Home Hygiene
Prevention of infection at home and in everyday life: a learning and training resource

International Scientific Forum on Home Hygiene and Infection Prevention Society
2018
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Home Hygiene

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Introduction
Changes in recent years mean that prevention of infection through hygiene in home and everyday life is becoming increasingly important. One of the current drivers is the fundamental part that hygiene plays in tackling antibiotic resistance. It is also prompted by concerns about growing numbers of people at greater risk of infection being cared for or caring for themselves in the community. It is estimated that 1 in 5 or more people in the community are at increased risk of infection.

We need people to understand how, by reducing infections in home and community settings, they can reduce pressure on their local health services, and preserve the antibiotics that they and their family rely on when they are seriously ill. We need people to buy into the idea that “hygiene is everyone’s responsibility” and part of a healthy lifestyle.

The resource gives guidance on how to prevent infections occurring, and how to reduce the risk of them spreading if someone in the family/household has an infection. It includes guidance on day to day hygiene that applies to all family/household members as well as to those who are at greater risk or who care for people at greater risk of infection, including professional carers providing home healthcare.

In recent years, we have seen stories in the media about being ‘too clean’ and whether antibacterial products could be harmful. Unfortunately some of these messages have been communicated in a way which is misleading, and, as a result, this is undermining public perceptions of infectious disease risks and the importance of hygiene. This resource addresses these concerns and provides answers to people’s questions.

This resource is the result of a joint project between the International Scientific Forum on Home Hygiene (IFH) and the Infection Prevention Society (IPS). It combines the practical expertise of the IPS and the IFH’s scientific understanding of how infections are spread in the home.
### Political decision-makers recognize that sustaining the quality of state-funded healthcare requires getting the public to take greater responsibility for their own health. Hygiene must be everyone’s responsibility. Escalating treatment costs and reducing antibiotic prescribing as part of tackling antibiotic resistance, indicate a need to place greater emphasis on prevention of infection.

### Infection issues in home and every life cover a range of issues:

- We sometimes dismiss common respiratory and gastrointestinal infections because they are mild and usually only last a few days. However, they represent a significant economic and social burden. Gut infections can be foodborne, but some result from person to person spread. Cold viruses are spread via hands and surfaces, as well as via the air and can be prevented by good hygiene based on understanding how infections are spread when a family member is ill.

- Demographic and social changes mean that family members with reduced immunity to infection, such as the elderly, immuno-compromised patients discharged from hospital, patients taking immuno-suppressive drugs and those using invasive/inhalation systems are increasingly being cared for at home.

The home provides a primary line of defence against infection. Better understanding of hygiene in home and everyday life could lead to better hygiene in healthcare settings.

Hygiene advice set out in this resource is based on a risk assessment approach, known as targeted hygiene. This is based on understanding the key routes for transmission of potentially harmful microbes and targeting critical points (hands, surfaces, cleaning utensils) at the times that matter (food preparation, toilet use, respiratory hygiene caring for pets, performing medical tasks) to break the chain of infection (see module 1). The evidence base for targeted hygiene is outlined on page 133.

Exposure to our microbial world is important for health (module 12), but many people are mistakenly convinced that we have become too clean or too hygienic. To restore confidence, people need to know the difference between hygiene and cleaning. Module 12 explains how targeted hygiene can help to maintain essential exposure to our microbial world, whilst also minimising exposure to microbes that can cause disease.

### Further Reading


Who is this resource for?

This resource is intended primarily for:

- Training of professional carers who provide care in the home
- Use by professional carers for support/guidance of family members or informal carers who look after others at home
- Training of (or self-learning use by) any group requiring understanding of hygiene in home and everyday life, such as doctors, pharmacists, school teachers, public health/social care workers, health promotion organisations, food standards authorities, consumer groups and commercial organisations
- Use by the media for preparing health features
- Use by public-facing groups for developing hygiene advice for the public
- It can also be used by the public to teach themselves about home and everyday life hygiene

The resource is designed for teaching or self-learning. It aims to show that home and everyday life hygiene is simple and logical.

Understanding and adopting good hygiene practice in the home to reduce the transmission of potentially harmful microbes can significantly reduce the risk of infection. It may sound obvious – but people sometimes don’t believe it
How to use this resource

The resource comprises a number of sections each containing one or more modules:

- Section 1: how infections are spread in the home and how targeted hygiene can be used to reduce the risks.
- Section 2: how to put targeted hygiene into practice in your daily life.
- Section 3: people and situations where there is greater risk of infection.
- Section 4: other issues – antibiotic resistance, use of disinfectants, fact and fiction about hygiene etc

Within modules 1-4, a double page has been allocated to each topic which includes:

- A hygiene advice sheet. This provides the essential practical information which users need to know and follow, and is written in simple language that can be understood by trainers, carers or the public.
- A “learn more” sheet. This is a supplementary page for trainers or anyone who wants more explanation of the topic.

The resource is available in a number of teaching and learning formats including:

- an online version for self-learning and teaching.
- a pdf version available to download from the internet and printed in hard copy.
- a pdf version of the hygiene advice sheets, which can be used for PowerPoint group presentation or for distribution.

Details of the evidence base used in developing this material is given at the end of this resource on page 133

The following pages give further guidance on how to use the resource
Using the resource for training of professional carers

Professional carers should work through the resource with a trainer such as a home care support worker, community nurse, etc. Trainers should discuss each section and answer any questions. They can help you note infection risks in the homes for which you are responsible. Together you can decide what actions to take to reduce risks. They may observe your hygiene practices to check you have understood. They should give you a copy of the ‘hygiene advice sheets’ to act as an ongoing reminder.

If using the resource for self-learning, you should also read the ‘Learn more” notes.

Once you understand what you have read, think about what you do and ask yourself:

- do I follow the recommendations given in this resource?
- do I need to change any of my hygiene practices to reduce the risk of infection?
- what do I need to change first to make the greatest difference?

You may find it useful to improve one practice each day before moving on to the next one. Hand hygiene is the most important way to reduce spread of infection, so you might start with this:

**Do you:**

- wash your hands at the right times (e.g. immediately before preparing food and after touching high risk raw foods, such as chicken).
- have the correct soap, towels and access to running water to wash your hands properly.
- use the correct hand washing procedure.

Above all, keep an open mind. Misconceptions about home hygiene are common.
Using the resource for training professional carers

Supplementary notes for trainers

This resource is based on the ‘targeted’ approach to home hygiene in an easy to follow and practical manner and is available in a number of formats to suit target audience’s needs.

The ‘supplementary notes are not designed to tell you exactly what to say to a carer, but they highlight the important teaching points and give background information needed to answer questions.

The hygiene advice sheets can be given electronically to carers to print or store on electronic devices for reference when working in someone’s home.

If the resource is used in a training session, please ensure learners have plenty of time to ask questions and clarify anything they need to. You will not be able to cover all the information in one session. Concentrate on one section or a few specific procedures during each visit.

Think about the carer(s) you are working with and pitch the information at the right level. Identify their knowledge gaps and tailor training to their needs. They are likely to have varying levels of skill and knowledge, so ideally, training should be delivered on a one-to-one basis or a small group.

Practical demonstrations and experience can enhance learning more effectively than traditional lecture formats. Once you have explained and demonstrated a procedure (e.g. when and how to hygienically clean a food preparation surface), ask the carer to show you how to do it. In this way, you can evaluate and reinforce their learning.

Keep an open mind and be prepared to learn. Everyone thinks they are experts on home hygiene and it can often be difficult for people to let go of long held beliefs.
As a carer, you may need to teach the family (i.e. family carers caring for another family member), friends of the patient or patients themselves. They will be carrying out care activities in between your visits and may know little about hygiene. It isn’t easy to teach people new things or change their behaviour, even when it is in their best interests. Experience shows that best results come by finding out what people already know and what they want to know and building on this. As a carer you are in a privileged position to be invited into someone’s home and this should be acknowledged.

Remember homes are different from hospitals. Many of the microbes that can cause harm that are found in hospitals are also found in the home. Most people in the home will be healthy and able to resist infection. Someone at home who has lowered immunity to infection, may however be at risk of infection from the types of microbes that cause harm in vulnerable hospital patients.

Here are some ideas about how you can help to teach family carers and family members about targeted hygiene.

**Do**

- **be practical**: Focus on ‘do-able’ ways that the family can practice targeted hygiene, bearing in mind the individual home and family.
- **be simple**: Make advice easy to understand.
- **be patient**: If asked for, give simple explanations as to why they should change their ways.
- **be consistent**: Always repeat the same advice every time.
- **be persuasive**: Help them to believe that their actions can make a difference. This is called empowerment.
- **be positive**: Point out risky practices or behaviours, but also acknowledge good behaviour.

**Do not**

- use scare stories.
- assume a baseline understanding – check that they understand.
- assume that they will change their ways just because you have.

Give copies of the relevant modules to the family or patient (hygiene advice only, not the ‘learn more’ pages, which are intended to help you answer their questions).
Do

- encourage family members; they can have a positive influence. Empowerment is key to sustaining behaviour change.
- identify which are risky behaviours that allow infection to be transmitted and then target the behaviours you want to change.
- identify replacement behaviours that are acceptable and feasible.
- keep advice simple. It is vital that carers do not feel overwhelmed by the information. The risk-based approach used here simplifies this by helping to identify specific opportunities for intervention.
- be consistent and repetitious. Repeat the same advice on successive visits.
- tell them they are making a difference. You are a respected and trusted figure. We give great value to positive remarks from those we respect. Be positive and encouraging when you see good hygiene behaviour. Make family or friends feel good about their actions.

Do not

- use scare tactics. Fear and anxiety are not motivating. People develop rationalisations to escape the consequences of your predictions. The family and carer may simply choose to ignore your advice, which will undermine your relationship.
- assume that people understand the basic “germ theory of infection” or the concept of a chain of infection. A basic understanding of microbes and how and from where they spread is helpful, but not necessary to good hygiene behaviour.

Experience shows that, as a carer, you will find peoples’ adherence to simple rules of hygiene behaviour is variable. Some people have good knowledge and understanding and others not. Conventional approaches to hygiene education tend to speak from the position of the expert. ‘Top-down’ approaches have little success because they do not build on what people know, do or want. Just talking about microbes that cause infections, will not necessarily encourage people to change behaviour. We can learn from market research how much behaviour change is reasonable to expect.

By combining knowledge gained from successful hygiene campaigns with insights from psychology and marketing theory, we can distil the principles defining effective hygiene promotion. Experience shows that we can be more successful in influencing behaviour by finding out what people already know and do, then what it is they wish to know and build on this, rather than acting as an expert who tells them what to do. Here are ideas about how you can help to teach others about targeted hygiene and, if necessary, change their behaviour.
Vocational training in health and social care

Infection Prevention and Control is integral to the practice of individuals providing health or social care input within a community setting. This could be an individual’s/patient’s own home, a care home setting or warden aided complex. Carers can be formal i.e. working for a health or social care agency (NHS contract out 80% of homecare to registered homecare agencies) or employed by the patient, using a Personal Health Budget. It can also be informal i.e. non paid family or friends. Care activities include:

- Intimate personal care, such as assistance with washing, bathing and toileting, e.g. changing continence pads, emptying catheters, stoma bags.
- Preparing food/drinks.
- Prompting with medications, PEG feeds, undertaking dressings.

All activities that involve doing something to, or preparing food for patients carry a risk of infection. Ensuring a targeted approach to hygiene during all of the above activities, as laid out in this training resource, can reduce this risk to the individual you are caring for, yourself and the patient’s family.

In England, all formal/certified carers are required to hold a “care certificate”* in health and social care, issued by the UK Care Quality Commission. This aims to ensure that all workers have same knowledge and behaviours to provide safe/effective care. The certificate is obtained by undertaking the following: Vocational training in health and social care, QCF level 2 and level 3 diplomas (total study time 36 months). This has 15 standards, all needed to gain certification. Each is underpinned by e-learning info (approx 15-20 hours) and assessment tools. Standard 15 is a component on Infection Prevention and control**.

Scottish Social Services Council ([www.sssc.uk.com](http://www.sssc.uk.com)) and Social Care Wales ([https://socialcare.wales/](https://socialcare.wales/)) are the regulatory bodies in these countries. They oversee registration, workforce development, codes of practice and fitness to practice for all those who work in the care industry. Continued over
This training resource can be used to supplement information you may have received from your training provider when undertaking the Care Certificate and links to Standard 15 of the Care Certificate:

15.1a Describe the main ways infection can get into the body.
15.1b Demonstrate effective hand hygiene.
15.1c Explain how your own health or hygiene may pose a risk to the individuals they support or work with.
15.1d List common types of personal protective clothing, equipment and procedures and how and when to use them.
15.1e Explain the principles of safe handling of infected or soiled linen and clinical waste.

Further information can be found at:
-- aims to ensure all workers have same knowledge and behaviours to provide safe/effective care. It has 15 standards, all are needed to gain certificate.

The training/self learning resource can also be used to supplement “e-learning” for health modules:

Participatory exercises to develop understanding

**Exercise 1**
Work with the carer to select a typical example of a contaminated source in the home. This could be a chicken potentially contaminated with Salmonella, a person with an infection such as a cold or diarrhea and vomiting, or a kitten with Campylobacter. Ask the carer to work out for themselves how the germs are most likely to spread from the specified source and cause infection to someone in the home. Next, get them to think critically about whether their current practices are likely to prevent that spread, which actions are the most important and whether and how they could do better.

**Exercise 2**
Check understanding by asking carers etc. to consider a specific procedure such as hand washing or hygienically cleaning a chopping board. Ask them to tell you and/or demonstrate;
- when/in what situations the procedure is necessary.
- where the microbes that can cause harm are likely to have come from in that situation.
- what sort of microbes that can cause harm are most likely to be present.
- what hygienic cleaning process should be chosen in that situation and why.
- how to do it properly.
- what factors could cause the procedure to fail.
- what will happen to the microbes during the hygiene process (would they be killed or removed – or a combination of both).
Participatory exercises to develop understanding - continued

Exercise 3
One of the problems you face as a trainer is persuading people that when it comes to preventing transmission of infection what is ‘visibly clean’ is not necessarily ‘hygienically clean’. Many trainers find it useful to obtain an ultra-violet (UV) training aid to help them visualise the spread of invisible microbes. You can coat an object with powder or paint that glows under UV light and then ask the carer to handle the object in the normal way. You can then pass the UV light over the object and its environment to see which other objects and sites have become contaminated during handling. Another exercise involves coating a surface or object with the powder or paint and asking the carer to clean the item in the normal way. The UV light can be used to see how well the surface or object was cleaned. The UV training aid can also be used to test the effectiveness of hand washing.

Exercise 4
People have a lot of misunderstandings about hygiene e.g. what are germs and how are they different from bacteria and viruses? What is the difference between hygiene and cleanliness? etc. Have a look at the section of Q and As at the end of this resource. Select some of the myths in this section and get them to debate them and give reasons for their answers. Then review the evidence in the resource, which tells them what is fiction and what is fact. e.g. handwashing with soap works by killing the harmful bacteria and viruses on my hands – fact or fiction?

People are surrounded by their own microbes at home and therefore aren’t at risk of infection in the home setting - fact or fiction?
Home Hygiene

Prevention of infection at home and in everyday life: a learning and training resource

Section 1: Understanding hygiene in home and everyday life

Module 1: Breaking the chain of infection
Module 1: Breaking the chain of infection

What is hygiene?

Hygiene is what we do to reduce the spread of infection. These are caused by microorganisms (microbes) including bacteria, fungi, viruses and protozoa. Microbes that cause infectious illness are called pathogens. But, be careful because there is no clear distinction between pathogens and harmless microbes (see ‘learn more’).

Microbes in our everyday life
The world is inhabited by millions of different species of microbes. Most are not harmful and some are beneficial, but pathogens are always present in our home - somewhere, sometimes.

The difference between cleaning and hygiene
However much we clean and disinfect we cannot rid the home of microbes, nor do we need to. Good hygiene is ensuring that microbes that can be harmful do not lead to infections. Hygiene means protecting yourself from infection. But first we need to know how the microbes that can be harmful can spread – this is known as the chain of infection.

Beware the word “Germs”
Children are brought up with images of germs as disgusting and scary – to be avoided or got rid of. Now told there are “good” as well as “bad” germs”. The media tell us about millions of germs on a toilet seat, but don’t tell us they are mostly harmless. Quotes like “Here’s a map to show you where germs love to lurk and help you banish them” or “ germs breed in places you believe are clean” imply the germs are all dangerous, promoting unnecessary fear and misunderstanding.
If you use the word germs – make it clear whether you mean pathogens or just any type of microbe. Because of this confusion, we have avoided using this term in this resource.
**Module 1: Breaking the chain of infection**

**What is hygiene? – supplementary notes for learners and trainers**

The accepted definition of Hygiene is: “Conditions and practices that serve to promote and preserve health and reduce spread of infection.” This means the term is also used for e.g. keeping our body and teeth clean. Disease-causing microbes are called pathogens, but there is no clear distinction between pathogens and harmless microbes. Some infections are caused by “harmless microbes in the wrong place” e.g. up to 30% or more of us carry *Staphylococcus aureus* harmlessly on our skin, but if it gets into the eye, cuts or wounds, it can cause infection. *Escherichia coli* from our gut can cause infection e.g. cystitis if it gets into the urinary tract.

**Microbes in our homes and everyday lives**

Humans, animals and foods are covered in microbes that are mostly beneficial although some lead to harm. They are found everywhere in the home, often in large numbers where there is sufficient water and nutrient to allow them to multiply. Water in the sink u-bend can contain 1 million bacteria/ml. Used dishcloths typically contain up to 100 million bacteria /sq cm. Our skin is colonised by 100 – 1000 bacteria/sq cm. Floors may contain 100 or more bacteria/sq cm. In all these places, there will be many different species. Most are harmless – some beneficial (see module 12), but microbes that can cause harm are always found somewhere e.g the surface of a chicken may contain over 25,000 *Salmonella* or *Campylobacter*.

Most pathogens are unable to grow in the environment, but can survive for hours to days to months, depending on the species. By contrast, many of the harmless microbes can survive and grow in situations where they find suitable conditions (water, nutrients, etc.).

**More information**


<table>
<thead>
<tr>
<th>Microbes that cause can disease</th>
<th>Microbes that very rarely cause disease in humans</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacteria</strong></td>
<td></td>
</tr>
<tr>
<td>Salmonella, Campylobacter, E. coli, <em>Staphylococcus aureus</em>, methicillin-resistant <em>Staphylococcus aureus</em> (MRSA), Legionella</td>
<td>Most species normally found on the skin. Those found in yoghurts and cheeses</td>
</tr>
<tr>
<td><strong>Fungi</strong></td>
<td></td>
</tr>
<tr>
<td>Candida albicans (thrust), Aspergillus, Tinea (ringworm)</td>
<td>Brewing and baking yeasts</td>
</tr>
<tr>
<td><strong>Viruses</strong></td>
<td></td>
</tr>
<tr>
<td>Norovirus (winter vomiting) and rotavirus (diarrhoea), Colds and 'influenza, measles and mumps viruses</td>
<td>Plant viruses</td>
</tr>
<tr>
<td><strong>Protozoa</strong></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidia</td>
<td></td>
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</tbody>
</table>
Module 1: Breaking the chain of infection

The chain of infection

There are several links in the chain of infection which ALL have to be in place for an infection to pass from its original source to another person.

Source of microbes that can cause harm
The main sources of microbes that can cause harm (pathogens) in the home are people, food, water and pets.

Way out for microbes that can cause harm
Pathogens are shed from an infected source via contaminated food particles/juices, faeces, saliva, cough, sneezes, etc.

Spread of microbes that can cause harm
Pathogens are spread via hands, surfaces, clothing, linens, air etc.

Way in for microbes that can cause harm
Pathogens enter the body through the mouth, eyes, nose, cuts, grazes etc.

Susceptible person
We are all at risk of infection. Some people are at more risk of infection, e.g. those with lowered immunity to infection through their age, treatment or illness.

All links are needed to allow an infection to take a hold.
Module 1: Breaking the chain of infection

The chain of infection - supplementary notes for learners and trainers

Source of microbes that can cause harm: There must be a source of infection. Mostly it is food, water, people, pets. Most microbes that can cause harm only grow/breed in humans, animals or foods derived from animals. Microbes that can cause harm are found in the gut, skin and respiratory tract of humans and animals together with millions of microbes considered as non-harmul. Food may have been contaminated at source e.g. vegetables/fruit sprayed with contaminated water.

Some potentially harmful microbes can grow/multiply in the home (but many/most cannot). e.g. Legionnaires bacillus and some E. coli strains can thrive in wet areas (showerheads, wet cloths, toilets) forming a permanent environmental source (sometimes called a reservoir), but these spp. are usually only harmful to those with reduced immunity to infection. Fungi can also thrive on wet/damp surfaces.

Way out: microbes that can cause harm are constantly shed into the air, onto surfaces and hands etc from an infected source (or someone who is not “infected” but is a carrier). They are shed from humans/animals via coughs, sneezes, saliva, faeces, skin scales, wound exudates, etc. They are spread from foods by spilled juices or contact with hands and surfaces.

Spread of microbes that can cause harm: Some infections only spread by direct person to person contact, whilst other spread via the environment etc. (indirect transmission). To cause infection, they must survive in the environment long enough to get from a source to a susceptible person.

Some microbes survive only minutes e.g. influenza virus. Others last for hours, days - even weeks e.g norovirus. The main ‘highways’ for spread are hands, hand contact surfaces, food contact surfaces, cleaning cloths, clothing and household linens, nappies, wound dressings. Fungal spores or bacteria attached to skin scales are carried in the air. Some viruses are carried in aerosolised droplets (coughs, sneezes, vomit).

Way in: To cause infection, there must be an entry point to the body i.e. via the mouth, nose, eyes, skin etc i.e. breathed in, swallowed, through broken skin (cuts and wounds) and mucous membranes (including eye surfaces), tubes entering body e.g. catheters. To cause infection there must be enough microbes to overcome the body’s immune defenses (an infectious dose). For some microbes this can be very low e.g norovirus (<10 virus particles).

Susceptible person: Everyone is at risk, but certain factors make some people more at risk/susceptible to a lower infectious dose of microbes. People more susceptible to infection include:

- The elderly and very young.
- Those with underlying disease affecting their immune system e.g. HIV/AIDS.
- Those undergoing certain drug treatments e.g. cancer chemotherapy.
- Patients discharged from hospital or undergoing outpatient treatments

Further information about ‘at risk’ groups is given in module 7.
Module 1: Breaking the chain of infection

Breaking the chain of infection

If you remove one link in the chain of infection – infection cannot be spread.

How do you remove a link?

Source of microbes that can cause harm – People with infection pose a greater risk in the home. Keep them away from other people; take care handling raw food, nappies and soiled items. Be aware that pets can be a source of infection as well as affection.

Way out – Prevent stools, vomit, fluids from wounds, coughs or sneezes getting onto surfaces or hands.

Spread of microbes that can cause harm – Target your hygiene to prevent microbes that can cause harm from spreading onto other people or things that are shared or eaten.

Way in – Cover cuts with waterproof plasters. Ensure you eat food that has been cooked properly and you drink clean water.

Susceptible person – Protect everyone by giving appropriate immunisations. For people at extra risk, take extra care to practice good hygiene.

Breaking the chain of infection transmission involves removing one or more of these links.
Module 1: Breaking the chain of infection

Breaking the chain of infection - supplementary notes for learners and trainers

Source of microbes that can cause harm: For certain infections, particularly those transmitted through the air (via droplets e.g. influenza) isolate the person to one room in the home and exclude them from school, nursery, day centres, clubs, etc.

Contain the source - Place contaminated items (nappies, pads, dressings) and raw food waste, straight into a bin or plastic bag. Store raw meat in a covered container.

Eliminate the source - Prevent mould growth with good ventilation to reduce humidity levels.

Way out: Reduce contamination of items and surfaces with body fluids. Cover mouth with a tissue when coughing and sneezing. Cover discharging wounds. Use incontinence pads/nappies. Protect surfaces with disposable paper when managing messy dressings or changing nappies. Use a separate chopping board to prepare raw meat and poultry.

Spread of microbes that can cause harm: Use the targeted hygiene approach to hygiene to prevent the spread of germs. The principles of targeted hygiene are described later in this Section. Section 3 shows you how to put targeted hygiene into practice.

Way in: Reduce the chance of microbes entering the body through the skin by covering cuts. Check that food has been handled and cooked correctly and that drinking water is from a safe source. Use hygienic practices, also termed aseptic non touch technique, when handling catheters, drainage tubes and wounds. Your community nurse or local infection prevention and control team will discuss this with you.

Susceptible person: Protect everyone by:
- giving appropriate immunisations.
- encouraging a healthy diet and lifestyle.
- ensure the person is hydrated and is receiving enough fluid.
- following medical advice.

This is particularly important for people at extra risk. Further information about ‘at risk’ groups is given in module 7.

Targeted hygiene

Good hygiene is breaking the chain of infection by preventing spread of microbes that can cause harm.

- The way to break the spread of germs link is by **hygienic cleaning** of surfaces etc. where and when there is risk of spread of microbes that can cause harm.

- **Hygienic cleaning** means reducing microbes that can cause harm on hands, surfaces & fabrics to a safe level (see learn more).

- Targeted hygiene only makes sense if we know where potentially harmful microbes usually come from – i.e. people, food, water, pets.

**Targeted hygiene means:**

- **Identifying the risks**, knowing where and when there is risk of harmful microbes spreading e.g. hands and surfaces when preparing food (see P29)

- **Reducing the risks**, i.e. preventing these microbes from spreading by **hygienic cleaning**. e.g. handwashing after visiting the toilet (see P31)

**What is hygienic cleaning?**

- **Hygienic cleaning** means removing dirt and getting rid of microbes that can cause harm, either by **removing** them or **killing** them:
  - **Removing** microbes can be done by thorough **cleaning with hot water** and detergent, and then **rinsing** to remove the dirt and microbes (e.g. handwashing).
  - **Disinfecting** can be done by heating or using a product that states it ‘kills microbes/germs’ (e.g by using heat, a disinfectant or hand rub/sanitizer).

- Sometimes a combination of removal and killing is used.

- After hygienic cleaning, surfaces should be **dried**.

**Good hygiene is NOT about trying to identify where “dirt and germs are lurking” in our homes and trying to eliminate them by cleaning.**
Module 1: Breaking the chain of infection

What is good hygiene practice? - supplementary notes for learners and trainers

Targeted hygiene
Microbes that cause harm originate from known sources, mainly e.g. food, water, people, pets. By knowing how microbes spread from these sources, we can use hygiene to reduce the risk of spread. Reducing the risk is not about trying to “sterilize” our home. It’s about getting rid of microbes from sites and surfaces, where and when there is a risk. This is targeted hygiene.

Hygiene is like wearing a car seat belt. Just as we don’t know when an accident will happen, we never know when microbes that can harm are present, so we must always practice good hygiene. If we forget and don’t get ill, it doesn’t mean there’s no risk. Next time we may not be lucky!

Many people think hygiene means getting rid of “dirt” – because that’s where germs “lurk”. Media articles show them the places which “harbour” germs. People think, by cleaning germ “hotspots” the family is protected. To change hygiene behaviour, we must change people’s beliefs about how infections spread!

What is hygienic cleaning?
Hygienic cleaning means reducing the number of microbes on hands, surfaces or fabrics to a ‘safe’ level, i.e. not harmful to health. Infection risk increases as the number of microbes we are exposed to increases, but the “minimum infectious dose” varies e.g. the infectious dose for Salmonella can be a million cells, but, particularly for someone who has reduced immunity to infection, can be as little as 100 – 1000. E. coli O157 has a low infectious dose (10 - 100 cells). The dose for many viruses (rotavirus, norovirus) is also small (1-100 virus particles).

Hygienic cleaning procedures are designed to reduce microbes to a safe level – provided they are used correctly. They do not get rid of all the microbes (i.e. sterilize). The aim is to reduce numbers to a “safe” level.

In some cases detergent-based cleaning or wiping is sufficient to make surfaces hygienically clean, but in others it may be necessary to also use a disinfectant/antibacterial product.

**NB: Routine use of disinfectant or antibacterial cleaners as part of daily/weekly cleaning is not recommended.** Disinfectants/antibacterials must always be used prudently with a specific, targeted aim in mind.

Cleaning

Hygienic cleaning is not considered necessary for surfaces that we don’t usually come in close contact with, e.g. floors, walls, furnishings, except in specific circumstance e.g. a floor contaminated with vomit, excreta.

For these surfaces cleaning to remove visible dirt (vacuum cleaning, damp dusting or washing with warm water and detergent etc.) is usually sufficient. Cleaning also removes some microbes. Keeping our homes dirt free does not stop spread of microbes, but it helps because pathogenic microbes do not survive well in clean, dry places.

**NB:** You can only be confident a surface is hygienically clean, if you are confident you have carried out the hand washing or other procedure correctly. A visibly clean surface is not necessarily “hygienically clean”.

Hygiene advice given in this resource is designed to ensure hygiene cleaning in different situations.
Module 1: Breaking the chain of infection

Targeted hygiene - identifying risk surfaces

What are the most risky surfaces?
To know where there is a risk you need to ask:
- Is this site/surface likely to be contaminated with microbes that can cause harm?
- Are they likely to be spread from this site/surface, so we become exposed?
If the answer to both questions is yes, there is need for hygienic cleaning. This risk ranking is a useful “rule of thumb”, but is not constant e.g. risks from toilets increase when someone has diarrhoea/vomiting. Risks from clothing increase if someone is an MRSA carrier.

When is hygiene most needed?
We also need to know when to act.
- Sometimes it’s obvious e.g. food hygiene, pet hygiene, etc.
- Sometimes we can only give rule of thumb advice e.g. How often to launder clothing, clean toilets, clean hand contact surfaces, etc.
- Use common sense - increased frequency is important if someone is infected or at increased risk of infection.
- Keeping the home dirt free on its own does little to prevent spread of infection, but helps, because microbes that can cause harm don’t survive well in clean, dry places.
Module 1: Breaking the chain of infection

Identifying risk surfaces - supplementary notes for learners and trainers

Targeted hygiene is based on risk management, which is the standard process for controlling microbial risks in food processing and other manufacturing environments. It involves:

**Step 1 - Hazard characterisation**, means deciding if:
- the site, surface, etc is likely to be contaminated with microbes that can cause harm.
- microbes are likely to be present in sufficient numbers to cause infection (i.e. an infectious dose).

**Step 2 - Exposure assessment**, means assessing the probability that we might be exposed to the hazard.

**Step 3 - Risk assessment**, means using the information to decide the extent of the risk, what action to take to reduce it and when to take it.

Targeted hygiene is a multibarrier approach i.e. to be effective, hygiene must be applied to all critical points. Targeted hygiene reasons “If we are not exposed to microbes that cause harm – we cannot become infected”

To do a risk assessment for the home, sites and surfaces are categorised into groups:

<table>
<thead>
<tr>
<th>Sites/surfaces</th>
<th>Is the surface likely to be contaminated with microbes that cause harm?</th>
<th>Are the microbes likely to be spread?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hands</td>
<td>Likely – e.g. after handling raw food, toilet visits, nappy changing, handling pets, refuse disposal, etc</td>
<td>Highly likely – by touching mouth, eyes, nose, handling ready to eat food</td>
</tr>
<tr>
<td>Hand and food contact surfaces</td>
<td>Likely – after contact with contaminated hands and food</td>
<td>Likely - to be transferred to other hands, surfaces and ready to eat foods</td>
</tr>
<tr>
<td>Cleaning cloths, utensils</td>
<td>Likely – after wiping contaminated contact surfaces as that’s their main job!</td>
<td>Likely - by ongoing spread to other surfaces</td>
</tr>
<tr>
<td>Clothing and household linens</td>
<td>Less likely – but can pick up microbes that can cause harm from skin, anal areas, etc</td>
<td>Less likely – but can happen e.g by sharing towels</td>
</tr>
<tr>
<td>Toilets, baths, basins, etc</td>
<td>Less likely – but can occur during handwashing, bathing, washing food utensils, toilet flushing. etc</td>
<td>Less likely – but can happen e.g. from one person to another or via toilet aerosols</td>
</tr>
<tr>
<td>Floors, walls, furnishings</td>
<td>Unlikely – but pets in the home can increase risks</td>
<td>Unlikely - unless a baby and pets are playing together</td>
</tr>
</tbody>
</table>

Since microbes that can cause harm are continually circulating in the home, for targeted hygiene to work it must be applied at the right time.
## Module 1: Breaking the chain of infection

### Targeted hygiene – reducing the risks

When there is risk of spread of microbes that cause harm, hygienic cleaning (see p23) reduces numbers of microbes to a safe level:

<table>
<thead>
<tr>
<th>Options:</th>
<th>How to choose an option</th>
<th>How do I do it?</th>
<th>What’s the result?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning, rinsing &amp; drying</td>
<td>Surfaces or items that can be easily rinsed and quickly dried, e.g. hands, cutlery, crockery.</td>
<td>Clean thoroughly (manually or using a dishwasher) with hot water &amp; detergent, rinse in warm/hot water. Air dry or dry using fabric or paper towels</td>
<td>Hygienically clean (P27)</td>
</tr>
<tr>
<td>Cleaning &amp; disinfection</td>
<td>Surfaces that you cannot rinse, e.g. hand contact or kitchen surfaces.</td>
<td>Clean to remove ‘dirt’ and then apply a disinfectant product (see module 11)</td>
<td>Hygienically clean</td>
</tr>
<tr>
<td>Combined cleaning &amp; disinfection</td>
<td>Surfaces which you cannot rinse: Laundry at low temperatures:</td>
<td>Clean using combined disinfectant/ cleaner Use laundry detergent containing bleach and a 30-40°C cycle.</td>
<td>Hygienically clean</td>
</tr>
<tr>
<td>Heat</td>
<td>Surfaces/items that can withstand hot temperatures, e.g. cotton fabrics, cutlery, crockery, feeding bottles.</td>
<td>Washing machine or dishwasher at 60°C or higher or clean with detergent/hot water, then immerse in boiling water for 20 minutes</td>
<td>Hygienically clean</td>
</tr>
</tbody>
</table>

- Hygienic cleaning is more than the “housekeeping cleaning” we do to keep our home free of dirt.
- A surface which is visibly clean is not necessarily hygienically clean.
- You can only judge that a surface is hygienically clean if it has been treated in one of the ways described above.

Cleaning | Surfaces where hygienic cleaning is not needed e.g. floors, walls, some items of clothing and laundry. | Wet clean: use warm water, detergent and a cloth, mop or scrubbing brush. Dry cleaning: vacuum cleaning, dusting, etc. | Visibly clean
Module 1: Breaking the chain of infection

Reducing the risks - supplementary notes for learners and trainers

Where there is a risk of spread of potentially microbes that can cause harm, hygienic cleaning should be used to reduce the number of microbes to a “safe” level (see module 11). A hygienically clean surface is achieved either by removing as many microbes as possible from the surface or killing them in situ using a disinfection process. Alternatively, using combined removal and kill.

It is important to know that hygienic cleaning does not always mean killing germs. Many people believe that, during handwashing, the microbes are killed by the soap and hot water. In reality, applying hot soapy water and rubbing the hands in the right way lifts the microbes off the hands and the water rinses them away. The same applies to hygienic cleaning of surfaces and fabrics.

Detergent/soap-based cleaning only produces a hygienically clean surface if it is applied in conjunction with friction and rinsing under running water. We often assume that wiping a surface with a cloth rinsed in soapy water until it is visibly clean produces a surface that is also hygienically clean. In reality, this removes a proportion of the germs, but it also spreads the remaining germs around the surface and onto the cloth to be spread to other surfaces. Equally, rinsing alone will not produce a hygienically clean surface; soap or detergent is also necessary to lift the microbes off the surface.

This is why, for surfaces that cannot be rinsed (e.g. fixed kitchen surfaces, taps, toilet flush and door handles, nappy changing surfaces) or for cleaning cloths and face cloths where the microbes become too firmly attached, cleaning accompanied by disinfection is necessary.

Disinfection can be achieved by heating at 60°C or above or using a disinfectant. Chemical disinfectants (also called antibacterials or sanitizers) are products that kills microbes, but are only effective if they are used correctly (see module 11 for more information). Dirt, food residues, faeces, etc. can reduce their effectiveness, so surfaces should be cleaned before applying disinfectant. For lightly soiled surfaces, a combined disinfectant/cleaner may be preferred for convenience.

For dishwashing and laundry, hygienic cleaning is achieved by a combination of microbe removal and disinfection (heat plus use of a bleach-based product).
Infectious disease in the community exerts an unacceptable burden on health and prosperity. Much of this could be prevented by better hygiene. Hygiene is important because:

- Food-related, waterborne and non-food-related infectious intestinal diseases remain at unacceptable levels.
- Good respiratory hygiene can limit spread of colds and influenza.
- New pathogens (e.g. influenza strains, SARS) are emerging all the time. Hygiene is a first line of defence in the early critical period before vaccines or other measures are available.
- People with reduced immunity to infection, needing special protection are an increasing proportion of the population - currently up to 20% or more.
- Governments are looking at increased homecare as a means to reduce health spending.
- Tackling antibiotic resistance is a global priority. Hygiene reduces the need for antibiotic prescribing and reduces the “silent” spread of resistant strains in the community.
- Infectious diseases can act as co-factors in other diseases that manifest at a later date or as triggers for development of allergic diseases such as asthma.
- Infections in hospitals largely originate in the community.

Reducing the burden of infection can only be achieved by reducing circulation of pathogens across all settings including the home, hospitals, schools, manufacturing, catering etc.
People often dismiss hygiene in home and everyday life as being unimportant. Some suggest that we are too hygienic - living in a “sterile” world. It’s only when we look at all the issues that we see how important hygiene really is:

Gastrointestinal and respiratory disease: A community UK study suggests that there are 17 million cases GI disease per year including 3 million cases of norovirus. A WHO report concluded about 31% of food-borne outbreaks are in private homes. Respiratory hygiene can limit spread of colds and influenza. Since many GI and RT infections are viral in origin and not treatable by antibiotics, hygiene is key.

Emerging pathogens: As soon as we begin to get one under control another emerges.

“At risk” groups in the community: The largest group are the elderly who have generally reduced immunity, often made worse by illnesses like diabetes, malignant illnesses, etc. It also includes the very young patients discharged recently from hospital and family members with e.g. catheters. Some people have impaired immunity because of chronic illness (e.g HIV/AIDS) or drug therapies (chemotherapy, organ transplant). Much of the care is by the family who thus need an understanding of infection prevention and hygiene practices.

Healthcare in the home: Governments are looking at increased homecare as a means to reduce health spending. But ensuring that homecare is not accompanied by increased infectious disease risks is key, otherwise cost savings gained are likely to be overridden by additional costs of re-hospitalisation and people remaining in hospital for longer than necessary when they are medically fit to be discharged

Antibiotic resistance and hygiene: Hygiene helps to tackle antibiotic resistance by a) reducing the need for antibiotic prescribing and b) reducing “silent” spread of resistant strains such MRSA and multidrug resistant Gram-negative strains. Persistent carriage and spread of nasal or bowel strains in the healthy population increases the risk of infection with resistant strains in both hospitals and the community.

Infectious diseases can act as co-factors in other diseases: These often manifest at a later date and thus not linked to the causative infection.

Infections in hospitals largely originate in the home and community: Patients entering hospitals who are infected or carrying norovirus are the main source of hospital outbreaks, whilst patients carrying organisms such as S. aureus may be self-infected following surgical procedures and spread the infection to other patients.

Module 1: Breaking the chain of infection

YOU can make a difference

In this section we showed how to break the chain of infection using targeted hygiene. The following sections show how to put targeted hygiene into practice in your daily life and in home healthcare situations.

Here are a few points worth thinking about:

- Microbes adapt and change so making hygiene “rules” is difficult. Understanding “breaking the chain of infection” enables you to adapt your hygiene to meet your own needs and challenges.
- Infection spreads by multiple interlinking routes – there’s a limit to how often we can wash our hands, but keeping hand contact surfaces and cleaning cloths hygienically clean will further reduce infection spread via hands. To be effective, hygiene needs to be applied to all critical points - the bottom line is, if we are not exposed to potentially harmful microbes we cannot become infected.
- People still believe hygiene means getting rid of “dirt”, believing that this is where germs “lurk”. People often think cleaning “germ hotspots” regularly will protect their family.

To change hygiene behaviour we must first understand that hygiene means stopping infections from spreading

- Targeted hygiene means less not more cleaning!

Why is good hygiene important to YOU?

Statistics about hygiene-related diseases are hard to grasp, but here are some reasons why hygiene has direct benefits for YOU and YOUR family:

Infections don’t “happen by accident or misfortune” – it’s preventable. By preventing infections, which always happen at the most inconvenient times, you can avoid:

- The hassle of an unexpected days off work, paying for childcare or visits to the doctor.
- Disruption of family leisure activities – celebrations, holidays, etc.
- Granny getting sick whilst caring for grandchildren
Home Hygiene

Prevention of infection at home and in everyday life: a learning and training resource

Section 2: Putting hygiene into practice

Module 2: Hand hygiene
Module 3: Respiratory hygiene
Module 4: Food hygiene
Module 5: General hygiene
Module 2: Hand hygiene

Hand hygiene: where and when? – Hygiene advice sheet

- Hands are the single most important route for transmission of infection.
- Hands become contaminated with microbes that can cause harm e.g. by touching people or animals (who are infected or are carrying microbes that cause harm) or handling contaminated food or touching dirty surfaces and cloths.
- Contaminated hands can pass microbes that can cause harm onto other people (e.g. by hand shaking) or by touching surfaces touched by other people or handling food.
- We can infect ourselves by touching the mouth, nose and eyes with contaminated hands.
- Breaking the chain of infection means practicing good hand hygiene at the right time. In some cases it is obvious (e.g. after toilet visits), but in others it is not (e.g. after touching door, tap and toilet flush handles).

When to wash hands:
- Before preparing food
- After handling raw food (e.g. chicken, meat)
- Before eating food
- After using the toilet
- After changing babies’ nappies
- After contact with contaminated surfaces (rubbish bins, cleaning cloths, etc)
- After handling pets, pet cages and litter trays, feeding utensils, etc
- After contact with blood, faeces, vomit, mucous, etc
- Before and after giving care to anyone who needs it
- Before and after dressing wounds
- When hands are visibly dirty

Hands are the last line of defense against infection.

Hand washing can reduce diarrhea infections by up to 50% and respiratory infections by up to 23%
Module 2: Hand hygiene

Hand hygiene – where and when? - supplementary notes for learners and trainers

What are the risks?

- Hands are the most important route for spreading infection.
- Hands become contaminated with microbes that can cause harm by:
  - Touching people or animals, including people who are infected and people carrying potentially microbes that can cause harm, but are not ill or no longer have symptoms e.g norovirus can be excreted in faeces for 2 weeks or more after vomiting has ceased.
  - Handling contaminated food – raw foods: poultry, meats, fish, unwashed fruit and vegetables are most likely to be contaminated.
  - Touching contaminated surfaces: cleaning cloths, pet equipment, clothing, household linens, etc.
- Contaminated hands can pass microbes that can cause harm onto other people (e.g by hand shaking) or by touching surfaces which other people touch or handling ready to eat foods.
- We can infect ourselves by touching the mouth, the lining of the nose and conjunctiva of the eyes with contaminated hands.
- E.g a person with gastroenteritis excretes the pathogen in their faeces. These are transferred to hands during toilet visits. If hands are not thoroughly washed, excreta can be transferred to food. Ingestion by another person can cause illness. Airborne transmission is a major cause of spread of cold virus, but can also be caused by rubbing the eyes or membranes of the nose with contaminated fingers.

Note – not all microbes on our hands are harmful:

**Transient flora** are microbes picked up by touching surfaces, food, people and pets. They can remain viable for significant periods on the skin and be transferred to other surfaces, but do not colonize the skin.

**Resident microbes** live permanently on the skin. They are not generally harmful except to people at increased risk of infection. They are less readily transferred to other people or surfaces.

**Hand hygiene is central to all hygiene practices:**
Module 2: Hand hygiene

Hand hygiene: How? – Hygiene advice sheet

How to wash hands correctly

Ensure a supply of liquid soap, warm running water, clean hand towel/disposable paper towels and foot-operated pedal bin.

- Always wash hands under warm running water.
- Wet hands and apply soap.
- Rub hands together for 15 to 30 seconds, paying particular attention to fingertips, thumbs and between fingers.
- Rinse well, dry thoroughly.

Hand washing with soap, if carried out correctly will remove any microbes that can cause harm i.e. make hands hygienically clean (see P27).

If hand washing facilities are inadequate or if there is high risk of infection, alcohol hand gels/rubs can be used. These should contain over 62% alcohol and a moisturiser.

Alcohol gels/rubs kill (rather than remove) microbes - so the alcohol must cover the whole hand, using the same technique and hands rubbed until the alcohol has evaporated.
Module 2: Hand hygiene

Hand hygiene - how? - supplementary notes for learners and trainers

As transient microbes are located on skin surfaces and not firmly attached, they can be removed by hand washing or inactivated by the application of alcohol hand rubs/sanitizers. The resident flora cannot be eliminated from skin, but can be reduced by hand washing (with or without antibacterial soaps) or application of alcohol-based hand rubs.

For most activities, hand washing with soap is enough, but only if carried out correctly. Rubbing with soap and water detaches bacteria and viruses from the skin. Rinsing the hands then removes them. Correct hand washing significantly reduces the numbers of microbes. It is important to stress that compromising any aspect of hand washing (e.g. time spent rubbing hands) will significantly reduce hand washing effectiveness. And may fail to make hands hygienically clean (see p27).

Liquid soap is preferred as shared bar soap can become contaminated with the possibility of passing on microbes from one person to another.

Hand drying is important since microbes are more easily transferred elsewhere from wet hands. Paper towels are preferable to hand dryers or shared towels as these can also become contaminated.

Alcohol-based hand rubs are a practical way of making hands hygienically clean in situations where hand washing is not possible, but it’s not effective on dirty hands because alcohol does not penetrate dirt or soil very well. The concentration of alcohol should be at least 62% v/v. When caring for at risk groups in the home, alcohol hand rubs containing 70% v/v or more alcohol are recommended.

Using a soap-based product containing an antimicrobial (e.g. antibacterial) that kills microbes or applying an alcohol-based hand rub after hand washing may be recommended in situations of specific risk, such as when caring for people at extra risk or after handling raw poultry.

Alcohol hand rubs make the hands hygienically clean by killing microbes, whilst soap-based products (usually referred to as hygienic hand washes) rely on a combination of microbe kill and removal. To be confident that an antibacterial soap produces a risk reduction greater than that produced by hand washing with plain soap, the product should comply with standard European test methods EN 1499 and EN 1500 or an equivalent approved method.

More information
Hand hygiene in the home and community https://www.ifh-homehygiene.org/factsheet/hand-hygiene-home-and-community
Module 3: Respiratory hygiene

Respiratory hygiene – Hygiene advice sheet

Colds and influenza are the most common illnesses in people of all ages. Respiratory hygiene can reduce person to person spread. Good respiratory hygiene is particularly important where there is someone in the family who is at greater risk of infection.

To reduce risk of spreading infection:
- Avoid touching your nose if possible.
- Block coughs or sneezes preferably with a tissue or with your hands or sleeve.
- Use disposable tissues. Dispose of tissues immediately and safely. DON’T leave tissues lying around for other people to pick up and become infected.
- Wash hands thoroughly.
- If a washbasin is not available, use an alcohol hand rub/sanitizer.
- Keep the home well ventilated.

TIP: For babies with colds, keep a plastic bag with you to collect tissues until you have time to dispose of them.

If you are infected:
- Think before you shake hands with anyone.
- Remember cold virus can be transmitted via computer keyboards, TV remotes, telephones, door handles, tap handles, etc.
- Cleaning cloths and sponges can readily spread viruses from one surface to another, so use an antiviral disinfectant.
- Do not share towels, toothbrushes, eating utensils, etc. Wash your laundry (especially handkerchiefs, towels, face cloths) separately and at 60ºC.
- If you have flu, stay off work until you feel better, for most people this will take about 7 days. Stay indoors and minimize contact with other people.
The commonly held belief is that colds and influenza are spread by particles of infected mucous generated by coughs and sneezes. However, increasingly, there is evidence that, particularly colds, but also possibly influenza is also transmitted via hands and surfaces. Infection can spread when fingers become contaminated by contact with the infected nose or when surfaces such as handkerchiefs and tissues, tap and door handles or telephones become contaminated by droplets of infected mucous shed from the nose.

The virus is passed onto another person either by handshaking or when contaminated surfaces are touched by that person. Individuals then infect themselves by touching their own nose or eyes with contaminated hands.

Cold viruses deposited on surfaces can remain viable, in large numbers, for several hours and the ‘infectious dose’ (the number of viral particles required to cause infection) may be very small. For rhinovirus the infective dose may be less than 10 particles.

However, compared with cold viruses, influenza viruses are much more “fragile” and survive shorter periods in the environment or on hands.

More information
Colds, influenza and other respiratory infections in the home
Module 4: Food hygiene

How food can make you ill – Hygiene advice sheet

- You can’t tell if is safe by its look, smell or taste.
- Food can be unsafe because it contains microbes that can be harmful, or toxins (poisons) they have left on the food.
- Pathogens can be on the surface and inside (e.g. raw hamburgers or liver) food that you buy.

What are the 4 main causes of food poisoning?

**Transferring germs to uncontaminated, ready-to-eat food**

- Pathogens can get into ‘clean’ food from people, pets, pests, surfaces, contaminated food or water.
- Pathogens cannot move on their own, they have to be moved by something or someone:
  - Hands or hand and food contact surfaces (e.g. taps, knives, chopping boards, cloths).
  - Contact between contaminated and ‘ready-to-eat’ food.

**Not cooking food properly**

- Food must be cooked thoroughly (all the way through) to 75°C in the centre to reduce any pathogens present to a safe level.

**Inadequate food storage**

- Keep foods at the right temperature, e.g. hot foods kept hot, chilled foods kept cold. If not, bacteria can grow on/in food unless frozen or dried.

**Ill or infected people handling food**

- A person may be infected, but not show any symptoms of illness.
- They may contaminate surfaces or food by touch, vomiting, diarrhoea, sneezing or coughing.

Good food hygiene is very important for people who are at increased risk of infection (See module 7)
What is food poisoning?
‘Any disease of an infectious or toxic nature caused by or thought to be caused by consumption of food or water’ (WHO definition). Foodborne illness can be caused by pathogens (bacteria, viruses, fungi, protozoa), but also microbial spoilage, poisonous plants, chemicals, pesticides and physical objects (e.g. glass, plastic). A recent study suggests 17 million (up to 1 in 3) people in England and Wales suffer a gut infection every year.

Bacterial food poisoning
- Bacteria eaten via infected food, can grow in and irritate the intestine causing diarrhoea or vomiting, e.g. *Campylobacter* (most common cause) or *Salmonella* (second most common cause).
- Some bacteria grow and produce a chemical (toxin) within the food. Cooking kills bacteria, but doesn’t remove toxin. If the food is eaten toxins can cause illness, e.g. *Staphylococcus aureus* and *Bacillus cereus*.
- Other bacteria produce toxins once they reach the intestines and multiply or form spores, e.g. *Shigella*, *Listeria*, *Clostridium perfringens* and *E. coli O157*.
- Some are infectious in very small doses, e.g. *E. coli O15*, *Campylobacter* (10-500 bacteria can make you ill).

Viral food poisoning
- Viruses cannot grow in food, but can survive. Food may be contaminated via contaminated water or infected food handler. e.g.;
  - Rotavirus, the most important viral cause in children under 5y
  - Norovirus, commonly known as ‘winter vomiting disease’
- Hepatitis A and E
- Some are infectious in very small doses e.g. for norovirus, 10 virus particles may be enough

Symptoms of food poisoning
- Symptoms start 1 - 36 hours after eating food and can last up to 7 days. Note: Campylobacter symptoms take 2-5 days.
- Symptoms include all or some of the following: abdominal pain, diarrhoea, vomiting, nausea (feeling sick, dizzy and faint) and fever.

Sources of food poisoning in the home
- All food which you buy contains microbes, but certain raw foods or ingredients are more likely to carry pathogens e.g.;
  - poultry and red meat (*Campylobacter*, *Salmonella*, *E. coli 0157*). Packaging may also be contaminated.
  - raw vegetables - potatoes, leeks, other root vegetables and unwashed greens, raw fruit, unwashed salads and frozen produce that is not ready-to-eat (e.g. peas, sweetcorn, spinach) (*E. coli*, *Salmonella*, Norovirus, *Shigella*, *Listeria*).
  - shellfish/seafood (*Vibrio parahaemolyticus*, Hepatitis A virus).
  - eggs (unless Lion Brand) (*Salmonella*).
  - some soft cheeses such as Brie (*Listeria*).
  - Family members who have a gut infection e.g. norovirus.
  - Occasionally pets – including dogs, cats, reptiles or farm animals.
## General principles – the 4 Cs – Hygiene advice sheet

Many people think they only get food poisoning when they go to a restaurant, but in fact many illnesses come from poor food hygiene at home. There are four key actions needed to prevent food poisoning - the 4Cs.

### 1. Cross-contamination Prevention
- This means stopping pathogens from getting from a source to a ready-to-eat food.
- Good food hygiene means making cooking utensils, hands, hand and food contact surfaces and cleaning cloths and sponges hygienically clean at the times that matter.
- It also involves making sure your hands do not spread microbes – hand washing is key.

### 2. Cooking & Reheating
- Cooking means killing or reducing pathogens to a safe level.
- Good food hygiene means cooking food thoroughly.

### 3. Chilling & Storage
- Chilling means getting food cool quickly and storing it cold to stop bacteria growing.
- Good food hygiene means cooling rapidly and storing in a cold fridge.

### 4. Cleanliness in the Kitchen
- Kitchens are not used just for preparing food – we also gather and socialise there. We may do the laundry and other tasks in this family hub.
- Although the greatest risk is when handling and preparing food, behaviour and general cleanliness is also important.
Module 4: Food hygiene

Preventing Cross-contamination while preparing food – Hygiene advice sheet

While handling and preparing raw food
- Keep raw food separate from cooked or ready-to-eat food.
- Juices from meat, poultry etc. are big risk - place at the bottom of fridge and/or in sealed container.
- Preferably, keep a separate chopping board for raw meat, fish and poultry - make sure the family knows which it is.
- After touching raw food, anything you touch will become contaminated.
- **Immediately after preparing raw food**, hygienically clean (P27) surfaces:
  - Wash utensils and chopping boards in hot soapy water, discard water, rinse with clean running water and dry or use dishwasher on hot wash.
  - Clean, disinfect (see module 11) and dry work surfaces contaminated by food or hands e.g. sink taps, cupboard doors, etc.
  - Clean, disinfect and dry dishcloths (module 5). Better still - use disposable cloths/paper towels.
  - Wash and dry hands PROPERLY (module 2).

Before handing and preparing ready to eat foods
- Wash and dry hands PROPERLY.
- Ensure surfaces, utensils etc. are hygienically clean – if in doubt, clean again.
- Don’t prepare food if you’re ill.

**Focus on breaking the chain of infection - Don’t:**
- Use contaminated cloths on clean surfaces – paper towels are safest.
- Put cooked food on a plate previously used for raw food.
- Wash ‘raw meat’ chopping board in same water as crockery.
- Use fingers to taste food - use a clean spoon.
- Use utensils to stir or serve cooked food if previously used with raw food.
- Wash your hands in washing up water.
During handling, food can become contaminated – the main sources are raw food, people and possibly domestic animals.

**Keeping food safe means breaking the chain of infection, e.g.**

- Pathogens can be on the surface as well as inside food. Packaging can also be contaminated.
- When you handle or prepare raw food, pathogens will be transferred to surfaces, utensils, cloths and hands.
- If you wipe a clean surface with a contaminated cloth, the surface becomes contaminated.
- If you open kitchen cupboards, answer the telephone or turn on the taps to wash your hands, these surfaces will then be contaminated.
- In the washing-up bowl, pathogens can spread from a contaminated chopping board, knife or cloth to other things in the bowl such as plates, cups and eating utensils.
- Clean up immediately after handling/preparing raw food – before doing anything else – risks are then contained and it’s safe to carry on.

**Take care with people and pets**

- People with gastrointestinal infections who prepare food can cause food poisoning. They may not know they are ill i.e. have no symptoms. That’s why washing hands after using the toilet is ALWAYS vital.
- Kitchen surfaces can be a culprit, e.g. vomiting in the kitchen sink, pouring nappy bucket contents down the kitchen sink, pets walking on food preparation surfaces.

- Don’t put handbags, shopping bags, laundry or shoes on kitchen surfaces, even if they look clean.
- You never know what goes on, so always make food preparation surfaces and hands hygienically clean before you start preparing ready to eat food.

**Situations where risks may be higher**

- In a crowded kitchen (e.g. family parties), large household or preparing food for people at increased risk of infection (see module 7), making sure hands, surfaces and utensils are hygienically clean is very important.

**Hygienic cleaning of hands, utensils, surfaces and cloths**

- To break the chain of infection hands, surfaces and cloths must be hygienically cleaned (P27). A surface may look clean, but can still be contaminated with enough pathogens to contaminate ready to eat foods or cause infection by touching your mouth with your hands.
- Hygienic cleaning means following the recommended method of cleaning. These are specifically designed to reduce pathogenic contamination on the surface to a safe level.
- Washing up bowls are a great way to spread pathogens – always rinse utensils under clean running water after they have been cleaned with hot soapy water.
Module 4: Food hygiene

Cooking & Reheating – Hygiene advice sheet

It’s vital to cook food thoroughly. Cooking does not kill all the microbes on or in food, but reduces them to a safe level.

Do

- Always follow cooking instructions on packaging. Remember frozen food takes longer to cook than fresh food.
- If necessary, frozen food should be defrosted in a refrigerator (rather than room temp). It will say on the label.
- If properly cooked, juices from meat or poultry should run clear when food is pricked with a fork.
- Preferably use a food thermometer to check the internal temperature of poultry, meat or ready meals. 75°C for 30 seconds is recommended.
- When microwaving, stir or turn food halfway through to prevent uneven heating or cooking.
- Serve food as soon as possible after cooking, but if you can’t then it will be safe for up to 2 hours.
- Hot food must be kept hot if not to be eaten immediately after cooking.

Do not

- Prepare food too far in advance.
- Reheat food more than once; ensure that it is piping hot all the way through.

If you do not cook at the right temperature for the right time, the food may not be safe to eat.
Module 4: Food hygiene

Cooking & Reheating - supplementary notes for learners and trainers

Cooking and reheating food
Cooking does not kill all bacteria in food, but reduces numbers to a ‘safe’ level.

In general cooked meat and poultry should not be pink in the middle, but colour isn’t always a reliable indicator and is difficult to assess.

Use a thermometer: This is the simplest way to make sure food is properly cooked. For meat or poultry, aim for the thickest part to reach 75°C for 30 seconds. As it is usually the centre that takes the longest to heat up, that is where you need to take the temperature. Clean the thermometer before use by immersing the tip in a cup of just boiled water or use a disinfectant spray. Thermometers are not expensive (from around £15). They save a lot of uncertainty and also avoid over-cooking!

Recipe book cooking times are, unless stated, based on the estimating time to raise food from room to cooking temperature and adding the holding time at that temp, deemed necessary to cook the food thoroughly.

Ready and home-cooked meals to be re-heated should also be cooked to 75°C or above to make sure that Listeria is killed. Listeria can grow in the fridge and must be destroyed by heat.

Frozen food should be completely thawed before cooking unless the package says otherwise. If suitable to cook from frozen, follow pack instructions, which includes heating time for food to reach ‘holding temperature’.

Meal preparation
- Once food is prepared for eating, make sure it stays ‘safe’ by protecting from contamination and either keeping cold food cold, or hot food hot.
- Always wash hands before handling cooked or prepared foods and after handling raw meat, poultry, fish or soiled vegetables.
- Ensure that all preparation/serving surfaces are hygienically clean (P27) before putting cooked or ready-to-eat foods on them.
- Cooked or ready-to-eat food should not come into contact with raw meat, unwashed vegetables or salad or with utensils, cloths or surfaces contaminated by contact with raw food.
- Do not place cooked food onto plates that previously held raw food. This is often forgotten when barbecuing.

Microwave cooking
Refer to manufacturers’ instructions on appropriate times or power settings for cooking or defrosting food. Microwaves have hot and cold spots, so foods must be turned or stirred to prevent uneven heating. Take care not to scald yourself with steam escaping from packs when you peel away film on ready meals.
Module 4: Food hygiene

Chilling & Cold Storage – Hygiene advice sheet

How Bacteria grow in food

- Bacteria grow faster at warmer room temperatures.
- Refrigeration slows down, but does not stop bacterial growth (Listeria in particular can grow in the fridge).
- Bacteria and fungi will grow on any foods unless dried or frozen.
- Freezing stops bacteria from growing, but does not kill them.

<table>
<thead>
<tr>
<th>Do</th>
<th>Do not</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ A fridge should be between 1 and 5°C, a freezer -18°C. Use a fridge thermometer, check regularly. Ensure the door shuts properly.</td>
<td>✗ Store too long. Stick to use by dates for ready-to-eat food and ready meals.</td>
</tr>
<tr>
<td>✓ Cool food to room temp quickly as possible. Divide into portions to speed cooling. When cool, immediately, or within 2h, refrigerate or freeze.</td>
<td>✗ Put hot food in the fridge - it causes the temperature to rise.</td>
</tr>
<tr>
<td>✓ Store cooked &amp; ready-to-eat food above raw food.</td>
<td>✗ Put open tin cans in the fridge. Transfer to a clean covered container.</td>
</tr>
<tr>
<td>✓ Covered cooked &amp; ready to eat foods to protect from contamination.</td>
<td>✗ Refreeze food after defrosting (unless you have cooked it).</td>
</tr>
<tr>
<td>✓ Discard food past its ‘use-by’ date</td>
<td></td>
</tr>
<tr>
<td>✓ Hygienically and regularly clean (P27) fridge surfaces &amp; door handle.</td>
<td></td>
</tr>
<tr>
<td>✓ Defrost foods in the fridge in a deep dish to catch juices.</td>
<td></td>
</tr>
</tbody>
</table>
Module 4: Food hygiene

Chilling & Cold Storage - supplementary notes for learners and trainers

A fridge will reduce growth rate of microbes, but doesn’t stop it. Freezers stop bacterial growth indefinitely. Food safe to eat can be kept that way by freezing, but quality and flavour may deteriorate.

Some foods need to be refrigerated if not eaten immediately:
- Raw meat, poultry, fish (ready-to-eat foods such as pate, ham, quiches and ready-meals).
- Dairy products (Listeria, Salmonella, Staph. aureus, Shigella).
- Salads, cut fruit and vegetables (Listeria, Staphylococcus aureus).

For home cooked foods:
- If you want to re-heat refrigerated food, heat quickly until steaming throughout (or 75°C on a food thermometer) (Bacillus cereus, Clostridium perfringens).
- Home-cooked foods should not be stored for more than about 2 days even in a fridge (Listeria).
- Cooked rice or pasta may contain Bacillus cereus which can grow and produce toxins - cooked rice must be eaten straight away or cooled quickly and refrigerated.

Because space is limited there is high risk of cross-contamination. So:
- Store raw and cooked foods in separate areas or shelves.
- Place raw meat and poultry in a dish or sealed container at the bottom of the fridge, so juices do not drip onto other foods.
- Ensure cooked foods or foods to be eaten raw (fruit, veg) are covered or bagged when stored in the fridge.

For freezing
- Securely pack raw meat or poultry in freezer bags or containers before freezing, excluding air to prevent freezer burn.
- Frozen food that has thawed should not be refrozen, unless it has been cooked first.

Use before and best by dates
- Always follow use by dates. They tell you how long a product will remain safe to eat, provide it is stored as indicated.
- Use your judgement about best before dates. These tell you how long food will be at its best quality (it’s not a safety indicator).
- Whole fresh fruit and vegetables and dried, frozen, long-life foods do not have use by dates – only best before dates.
- You can freeze suitable foods before the expiry of the use by date, but after a time the quality and flavour will decline although they will stay safe in the freezer indefinitely.

Moulds
Avoid mould growth on food or food storage areas. Mould spores get airborne and spread to other foods. Throw mouldy food away; do not cut off mouldy areas and eat the rest as mould produces toxins that may have spread even though the food looks OK.
Module 4: Food hygiene

Cleanliness in the kitchen – Hygiene advice sheet

The domestic kitchen is not just where we prepare food – it’s also where we socialize. The greatest risk is handling food that’s why targeted hygiene is important, but how we behave in the kitchen and kitchen cleanliness are also important. So:

- Keep the kitchen clean and tidy to help reduce risks and discourage pests such as flies, ants and rodents.
- Don’t let food prep surfaces get cluttered with e.g. ornaments, cards, keys and purses – it makes it easier to keep them clean and practice good hygiene.
- Pets can be a source of infection. Keep bedding & litter trays out of the kitchen. Clean up faeces & disinfect (module 11).
- Cats jump on surfaces, so keep food covered and clean and disinfect surfaces before preparing ready to eat food.
- Keep the kitchen sink free from pathogens e.g. don’t pour contents of the nappy bucket down the sink, flush it down the toilet.
- If someone needs to vomit, use the toilet not the sink!
- Avoid using the kitchen sink for “dirty jobs” i.e. cleaning shoes, nappy rinsing etc. Use a bucket and put dirty water down the outside drain or toilet.
- If you do make the sink dirty, clean and disinfect immediately - someone may use it next for salad washing!
- It is not necessary to use a disinfectant everywhere for routine kitchen cleaning, save it for dealing with specific risks as mentioned above.

Remember: Not all infections are foodborne. Most norovirus infections are transmitted from person to person, and people may not have symptoms, so don’t know they’re infected. Food handling by an infected person can contaminate food and spread infection, particularly if they have not washed their hands after using the toilet.
Some tips to think about:

- Domestic kitchens are rarely designed with hygiene in mind. A bit of common sense planning could help reduce cross-contamination risks.
- Do the clean jobs first and the preparation of “contaminated” foods second.
- If possible, try to create a routine where one side of the kitchen is used for raw foods (preferably close to the sink and waste disposal) and the other for cooked or ready to eat foods, (cutting bread, making sandwiches, etc.).

Further reading


Module 5: General hygiene

Cloths and cleaning equipment – Hygiene advice sheet

These are used to remove dirt and microbes from surfaces, but, in so doing, they can become a vector to spread contamination to hands and other surfaces. This means that they should be hygienically cleaned between different activities or discarded. If left damp, microbes, including some potentially harmful species, can multiply to high numbers making them difficult to clean.

Cloths, sponges and scouring pads
Cloths can be hygienically cleaned (P27) in any of the following ways:
- Wash in a washing machine at 60°C (hot wash).
- Clean with detergent and warm water, rinse and then immerse in disinfectant (see module 11) solution for 20 minutes.
- Clean with detergent and water then immerse in boiling water for 20 minutes.
- Use disposable cloths if possible, particularly where there is high risk of infection e.g. cleaning up faeces or vomit.

Washing-up brushes
- Clean using detergent and hot water after use, rinse and leave head-up to dry.
- or - wash in the dishwasher.

Mops and buckets
- Clean using detergent and hot water and rinse with a disinfecting solution.
- Wring out mops until dry as possible, leave to dry head-up.
- Rinse buckets with clean water, leave upside-down to dry.

After hygienically cleaning, dry all cleaning utensils as rapidly as possible. Allocate different cloths for cleaning the kitchen, toilets, pet areas, etc.
Module 5: General hygiene

Cloths and cleaning equipment - supplementary notes for learners and trainers

What are the risks?
Cloths and cleaning equipment are considered “high risk” i.e. along with the hands, they pose a high risk of spreading microbial contamination. This is because:

- Since they are used to clean contaminated surfaces, they inevitably become contaminated with microbes.
- They are touched by hands, which in turn become contaminated and can spread infection.
- Even if cleaned thoroughly, some microbes will survive and can multiply to high numbers within a few hours – unless the item is thoroughly dry.
- Thus, if they are not adequately decontaminated between uses or discarded, they can contribute to the spread of microbes.

Hygiene measures

- To minimise spread of infection, disposable cleaning items should be used where possible. This is particularly important for cleaning surfaces where there is high risk that pathogens may be present e.g. surfaces used to prepare raw food, pet cages, cleaning up vomit and faeces, cleaning surfaces where someone is infected.
- Cloths and cleaning equipment must always be hygienically cleaned i.e. cleaned according to recommended practices; visual cleanliness does not necessarily mean hygienic cleanliness. Microbes tend to stick to fibres or foam of cloths, sponges and mops and may not be removed unless recommended hygiene measures are followed. The best way to make the items hygienically clean is by using a dishwasher or washing machine at 60°C. This not only dislodges and rinses away dirt and microbes, but the hot water also kills the microbes.
- Microwaving can be used for cloths and sponges (full power: 2 min, 5 min for spores), but item MUST be damp – otherwise it can overheat and catch fire, so microwaving is not advisable.
- Growth of microbes not destroyed by the cleaning process can be prevented if items are dried immediately after hygienic cleaning. If cloths, etc. are left wet, residual bacteria will multiply and become more strongly bound and difficult to remove or kill.
- Sponges are difficult to decontaminate effectively over a sustained period and should be replaced at least weekly, preferably less. (https://www.nature.com/articles/s41598-017-06055-9)

Always wash hands after handling cloths and cleaning equipment.

More information

Module 5: General hygiene

Surfaces commonly touched by hands – Hygiene advice sheet

Potentially microbes that can cause harm can survive hours or even days on apparently clean surfaces. Hands can pick up these microbes and spread them to other people or other surfaces. These surfaces are higher risk because they are more likely to be contaminated by microbes that can cause harm e.g. work surfaces contaminated by raw food, pets, used nappies/pads, vomit, etc. Also, taps and handles, toilet seats, etc. pose a risk because they are frequently touched by contaminated hands.

Hand contact surfaces include;
- Taps
- Toilet handles, toilet seat and lid
- Cupboard and door handles, oven, fridge, etc
- Toys
- Surfaces contaminated by used nappies/pads, vomit, faeces, blood, etc.
- Surfaces and boards used for handling raw meat/poultry, etc.
- Telephone, computer keyboard and mouse, mobile phone

How and when to clean
- Hygienically clean (P27) surfaces regularly or when visibly soiled by cleaning followed by disinfection (module 11) or using a disinfectant/cleaner or disinfectant wipe. Leave surfaces dry.
- Frequency of cleaning depends upon the situation. e.g. toys need to be cleaned more often if they are shared or if a child has an infection.
- Note: visibly clean does not necessarily mean hygienically clean – surfaces need to be cleaned in the right way to reduce pathogens to a safe level.

In a busy household, surfaces cannot be kept hygienically clean all of the time. That’s why it’s important to wash hands at critical times e.g. before preparing food and eating meals, but reducing contamination on hand contact surfaces through hygienic cleaning reduces risks of infection transfer via hands.
Module 5: General hygiene

Surfaces commonly touched by hands - supplementary notes for learners and trainers

What are the risks?
Microbes that can be harmful continually enter the household in a number of ways, such as via:

- contaminated food or water
- infected people or pets
- shoes and clothing
- airborne

These microbes can contaminate surfaces that are frequently touched by hands or food and can result in the transfer of the microbes to other people or other surfaces. The microbes will gradually die off but can remain viable for some time in sufficient numbers to cause infection if transferred to a susceptible person.

Respiratory infections (e.g. colds virus and possibly also influenza) may be acquired from contact with a surface which has become contaminated either by contact with contaminated hands or by airborne sneezes and coughs which settled on the surface. The virus may be picked up on the fingers and rubbed into the lining of the mouth, nose or eyes.

Remember microbes do not multiply in dry conditions, so keep surfaces dry. If microbes are transferred to a more hospitable environment, e.g. unrefrigerated food, the gut, a wound, etc., they may be able to grow. In this situation, even a small number of microbes can multiply to an infectious level in a very short time.

Hygiene measures
It is important to recognise that surfaces commonly touched by hands are more easily contaminated than others and take steps to avoid this by, for example;

- keeping pets away from these surfaces
- hygienically cleaning chopping boards before and after use
- using a paper handkerchief when coughing and sneezing and above all:
  - Regular hygienic cleaning

Because these surfaces are frequently touched by all the family and therefore carry a real risk of spreading infections, they should be hygienically cleaned (P27) not just visibly cleaned. However, it is impossible to keep these surfaces hygienically clean in a busy household, so this is why hand hygiene is very important.

There is anecdotal evidence which suggests that where there is an outbreak of infections e.g colds or norovirus at school or in the local households, strict hygiene of hands and hand contact surfaces can reduce the spread of infection between family members.
Module 5: General hygiene

Toilets, continence pads and commode pots – Hygiene advice sheet

These can become heavily contaminated with microbes that cause gut infections and are spread mainly via hands, surfaces and cleaning equipment (cloths, mops). If you are the patient, family or friend of the patient you may not wish to wear gloves. This is of course a personal choice but adherence to hand hygiene is vitally important.

Toilets and commodes

- Keep the toilet bowl and u-bend clean by flushing after use and using a toilet cleaner and brush every few days. Remove scale regularly using a descaler.
- Keep the toilet seat, handle and under the toilet rim hygienically clean (P27) by cleaning followed by disinfection (module 11) or use a disinfectant/cleaner.
- If someone has diarrhoea or vomiting, add disinfectant to the toilet, close the lid and flush. To protect the family, hygienically clean all the surfaces of the toilet (toilet bowl, seat, lid) every time they use the toilet.
- Empty commode pots into the toilet. Hygienically clean by rinsing with detergent solution and empty into the toilet. Leave commode pot to dry upside down.
- Formal carers should wear disposable vinyl/nitrile gloves when cleaning toilets and commode pots. Wash hands after removing gloves.

Continence pads and Stoma Bags

- Wear disposable vinyl/nitrile gloves to avoid soiling hands when handling continence pads, stoma bags etc.
- Put disposable pads and bags in a plastic bag, then into second bag, tie securely. Dispose with household rubbish.
- If using washable continence products, use toilet paper to remove solid faeces and dispose into the toilet.
- Launder washable continence products in a washing machine. Use a pre-wash cycle followed by a 60°C wash.
- Dry continence products quickly, ideally use a tumble drier or clothes line.

Wash your hands after cleaning the toilet or handling used nappies or pads.
Module 5: General hygiene

Toilets, nappies, pads, potties and changing mats – Hygiene advice sheet

These can become heavily contaminated with microbes that cause gut infections, which spread mainly via hands, surfaces and cleaning equipment (cloths, mops, etc.).

<table>
<thead>
<tr>
<th>Toilets and potties</th>
<th>Nappies, pads and changing mats</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Keep the toilet bowl and u-bend clean by flushing after use and using a toilet cleaner and brush every few days. Remove scale regularly using descaler.</td>
<td>➢ If you are caring for a child who is wearing nappies wear gloves to avoid soiling hands when handling nappies. Parents may not wish to do this, but if the child is ill and there is risk of poo getting onto the hands, then disposable vinyl/nitrile gloves are advised.</td>
</tr>
<tr>
<td>➢ Keep the toilet seat, handle, under the toilet rim, hygienically clean (P27) by cleaning followed by disinfection (module 11) - or use a combined disinfectant/cleaner</td>
<td>➢ Put disposable nappies and pads in a plastic bag, then into second bag, tie securely. Dispose with household rubbish</td>
</tr>
<tr>
<td>➢ If someone has diarrhoea or vomiting, add disinfectant to the toilet, close the lid and flush. To protect the family, hygienically clean all the surfaces of the toilet - toilet bowl, seat, lid, every time they use the toilet</td>
<td>➢ If using washable nappies, use toilet paper to remove solid faeces and dispose into the toilet</td>
</tr>
<tr>
<td>➢ Empty potties into toilet. Hygienically clean by rinsing with detergent and emptying into toilet. Leave to dry upside down</td>
<td>➢ Launder washable nappies in a washing machine. Use a pre-wash cycle followed by a 60°C wash</td>
</tr>
<tr>
<td>➢ Toilet brushes should be regularly cleaned and disinfected</td>
<td>➢ Dry nappies quickly, ideally using a tumble drier, or clothes line</td>
</tr>
<tr>
<td>➢ If someone has had a stomach infection wear disposable vinyl/nitrile gloves when cleaning toilets and potties. Child carers should wear gloves. Wash hands after removing gloves</td>
<td>➢ Clean changing mats with detergent, disinfect and dry.</td>
</tr>
</tbody>
</table>

Empty nappy buckets into the toilet, not the sink.

Wash your hands after cleaning the toilet or handling used nappies or pads.

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Turn the page to learn more
Module 5: General hygiene

What are the risks?
Toilets act as reservoirs for microbes because they are inevitably wet and contaminated with excreta, thus providing ideal conditions for the growth of microbes, including some potentially harmful species. Microbes can be transmitted from toilets, nappies, etc., either by direct contact with these items or indirectly via contaminated hands. In general, the risk from the toilet bowl is not high, although some splashing and aerosol formation can occur during flushing. However, if an individual in the household has a gastrointestinal infection, they excrete large numbers of pathogenic microbes during and for some time after their illness. In this case there is considerable increase in risk of spread from splashing, aerosols etc. In the toilet, pathogenic microbes are most usually found under the flushing rim and in scale that forms on the porcelain surface.

If someone has diarrhoea or vomiting, it is much more likely that toilets, nappies, potties and surroundings will become contaminated with pathogenic microbes. In this situation, ideally, as with potties and nappies, the toilet and toilet surfaces should be cleaned and disinfected every time they use the toilet.

There is high risk of spread from babies with diarrhoea because they have no control over their bowels and rely on others to meet their hygiene needs. The same applies to adults who lose their ability to maintain their own hygiene or lose bowel control due to infection, ill health or age.

Hygiene measures
Hygienic cleaning of these items is achieved by cleaning to physically remove organic matter and, if appropriate, disinfecting surfaces to kill remaining microbes. This may be achieved by the following means:

- Since toilet surfaces, potties and changing mats cannot be properly rinsed under running water, they need to be hygienically cleaned by cleaning followed by disinfection or using combined disinfectant/cleaner.
- When there is diarrhoea, add disinfectant to the toilet bowl before flushing, with the lid down to prevent spread of microbes via aerosolized droplets of toilet water.
- Disinfect all surfaces of the toilet seat, lid and bowl, including under the flushing rim where microbes may accumulate.
- Washable nappies and pads should be laundered at 60°C and dried as quickly as possible, ideally using a tumble drier.

After contact with toilets, potties, etc., it is important to wash hands thoroughly – where possible protect hands from soiling by wearing latex free, disposable vinyl/nitrile gloves. (see module 9).

More information
Module 5: General hygiene

Baths, sinks, showers, whirlpool baths and tiled surfaces – Hygiene advice sheet

Microbes, including pathogenic microbes can survive in the scum or scale left behind after bathing, showering etc. Stagnant water in the water pipes of showers, showerheads and whirlpool baths can become contaminated with microbes that become airborne when the shower, etc. is turned on. Moulds can live and grow on or behind wall and floor tiles and on shower curtains.

Baths and sinks
- Hygienically clean (P27) baths and sinks regularly by cleaning followed by thorough rinsing and leave to dry. Alternatively, you may wish to recommend cleaning followed by disinfection (module 11) or the use of a disinfectant cleaner which is suitable for the surface. This is particularly important after use by a person with a known or suspected infection or if it has been contaminated with faeces.

Showers and whirlpool baths
- Clean shower trays and whirlpool baths as for baths and sinks.
- If a shower is not used for a long period, leave it to run at a hot temperature for a few minutes before use.
- Water pipes of whirlpool baths need to be disinfected after use following the manufacturer's instructions. Disinfect the water pipes before use, if the pool has been out of use for some time.

Tiles and shower curtains
- Make sure tiles and grout are in good condition and cleaned regularly. An anti-fungal product may be needed
- Hygienically clean or launder shower curtains regularly
Module 5: General hygiene

Baths, sinks, showers, etc - supplementary notes for learners and trainers

What are the risks?

These sites can act as permanent reservoirs for potentially harmful microbes such as *Legionella* or *Pseudomonas* that can grow and multiply in water. These microbes are more likely to live in stagnant water or surfaces where scale or scum (biofilm) has formed. *Legionella* or *Pseudomonas* can be transmitted to others by inhalation of aerosols generated from the water, particularly showers and whirlpools.

Potentially harmful microbes such as *Staphylococcus aureus*, which may be present on the skin are constantly shed from the skin surface into the air and onto surfaces, whilst organisms such as *Enterococcus faecalis* are shed from the gut. These organisms can survive in the damp scum or scale left behind after bathing and may be transmitted to others by direct contact with these surfaces. For healthy persons with normal immunity to infection, these species do not pose a high risk of infection. Certain individuals however may be at risk of infection from some of these microbes, which for some may be potentially life threatening:

- People with wounds, catheters or other invasive devices that break the skin may be at risk from contact with dirty baths, showers and whirlpool baths.

- People with underlying respiratory conditions, such as cystic fibrosis, and older people are at increased risk of infection caused by aerosolized microbes disseminated by showers and whirlpools.

Hygiene measures

Hygienic cleaning of bathroom surfaces (including showerheads) should be carried out to remove skin scales and scum. This is best achieved using a combined cleaning/disinfecting product followed by rinsing with fresh water. It is especially important if there has been contamination with body fluids or if used by a person with a known infection.

Showers and whirlpool baths need to be kept clean and regularly treated to avoid the build up of biofilms. The water pipes of whirlpool baths need to be disinfected regularly. If a shower is not used for several days it should be turned on and allowed to run on the hot setting for a few minutes before the next use. This action will flush the system and remove any microbes that may have accumulated.

Tiled surfaces need to be cleaned regularly and an anti-fungal product may be needed. Loose tiles should be reapplied and re-grouted to prevent mould growth.

More information

Module 5: General hygiene

Floors, walls and soft furnishings – Hygiene advice sheet

Because floors are considered the dirtiest places in the home, they are also considered the “germiest”.
In reality, although they are always contaminated with millions of microbes, most of these are non-harmful and the risk of spread of infection via floors or furnishings is low.

- Clean floors regularly to remove visible dirt, using a vacuum cleaner, dusting, brushing or with warm water and detergent using a mop and bucket or a scrubbing brush.
- Periodically clean carpets and soft furnishings using a suitable product.

Make sure flooring materials are in good condition to prevent mould growth. If mould is present, use an anti-fungal product.

Risk may increase where:

- Babies and young children regularly play and crawl on the floor and particularly if there are pets in the household who may deposit faecal organisms via their paws onto the floor.
- If the surface is contaminated with vomit, excreta, etc., it should be hygienically cleaned at once.

In risk situations, floors (or furnishings) should be hygienically cleaned (P27) by:

- First removing vomit, excreta, etc., using paper or disposable cloth.
- Clean the surface using detergent and warm water, then apply a suitable disinfectant (module 11). Note: some products e.g. bleaches can discolour carpets and fabrics.
- Floor, carpets and furnishings can be hygienically cleaned by steam cleaning.
Module 5: General hygiene

Floors, walls and soft furnishings - supplementary notes for learners and trainers

What are the risks?

Microbes continually enter the home and contaminate floors via shoes, trolleys, pets paws, etc. Most are non-harmful. In general, risk of spread of microbes that can cause harm via floors or soft furnishings is small.

Risks of becoming contaminated with harmful microbes increase if:

- There is a spillage of an infectious substance e.g. faeces, vomit, blood.
- There are pets (dogs, cats, reptiles) in the home. All pets may carry microbes that can cause harm, despite being apparently healthy (see care of pets).
- If there are young children crawling on the floor.

Floor coverings, whether carpet, vinyl, tile, etc., should be in good condition because damaged fabric is more difficult to keep clean and may support growth of fungi and bacteria if damp. Carpets are not ideal in areas where they are likely to be soiled with body fluids, e.g. bathrooms.

Hygiene measures

As a general principle, floors need to be kept visibly clean. Floors are considered as low risk because microbes need moisture as well as dirt to grow, so reducing the level of dirt in the home will reduce any opportunities for microbial growth. Frequency of cleaning depends on the frequency and degree of contamination. In some households, weekly cleaning may be adequate. Where there are young children, pets or overcrowding, more frequent cleaning is advised.

Detergent and water is sufficient for routine cleaning of floors, but hygiene of mops, buckets and cloths must also be considered. If these are contaminated before use, they may increase the number of microbes on the floor rather than reduce it. Cleaning utensils should be hygienically cleaned (see P57).

NB: Routine use of disinfectant or antibacterial cleaners as part of daily/weekly cleaning routines is not recommended. Disinfectant must always be used prudently with a specific, targeted aim in mind.

If the floor is contaminated with vomit, faeces etc. it needs hygienic cleaning (P27).

- Since disinfectants, particularly bleach-based disinfectants tend to be inactivated by dirt, body fluids, etc., remove as much ‘soil’ as possible before cleaning, and then apply a disinfectant (see module 11).
- Wear disposable vinyl/nitrile gloves & use paper towels to remove soil.
- Ensure contaminated material, cloths, etc., are disposed of safely.
- Choose disinfectants for carpets or fabrics carefully to avoid damaging the material.
- Steam cleaning machines are available which avoids this problem. The high temperature of the steam will kill microbes.
Module 5: General hygiene

Pets and other animals – Hygiene advice sheet

Pets (including reptiles, birds, etc.) can carry microbes that can cause harm, even though they appear healthy. Pets can carry potentially harmful microbes in their faeces, on their fur, paws, in their mouth. Hygiene reduces risk of spread of infection.

Pets and food
- Keep pet food separate from human food.
- Wash hands after touching animals, food, toys, litter trays, etc., especially before handling or eating food.
- Ensure animals have their own dishes and utensils and keep pet feeding areas clean.
- Store utensils & pet food tin openers separately.
- Keep pets off surfaces where food is prepared.

Pets and illness
- Ensure pets are regularly groomed.
- If a pet becomes ill, seek advice from a vet promptly.
- Ensure animals have up to date immunisations, worming and flea treatments.

Pets and cleaning
- Clean cages & bedding regularly: launder bedding at 60°C.
- Clean litter trays at least daily.
- If you are a professional carer use disposable vinyl/nitrile gloves and paper towels to clean up animal faeces.
- Flush animal faeces down the toilet. Put faeces in plastic bags and cat litter into the waste bin.
- Hygienically clean floors used by pets regularly by cleaning followed by disinfection or using disinfectant/cleaner.
- Cover sandpits to avoid pet soiling.
- Pregnant women should avoid cleaning cat litter trays.

Farm visits
- Ensure the farm has proper hand washing facilities. Wash hands immediately after touching animals.

Take extra care with babies – they are more vulnerable to infection.
What are the risks?

Pets can be beneficial to health & well being, but can harbour potentially harmful microbes that can be transmitted to humans. These include bacterial, viral, parasitic and fungal pathogens (see below). Puppies & kittens with diarrhoea are a particular risk. Furry animals can harbour moulds & yeasts on their coats. Exotic pets such as reptiles can also pass on infections such as Salmonella.

Farm animals can carry gut pathogens such as Campylobacter, Salmonella and Cryptosporidium. They can also carry E. coli O157 which is not harmful to them, but can cause serious disease in humans that can be fatal. Potential hazards include animal faeces and secretions that contaminate surfaces.

Infection can be transmitted in several ways. Microbes that can cause harm carried on the fur of animals can be transferred by stroking animals and then touching the mouth or food. Microbes that can cause harm excreted in animal faeces can survive, sometimes for long periods then be transferred via hands and surfaces. Fungal skin infections such as ringworm can be transmitted to humans by direct contact. Water-borne spread from pets to humans can also occur. Preventing spread of infection from animals in the kitchen is very important. Pregnant women should not handle litter trays. Toxoplasma gondii, excreted in animal faeces can affect the developing foetus. Listeria is also a risk for pregnant women. If there is a baby in the house, reptiles should not be kept.

Hygiene measures

Don’t get neurotic about risks from pets; practices for preventing spread of microbes that can cause harm from animals are the same as for humans.

More information

Hygiene of toys and play equipment is important because they can easily become contaminated with microbes that can cause harm through handling or “mouthing” by children. The microbes can survive for significant periods of time and can spread infection to other children.

As part of your regular household cleaning routine:
- Store toys in a clean container or cupboard.
- Ideally, children should have their own toys, rather than sharing them, but this is probably unrealistic unless the child is at high risk of infection.
- Clean toys frequently or when visibly dirty.

Also:
- Change playdough regularly.
- Cover sandpits to avoid contamination (e.g. from animals). Change sand regularly.
- Clean balls from ball pits regularly.
- Empty water play equipment after use, rinse and store dry.
- Don’t put toys back into storage if they look dirty.

Hard toys thought to be contaminated (e.g. if a child is ill) can be hygienically cleaned (P27) by:
- Scrubbing with soapy warm water and a brush, rinsing with clean water, wiping with alcohol wipes and drying.
- Or: scrubbing with soapy warm water and a brush, immersing in mild bleach solution (soak 10 min), rinsing with clean water and drying.
- Or: putting in the dishwasher or washing machine.

Soft toys which are contaminated can be hygienically cleaned by:
- Cleaning in the washing machine, but check cleaning instructions first.
- If heavily contaminated they may need to be thrown away.
Module 5: General hygiene

Toys and play equipment - supplementary notes for learners and trainers

What are the risks?
Toys can easily become contaminated with microbes that can be harmful bacteria and viruses and can contribute to spread of infection. Toys are passed from child to child and are often put into their mouths. However, it is important not to get neurotic. Children will inevitably pick up infections, but there are ways in which you can reduce these risks by looking after toys as a part of the household hygiene routine. Hygienic cleaning of toys and restricting sharing is particularly important where there is an infected child or a child who needs special protection from infection.

Viruses such as rotavirus, norovirus and cold virus can easily contaminate surfaces either directly or through droplets from the saliva or vomit of an infected child. These viruses can remain viable on toy surfaces for many hours. Norovirus can probably survive for days.

For example
- Several studies suggest that hard toys can contribute to outbreaks of diarrhoea and vomiting.
- In two different day care centres with an outbreak of rotavirus, 39% of toy balls were contaminated with the virus.
- Bacteria of the upper respiratory tract have been isolated from hard toys taken from a general practitioner’s surgery.
- Several reports show that toy balls from play pits in play centres are likely to become contaminated with faecal matter.

Other play equipment such as play mats, plastic beakers and ball pits can also contribute to the spread of infection.

Hygiene measures
- Toys and equipment should be included in the weekly cleaning rota to ensure that they are regularly cleaned. Ideally, buy toys which are washable. Soft toys can be put into a washing machine in the 60°C cycle. This is particularly important for children at risk.
- Where toys are known to be contaminated, e.g. where they become contaminated with vomit, faeces or mucous from a child who is ill, they must be hygienically cleaned or may need to be discarded.

More Information
Toys and home hygiene: https://www.ifh-homehygiene.org/factsheet/toys-and-home-hygiene

Module 5: General hygiene

Clothing, household linens and laundering – Hygiene advice sheet

Clothing and linen can spread microbes that can cause infection if not handled properly. Items most likely to be contaminated with harmful microbes include underwear, personal towels and items used around food.

Laundry can be made hygienically clean (p27) by;

- Washing at 30-40°C with an oxygen bleach-based product (check ingredients on pack) (see module 11) or by;
- Washing at 60°C or above (using any product as the higher temperature kills germs).

Also:
Segregate laundry: launder items used around food, e.g. tea towels and dishcloths, separately from other items.

Where there is more risk:

- Laundry used by someone known to be infected should be washed at 60°C or above using a bleach-based product.
- For heavily soiled items, wear latex free disposable vinyl /nitrile gloves. Remove faeces or vomit with disposable paper cloths or discard directly into the toilet. Launder with a pre-wash followed by a 60°C wash using a bleach-based product.

For all laundry

- Wash hands after handling dirty laundry.
- Once a week, use a high temperature wash or chemical disinfectant on an empty cycle to prevent build up of microbes in the machine.
- Dry laundry immediately. Leaving it damp encourages survival of residual microbes.
- If using shared facilities, e.g. a launderette, use a bleach-based product.

Low risk laundry items

Other items, e.g. “outer” clothing can be washed at 40°C or below with a non-bleach product.

NB: Check manufacturers’ instructions for fabric temperature suitability. Ensure laundry product will not damage item.
Module 5: General hygiene

Clothing, household linens & laundering – supplementary notes for learners & trainers

What are the risks?
Although there is risk of infection spread via clothing and household linens, risks are considered less than with hands, cleaning cloths and hand and food contact surfaces. Most risky are items in frequent or persistent contact with the body. Other items – outer clothing - are considered low risk.
Organisms transmitted from person to person via these items include skin microbes such as *Staph. aureus* (including MRSA) which causes skin infection, and *tinea pedis* which causes athletes foot.
Transfer of infection can occur:
- When items are handled before laundering.
- If laundering conditions are inadequate to remove microbes that can cause harm.
- If laundry conditions are inadequate microbes can be transferred from contaminated to uncontaminated items.
- Sluicing dirty items before laundering creates aerosols that can transmit microbes that can cause harm.

Hygiene measures
Two processes are considered suitable for hygienic cleaning (P27) of clothing and linens:
- Laundering at 60°C or above.
- Washing at 30-40°C using a bleach-based product: contribute to the spread of infection.

Also:
- Thorough drying of laundry further reduces contamination.
- Washing at temperatures of 40°C or below with a non-bleach product carries a risk of inadequate decontamination and allows unpleasant biofilms to build up in machines.

People often do not understand how laundering works. The above conditions are considered to reduce microbe contamination of fabrics to a level where it no longer represents a significant risk. It does not “sterilise”. During laundering microbes on fabrics are reduced by a combination of the following:
- Heat at temperatures of 60°C or more kills bacteria, fungi and viruses.
- Detergent and agitation in the wash cycle dislodges dirt and microbes from fabrics.
- Rinse cycles complete the removal process.

Heating below 40°C has no killing action, hence it is necessary to use a powder or tablet containing activated oxygen bleach (AOB). The killing action of AOB compensates for the drop in laundering temperatures.

Laundry hygiene is particularly important if using shared facilities, e.g. a launderette.

More information
Module 6: Domestic waste disposal

Domestic waste disposal – Hygiene advice sheet

General waste
- Waste should be placed in a suitable waste bin with a close fitting lid.
- Indoor waste bins should be kept clean and dry. Regularly clean and disinfect the hand touch surfaces, e.g. lid.
- Foot-operated pedal bins are preferred. This prevents hands picking up microbes that can cause harm by touching bin lid.
- Waste should be transferred to outside bins in black plastic bags which are tied at the top. Bins should have tightly fitting lids.
- Waste should not be discarded carelessly as it attracts vermin and insects.
- Indoor waste bins should be hygienically cleaned and disinfected (p27) after emptying.
- Wash hands after handling waste.

Offensive waste
This includes waste which is unpleasant, e.g. continence waste, but unless the person is infected, it is not considered risky and can be disposed of with general waste (see learn more).

- Catheter bags or stoma bags can be emptied in the toilet and the empty bag wrapped in a black plastic bag for disposal with general household waste.

For special items used in healthcare
- When needles and other sharps are used, a sharps box should be made available for disposal.
- Paper tissues should be discarded into a plastic bag immediately after use. Tie the top of the bag before placing in a black plastic bag for general waste disposal.
- If you are a professional carer then latex free disposable vinyl/nitrile gloves and aprons should be worn when handling healthcare waste (see module 9).
- Always wash hands after handling tissues, waste, waste bins or bags.
- When there is known infection, it may be necessary to dispose of healthcare waste in a separate orange bag, which is collected by a special collection service (See learn more).
What are the risks?
Once disposed of into a plastic bag, sealed and placed in a bin outside, waste is unlikely to pose a risk. Ensure safe disposal, but do not overstate the risk. Microbes recovered from offensive waste (stoma bags, dressings, sputum containers etc.) are mostly normal body flora or environment spp. Food waste contains more hazardous microbes than healthcare waste. Risk to health occurs when;

- Waste is not immediately disposed of and left to attract vermin and flies.
- Waste is left for children to come into contact with.
- Sharp objects are placed unwrapped in household waste.
- Bins are not kept clean and dry, encouraging survival and growth of microbes that can cause harm.
- Waste spillages are not removed and the area hygienically cleaned.
- Hands are not washed after handling waste or touching bins.

Hygiene measures

- People who use injectable drugs should use a sharps box for disposal. Used needles disposed of inappropriately are a serious risk.
- Local needle exchange services should be used by IV drug users.
- Diabetics can obtain sharps boxes on prescription.
- The prescribing doctor should ensure a sharps box is made available wherever patients are administering injectable drugs at home.
- Obtain support and advice about the management of needlestick and sharps injuries from the local IPC team.
- Needles found discarded dangerously (e.g. in public toilets or stairwells) should be reported to the local Environmental Health Department.

Offensive waste

There is a legislative framework for management of waste in the UK (see Further reading). Councils differ in the amount of offensive continence waste permitted in the householder’s general waste stream. One or two carrier bags are usually accepted, but if it is over this, it has to be collected separately. This is in arrangement with the local council.

Special collections of infected waste

If someone is receiving healthcare, a clinical waste collection may be required. This is not always the case, so seek advice from your local Health Protection Team or local council Environmental Health Officer. The decision to provide a waste collection service is based on the type of waste, the amount and whether the person has an infection or not.

Appropriate waste bags should be used

- Offensive waste sacks are yellow with one or more black stripes (tiger bags).
- Infectious waste sack are orange.

More information

Safe disposal of household refuse [http://www.ifh-homehygiene.org/IntegratedCRD.nsf/6de8f3a205ad765a8025754b00090a07/face716fa00ce8e5e802575240051c9c9?OpenDocument](http://www.ifh-homehygiene.org/IntegratedCRD.nsf/6de8f3a205ad765a8025754b00090a07/face716fa00ce8e5e802575240051c9c9?OpenDocument)

Home Hygiene

Prevention of infection at home and in everyday life: a learning and training resource

Section 3: Where there is more risk – hygiene in home healthcare

Module 7: Where there is more risk of infection
Module 8: People who are infected & pose a risk to others
Module 9: Protective clothing
The aim of this module is to understand the factors that increase risk of infection and how this can be managed. Being at more risk of infection is more common and serious than people think. It includes those who:

- are generally healthy, but have **underlying health conditions** (e.g. diabetes, COPD, heart/kidney disease, MS).
- who live in **deprived living conditions** or have an unhealthy lifestyle e.g. do little exercise/ poor diet.
- are **receiving treatment for an underlying disease**.
- have an **indwelling catheter, other medical devices**, e.g. feeding tube, or have wounds that need dressings.
- require **use of medical equipment**.
- are **receiving care from professional carers or family and friends**.

When those at increased risk get an infection, it is likely to be more serious, difficult to treat and may require hospitalisation or attention from their GP.

A person can have more than one risk factor at the same time, making their risk of infection even greater.

**What to do**

Follow targeted hygiene (see sections 2 and 3). In situations where there is more risk, the differences are;

- if basic hygiene practices are not carried out correctly, risk of infection is much greater.
- in addition to basic practices, you may also have to handle medical equipment, dispose of contaminated waste, deal with medical equipment or cope with living conditions where basic hygiene facilities (e.g. liquid soap, clean towels, clean sinks) are not available.
Module 7: Where there is more risk of infection

Introduction – supplementary notes for learners and trainers

Immunity to infection

It is likely that we are exposed to infectious agents from an infected person or the environment every day of our lives. So why don’t we get infections more often than we do? It is because our body has a well-refined immune system that protects us. The immune system protects us in two ways:

<table>
<thead>
<tr>
<th>Non-specific immunity</th>
<th>Specific immunity</th>
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<tbody>
<tr>
<td>- Intact skin, stomach acid, cough reflex and tears protect us from exposure to microbes that can cause harm.</td>
<td>- Antibodies produced by the immune system protect us against specific diseases (e.g. measles).</td>
</tr>
<tr>
<td>- The skin and other parts of the body are colonised by harmless microbes (the commensal flora) which help to exclude microbes (pathogens) that have the potential to cause infection.</td>
<td>- Immunity is acquired by ‘natural’ exposure to a pathogen or through vaccination with a non-infectious preparation of the pathogen.</td>
</tr>
<tr>
<td>- If pathogens enter the body, they are engulfed and destroyed by white blood cells (called phagocytes) in the blood stream and lymph. This process causes inflammation, which gives the symptoms of pain, swelling, heat and possibly pus.</td>
<td>- Antibodies are specific to the disease, e.g. having chickenpox infection provides immunity against chickenpox, but not measles.</td>
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<tr>
<td></td>
<td>- Starting at birth, we gradually build up a ‘library’ of antibodies as we move to new environments and are exposed to new microbes, e.g. children starting nursery school often pick up infections and by adulthood will be immune to infections such as slapped cheek and hand, foot and mouth which are common childhood viruses.</td>
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</tbody>
</table>

Person at extra risk

If our immune mechanisms are underdeveloped or impaired in some way, this puts us at greater risk of infection. For someone with reduced immunity, the number of bacteria or virus particles needed to cause infection (i.e. the infectious dose) may be less, which also puts them at higher risk of infection if hygiene procedures are not carried out correctly. These people are also at risk from potential pathogens which can form permanent sources or reservoirs in wet environmental sites e.g Legionnaires bacillus in shower heads, *Ps. aeruginosa* in sinks, drains and toilets, *E. coli* in wet cloths. toilets, sinks etc.
## Module 7: Where there is more risk of infection

### People who are generally healthy, but at extra risk of infection – Hygiene advice sheet

Healthy people who are at extra risk of infection at certain times include:

- **The very young**: children under the age of five and particularly those under the age of one year.
- **The elderly**: over 65 years.
- **Pregnant women** are particularly vulnerable to certain infections, e.g. urinary infections. Some infections can harm the unborn baby (e.g. listeriosis, rubella, toxoplasmosis).
- **People taking proton pump inhibitors** (PPIs) or other drugs which neutralise acid in the stomach.

Targeted hygiene consistently applied is the way to reduce infection risks for these groups (sections 1 & 2).

#### For babies under one year

Clean bottles, teats and other feeding equipment in hot, soapy water, rinse and dry as soon as possible after feeds.

Feeding utensils should be decontaminated by boiling or using a disinfectant.

#### Pregnant women

Pregnant women should specifically avoid contact with cats and cat litter, which can transmit toxoplasmosis.

#### For all of these groups

- Ensure they have good diet, but avoid high risk foods (undercooked eggs, raw egg dishes, undercooked meat and poultry, raw shellfish, unpasteurised cheeses).
- Make sure they have appropriate immunisations which are kept up to date.
- Avoid contact with carers or family members with known or suspected infection.

If you are unsure about anything, ask your local Community Nurse, Health Visitor or Community IPC or PHE Health Protection Team for advice and support.
It is not only sick people who are at extra risk of infection, healthy people are also at extra risk at certain times of their lives:

The very young: Babies and children under the age of 5 years are more at risk because their immune systems are not yet fully developed. They will also have weak cough reflexes and chest muscles that put them at risk of chest infections.

The elderly: The immune system weakens with age; so older people are more likely to develop infections. Older people also have weakened cough reflexes and chest muscles, which increase risk of chest infections, so a cold can result in a second more serious pneumonia infection.

Pregnant women: Pregnant women are more likely to develop certain infections due to changes in their body. Some infections can harm the unborn baby (e.g. listeriosis, rubella, toxoplasmosis).

People taking proton pump inhibitors (PPIs). More people now take drugs to reduce stomach acidity and relieve acid reflux, heartburn, etc. Reduced acidity makes pathogens more likely to pass through the stomach alive, making the person more vulnerable to infection.

How to reduce risks
People in these circumstances, particularly the elderly, need support to practice hygiene. Good hygiene should focus on reducing opportunities for exposure to pathogens in the home.

The key to reducing infection risks is targeted hygiene as set out in sections 2 and 3. The difference is that, if hygiene practices are not carried out correctly, the risk of infection is greater.

Food hygiene is important. People may need reminding about foods to avoid, such as uncooked or undercooked eggs (which carry a particular risk of Salmonella), undercooked meat and poultry, raw shellfish or cheeses made with unpasteurised milk (which carry a particular risk of Listeria). Ensuring a nourishing diet and plenty of fluids helps protect against infection.

Immunisations protect against specific infections, e.g. influenza, pneumococcal or meningococcal vaccines. People need to be encouraged to take advantage of immunisations (e.g. MMR and influenza vaccine) and keep immunisations up to date. Older people may not take up the offer of influenza vaccine because they don’t realise how dangerous influenza can be, as they get older.
Module 7: Where there is more risk of infection

People who have poor living conditions or unhealthy lifestyles – Hygiene advice sheet

Poor living conditions, overcrowding and poverty can mean more risk of infection because;

- Poor conditions are stressful and stress lowers immunity.
- Cramped/shared living areas can lead to neglected hygiene.
- Waste left lying around can attract vermin and flies.
- Poverty can lead to poor diet.
- Poor nutrition, smoking, drug or alcohol abuse can reduce ability to fight infection.

Targeted hygiene is the appropriate way to reduce infections risks in this situation (see sections 1 and 2).

Consider the home conditions and how you and the family can overcome difficulties to practice targeted hygiene. Be pragmatic and focus on the most important issues;

- Hand hygiene at the times that matter (module 2).
- Safe preparation of food and kitchen hygiene (module 4).
- Toilet and bathroom hygiene (module 5).

- Hygienic management of laundry and cleaning cloths/utensils (module 5).
- Safe disposal of waste (module 6).

Find solutions to fit circumstances:

- If soap and running water is lacking, use alcohol hand rubs and disinfectants for hand and food surfaces.
- Organise the kitchen. Keeping surfaces clear of equipment and clutter makes it easier to keep them hygienically clean and gives the space to keep raw and cooked foods apart.
- If you make things easier, people are more likely to change their behaviour.
What are the risks?
Living in poverty and poor conditions is very stressful. Stress can lower immunity. In cramped and shared living areas, toilet and kitchen hygiene can be neglected. Waste is left lying around to attract vermin and infections can spread more easily because space is limited. Coughs, colds and other more serious chest infections such as tuberculosis can be spread in poor living conditions, especially when there is overcrowding. Poverty usually means people eat food that is cheaper and low in nutrition. Balanced diet is essential for a healthy immune system against infection. If people smoke, drink large amounts of alcohol or take drugs, their ability to fight infection is further reduced.

Ask carers to talk about the types of home conditions they are working with and how they can overcome difficulties to practice targeted hygiene. Talk through these difficulties and try to offer pragmatic solutions to suit the circumstances.

Focus on key activities which carry the greatest risk including;
- Hand hygiene (module 2).
- Safe preparation of food and kitchen hygiene (module 4).
- Hygiene in toilet and bathroom areas (module 5).
- Hygienic management of laundry and cleaning cloths (module 5).
- Safe waste disposal (module 6).

Emphasise that making a difference in difficult circumstances is possible, but carers may need to involve others in the process because wider factors, which influence the health of the individual, must be dealt with alongside the need for hygiene. This is particularly so for babies, young children, the elderly and people who already have underlying health problems.

Access to soap and running water is key. Hygiene is achieved by hand washing, etc., but only if hands and surfaces are cleaned with soap/detergent, rinsed and dried. If access to soap and water is lacking, recommend using alcohol hand rubs and disinfectants for hand and food contact surfaces. In the absence of running water and disinfectants, single use disposable wipes will reduce cross-contamination risks, but will not hygienically clean surfaces. Simply reorganising the kitchen, e.g. to maximise the work surface and minimise the amount of clutter, makes it much easier to keep raw and cooked foods separate and keep surfaces hygienically clean.

Do not expect to be able to provide all the solutions. Other professionals to involve include: Community Nurse, Health Visitor or Community IPC Teams or Health Protection Teams in Public Health England. You may need to involve these people because of the wider factors that influence the health of an individual.
Module 7: Where there is more risk of infection

People at increased risk of infection – home healthcare – Hygiene advice sheet

Individuals receiving care at home are more vulnerable to infection because they are relying on others to do things for them. They have less control over their surroundings and how to reduce risks.

The following are particularly vulnerable because they have reduced infection immunity:

- have an **underlying illness** e.g. diabetes mellitus, dementia, respiratory and circulatory disorders.
- are **undergoing medical treatment or recently discharged from hospital**.
- are **taking medication which affects the immune system**, e.g. anticancer drugs, steroids.
- are **taking antibiotics for repeated infections**.
- are **immuno-compromised through other infections**, e.g. HIV infection.
- have **open wounds and/or pressure ulcers/breaks to the skin**.
- have **indwelling catheters, enteral feeding tubes or other medical devices**.

Targeted hygiene consistently applied, is the way to reduce infection risks (see sections 1 and 2).

They can gain extra some protection from infection by;

- adopting a nourishing diet and healthy lifestyle.
- having the appropriate immunisations and following medical advice where appropriate.
- avoiding contact with carers or family members with known or suspected infections.

There will be additional high risk care activities you may have to undertake e.g. catheter or wound care. Managing these activities is described in the following pages.
People at most risk of infection are those whose immune system is not working properly. They are at risk only from primary pathogens (norovirus, colds, influenza, salmonella, etc) which infect even healthy people, but also opportunist or facultative pathogens which would not normally cause disease such as fungi.

They are also at risk from their own microbes (self infection) e.g. *E. coli* from their gut, *S. aureus* from their skin. These normally harmless microbes cause infection if they enter parts of the body where they don’t usually live, e.g. a contaminated device is inserted into the body. Also e.g. *S. aureus* ordinarily lives harmlessly on the skin, but can cause infection if it gets into cuts or wounds. *E.coli* lives harmlessly in the bowel, but if transferred to the urethra can cause urinary tract infection.

Weakened immune systems can occur for a variety of reasons:

**Underlying illnesses**: certain diseases and conditions suppress the immune system, (diabetes, cancers, such as leukaemia, spleen removal).

**Medications and drugs**: Drugs such as steroids or anti-cancer treatments, or treatments for neurological conditions such as multiple sclerosis (MS) prevent the immune system from working properly. Antibiotics can reduce protective microbes on our skin, in our mouth and gut, enabling other organisms to multiply and cause infection. e.g. *C. difficile*.

**People whose natural defences are artificially broken**: This includes people who have a surgical or other type of wound, those with indwelling catheters or other invasive lines such as feeding PEG tubes and Hickman lines. These enter the body and provide an entry point for microbes.

**How to reduce risks**

The key to reducing infection risks is targeted hygiene (see section 2 and 3) to reduce risks of being exposed to microbes that can cause harm. The difference is that, if hygiene practices are not carried out correctly, risk of infection is much greater than for people who are healthy.

Food hygiene is important. They should avoid uncooked or undercooked eggs (which carry a particular risk of *Salmonella*), undercooked meat and poultry, raw shellfish or cheeses made with unpasteurised milk (a particular risk of *Listeria*). Ensuring a nourishing diet and plenty of fluids can help protect against infection.

Do not expect to be able to provide carers with all the solutions yourself. Other professionals to involve include: Community Nurse, Health Visitor or Community Infection Prevention and Control Teams or PHE Health Protection Teams for advice and support.
Module 7: Where there is more risk of infection

Medical equipment and dressings – Hygiene advice sheet

For patients at home, procedures such as catheter or dressing replacement put them at high risk of infection. **Risks** vary according to **what** the item is and **how** it is used:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Why?</th>
<th>What?</th>
<th>What to do</th>
</tr>
</thead>
</table>
| High   | The item enters the body or touches broken skin or mucous membranes | ▪ Bladder and suction catheters  
▪ Intravenous lines and needles  
▪ Wound and other dressings  
▪ Indwelling urinary catheters and drainage bags  
▪ Invasive lines such as PEG tubes and Hickman lines | Use sterile items*. Wrap in plastic and throw them away when finished with. |
| Medium | Equipment touches unbroken skin/membranes but can become soiled when used | ▪ Peak flow meter mouth pieces  
▪ Mouth care items and tongue depressors  
▪ Enteral feeding equipment  
▪ Suction equipment  
▪ Nebulisers and humidifiers  
▪ Thermometers | Wash, dry and disinfect between uses or use disposable items and throw away**. |
| Low    | Equipment does not normally touch broken skin or has little direct contact with the user | ▪ Commodes, lifts/bath hoists  
▪ Mattresses, wash bowls, nebuliser masks  
▪ Pressure relieving mattresses and cushions  
▪ Pumps and machinery  
▪ Stored dressing packs | Wash and dry between uses. Disinfect if soiled with body fluids. Keep items stored above floor level and dust free. |

Follow manufacturer’s cleaning and care instructions if available.  
*Sterile items marked ‘single use’ must be discarded, **Equipment marked ‘single patient use’ can be hygienically cleaned and re-used on the same patient.

Although there are fewer facilities at home and circumstances may be difficult, risks are minimised by observing the following:

- Do not undertake procedures such as dressing changes or enteral feeding, unless you have received training.
- Keep areas and surfaces around the patient clean and tidy.
- **Always wash hands** before and after doing procedures and handling equipment. Use alcohol hand rub if soap and water is not available or you are advised to do so by the IPC Team.
- Store high and medium risk items in a clean cupboard or plastic-lidded box.
- Place high risk equipment on a hygienically clean surface (P27) to prepare for use.
- Wash hands after cleaning or disposing of equipment/dressings.
- Advice on disposal of waste is in Module 6
Module 7: Where there is more risk of infection

Medical equipment and dressings - supplementary notes for learners and trainers

Carers and individuals who undertake specific care procedures such as wound care, catheter care or enteral feeding, should undergo training in the correct procedures. It is also essential that carers and individuals receive instruction on correct care (cleaning, disposal etc) of equipment after use. Risks of infection from these items vary according to what is being used, how it is being used and what it is being used for. It is thus vital that medical and patient care equipment is cared for in the correct manner according to the level of risk.

High risk items

High risk items that come into contact with broken skin or are inserted through the skin or into body cavities are required to be sterile (i.e. free from all microbes). Such items are supplied in a sterile form. These items are marked for ‘single use’ and must be discarded after use, i.e. not re-used. They have been manufactured and quality assured as sterile for use once only.

Sterile packs of dressings and disposable items such as catheter bags should be stored off the floor and kept covered and dry. If the outer packaging becomes contaminated this increases the risk of contaminating the equipment when the package is opened.

Medium risk items

Medium risk items, including some that can come into contact with broken skin must be hygienically clean (i.e. free from as many microbes as possible (P27), but not quality assured sterile).

Some items can be re-used, but because the infection risks are relatively high, they should be used for one person only. These are marked as ‘single patient use’ and should be used in line with manufacturers’ instructions. Care should be taken when using cleaning materials and disinfectants to avoid any damage.

Some equipment is specialised and needs specific methods of cleaning and cleaning products. Manufacturers should supply instructions.

Humidifiers can become a source of infection from stagnant water and hard water scale left in the machine. They should be emptied, cleaned out, filled with fresh drinking water daily and regularly de-scaled.

Nebulisers should be rinsed with fresh drinking water after use and stored dry. Tubing should be drained and stored dry.

Low risk items

Low risk items should, as far as possible be hygienically cleaned (P27).

Also;

Items being sent for repair should be cleaned first and marked to this effect.

Loaned equipment should be emptied (if appropriate) and cleaned before returning to Home Loan Stores. Follow local protocols.

If necessary seek advice from the Community Nurse, Health Visitor or Community Infection Prevention and Control Teams or PHE Health Protection Teams.

Denotes single use item
Module 7: Where there is more risk of infection

Wound care – Hygiene advice sheet

Wounds occur for various reasons e.g. following surgery, injury, pressure damage or ulcers related to underlying medical conditions. Follow advice from your healthcare professional such as GP’s Practice Nurses or District/Community Nurses.

Caring for the patient

- If you are concerned about a wound e.g. odour, increased discharge/pus (exudate) or signs of infection (redness,, pain - persistent or increased tenderness or fever seek advice.
- Wound healing can be affected by underlying medical conditions such as diabetes and poor nutritional status.
- If the patient develops irritation to the dressing, inform their healthcare professional.

Changing dressings

- Dressings should be changed by a trained professional carer.
- Dressings may be changed by a family member or the patient, if told to do so by the carer. Follow their instructions carefully. Always wash hands before and after changing dressings.

Caring for and dressing wounds

- Keep dressings in their original packaging. Store at room temperature. Protect from dust and damp conditions. A plastic lidded box is ideal and can be easily cleaned.
- Keep medical supplies including dressings out of the reach of children and pets.
- When bathing or showering, keep the dressing dry.
- Ensure dressings are changed promptly when wounds leak through the dressing, as this is a big infection risk.
- Dispose of soiled dressings in a plastic carrier bag before placing in your outdoor general waste bin (see module 6).
- Keep appointments with healthcare professionals for removal of stitches or staples.
- For advice on preventing spread of infection from infected cuts and wounds, see Module 8.

Always wash hands before and after caring for wounds.
Module 7: Where there is more risk of infection

Wound care - supplementary notes for learners and trainers

The following are additional useful resources:

Wounds UK
http://www.wounds-uk.com/best-practice-statements

NICE (2016) Chronic Wounds: Advanced wound dressings and antimicrobial dressings
https://www.nice.org.uk/advice/esmpb2/chapter/Key-points-from-the-evidence

NICE (2015) Preventing and managing diabetic foot problems
https://www.nice.org.uk/guidance/ng19

NICE (2014) Preventing and managing pressure ulcers
https://www.nice.org.uk/guidance/cg179

SIGN (2010) Management of chronic venous leg ulcers

You can also consult your local Community Nurse, Community Infection prevention and control, or PHE Health Protection Teams for advice.
What is a UTI?
Urinary Tract infection (UTI) is an infection of the bladder or kidneys, urethra, or ureters. Infection occurs when bacteria (often from poo) is present, are transferred to the urethral tract (UT) and cause infection. Bacteria get into the bladder through the tube that empties the bladder (urethra). Infection can spread to the blood stream and become more serious and therefore if a urine infection is suspected full clinical assessment by a health care professional is required.

Who’s at risk of a UTI?
- People 65 and over are more likely to have bacteria in their urine known as asymptomatic bacteriuria. It is only if this causes infection that they require treatment.
- People with indwelling catheters (see over for more details)
- People who are dehydrated
- Women are more at risk than men (due to a shortened urethra)

Preventing UTIs
Good personal hygiene and hydration is vital for preventing UTIs. Things you can do to try and prevent a UTI include:
- Wipe from front to back when you go to the toilet
- Try to fully empty your bladder when you pass water
- Drink plenty of fluids - at least 8 cups a day
- Take showers instead of baths
- Wear loose cotton underwear
- Change incontinence pads when they become soiled
- Wash before and after sex
- Pass water as soon as possible after sex
Module 7: Where there is more risk of infection

Preventing a UTI if you have a catheter – Hygiene advice sheet

What is a Catheter?
A catheter is a thin, hollow, flexible tube which is inserted into the bladder and held in place by a balloon. It is used to drain urine.
There are 2 different ways these are be put into the bladder.

Urethral Catheter
The catheter is put into your urethra which is the tube that carries urine from the bladder to the outside of the body (the opening is situated at the tip of your penis or just above your vagina).

Supa Pubic Catheter
If you have a supra-pubic catheter, the catheter will be put in via a small incision (cut) made in the abdomen. This is done in hospital by a doctor, during a short operation either using local or general anaesthetic.

Intermittent Self Catheterisation (ISC)
ISC is a temporary insertion of a catheter into the bladder to allow it to empty. ISC allows individuals to empty their bladder at times that suit them giving them more control over their life.

Preventing a UTI if you have a catheter
➢ People with catheters should drink around 8 cups of water a day (unless fluid restrictions are in place)
➢ Clean the catheter site daily with non-scented soap
➢ Hands must be washed with soap and water before and after touching the catheter
➢ Hands must be washed before and after changing the leg bag on the catheter
➢ Empty your catheter bag regularly
➢ If the catheter leaks or stops draining, seek assistance from your local community nurse
➢ Catheters will always be replaced by the Community Nursing Team or if a specialised procedure it may be done by the local Urology Team.

Caring for the catheter bag – see over

Turn to page 94 to learn more
Module 7: Where there is more risk of infection

Caring for a catheter bag to prevent infection – Hygiene advice sheet

Emptying the catheter bag and caring for your catheter.
- Wash your hands thoroughly with soap and water and dry them before and after dealing with catheter and drainage bags.
- To protect yourself, wear a pair of disposable gloves and a disposable apron each time you deal with your catheter.
- The area where the catheter enters the body should be washed every day with mild soap and water.
- Women should always wash this area from front to back to prevent microbes from the urethra entering the back passage. Dry area thoroughly.
- Men should wash carefully under the foreskin once a day, drying thoroughly and replacing the foreskin afterwards. Avoid using talcum powder, antiseptic, bubble bath, bath salts, creams in the area where the catheter enters the body as they can cause irritation.
- Do not remove the leg bag when having a shower or bath. Dry the leg bag by patting it with a clean towel and replace catheter fixing strap.
- Some people experience slight discharge from catheter site. If so, contact the community nurse who will tell you how to treat it.
- Avoid pulling or restricting catheter by wearing loose comfortable clothing. Tight clothing can cut off flow of urine and cause skin irritations.

How to change the leg bag on a weekly basis
- Ideally, choose the same day each week to change the leg bag. Empty the attached one before changing to the new one. Follow hand hygiene steps discussed in module 2 before and after changing leg bags.
- Open the new leg bag, but don’t remove the protective cap.
- Remove the attached leg bag carefully. Don’t pull or use excessive force.
- Point the end of the catheter upwards as you detach the leg bag to prevent leakage. Dispose of old leg bag into a plastic bag.
- Carefully remove protective cap from new leg bag. DO NOT touch nozzle once you have removed the cap.
- Gently insert the new leg bag connector to the catheter. Take care not to touch the plastic nozzle.
- Dispose of the plastic bag with the old leg bag in the household waste stream.
There are more people now living at home with indwelling catheters, which makes a UTI even more likely. Women are more at risk than men (due to a shortened urethra).

**Symptoms of a UTI?**
- Pain on passing urine
- Need to pass urine much more often than usual
- Need to pass urine urgently and new or worse incontinence
- High or low temperature, inappropriate shivering/ abnormal temperature
- New or worsening confusion or agitation
- New pain between belly button and pubic hair
- New blood in urine
- New lower back pain
These do not confirm a UTI diagnosis. Dark or smelly urine indicate dehydration, not infection.

**How to diagnose a UTI?**
- A full clinical assessment by a GP
- Only a urine sample will diagnose the bacteria present and identify the right antibiotic to use.
- Dipstick testing should not be carried out for people with catheters or for those over 65 years of age.
- UTI symptoms may be difficult to spot with people with dementia.

**Treating UTIs**
- Main aim is relief of symptoms.
- Avoid unnecessary use of antibiotics.
- Adults with bacteria in their urine but no symptoms should not be prescribed antibiotics (except pregnant women).
- If clinical symptoms are present, antibiotics may be prescribed.
- Once treatment starts, symptoms should start to clear up within 5 days
- Finish the whole course of antibiotics, even if you start to feel better.
- Some people with a severe UTI may be referred to hospital for treatment and tests.

**Things the patient can do**
- Mild UTIs often pass within a few days. If you are in pain, take paracetamol
- Place a hot water bottle on your tummy, back or between your thighs
- Rest and drink plenty of fluids
- There is little evidence that drinking cranberry juice or using Probiotics reduces the risk of UTIs.

**Further information**
Urinary tract infections – a leaflet for older patients and carers PHE; Urinary tract infections (UTIs) information leaflet PHE - [http://www.rcgp.org.uk/TARGETantibiotics](http://www.rcgp.org.uk/TARGETantibiotics)
Introduction

People living at home who have an infection may;

- Be infected with **gastrointestinal infections** (food poisoning or norovirus) or **respiratory infections** (colds, influenza).
- Have **infected wounds**.
- Have **chronic wounds** that have colonising bacteria (i.e. present but not causing infection).
- Be a **carrier of a pathogenic microbes but show no symptoms**, e.g. colonised by methicillin resistant **S. aureus** (MRSA) on their skin or in a wound or **Salmonella** in their gut.

- Hygiene should focus on preventing infection spreading to others by adopting targeted hygiene (see Sections 1 and 2).
- Vehicles for spreading infections are food (gut infections), contact (direct and indirect via hands, surfaces and fabrics) and air (respiratory infection). Key surfaces for infection spread are hands, cloths and food contact surfaces.
- Infected people should avoid contact with other people as far as possible, particularly those at increased risk of infection.

People often think that they can do nothing to prevent spread of colds, norovirus etc. Tell them that they can! This is particularly important where there is someone in the family who is at increased risk of infection.
Module 8: People who are infected & pose risk to others

People who are infected - supplementary notes for learners and trainers

Other information on common infections in home and everyday life settings

**NHS choices: conditions and treatments.** This is a compilation of facts and advice on a whole range of infections including conjunctivitis, impetigo, athletes foot, *C. difficile*, Candidiasis (thrush), *E. coli* O157, Giardiasis, Otitis, Scabies, Styes, [https://www.nhs.uk/Conditions/Pages/hub.aspx](https://www.nhs.uk/Conditions/Pages/hub.aspx)

**Childhood illness visual guide.** This visual guide to help identify common conditions and illnesses that may affect your child. Including conditions such as measles, impetigo, head lice, scabies, chicken pox and warts. [http://www.nhs.uk/tools/pages/childhoodillness.aspx](http://www.nhs.uk/tools/pages/childhoodillness.aspx)
Module 8: People who are infected & pose risk to others

Gastrointestinal infections – Hygiene advice sheet

People often think that they can do nothing to prevent spread of stomach bugs. Tell them that they can! This is particularly important where there is someone in the family who is at increased risk of infection.

**Diarrhoea and vomiting**

To prevent infection spreading practice targeted hygiene (see Sections 1 and 2).

- Hand washing is the most important infection control measure (Module 2).
- Bathroom surfaces, toilets, commodes, any surface frequently touched by hands must be hygienically cleaned (cleaned and disinfected – see P27) at least daily or after the patient has vomited or used the toilet. Cleaning cloths and mops should be hygienically cleaned by cleaning and disinfection immediately after use (see Module 5). Use disposable cloths if possible.
- Where surfaces are contaminated with vomit or excreta, remove as much as possible using paper towels and place into a bin or flush faecal matter down the toilet (not the sink). Wear disposable gloves. Immediately clean and disinfect surfaces using disposable cloths and place them into a bin bag (see module 6 waste disposal).
- Soiled linen should be handled if possible wearing disposable protective clothing e.g. gloves and aprons (see Module 9). If you are at the patients home, remove gloves & aprons before leaving room where care is given. If linen/clothing is soiled (vomit or diarrhoea), put on fresh gloves & apron and take to the washing machine. Don’t hand sluice linen as this will disperse virus, etc into the environment.

- Launder patient clothing separately from other clothing. Use a pre-rinse cycle and launder at 60°C or above (see Module 5 for laundry instructions).
- If someone is vomiting, keep the room well ventilated. Discourage others from entering the room.

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IFH

Turn the page to learn more

Infection Prevention Society

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Module 8: People who are infected & pose risk to others

Gastrointestinal infections - supplementary notes for learners and trainers

People infected with gastrointestinal infections can shed large numbers of infectious bacteria, viruses, etc. into their environment. When a person with norovirus vomits they may spread up to $10^{11}$ virus particles. Many/most human pathogens (including all viruses) do not ‘live’ outside the human host, but many can survive in large numbers in the air, the toilet, on hands or tissues used to wipe the nose. Survival may be for several hours and for some microbes (e.g. norovirus, S. aureus) for several days or weeks.

Diarrhoea and vomiting
The most common cause of diarrhoea and vomiting is norovirus which is mainly transmitted from person to person via hands and hand contact surfaces. Relatively few infections are caused by food. However, this can occur either by eating contaminated food (usually shell fish) of by an infected person handling food.

Bacteria and viruses that cause diarrhoea and vomiting spread very easily and, particularly for norovirus, the numbers of particles needed to cause infection can be very small, hence the reason norovirus can spread quickly and widely. Infected particles of vomit can remain airborne and settle on surfaces around the area. Where someone has diarrhoea, infected water droplets can spread to toilet hand touch surfaces by toilet flushing. People may continue to be infectious up to 48 hours afterwards. Infected people should remain off work until 48 hours after the last time they were ill. Infected people should not prepare food for others. On returning to work they must pay particular attention to hand washing after the toilet in case they are still shedding pathogens.

Further reading

Norovirus: infection and infection prevention through hygiene in the home.
https://www.ifh-homehygiene.org/factsheet/norovirus-infection-and-infection-prevention-through-hygiene-home

Shigella: infection and infection prevention through hygiene in the home.
People often think that they can do nothing to prevent spread of colds and influenza. Tell them that they can! This is particularly important where there is someone in the family who is at increased risk of infection.

- Make sure you have an annual influenza jab if you are in an at risk group. It is important that carers as well as patients keep vaccinations up to date.
- To prevent infection spreading, practice targeted hygiene (see Sections 1 and 2).
- The general advice is “CATCH IT” (use disposable tissues to cover the mouth and nose when coughing and sneezing) “BIN IT” (tissues should be disposed of into plastic bags, sealed and placed in the bin) and “KILL IT” (strict attention should be paid to hand washing or use of alcohol hand rubs).

- Regular (daily) cleaning and disinfection of hand contact surfaces can reduce spread of respiratory viruses to other family members. Wearing masks will not prevent spread of respiratory virus.

For more details on Respiratory infections see Module 3
Respiratory infections can spread very easily in the home. Microbes in mucous secretions are spread by coughing and sneezing and can cause an infection if someone else breathes in the microbes. People infected with cold viruses shed large quantities of virus-laden mucus. Droplets of nasal secretions generated by coughing, sneezing and talking can travel over a distance >3 m to contaminate surrounding surfaces.

Cold viruses and possibly influenza viruses can also contaminate surfaces by touching with contaminated hands. If fingers come into contact with contaminants hands, surfaces or tissues, then infection can occur by rubbing the nasal mucosa or the eyes.

Further Reading
Colds, flu and other respiratory infections in the home
Module 8: People who are infected & pose risk to others

_Clostridium difficile_ – Hygiene advice sheet

_C. difficile_ colitis usually occurs in patients who are taking antibiotics. Up to 3% or more of healthy adults carry _C. difficile_ in their gut and rates are higher in over 65s. Antibiotics disturb bacteria in the gut causing _C. difficile_ to change to an active form which inflames the colon causing diarrhoea.

- If someone is infected and has diarrhoea, hygiene is important to prevent spread to other family members.
- Hand washing is the most important infection control measure. (Module 2).
- Hand contact surfaces near patients (bedrails, bed clothes, bed tables, etc) and surfaces in bathrooms, toilets, commodes must be hygienically cleaned (cleaned and disinfected with hypochlorite (see Module 11)) at least daily or after patient uses the toilet. Clean and disinfect cleaning cloths and mops immediately after use (see Module 5 for instructions). Use disposable cloths and mops if possible.
- If surfaces are contaminated with excreta, remove as much as possible using toilet paper and flush down the toilet (not the sink). Immediately clean and disinfect surfaces with hypochlorite using disposable cloths and discard rinsings into the toilet. Wash hands.
- Clothing, sheets, pillows and linens from infected patients (or carrier) should be kept separate from other family laundry and laundered at 60°C or above (see Module 5).
- Do not share towels, facecloths, toothbrushes and other personal hygiene items with the infected/carrier person.
- Wash hands thoroughly and hygienically clean kitchen surfaces using hypochlorite disinfectant cleaner before handing handling or preparing food.
**Clostridium difficile** can cause diarrhoea in adults and may occur in the community as well as hospitals. People most at risk are those that have undergone treatment that may impair or disrupt the microflora of the intestine, such as therapy with antibiotics, immunosuppressive, antacids or surgery. Over 80% of cases are in the over-65s. *C. difficile* may be carried by domestic pets.

*C. difficile* is transmitted from person to person by the faecal-oral route. It is shed in faeces from an infected person (or domestic animal) carrying the organisms in their gut. *C. difficile* causes diarrhoea, which is often explosive. It has been estimated that infected patients excrete over 100 *C. difficile* spores per gram of faeces.

The organism is very resistant to drying and can survive on surfaces for long periods of time (months). Contamination of the environment is a major factor in spread. *C. difficile* is also transmitted via food that is contaminated via the hands of the person preparing the food.

Hygiene is very important to prevent spread of infection. Studies have shown that introduction of hygiene measures in hospitals where there were sporadic cases or outbreaks of *C. difficile* infection (CDI) resulted in a reduction in the number of cases or termination of the outbreak.

Current evidence suggests that risks associated with transmission of *C. difficile* in the home and community are relatively small at present. Although *C. difficile* appears to be widespread in the general environment and frequently present in the human and animal gut, only a proportion of strains are toxin producers.

Alcohol hand rubs may be used in situations where there is no access to soap and running water, but there are indications that alcohol has limited disinfectant action against *C. difficile* spores, which means that hand washing should be the procedure of choice.

**Further information**

Module 8: People who are infected & pose risk to others

Skin and wound infections – Hygiene advice sheet

To prevent infection from spreading:
- Wash hands after touching infected areas.
- Do not share towels, facecloths & other personal items.
- Change clothing, bed linen, towels, nightwear regularly.
- Keep clothing & bedlinen separate from family laundry.
- Follow laundry instructions in Module 5: Launder at 60°C or above, using powder/tablet detergent with active oxygen bleach. See ingredients on back of pack.
- Hygienically clean baths & wash basins after use by infected person. Clean with detergent and thoroughly rinse or use a disinfectant cleaner (see module 8).
- Hygienically clean cleaning cloths after each use. Either:
  - Wash in a washing machine at 60°C (hot wash).
  - Clean with detergent, rinse and immerse in a disinfectant solution for at least 20 mins.
  - Clean with detergent, immerse in boiling water 20 mins.
- Preferably use disposable cloths.
- Cuts or broken skin on the hands should be covered before preparing food.

Care of Infected cuts and wounds
- Wash hands before wound care.
- Change dressings frequently before they become wet.
- To protect yourself, wear non sterile gloves to remove dressings. Dispose of soiled dressings safely by double wrapping and placing in household waste (see Module 6).
- Remove gloves and dispose with old dressing. Wash hands or use alcohol hand gel.
- Wear latex free disposable vinyl/nitrile gloves to apply new dressing. Use aseptic non touch technique. Anything which contacts the wound should be sterile (preferably including glove
- Non sterile gloves can be worn.
- If concerned about an infected wound, see your Practice/Community Nurse or GP to get appropriate treatment.
Infections can be caused by bacteria, viruses and fungi and can easily spread via the hands of carers and the affected person, as well as via medical equipment and other surfaces to other people.

Impetigo is thought to be most common between the ages of two and six. About one in 35 children under the age of four and one in 60 children under 15 develop impetigo. Impetigo is highly contagious and easily spreads from person-to-person. This can occur by direct contact. Infection can also be transmitted via hands and surfaces including hand contact surfaces and the surfaces of clothing and household linens.

**Infected cuts and wounds**

- Dressings that are not changed often enough and become soiled and wet can contaminate surfaces and increase the risk of spread.
- If a wound dressing is wet it needs changing to prevent spread to others, but to also protect the individual from further infection.
- Skin infections should be reported to a doctor to ensure the correct treatment.
- Cuts or broken skin on the hands should be covered before food is prepared for individuals.

**Further information**

**Impetigo:** Prevention by good hygiene at home [https://www.ifh-homehygiene.org/factsheet/impetigo-prevention-good-hygiene-home](https://www.ifh-homehygiene.org/factsheet/impetigo-prevention-good-hygiene-home)

Module 9: Protective clothing, gloves, aprons and face protection

What and when should it be worn? – Hygiene advice sheet

Protective clothing (gloves, aprons, masks and eye protection) does not just protect you, it also protects the individual you are caring for and should therefore be changed after each care activity and not just when leaving the household.

- All organisations have a duty in line with the Health and Safety at Work Act to supply appropriate protective clothing, for use both by professional and family member carers.
- As an informal carer or family or household member, you may decide that you do not wish to wear protective clothing such as gloves or an apron. However if you are undertaking a range of care tasks such as assistance with continence, dressing and eating then it would be recommended to wear protective clothing.
- Risk assess the situation. If there is a risk of contact with blood or body fluids, then protective clothing should be worn.
- Disposable latex free, vinyl/nitrile gloves are recommended and disposable plastic aprons. Occasionally, depending on the situation e.g. if there is a risk of splashing into the eyes or mouth, a mask and eye protection should be considered.
- Advice on donning and removing protective clothing is given on the following page. It is particularly important that it is removed in the correct way and that hands are thoroughly washed after protective clothing is removed.
Module 9: Protective clothing, gloves, aprons and face protection

Protective Clothing – where and when? - supplementary notes for learners & trainers

What are the risks?

- Hands are the most important route for spreading infection and this risk increases greatly if hands become contaminated with blood and body fluids.
- It is recommended that disposable latex non powdered, vinyl/nitrile gloves are used. Latex gloves can be used, but some individuals are at risk of allergies to latex, both carers and the people being cared for, therefore this is best avoided.
- A flow chart for deciding when to use gloves is given on following page.
- Aprons are also disposable and, as with gloves, should be removed after each care activity. The same apron should not be worn for assisting someone to wash and dress and then eat.
- Fluid repellant surgical masks, eye protection or face visors should be worn during procedures likely to cause splashing of body substances/hazardous chemicals into the face of the carer.

Donning and removing protective clothing

- If protective clothing is not removed correctly then it can contaminate the wearer and infection can still be transmitted.
- Don and remove protective clothing in the right order. (see step by step information leaflet below).
- Gloves are usually removed first because these are the most likely to be contaminated with micro-organisms. They should be carefully peeled away from the wrist at the cuff and folded inside out and disposed of into the household waste stream.
- Gloves cannot be washed or alcohol hand rub used to decontaminate them. They should be removed after each care activity to prevent spread of infection and hands should then be washed.
- Gowns and masks should be taken off so that the contaminated outside goes to the inside. This reduces risks of transfer of contamination during handling.

Step by step advice for donning and removing protective clothing can be found at:
http://www.nipcm.hps.scot.nhs.uk/appendices/appendix-6-putting-on-and-removing-ppe/
Module 9: Protective clothing, gloves, aprons and face protection

Where and when should gloves be worn?

- Is there risk of exposure to?
  - Blood/Bodily Fluids
  - Non-intact Skin
  - Mucous Membranes
  - Chemicals/Hazardous substances

  - No

- Yes

- Gloves Required

  - Is there a risk of touching a Key Part for example:
    - The catheter when undertaking catheterisation
    - The side of a primary dressing that will have contact with the wound
    - The Syringe tip and end of a cleaned Bionector when administrating flushes via a Hickman line

  - No
    - Non-Sterile Gloves Required

  - Yes
    - Sterile Gloves Required

- Gloves Not Required
Home Hygiene

Prevention of infection at home and in everyday life: a learning and training resource

Section 4: Other Issues

Module 10: Tackling antibiotic resistance & the role of hygiene
Module 11: Disinfectants & antibacterials explained
Module 12: Disinfectants and resistance to antimicrobials
Module 13: Are we too clean?
Module 14: Misconceptions, fact and fiction about hygiene
Tackling antibiotic resistance is a global priority (1,2,3):

International and national action plans focus on 3 key areas:

1. Reducing antibiotic prescribing in humans and animals.
2. Developing new antibiotics.
3. Preventing infection and limiting spread of antibiotic resistant strains.

Whereas early infection prevention initiatives focused on healthcare settings, policy makers now recognise that strategies must also involve home and community settings.

Hygiene in home and everyday life addresses antibiotic resistance in two ways by:

1. Reducing the risk of developing infections, thereby reducing the need for antibiotic prescribing.
2. Reducing spread of resistant strains such as MRSA and multidrug resistant Gram-negative strains across the community. As prevalence of nasal or bowel carriage of resistant strains in the healthy population increases, this increases the risk of becoming infected with resistant strains. Spread of resistant strains can occur by;
   - Person to person spread, either by direct contact or via hands and surfaces (particularly hand contact surfaces, and clothing and household linens.
   - Consumption of food or water contaminated by drug resistant strains.

Studies show carriage of antibiotic resistance strains in healthy community populations, the presence of resistant strains in the environment and in food is increasing (4).

Targeted hygiene to prevent spread of infection and spread of resistant strains, focuses in the places (hands, contact surfaces, cleaning utensils, clothing and household linens etc.) and at the times that matters (handling and cooking food, using the toilet, respiratory hygiene, laundering of clothing etc). Targeted hygiene is set out in Modules 1 and 2.
Further resources can be found at:

- In 2017 NICE published guidelines on changing behaviours in the general population (5), which includes development of strategies to promote hygiene in home and everyday life settings including through schools and childcare providers.

- The EU-funded e-bug programme (www.e-bug.eu) was established in 2007. Its aim is to ensure that all children leave school with a basic understanding of antibiotics, antibiotic guardianship and the principles of hygiene. The programme is now in 26 European countries. Learning materials have also been produced for senior students and adults.

- Public Health England (PHE) have prepared a toolkit to provide PHE centres and public-facing voluntary organisations with a compilation of resources to develop public engagement on antimicrobial resistance, the role of hygiene and how they can make a difference.

References


5. Antimicrobial stewardship: changing risk-related behaviours in the general population NICE guideline [NG63] Published date: January 2017. https://www.nice.org.uk/guidance/ng63

In risk situations (times and places), hygienic cleaning (see P27) should be applied to get rid of as many microbes as possible from hands, surfaces or fabrics to prevent spreading. A hygienically clean surface can be achieved either by:

- Removing as many microbes as possible from surfaces (thorough cleaning with detergent followed by rinsing).
- Killing them \textit{in situ} by a disinfection process.
- Using combined removal and kill.

The aim of hygienic cleaning is to reduce contamination to a “safe level” (a level not harmful to health, see “what is good hygiene practice?” Module 1). It does not make surfaces “sterile”.

- In many cases hygienic cleaning of risk surfaces to break the chain of infection can be achieved by removal. Rubbing with detergent/soap and water loosens microbes along with any dirt, but does not kill them. Microbes must then be removed from the surface by rinsing under running water. Without rinsing, microbes will not be reduced to a safe level.
- This means that, for risk surfaces that cannot be properly rinsed (e.g. fixed kitchen surfaces, taps, toilet flush handles, door handles, nappy changing surfaces) or cleaning cloths (where microbes become too firmly attached), the way to achieve hygienic cleaning is by cleaning followed by, or accompanied by, disinfection.
- Because cleaning followed by disinfection achieves a greater reduction compared with detergent-based hygienic cleaning, it may be advisable in situations where there is more risk e.g. handwashing followed by a hand sanitizer before or after healthcare procedures, cleaning and disinfecting a chopping board after preparing raw chicken.

- \textbf{NOTE: Routine use of disinfectant cleaners as part of daily/weekly cleaning routines is not recommended.} Disinfectant or antibacterial products must be used prudently

The following pages shows the types of disinfectants available with guidance on selecting and using them.
Q: What are chemical disinfectants?
A: They are products that kill microbes (bacteria, viruses and fungi).

Q: How do I know if the product I am using is a disinfectant?
A: Read the label, if it is a disinfectant the label will say “disinfectant” and/or “kills” germs or bacteria, etc. Note that some commercial products, e.g. bleaches, kill microbes/germs, but are not actually labelled as “disinfectants”.

Q: Do all disinfectants kill all types of germs?
A: No, so read the label to check that the product will kill the type or types of pathogens (bacteria, fungi and/or viruses) which may be present. All disinfectants kill bacteria (called bactericidal). Some will also kill fungi (fungicidal), bacterial spores (sporicidal) and/or viruses (virucidal).

Q: What is an antibacterial product?
A: The term antibacterial was introduced in the 1990s as a more modern word for a product intended for use in controlling spread of infection. Unlike, disinfectants which have an officially recognised definition (see above) “Antibacterial” means that the product acts against bacteria in some unspecified way. Some products labelled “antibacterial” will kill bacteria whilst others may only prevent them multiplying. So it’s important to check the label. An antibacterial is not necessarily anti-fungal or anti-viral too.

Q: What is an antibacterial hand gel?
A: These are products that usually contain alcohol, which are used to kill microbes on the hands. They are designed for use in situations where there is no access to soap and running water. Handwashing with soap followed by application of a hand gel is advised in situations where there is increased risk. These products are also called hand rubs or hand sanitizers.
Module 11: Disinfectants & antibacterials explained

Q: What is an antibacterial soap?
A: These are soap bars or liquids soap that contain antibacterial agents. The presence of the antibacterial is designed to increase the microbe reduction on hands during handwashing by killing residual microbes not removed by handwashing with soap.

Q: What is the difference between disinfectants, antibacterials, hand rubs, sanitizers, etc – it’s very confusing?
A: Yes it is! Labelling of these products is very confusing. Disinfectant is the scientifically recognised term for all products which kill microbes on hands surfaces and fabrics. The term “antibacterial” was coined in the 1990s as a more “modern” name for surface or hand disinfectants. Bleach is used to kill germs/microbes, but, although it is a disinfectant, it is rarely labelled as such. So, technically all of the above are “disinfectants”. When choosing a “disinfectant”, focus on making sure it is suitable for the surface you want to treat (hands, surfaces, fabrics) and kills the types of microbes you are concerned about (bacteria, viruses and fungi). See more below.

Q: What is the difference between a detergent and a disinfectant?
A: A detergent works in the same way as soap. Its function is to detach dirt/soil/grease, etc. from surfaces and “solubilise” them into the “soapy water, so they can then be rinsed off the surface. Soap and detergents have some microbiocidal action, but this is generally quite limited and they are not considered as “disinfectants”.

Q: How do I know that the product is a disinfectant and will be effective?
A: All disinfectants (which includes products labelled as disinfectants, antibacterials, antibacterial hand gels/sanitizers) must comply with standard tests for efficacy. European Standards include tests for bactericidal activity (EN 1276 and EN 13697) fungicidal activity (EN 1650 and EN 13697), sporicidal activity (EN 13704) and virucidal activity (EN 13610). Read the label or refer to manufacturers instruction to make sure that the product meets these requirements and can thus produce a satisfactory risk reduction.
Module 11: Disinfectants & antibacterials explained

Q: What is a “biocide?”
A: Biocide is a much broader term for substances that kills, inactivates or otherwise control certain living organisms that are undesirable. It includes things like pesticides, as well as microbiocides, which kill micro-organisms.

Q: When do I need to use a disinfectant?
A: Look at the table in Module 1: targeted hygiene reducing the risks as it can help you to decide when you need to use a disinfectant or when cleaning or the use of heat is recommended.

Q: There are so many products to choose from, how can I choose the right one?
A: Disinfectant products use a variety of active ingredients, which are suited to different situations. When selecting a product, decide what are the key properties you need. Think about what type of microbes that can cause harm you need to kill, what type of surface or material you need to disinfect, whether you are dealing with small or large areas, whether the surface is going to be used for food preparation. You may also feel that the smell of the product is important. Many disinfecting products are either bleach-based (either chlorine or oxygen) or alcohol-based. Other products contain a variety of active ingredients (e.g. phenol, benzalkonium chloride, chlorhexidine, pine oil) and so their properties vary. This means that you will need to check the product packaging and/or manufacturer’s instructions for the active ingredients and other information on its properties and limitations.

Use the checklist in the following pages and the table to help you choose the best disinfectant for a particular purpose by asking ‘What properties do I need?’ and comparing it with ‘What properties does the disinfectant have?’ If this information is not available contact the manufacturer or your infection control team.
Q: What is the checklist to consider when choosing and using a disinfectant?
A: Disinfectants will only kill enough microbes to make the surface safe if it is used at the right concentration and for the right contact time. At lower concentrations a product may kill, or prevent growth of some microbes, but will probably not be enough to achieve “disinfection”. Some disinfectants need to be diluted, while others (e.g. alcohol-based products) do not.

The choice of disinfectant and the concentration and contact time will depend on what you want to achieve and the conditions under which the disinfectant must work. The following are the most important factors you need to consider: The following are the most important factors you need to consider:

a) The type of microbes
Some disinfectants are active against all types of germs (bacteria, viruses, fungi etc) whilst some are only active against bacteria. Make sure that you choose a product that has the right “spectrum” of action.

b) If soiled
If the surface, or object, that is being disinfected is soiled with dirt, food, faeces, pus, blood etc the disinfectant will be less effective. This means you should either clean the surface (or object) before applying the disinfectant, or you may use a combined disinfectant cleaner. You may also need to use a higher disinfectant concentration, so follow manufacturer’s instructions. In situations where surfaces are heavily soiled e.g. with vomit and faeces, then you must remove as much of the “soil” as possible before disinfecting. In doing this make sure you wear gloves, use disposable cloths and dispose of the contaminated materials carefully.

c) Concentration and contact time
Some disinfectants will kill microbes quickly; others need longer. Some types of microbess, e.g. bacterial or fungal spores, take longer to kill. So, again, read the label and leave the disinfectant on the surface for the right length of time.
d) Hard water
Some disinfectants are affected if they are diluted in hard water. In general however disinfectant products are tested to ensure that they are effective in hard water areas.

e) Presence of detergent or soap
Some types of detergents or soap inactivate some disinfectants. If you are using a combined disinfectant cleaner, make sure you use a commercially formulated product, don’t make up your own disinfectant/cleaner mixture. If you are going to clean and then disinfect, rinse the surface to remove traces of detergent, before applying disinfectant.

f) Type of surface material
Make sure that the disinfectant is suitable for the surface you need to disinfect. Some disinfectants have a bleaching action or can damage certain types of surfaces. Some disinfectants are not safe for use on the skin.

Q: How long will the disinfectant action last?
A: That depends. If a surface is dry it will stay “hygienic” until reused, or recontaminated. If a surface is damp (e.g. a damp cloth), the small number of microbes not killed by the disinfectant can grow again within a few hours. This is why targeted hygiene means hygienic cleaning of surfaces, cloths etc at the right time, i.e. wash your hands not only after visiting the toilet or handling raw meat or poultry, but also before handling ready to eat food.
**Module 11: Disinfectants & antibacterials explained**

**Q: What is a descaler?**
**A:** It is a product that removes lime-scale. Some products can also prevent the build up of lime-scale if used regularly. Some cleaning or disinfecting products may also include a descaling ingredient.

**Q: How do I know which laundry washing powders or tablets contain bleach?**
**A:** Bleach-based laundry products are either powders (biological or non-biological) or solid tablets. The term ‘oxygen based bleaching agent’ should be listed in the ingredients list on the packaging. Liquid laundry products and liquid capsules or products designed for coloured clothes (colour care products) do not contain a bleach agent.

The properties of the types of disinfectant products mainly used in the home is summarized on the following page.

**Further information**
### Module 11: Selecting a disinfectant

#### What property do I need

<table>
<thead>
<tr>
<th>What properties does the product have?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bleach</strong> (either chlorine-based e.g. sodium hypochlorite or oxygen-based e.g. hydrogen peroxide)</td>
</tr>
</tbody>
</table>

#### Which types of germs do I need to kill?

| | Kills all types of bacteria, fungi, viruses and bacterial and fungal spores at the recommended concentration* |
| | Kills bacteria, fungi but only effective against some viruses |
| | Kills bacteria, fungi but only effective against some viruses |
| Action varies according to concentration; some products are only formulated to prevent growth of germs. Active against bacteria and fungi but tend to have limited action against viruses. |

#### How quickly does the product need to act?

| | Acts very quickly (within 1 minute) but longer contact times are required for spores |
| | Acts quickly (within 1 minute) |
| | Follow the manufacturers instructions |

#### Are there any soil, dirt or food residues on the surface?

| | Affected by soiling. If soiling is light and clean then disinfect or use a combined bleach/cleaner formulation. If heavily soiled always clean before disinfecting |
| | Not effective on dirty surfaces or dirty hands |
| | Efficacy can be reduced in the presence of soiling, so you may need to use higher concentrations. Follow the manufacturers instructions |

#### How hard is the water?

| | Not inactivated by hard water |
| | Not relevant as products are used undiluted |
| | Varies, but action may be affected by hard water. Check the manufacturers advice |

#### What type of surface needs disinfecting?

| | Suitable for hard surfaces, including food contact surfaces) cloths and white laundry |
| | Suitable for hands and small surfaces e.g. work surfaces thermometers, etc. |
| | Suitable for all types of hard surfaces, sinks, drains, etc. Not suitable for food contact surfaces |
| | Suitable for hands and small surfaces e.g. work surfaces. Some products (e.g. quats) suitable for food contact surfaces |

#### Are there any other possible down sides

| | Chorine-based bleaches could damage and/or bleach coloured fabrics carpets and soft furnishings and erode metal surfaces |
| | May dry the skin, use one that contains an emollient |
| | Phenolics can have a strong odour. Can be inactivated by detergents may be in other cleaning products. |
| | Can be inactivated by detergents that may be in other cleaning products. |

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*For bleach, e.g. chlorine-based, the recommended use concentration can vary from as low as 250ppm (for infant feeding bottles) and up to as much as 10,000ppm (for treating blood) according to how the bleach is to be used and what it is used for. Thus it is very important to follow manufacturers instructions for use or if you are unsure consult your community infection team.*
Module 12: Disinfectants and resistance to antibiotics

There are concerns that, if bacteria are exposed to disinfectants, antibacterials hand rubs, etc they can develop “resistance” to antibiotics which are used to treat infections.

Q: I have heard about the increase in “superbugs” such as MRSA, what are they?
A: “Superbugs” is a term often used by the media to describe strains of microbes that are antibiotic-resistant. This means that normal doses of one or maybe several, antibiotics no longer work against that microbe.

Q: Why have antibiotic-resistant germs developed?
A: Some microbes are naturally resistant to a wide range of antibiotics. Some have developed resistance because they have adapted following exposure to antibiotics.

Q: Could exposing microbes to disinfectants, antibacterials or hand sanitizers make them resistant to antibiotics?
A: This is possible in theory if an antibiotic and a disinfectant work by attacking the same target sites on the microbe. For example, the antibiotic isoniazid and the disinfectant triclosan are known to attack similar cell targets. If microbes are exposed to low concentrations of the disinfectant most would be killed, but a few with the more resistant target sites could survive. These could then produce a population of cells all of which are resistant to the antibiotic. The potential for this to happen has been demonstrated in the laboratory. However, despite use of disinfectant products over many decades, we are not seeing evidence of resistance to antibiotics developing as a result of disinfectant use. In hospitals, antibiotic-resistance has been an increasing problem at a time when the use of disinfectants has been decreasing.

Q: Are some disinfectants more likely to cause resistant microbes than others?
A: There is no evidence at present that disinfectants encourage the emergence of resistant microbes, but it is recommended that, as a precautionary measure they should be always used responsibly. Using products that break down quickly or disappear after use (such as peroxide, hypochlorite or alcohol) also plays safe. They will leave no residual disinfectant to which bacteria could develop resistance. The Association for Prudent Use of Antimicrobials (APUA) gives further advice on this. http://apua.org/antibacterial-agents

More information
There are concerns that, if bacteria are exposed to disinfectants, antibacterials hand rubs, etc they can develop “resistance” to the disinfectant or antibacterial products.

Q: If I use disinfectants continuously, won’t this encourage resistance to the disinfectant to develop?
A: No, not if you use them properly i.e. at the recommended concentration. Continuous exposure to low concentrations of disinfectants can cause some increase in resistance, but not enough to make them resistant to the concentrations that are used in practice. Also, unlike antibiotic resistance, which can be permanent, any increased resistance disappears when we stop using the disinfectant or switch to another disinfectant type.

Q: Perhaps I should use “gentler” products to avoid creating resistant microbes?
A: Paradoxically, this could make things worse. Microbes are most likely to develop resistance when they are exposed to low concentrations of disinfectants or antibacterials, etc (i.e. gentler products). Some microbes within the contaminating population may be able to survive and adapt to this experience and can then pass on this ability to the next generation. When you use disinfectants, make sure you use it at the right concentration to kill microbes.

The reason we develop resistance to antibiotics is that they have to be administered at relatively low doses to avoid toxic side effects. As the antibiotic level drops in our bloodstream, it gives the opportunity for growth of resistant populations by any cells which are still surviving, hence the reason we must take the full course of treatment. Disinfectants and antibacterials are used at relatively higher concentrations designed to rapidly inactivate microbes on hands and surfaces and a dead microbe can’t become a superbug.

Q: Are antibiotic resistant microbes more difficult to kill with disinfectants?
A: No. Although pathogens like MRSA are resistant to antibiotics, they remain susceptible to disinfectants. You can prevent spread of antibiotic resistant germs by hygiene and targeted use of disinfectants in the same way as for any microbes e.g. MRSA has the same sensitivity to disinfectants as Staphylococcus aureus.
Whilst we have long understood that infections are caused by microbes that can cause harm, we are now seeing that other types of microbe and human interactions are essential for health. This is likely to have profound effects on hygiene policies in the future because it means that we need to develop strategies which maximize protection against infection, whilst sustaining exposure to essential microbes. Unfortunately, because of the so-called hygiene hypothesis, we have become very confused about “being too clean” to the extent that it is undermining public confidence in hygiene. To change public behaviour we are going to have to address this issue.

The hygiene hypothesis, proposed in 1989, was that children who have fewer infections (measles, mumps, colds, influenza) are more likely to develop allergies. It was suggested that this was due to smaller modern family sizes, but could also be due to “improved household amenities and higher standards of personal cleanliness”. Because it was called the hygiene hypothesis, the idea that we are too clean for our own good was widely publicized in the media and many people still believe that this is true.

We now know that the “hygiene” hypothesis is a misnomer because the microbe exposures we need are not infections, but a diverse range of largely non-harmful species that inhabit the human (the human microbiome), the animal body and our natural environment. It is likely that reduced exposure to these so-called “Old Friends” microbes has occurred because of lifestyle changes such as C-section rather than vaginal childbirth, bottle rather than breast feeding, fewer siblings, urbanisation and less outdoor activity, etc.

Since communication between “Old Friends” and the immune system is mediated by the gut microbiome, excessive antibiotics and altered diet can affect the microbiome in a way that increases inflammatory disease risks.

If the microbes we need are not pathogens, then hygiene cannot be the problem?
Unfortunately many people still believe the hygiene hypothesis. The simple belief is “we need plenty of exposure to dirt and germs to keep our immune system strong (like our parents and grandparents did), but because we’ve now become “too clean” our immune systems are too weak to fight infections and allergies”. This has been repeated so many times we are now convinced it’s true! But it’s wrong on all counts. The way we “fight” infection is the opposite of the way we “avoid” allergies i.e.:

- When we are exposed to measles virus the immune system produces specific antibodies to fight measles, but measles only. The idea that the more types of germs we are exposed the more generally resistant we become to any type of infection is incorrect.
- If we are exposed to allergens like pollen we need our immune system to ignore it because pollen is harmless. If the immune system starts to “fight” allergens, that’s when we develop an allergy. Exposure to a diverse range of Old Friends microbes is needed because it programmes the immune system to ignore/tolerate things like pollen, grass, etc (see diagram).

**Why is the hygiene hypothesis a misnomer?**
Microbe exposure and allergies, etc.

Q: I’ve heard that some people have linked the rise in allergic disease with improved hygiene.

A: Over the last 30 years there has been a steady rise in atopic diseases, i.e. allergies and asthma, hay fever and eczema. Up to one in five children are affected. We are all born with a tendency to develop allergic diseases and some are more prone than others. Allergic disease only develops if we become sensitised by exposure to a particular allergen (e.g. pollen or dust-mite). If this happens, whenever we are exposed to the allergen it will trigger an “attack”. The so-called hygiene hypothesis proposed that there was a link between reduced exposure to infections in childhood and rising allergies, but we now know that this is a misleading misnomer. It appears that the microbes, which our immune system need for “programming” to stop them reacting to allergens, are largely non harmful microbes found in humans, animals and the natural environment. So hygiene – the things we do specifically to protect us from exposure to infections are not the problem.

Q: But how could hygiene and cleanliness be linked with allergy?

A: We now think that the problem is being caused by a changing lifestyle, not cleanliness and hygiene in our daily lives as we understand it. Studies now show that the microbe exposures we need are the diverse range of largely non-harmful species that inhabit the human (the human microbiome), the animal body and our natural environment. It is likely that reduced exposure to these so-called “Old Friends” has occurred because of lifestyle changes such as C-section rather than vaginal childbirth, bottle rather than breast feeding, fewer siblings, urbanisation and less outdoor activity, etc. Since communication between “Old Friends” and the immune system is mediated by the gut microbiome, excessive antibiotic use and altered diet can affect this microbiome in a way that increases risks of developing allergies. It is also thought that the protective effect of these microbe exposures are only important at certain times of life (e.g. immediately after birth or in infancy).
Q: Isn’t the rise in allergic disease caused by increased pollution and other particles in our environment?
A: Maybe to some extent, but this does not seem to explain the big increase in the disease over the past 30 years. Scientists are still researching the theory. Some believe that we have become more susceptible to allergies and some believe that the rise in allergies has been caused by changes in our diet, lifestyle and healthcare that has reduced our exposure to vital “Old Friends” microbes.

Q: If the “hygiene hypothesis” is true - are there specific organisms that can protect us from allergic diseases?
A: The “hygiene hypothesis” is not “true”, it’s a misnomer. Studies suggest that the microbe exposures we need are not “infections”, but the diverse range of largely non-harmful species that inhabit humans, animals and our natural environment. The key point is that exposure to a diverse range of Old Friends microbes, rather than any one type of organism, is needed because it programmes the immune system to distinguish harmless things like pollen, grass, etc and to ignore them, rather than fighting them which causes allergies.

More information
A simple guide to healthy living in a germy world – the so-called hygiene hypothesis [Link to IFH Home Hygiene website]
Rising allergies and being clean – some frequently asked questions and answers [Link to IFH Home Hygiene website]
Module 13: Are we too clean? Developing a healthy relationship with our microbial world

Microbe exposure and immunity to infection

As well as being concerned about allergies, etc., we also believe that of exposure to “germs” teaches our immune system to fight infections. This is not thought to be the case.

Q: I have heard that if I am too clean my family won’t build up a strong and healthy immune system to fight infections.

A: Although acquiring a normal body flora of microbes during the first months of life is critical to developing our general immune system (see page 76) there isn't any evidence that ongoing contact with microbes that can cause harm is important to 'strengthen' it. Catching a disease (or being vaccinated) can give you immunity to that specific disease (or strain of that disease), but not to other diseases. Healthy people tend to have healthy immune systems regardless of how clean their home is. It would be very risky to deliberately expose children to microbes that can be harmful microbes in order to develop their immunity.

Q: Some people say “a little bit of dirt does you good”

A: It depends what you mean by “dirt”? In most situations contact with dirt and garden soil won’t do any harm especially if we are immunised against tetanus. It can be beneficial to health because garden soil contain a diverse range of “Old Friends” microbes. But contact with microbes in faeces or on a chopping board which is “dirty” after preparing raw meat or poultry can do us harm. Targeted hygiene limits our contact with potentially harmful microbes to a level that is unlikely to cause infection, while allowing us contact with other less harmful organisms in our environment.

Q: So if I become less fussy about my home hygiene am I more likely to catch infections?

A: Since many infections are spread in the home, hygiene is very important in preventing this. Reducing our standards of hygiene would be risky. But we need to understand that home hygiene is not the same as home cleanliness. The best way to protect the family against infections is through targeted hygiene. This means getting rid of microbes that can be harmful microbes where and when there is a risk of them spreading and causing infection (during food preparation, when using the toilet, when we cough and sneeze.)
Q: But there wasn’t all this fuss about hygiene when my grandparents were young and they lived to a ripe old age.

A: They were the lucky ones who were fit enough to live and tell the tale. People forget that in the 1920s, about 1 in 4 children died before the age of 5, frequently of an infectious disease. Although infections such as typhoid and cholera are no longer a problem in Britain, we are still just as much at risk from other serious infectious diseases. They may have played outdoors and got “dirty”, but they were still told to wash their hands before meals and after using the toilet. Most of the “fuss” is about cleanliness not hygiene.

Q: My immune system is really good. I never get infections and therefore don’t need vaccinations because my immune system will protect me.

A: No. Vaccines work in a very specific way by stimulating the immune system to produce antibodies which act specifically against the microbe for which the vaccine is intended. Each year there are different strains of influenza virus circulating. The public health labs will produce a vaccine which they “best guess” will be effective against the influenza strains most likely to be circulating that winter. The best way to maintain a healthy and balanced immune system against infection is through a healthy and balanced lifestyle.
Module 14: Misconceptions, fact and fiction about hygiene

Misconceptions about home hygiene are common. Everyone thinks they know all about home hygiene and people are often unwilling to let go of long held beliefs. We learnt it from our mothers, so how could it possibly be wrong!

This section covers some of the things that people either do not know about home hygiene or some commonly held misconceptions. These misunderstandings can largely be resolved if carers (and family members) grasp the basic principles of the chain of infection and targeted hygiene as outlined in Module 1.

Some of the information can be complex, particularly the “hygiene hypothesis.” In the following sections we have tried to outline the basic facts that you need to understand in order to be able to answers questions and dispel the misconceptions frequently voiced.

**Fiction:** They say if a surface looks and smells clean, it is ‘hygienically clean’.

**Fact:** Visibly clean does not necessarily mean ‘hygienically clean’. There may still be enough germs on it to cause infection. You can only “know” if a surface is hygienically clean if you “know” that you have cleaned and or disinfected the right way e.g. washed your hands properly.

**Fiction:** Handwashing with soap works by killing the harmful bacteria and viruses on my hands.

**Fact:** No, plain soap is not antibacterial. When you wash your hands, rubbing them with soap helps to detach soil and bacteria from the skin surface, but the microbes are still on your hands. Rinsing your hands under clean running water then removes the microbes from the hands. By contrast, when you use an alcohol hand rub or hand gel the alcohol kills the bacteria and viruses on the hands, so there’s no need to rinse them. Antibacterial soap contains an added antibacterial agent, which is intended to increase the microbial reduction on hands by killing some of the residual bacteria on them that remain after handwashing.

**Fiction:** They say that eating contaminated food is the cause of all stomach upsets.

**Fact:** No. Many come from other people who are infected and occasionally from infected pets and farm animals. Most of them could be prevented by good hygiene practice.
Fiction: They say that most stomach infections come from restaurants, take-aways, etc.

Fact: Most stomach infections arise in the home.

Fiction: They say a baby’s poo is clean!

Fact: No. It’s as important to wash your hands after changing a nappy, as it is after going to the toilet. Babies are just as likely to shed microbes that can cause harm in their faeces as anyone else in the family!

Fiction: They say that hospital waste contains more microbes than kitchen waste.

Fact: No. There are actually more microbes in kitchen waste.

Fiction: They say that soap and water is all you need for hygienic cleaning of hands and surfaces.

Fact: No. Thorough cleaning with soap and water followed by rinsing can be used to make surfaces hygienically clean, but this is not always the case. Sometimes a disinfectant is necessary.

Fiction: If you use an antibacterial soap, you don’t need to wash your hands so thoroughly.

Fact: Yes you do. Rubbing hands together with soapy lather and rinsing with clean running water are the key steps to removing germs from your hands. The antibacterial can give some additional protection.

Fiction: If I wear my rubber gloves when cleaning I don’t need to bother washing my hands

Fact: Gloves often have tiny holes in them that can allow germs to seep through onto your skin. Also when taking off the gloves the hands can become contaminated. So always wash your hands with soap and water after taking off your gloves.
Fiction: We have always had to guard against germs. Today we have even worse things like bacteria such as *Salmonella* and *E. coli* to deal with.

Fact: Germ is a common term used to describe all kinds of microbes, which are harmful or potentially harmful, including bacteria. It’s just that the media now often refer to the different types of germs, including bacteria such as *Salmonella* and *E. coli* O157, by their names. If someone talks about germs, always ask them what they mean. Are they talking about all types of microbes or just those that are harmful?

Fiction: If a toilet, sink, u-bend or a cleaning cloth smells, it must be full of germs.

Fact: Not necessarily. The microbes that cause smell are usually the ones that are non-harmful. Nevertheless, when there are enough microbes on a cloth to cause it to smell, it is more likely that some potentially harmful ones will also be present. If raw food smells, this is also a good indicator that if there are any harmful microbes, they too will have multiplied on the food and could cause food poisoning.

Fiction: Baby bottles should be ‘sterilised’.

Fact: Strictly speaking the process of boiling or immersion in a ‘sterilising’ solution does not sterilise the bottle, i.e. it does not make it totally free from all micro-organisms. These actions disinfect the bottle and this is perfectly satisfactory since babies are not harmed by contact with the small numbers of microbes remaining.

Fiction: Bleach is the only disinfectant we need - it’s good for everything.

Fact: Like all disinfectants, bleach has its advantages and its drawbacks. Module 10 gives guidance on how to select the right disinfectant according to the particular situation.
The approach used for developing home and everyday life hygiene set out in this resource is known as targeted hygiene. It is based on a risk management approach known as Hazard Analysis Critical Control Point (HACCP), which is the standard approach for achieving microbial Quality Assurance in the manufacture of food products, pharmaceuticals, cosmetics, etc.

Targeted hygiene involves identifying the critical points by which microbes that can be harmful microbes are spread in home and everyday life and targeting hygiene intervention at these critical points, at the times they are needed to prevent transmission of infection.

Targeted hygiene was developed using the available scientific evidence identifying the sources of pathogenic microbes in the homes and other living environments, their modes and rates of spread, and the risk of human exposure in sufficient numbers to cause infection. It is also based on the available data on the effectiveness of hygiene procedures in reducing contamination to a safe level.

The scientific evidence used for developing targeted hygiene is summarised in the following publications:


Available at: http://www.egms.de/en/journals/dgkh/2017-12/dgkh000293.shtml
Further Resources, guidelines and reading

Other e-learning resources on hygiene in home and everyday life

The e-bug hygiene education programme (www.e-bug.eu) This EU-funded programme aims to ensure that all children in Europe leave school with an understanding of antibiotics, antibiotic guardianship and hygiene. e-bug is a comprehensive range of lesson plans and support materials, now translated into 27 European languages.


IFH hygiene fact/advice sheets IFH website contains a range of fact/hygiene advice sheets on specific issues e.g MRSA, norovirus, colds and influenza, gastro disease, etc. The advice coincides with the advice given in this training resource. https://www.ifh-homehygiene.org/factsheets-hygiene-advice

Infection Prevention and Control in Home Healthcare. This is a central resource where hygiene professionals, community workers, etc can share information on infection prevention and control issues related to healthcare delivered at home. https://www.ifh-homehygiene.org/infection-prevention-and-control-home-healthcare


Every infection prevented means fewer antibiotics used – public engagement toolkit on antibiotic resistance: This is a toolkit prepared by Public Health England (PHE) for use with or by public-facing organisations to engage the public on antibiotic resistance and the important part they play in tackling the problem, including by improved hygiene behaviours. https://www.ifh-homehygiene.org/web-based-resource-training/every-infection-prevented-means-fewer-antibiotics-used-%E2%80%93-public
Further Resources, guidelines and reading

Guidelines for IPC in the home

The following are Guidelines on Infection Prevention and Control produced by government agencies

- NICE (2014) Quality Standard (QS) Infection Prevention and Control
- NICE (2016) Healthcare Associated Infections
- Royal College of Nursing (2014) Infection Prevention and Control
- Clinical Knowledge Summary (2017) MRSA in Primary Care
- Health Protection Scotland Norovirus Outbreak Guidance 2015-16; 2016-17 Preparedness, Control Measures and Practical Considerations for Optimal Patient Safety and Service Continuation in Hospital.
Further Resources, guidelines and reading

Information Sources for the public

The following are sources of infection intended fro sharing with the public


**Infection Prevention and You.** A source of hygiene advice for the public developed by the American Practitioners in Infection Control. [http://professionals.site.apic.org/](http://professionals.site.apic.org/)

**Information sources for the public on hygiene in home healthcare** A central resource where hygiene professionals, community workers etc can share materials which have been developed for patients, etc on healthcare at home. [https://www.ifh-homehygiene.org/infection-prevention-and-control-home-healthcare](https://www.ifh-homehygiene.org/infection-prevention-and-control-home-healthcare)

**Consumer Information on home hygiene.** A collection of materials and web-based resources that are designed for public use. [https://www.ifh-homehygiene.org/consumer-information](https://www.ifh-homehygiene.org/consumer-information)
Acknowledgements

This resource has been produced by a group of infection control/hygiene experts representing the International Scientific Forum on Home Hygiene and the UK Infection Prevention Society:

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The resource is an update of the training resource “Home Hygiene Prevention of infection in the home – a training resource for carers and their trainers” originally published in 2003

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The UK Infection Prevention Society. Our vision is that no person is harmed by a preventable infection. Our mission is to inform promote and sustain expert infection prevention policy and practice in the pursuit of patient or service user and staff safety wherever care is delivered (https://www.ips.uk.net/)