according to 'infectious properties'

Waste contains	Proposed general classification	Examples of waste	Exceptions to this rule
Urine, faeces, vomit and sputum	**Offensive** (where risk assessment had indicated is present, and no other risk of infection exists)	Urine bags, incontinence pads, single-use bowls, nappies, PPE (gloves, aprons, etc.)	Gastrointestinal and other infections that are readily transmissible in the community setting (for example, *verocytotoxin*-producing *Escherichia coli* (VTEC), campylopacter, norovirus, salmonella, chicken pox/shingles)[1] Hepatitis B and C, HIV-positive patients – only if blood is present[1]
Blood, pus and wound exudates	**Infectious** unless assessment indicates no infection present. If no infection, and no other risk of infection, then offensive	Dressings from wounds, wound drains, delivery packs	Blood transfusion items Dressings contaminated with blood/wound exudates assessed not to be infectious Maternity sanitary waste where screening or knowledge has confirmed that no infection is present and no other risk of infection exists

Note: [1]Potential hazards from the use of cytotoxic and cytostatic medicines may also be relevant in some instances and with some drugs. This would also prevent the waste being considered offensive.

Source: RCN (2014)

Figure 22.5 Categories of bagged waste

ACTIVITY 22.5: REFLECTION

Find and read your local waste policy:

- What different types and colours of bags and bins does it mention?
- Have you seen all of these when on placement?
- Do you think that waste could be segregated more effectively and recycling improved?

Waste production in the community

Waste disposal as a result of nursing patients in their own homes poses some unique challenges and considerations.

Risk assessment of waste in community settings is the same as in hospital settings and the waste classification applies. The management of waste (storage, collection, etc.), however, is managed differently and will vary from one geographical area to another. This sometimes means nurses have to carry healthcare waste in their cars, or even take it with them on ferries in more remote communities. Use of the patient's waste bins is permissible for some waste produced, such as 'soft non-infectious waste', where the amount is comparable to what a patient would normally produce and has been deemed non-infectious (RCN, 2014). Infectious and sharps waste must be managed separately and must not be disposed of via the patient's home.

> Waste management is just as important in the community as in hospital but the set-up and polices are just different. You would need to read and make yourself familiar with the policies when starting a new job.
>
> **Sarah Parkes, LD nursing student**

ACTIVITY 22.6: REFLECTION

- Do you think community nurses should carry waste in their cars?
- Why do you think community nurses may have been asked to do this?
- Can you identify any improvements as to how healthcare waste is managed in the community?

Top tips for good waste management in all settings

If you follow these principles, it is possible to manage healthcare waste safely and effectively in all settings:

- Risk-assess all waste you produce, and segregate accordingly – do not be tempted to put everything in one bag regardless.
- In hospital and GP surgery settings, waste must be stored securely and separately to other items such as used linen.
- Waste bags should be removed, sealed and transferred to a storage facility when two thirds full – do not allow bags to overfill, otherwise they cannot be sealed safely, thus placing others at risk.
- Ensure different types of waste are segregated appropriately in the appropriate storage area.
- Label waste so the area where it originates can be identified. Tags should be available to use locally. Do not 'borrow' other areas' labels, as traceability is important should an issue be identified.
- Waste must not be allowed to accumulate in public areas – always use dedicated storage areas or move directly to large rigid containers.
- When handling waste, aprons and gloves should be worn; they should be removed immediately after the task is complete, followed by hand hygiene.
- Report issues with waste collection or storage immediately.

MANAGEMENT OF USED LINEN

The management of used linen includes handling and disposal and is mostly associated with hospital settings. Used linen is rarely implicated in outbreaks of infection, but it does pose risks to both other patients and staff on occasion.

Some units, such as neonatal or long-term care units, may have their own washing machines to enable them to wash patients' items locally. While these may seem convenient, they do pose risks, and outbreaks of infection have occurred that have been associated with washing machine use. Most used linen is processed via a central (usually off-site) laundry which has to comply with national standards for temperature controls and processes.

How to handle linen appropriately

When handling used linen, the following applies:

- Always wear a plastic apron for handling used linen to prevent contamination of your uniform.
- Do not routinely wear gloves for bed-making unless the patient is in isolation or being 'barrier nursed' with a risk of infection. Always perform hand hygiene after bed-making.
- Handle used linen carefully to avoid shaking it and disturbing skin cells and bacteria that will be present.
- Do not carry used linen through a ward or department. Always place it immediately into a linen skip and transfer to the storage area as soon as possible.
- Do not mix clean and used linen.

Segregation of used linen

As with waste, different colour coding applies to linen categories. The two main category codes are red and white bags:

- Red linen bags denote an infection risk and involve placing the linen in a red inner 'alginate' (water-soluble) bag before it is placed in a thicker plastic or cotton outer bag. This is because of the need to prevent laundry workers coming into contact with the linen (it is placed directly into the machine in the 'alginate' bag, which then dissolves). Linen should be segregated into red bags if a patient is being isolated with an infection or infectious condition, or if the linen is soiled with blood or body fluids.
- White linen bags are the most common type, used for uncontaminated linen.

Used linen bags should be sealed before they are overfull and stored appropriately at local level in a dedicated area.

CONCLUSION

This chapter identified the core infection prevention and control practices you need to develop to protect both patients and yourself, wherever you are on placement. Bacteria, viruses and fungi deserve the greatest respect at all times. Our challenge as nurses is to manage their presence in the context of care settings, wherever they may be.

It is fundamentally important for you to have a good understanding of the theoretical and practical aspects of hand hygiene. Think of your hands as tools that are used for work – they need to be clean, safe and cared for to maintain their use.

Hand hygiene on its own as an action to prevent infection will not be successful. It is one of a number of core practices that need to be undertaken together as a 'package' to protect both patients and staff in all care settings. In practice, hand hygiene is frequently combined with other practices, such as use of gloves, aprons and masks, plus aseptic technique. Glove use in particular is integral to hand hygiene, as gloves are also in direct contact with patients and can become contaminated through care activities.

Waste management is very costly for organisations and is environmentally important. While the management of waste may not strike you as a nursing responsibility, waste production is an unavoidable consequence of our role and the care tasks undertaken.

CHAPTER SUMMARY

- Preventing infection relies on an awareness and knowledge of all the factors that contribute to the complexity of decision-making regarding when to perform hand hygiene or wear gloves.
- Ensure that you are always able to identify both poor practice and positive role models for practice.
- Always reflect on incidents relating to poor infection prevention and control to enable you to improve your practice. It is important to know where to access infection prevention and control-related information and have the confidence to seek support from specialists.
- Ensure you develop and maintain an awareness of research findings, so the care you provide to patients has a sound evidence base.
- While the management of waste may not strike you as a nursing responsibility, the production of waste is an unavoidable consequence of our role and the care tasks undertaken.
- If you follow the principles, it is possible to manage healthcare waste safely and effectively in all settings.

CRITICAL REFLECTION

Holistic care

Infection prevention and control are important in providing holistic care for a patient. Review the chapter and note down all the instances where the care actions outlined can help you meet a patient's wider physical, psychological, social, economic and spiritual needs. Think of a variety of different patients across the fields, not just within your own field. You may find it helpful to make a list and refer back to it next time you are in practice, and then write your own reflection after your practice experience.

GO FURTHER

Books

RCN (2014) *The Management of Waste Arising from Health, Social and Personal Care*. London: RCN. This guidance represents the practical application of national guidance such as HTM 07–01 and applies it to nursing practice. It has been written in easy-to-read language and reflects the needs of care in a range of settings.

Wilson, J. (2006) *Infection Control in Clinical Practice*, 3rd edn. London: Elsevier. This book is an excellent reference source for further details of the microbiological aspects of infection prevention and control.

FURTHER READING: JOURNAL ARTICLES

SAGE journal articles

Go to https://study.sagepub.com/essentialnursing2e for free online journal articles for this chapter. If you are using the interactive ebook, simply click on the book icon in the margin to go straight to the resource.

Lee, K. (2013) 'Student and infection prevention and control nurses' hand hygiene decision making in simulated clinical scenarios: A qualitative research study of hand washing, gel and glove use choices', *Journal of Infection Prevention*, 14(3): 96–103. This article describes how final-year nursing students and specialist IPC nurses verbalised their hand hygiene decision-making while working through clinical scenarios on a computer, to understand what factors they were taking into account in choosing to use hand-washing or alcohol-based hand-rub/gel or to wear gloves.

Nichols, A., Grose, G., Bennalick, M. and Richardson, J. (2012) 'Sustainable healthcare waste management: A qualitative investigation of its feasibility within a county in the south west of England', *Journal of Infection Prevention*, 14(2): 60–4. This article investigates the possibility of employing a sustainable 'reduce, reuse, recycle' philosophy in the management of waste within healthcare settings.

Other journal articles

Fuller, C., Savage, J., Hayward, A., Cookson, B., Cooper, B. and Stone, S. (2011) '"The dirty hand in the latex glove": A study of hand hygiene compliance when gloves are worn', *Infection Control and Hospital Epidemiology*, 32(12): 1194–9. This article describes observed hand hygiene and glove use across a mix of secondary care wards. The authors describe how gloves were often worn when not indicated, and vice versa.

Reilly, J., Price, L., Lang, S., Robertson, C., Cheater, F., Skinner, K. and Chow, A. (2016) 'A pragmatic randomized controlled trial of 6-step versus 3-step hand hygiene technique in acute hospital care in the United Kingdom', *Infection Control and Hospital Epidemiology*, 37: 661–6. This publication provides the first microbiological comparison of two techniques used to apply alcohol-based hand rub (AHBR). The 6-step technique was identified as a superior technique.

Weblinks

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FURTHER READING: WEBLINKS

Health and Safety Executive (n.d.) Choosing the Right Gloves to Protect Skin: A Guide for Employers. Available at: www.hse.gov.uk/skin/employ/gloves.htm. This web page is a useful resource in helping students to gain a broader understanding of issues relating to gloves and guidance for employers. It applies to healthcare as well as other industries, such as hairdressing.

Loveday, H., Wilson, J., Pratt, R., Golsorkhi, M., Tingle, A., Bak, A., et al. (2013) 'EPIC 3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England', *Journal of Hospital Infection*, 86S1: S1–S70. Available at: www.his.org.uk/files/3113/8693/4808/epic3_National_Evidence-Based_Guidelines_for_Preventing_HCAI_in_NHSE.pdf. These guidelines were commissioned by the Department of Health and form the most up-to-date evidence-based IPC guidance available in the UK. They were developed after a systematic and expert review of all the available scientific evidence. Glove use and standard precautions are included.

National Institute for Health and Clinical Excellence (NICE) (2012) *Clinical Guideline 139, Infection: Prevention and Control of Healthcare-associated Infections in Primary and Community Care*. London: NICE. Available at: http://publications.nice.org.uk/infection-cg139. This guideline applies to all healthcare workers employed in primary and community care settings, including ambulance services, and should ensure safe practice is applied consistently. Much care is also delivered by informal carers and family members, and this guideline is equally applicable to them.

Royal College of Nursing (RCN) (2011) *Freedom of Information Report on Waste Management*. London: RCN. Available at: www.rcn.org.uk/professional-development/publications/pub-004108. This report highlights the significant variation in the classification of waste, with most waste disposed of via the 'infected' waste stream, although in reality only a small amount of waste produced by healthcare meets the infectious classification. The report identifies that significant financial savings could be made if waste was better segregated, and encourages better use of the offensive waste stream.

RCN (2012) *Tools of the Trade*. London: RCN. Available at: www.rcn.org.uk/professional-development/publications/pub-004242. Developed with experts and the Health and Safety Executive, this guidance explores glove use and its association with hand hygiene. It also addresses occupationally acquired dermatitis, which affects the hands of nurses in particular.

ACE YOUR ASSESSMENT

ONLINE QUIZZES

Review what you have learned by visiting the book's online resources at: https://study.sagepub.com/essentialnursing2e If using your interactive ebook, just click on the icon in the margin to go straight there.

- Test yourself with multiple-choice and short-answer questions.
- Revise key terms with the interactive flash cards.

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