the skills network

# Level 2 **Certificate in Understanding Common Childhood Illnesses**



## Unit 1

European Union
European
Social Fund

**Disclaimer:**
This resource uses real life case studies where specifically stated and referenced. All other references to individuals, groups and companies contained within these resources are fictitious.

# Level 2 Certificate in Understanding Common Childhood Illnesses

## Welcome to this Level 2 Certificate in Understanding Common Childhood Illnesses

We hope you find all of the information contained in this resource pack interesting and informative. This learning resource and the assessment questions have been approved by CACHE as a great way to meet the learning outcomes for this qualification. (A complete list of the learning outcomes can be found at the back of this workbook.)

### Introduction

As you start to read through each page you will be able to make notes and comments on things you have learnt or may want to revisit at a later stage. At the end of each section, you will be asked to go to your assessment booklet and answer the relevant questions.

Once you have answered the relevant questions go to the next section and continue studying until all of the assessments have been completed.

Please make sure that you set aside enough time to read each section carefully, making notes and completing all of the activities. This will allow you to gain a better understanding of the subject content and will help you to answer all of the assessment questions accurately.

**Good luck with your study. Now let's begin!**

# Unit 1: How to provide a safe and healthy environment for babies and young children

**Welcome to unit one.**

This unit has **four** sections. These are:

**Section 1: How infection is spread**

**Section 2: Ways to minimise cross-infection when working with babies and young children**

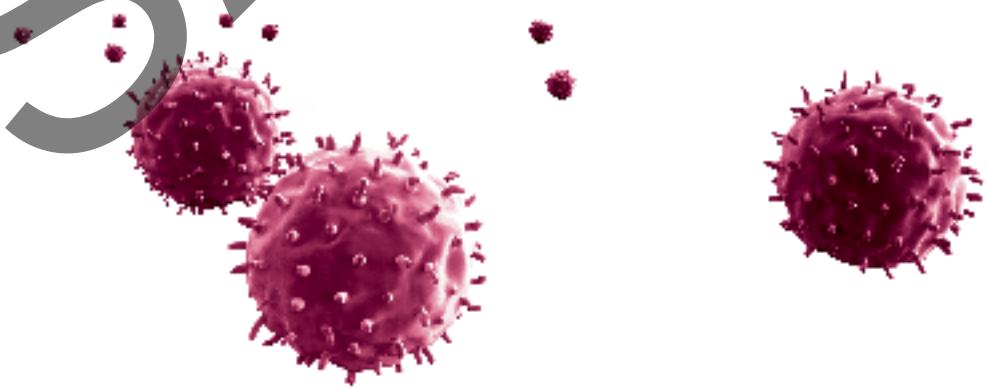
**Section 3: The role of policies and procedures to maintain a safe and healthy environment for babies and young children**

**Section 4: The role of healthy initiatives when working with babies, young children and families**

## Section 1: How infection is spread

This section will explore the following:

- Different types of infection, including bacterial, viral and fungal
- The ideal conditions for bacterial growth
- What is meant by direct and indirect transmission of infection.



## Different types of infection, including bacterial, viral and fungal

### STOP AND THINK!

**Have you ever had an infection? Do you know what type of infection it was? How was it treated? Write down everything you can remember about it and see if you can identify which type it was once you have looked through the table on the next page.**



An infection happens when microorganisms (sometimes referred to as 'pathogens') that are not normally present invade and replicate within a person's body. Infection may occur without someone knowing, or it might make them very unwell. Some infections can cause life-threatening symptoms. Some infections stay in one area, whereas others can spread throughout the body.

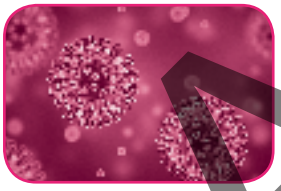
The three types of infection that a person is most likely to experience throughout their lifetime are detailed in the table on the following pages.

| Type of infection | How the infection is caused | Possible symptoms | Examples of the type of infection | How the infection is treated |
|---|---|---|---|---|
| **Bacterial** | Bacteria invade a person's body where they multiply once they find favourable conditions. Once inside someone's body, they release toxins, which are what make people feel unwell. | This will be dependent on the area of the body that is infected, but symptoms common to most bacterial infections include:<br>• Fever<br>• Headache<br>• Fatigue. | • Food poisoning<br>• Sexually transmitted diseases<br>• Urinary tract infections<br>• Tuberculosis<br>• Bacterial meningitis<br>• Skin infections, such as boils. | Most bacterial infections can be successfully treated with antibiotics, which kill bacteria or restrict their growth.<br>However, some antibiotic resistant strains of infection are starting to occur. |
| **Viral** | Viruses are much smaller than bacteria and they enter the human body through any of its openings, but most often through the nose and mouth.<br>Once inside the body, they attach to a cell (called a 'host cell') where they begin to attack by rapidly replicating. | Like bacterial infections, symptoms will depend on what the virus is and what organs it is affecting. Many symptoms are similar to bacterial infections:<br>• Fever<br>• Headache<br>• Nausea. | • Colds<br>• Influenza<br>• Measles<br>• Chicken pox<br>• Rubella. | Viral infections do not respond to antibiotics. The body's white cells, which are part of the immune system, destroy the virus.<br>People who have been vaccinated against certain conditions will be more resistant to them because antibodies that destroy the virus have been naturally produced by the body. |

| | | | | |
|---|---|---|---|---|
| **Fungal** | A fungal infection occurs when an invading fungus enters the body and cannot be overcome by the immune system. | Symptoms will usually be visible and may include:<br>• Inflamed skin<br>• Skin rash<br>• Peeling and cracking skin<br>• Skin oozing<br>• Itching and swelling. | • Athlete's foot<br>• Ringworm<br>• Nail infections.<br><br>In serious cases, fungi can infect the lungs or nervous system, but this is very rare. | Topical medication, such as creams and ointments, can be applied to the skin in the affected area.<br><br>Anti-fungal medication can also be useful. It is usually taken orally but can be administered intravenously if the infection is very serious. |

Bacterial growth

**Source:** ***https://www.smithsonianmag.com/innovation/instead-killing-bacteria-can-we-just-turn-off-its-ability-to-cause-infections-180967533/***



Virus replication

**Source:** ***https://www.sciencedaily.com/releases/2010/02/100218203053.htm***

Fungal infection

**Source:** ***http://www.humanillnesses.com/original/E-Ga/Fungal-Infections.html***

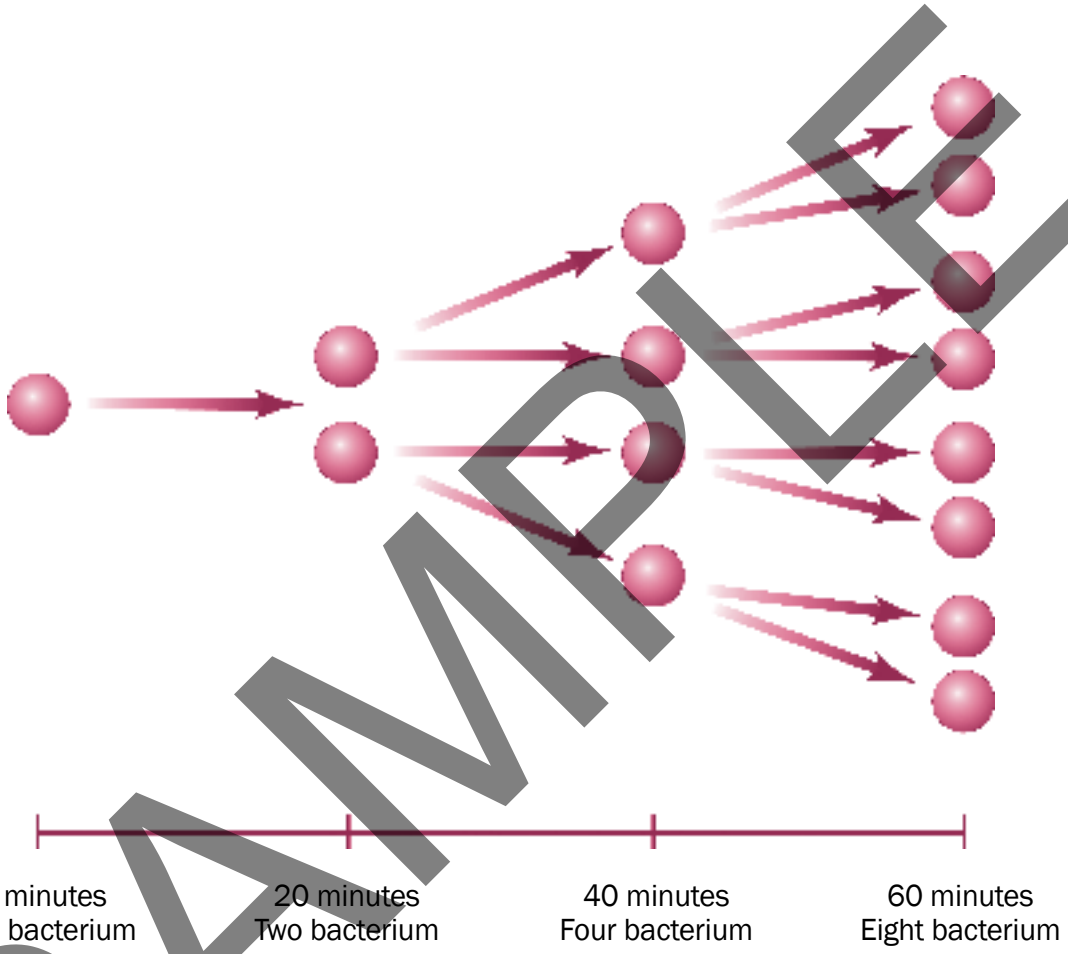


## Key Fact

**Although very common (hence the name the 'common cold'), no vaccination against this condition has been successfully created as there are more than 100 different types.**

## The ideal conditions for bacterial growth

In the correct conditions, bacteria can multiply rapidly. Each bacterium has the potential to split into two every 20 minutes – which means that within an hour, eight bacteria will have been produced by a single bacterium.




Bacterial growth rate

**Source:** ***http://www.bbc.co.uk/schools/gcsebitesize/science/21c/keeping_healthy/disease_resistancerev2.shtml***

The ideal conditions needed for bacterial growth include:

- **Warmth**: although some bacteria are known to be able to survive in very hot or very cold temperatures, most will thrive where the temperature is between 5 °C and 57 °C. The human body is an ideal environment for bacteria to grow because it should be a constant temperature of around 37 °C. Food is also a very good source on which bacteria can thrive, which it is why it is necessary to cook foods at certain temperatures before serving it to kill off potentially harmful bacteria and prevent food poisoning.
- **Moisture**: 70% of a bacterial cell is made up of water, and although the cell can survive for long periods without water, it will not be able to grow and reproduce. Bacteria can thrive in the human body where water is abundant, and they can also grow in food, which is then consumed, and the bacteria then allowed to reproduce again.
- **Nutrients**: bacteria will grow where there is an available source of oxygen, carbon, nitrogen and phosphorous (all of which are present in the human body). Bacteria also thrive in environments that are not too acidic and not too alkaline, which, again, is why the human body provides a good environment for bacteria to grow, as the pH level in humans is near neutral.

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## Activity 1: True or false

**Carry out some research to find out whether the five statements below are true or false.**

| | True | False |
|---|---|---|
| **1. Some forms of bacteria are shaped like a spiral.** | ☐ | ☐ |
| **2. Antibiotics can help to cure all kinds of infections.** | ☐ | ☐ |
| **3. Viral infections are not dangerous as the body can cure them itself.** | ☐ | ☐ |
| **4. Food will have all its bacteria killed if it is frozen.** | ☐ | ☐ |
| **5. Humans have more bacteria in their mouths than there are humans on the planet.** | ☐ | ☐ |

Check your answers at the end of this workbook.

## What is meant by direct and indirect transmission of infection

The word 'transmission' is a way of explaining how something gets from one place to another. It is a key term in biology because it helps in understanding how infections are contracted and how they are spread to others.

Infection is transmitted either:

- Directly; or
- Indirectly.

Both methods of transmission mean that someone has developed an infection, but the way in which it has been passed to them is different.

### Direct transmission of infection and how it occurs

Direct transmission of infection means that it has been passed from one person to another because their bodies have touched in some way, or because droplets during coughing and sneezing have been sprayed onto or close to someone else.

Family members will usually be susceptible to direct transmission of infection, which is why when someone in a household gets a cold, for example, most of the other members of the family who live in the same house will contract it as well.

Other ways in which direct transmission of infection can occur include:

- Infection being passed from a mother to her unborn baby via the placenta
- Contact with cuts, scratches and other lesions in the skin
- Contact with bodily fluids, such as blood and saliva.

## Indirect transmission of infection and how it occurs

Indirect transmission occurs when an infection is passed to a person in a way other than body contact or via directly sprayed droplets onto or near a person.

Infection via indirect transmission may occur via:

- **Airborne transmission**: this is where droplets are sprayed into the air, but they remain suspended there for an extended period of time. For example, people can contract illnesses like measles by entering a room after someone who has the condition has left because the infection remains in the air.
- **Contaminated objects**: these can host sources of infection for a short time, but if a person has touched multiple surfaces, the infection could be present on them all. Examples include:
  - Door knobs
  - Hand rails
  - Taps
  - Cutlery and crockery
  - Musical instruments
  - Computer keyboards
  - Toys.
- **Food**: this is a common source of infection if it has not been cooked properly or handled in the correct way. Water can also be a source of infection, which is common when people go to locations to which they are unfamiliar and their body is not used to the bacteria that the water may contain.
- **Vector-borne transmission**: this involves infection from insects. For example, malaria is caused by being bitten by mosquitoes and Lyme disease is caused by tick bites.



### Key Fact

**Infections can be caused by either direct or indirect transmission, and there are several different ways by which each can occur.**

## Let's Summarise!

**Take a few moments to answer the following questions to help you summarise what you have learnt in this section. This will help you answer the upcoming assessment questions.**

**1. Viral infections can be cured by antibiotics?**

**True** ◯ **False** ◯

**2. How many bacteria can be made by a single bacterium in an hour?**

**3. State one way in which indirect transmission of infection can occur.**



Check your answers by looking back over this section.

**CONGRATULATIONS, YOU HAVE NOW COMPLETED SECTION 1. PLEASE NOW GO TO YOUR ASSESSMENTS AND ANSWER QUESTIONS Q1 TO Q3.**

## Section 2: Ways to minimise cross-infection when working with babies and young children

This section will explore the following:

- How specific factors contribute to effective hygienic practice, including personal hygiene, cleanliness routines in the setting, and heating and ventilation
- How specific factors contribute to the prevention of infection in an early years setting, including hand washing techniques, hand washing routines and supporting young children with independent care routines
- The stages involved in sterilising feeding equipment for babies under 12 months of age and preparing formula feed
- How personal protective equipment (PPE) should be used to reduce the spread of infection in an early years setting
- Mandatory practice for handling and disposing of waste including bodily fluids.

## How specific factors contribute to effective hygienic practice, including personal hygiene, cleanliness routines in the setting, and heating and ventilation

There are several methods by which people can stay safe from infection and effectively reduce its transmission. It is beneficial for anyone to be aware of the ways in which infection can be spread so that they can put personal strategies into place and apply these in other places too, such as their place of work.

### Personal hygiene

This section will explore the following: Personal hygiene refers to the action of someone keeping themselves clean and well-groomed. Having good personal hygiene is important because it reduces the possibility of someone becoming ill and spreading infection to others (as well as making people feel good about themselves too).

Aspects of personal hygiene include:

- Showering or having a bath
- Hair washing
- Putting on deodorant and possibly perfume
- Cleaning dirty nails
- Washing hands after going to the toilet
- Brushing teeth
- Cleansing and moisturising skin
- Having a hair cut
- Having clean clothes.

Lack of personal hygiene routines can encourage bacterial growth and some infections may be caused because of this. For example:

- Not washing hands can cause the spread of most infections, particularly colds and gastrointestinal infections such as gastroenteritis
- Poor dental hygiene can lead to infections of the gums and mouth, and the bacteria growing inside the mouth will cause bad breath
- Unwashed clothes provide an ideal environment for bacterial growth and this may lead to skin infections.

Some people may have poor personal hygiene because they are not aware of the consequences of this. Some may have poor mental health and are therefore susceptible to self-neglect, whilst others may be living with dementia and personal hygiene routines are forgotten or confusing. People who do not have good personal hygiene routines put themselves and others at greater risk of contracting infections.

## A Activity 2: Your personal hygiene routine

**Take a moment to consider your own personal hygiene routine. What do you do on a daily, weekly and monthly basis that ensures you are at less risk of developing infections?**

**Daily:**

**Weekly:**

**Monthly:**



## i Key Fact

**Good personal hygiene is one of the most effective ways that people can protect themselves and others from many infections.**

## Cleanliness routines in the setting

As part of their adherence to appropriate health and safety legislation, workplace settings are obliged to maintain a clean environment in order to protect their employees and anyone else who may visit the setting. When cleanliness routines are strictly adhered to, this means that the chances of staff and children becoming unwell are drastically reduced because the bacteria that causes illness will be destroyed and not given the chance to reproduce.

Since bacteria can exist in any place where they can multiply, particularly areas which are damp, warm and used for food storage and preparation, a cleaning routine should be consistent and be carried out with appropriate chemicals – all of which should be stored safely.

A setting's normal cleaning routine will likely include:

- Vacuuming carpets
- Mopping tiled floors
- Dusting shelves and other places where dust will gather
- Regularly disinfecting areas more susceptible to bacterial growth, such as toilets, desks, computer keyboards and mice, and phones
- Emptying rubbish bins daily
- Opening windows where possible to ensure air is circulating
- Thorough washing of cutlery and crockery that is used communally
- Wiping door handles with antibacterial wipes
- Clearing out fridges at least once a week.

In an early years setting, it is also very important that the following routines are adhered to:

- Toys are disinfected regularly
- High chairs are disinfected regularly
- Soiled nappies and other items containing bodily fluid and waste are disposed of in line with relevant guidance
- Bedding and towels are washed at high temperatures and never shared between children
- Some items used for specific play should be disposed of after use, such as playdough.

Other important aspects of keeping a setting clean and hygienic include:

- Ensuring that soap and/or hand sanitiser is available for all employees
- Encouraging employees to have good hand washing techniques and routines
- Preventing items from being shared wherever possible
- Having a 'deep clean' of the setting at least twice per year
- Ensuring that employees who have had an infection, especially those which spread easily (such as norovirus), stay absent from work for at least 48 hours.

### Key Fact

**Having specific practices in place for good cleanliness and good hygiene can help to ensure that employees stay safe from infection whilst they are at work, which decreases levels of absenteeism.**

## Heating and ventilation

As bacteria can grow in places where the heat is at an optimum temperature, it is important that this does not contribute to the production and spread of infection within a setting. Similarly, places that have poor ventilation allow bacteria to thrive, so it is important that both heating and ventilation are properly maintained.

Heating and ventilation are linked; the heat in a room becomes trapped if clean and cooler air is not allowed to circulate through ventilation. Bacteria will grow in places where the air quality is poor, and this leads to increases in incidents of airborne infections.

Any bacteria that grow inside a heating or ventilation system will be routinely blown out into the air once either of these is switched on. Therefore, it is important that both are adequately maintained so that they do not contribute to the spread of infection.

Rooms which are adequately ventilated will also be less susceptible to growth of mould, which may be a contributing factor in the onset of fungal infections – for example, if mould is touched by someone who has a cut on their finger. Mould can also contribute to the onset of a fungal infection if mould spores are inhaled from the air and then settle in a person's respiratory tract. This can cause very serious lung infections that can be very difficult to treat.

R

## Further Research: Cumbria and Legionnaires' Disease

**In 2002, there was an outbreak of Legionnaires' disease in Barrow-in Furness, Cumbria, which subsequently killed seven people and caused 180 others to become unwell. The source of the outbreak was identified as bacteria in an air conditioning unit in the town centre which had not been adequately maintained.**

**Legionnaires' disease is caused by bacteria being present in a water source, and although this would be unlikely in an early years setting, the possibility of it developing can never be discounted if unhygienic practices occur.**

**You can read more about the hospital incident here:**

***http://www.hse.gov.uk/legionnaires/barrow.htm***

**And you can read more about Legionnaires' Disease here:**

***https://www.nhs.uk/conditions/legionnaires-disease/***

## How specific factors contribute to the prevention of infection in an early years setting, including hand washing techniques, hand washing routines and supporting young children with independent care routines

An early years setting is one that caters for children from birth up to the age of five, and may include nurseries, schools and child minding settings. In accordance with the Early Years Foundation Stage (EYFS) guidance, standards are set for the development and care of children, and this includes protecting them from harm – such as preventing them from developing illnesses that might otherwise have been avoided.



**R** **Further Research: EYFS guidance**

**The guidance for EYFS settings is quite extensive, but you can read more about specific types of guidance relating to various aspects of care and development here:**

***https://www.foundationyears.org.uk/eyfs-statutory-framework/***

## Hand washing techniques

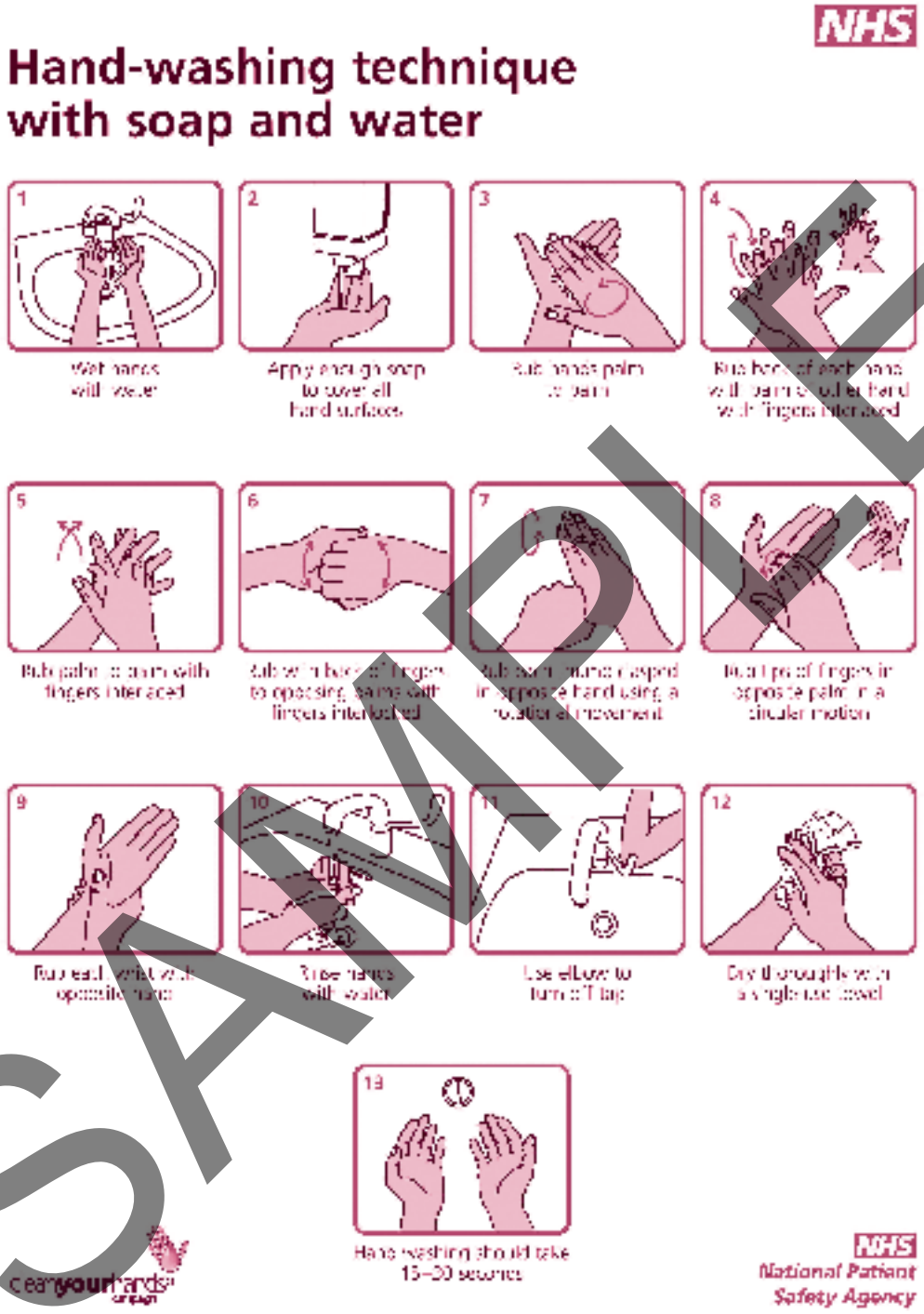
This aspect of infection control is very important, and all staff who work in an early years setting should be aware of correct hand washing techniques and routines.

The NHS advises the following procedure to ensure that hands are thoroughly cleansed (although this guidance was made for healthcare workers, the technique is transferable to any setting):

- The tap should first be turned on and the temperature of the water checked
- Water should be warm
- Hands should be wet before applying the chosen solution
- Apply solution provided
- Manufacturers' instructions for the solution being used should give guidance as to the volume to be applied (this is usually in the region of 3mls)
- A good lather is required to perform adequate hand hygiene
- All areas of the hands should be covered
- The hand washing procedure should take at least 15 seconds
- Hands should be rinsed well under running water with the hands uppermost so that the water runs off the elbow
- Tap should be turned off with the elbow where possible
- Hands should be adequately dried using disposable paper towels.

**Source:** ***http://archive.nhsprofessionals.nhs.uk/Download/CG1%20NHSP%20Standard%20Infection%20Prevention%20and%20Control%20Guidelines%20V5%20March%202016.pdf***

The following diagram shows the correct technique for washing hands with soap and water:






**Source:** ***http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/prod_consum_dh/idcplg?IdcService=GET_FILE&dID=149685&Rendition=Web***

Hands that are not washed properly will almost certainly still have bacteria on them, such as under a ring or between the fingers, and these can then be transferred even though the member of staff may genuinely believe that they have washed their hands properly.

R

## Further Research: Hand washing techniques

**You can watch how this technique is carried out on the link below, which shows best practice for hand washing:**

***https://www.youtube.com/watch?v=aGJNspLRdrc***

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## Activity 3: Hand washing

**Use the techniques in the diagram and video above to wash your own hands so that you get used to using the most effective method of doing this.**