# Health and Social care – Infection

# 1 of 2 - Welcome

Welcome to this session on infection in health and social care.

In this session we will be exploring:

* Causes of infection
* Infection safety
* The spread of infection

# 2 of 2 – End

Well done, you have now completed this session on infection in health and social care.

You should now understand:

* Causes of infection
* Infection safety
* The spread of infection

# 1 of 17 – Causes of infection

Welcome to this session on causes of infection.

In this session, we will be covering:

* The importance of knowing about the causes of infection
* The causes of infection
* Bacteria
* Viruses
* Fungi
* Parasites

# 2 of 17 – Why is it important to know about the causes of infection?

Health and Social Care workers have a duty of care to protect service users and others from harm, including harm from infectious disease.

All health and social care workers first need to understand the causes of infection. They can then understand how infection is spread from one person to another and learn about actions that can be taken to reduce the likelihood of infection spreading.

In this session we will be focusing on the first stage – understanding the causes of infection.

# 3 of 17 – The causes of infection

What is an infection?

An infection is an invasion of micro-organisms into the body which causes harm.

Micro-organisms that cause infection are known as pathogens and include:

* Bacteria
* Viruses
* Fungi
* Parasites

Each of these four types of micro-organisms have different characteristics.

# 4 of 17 – Bacteria

Bacteria are simple micro-organisms that are made up of just one cell.

They are capable of reproducing by themselves through a process of growing to twice their original size and splitting into two. Those two cells can then split into two more.

Conditions have to be right for this process of reproduction to happen. Under the right conditions bacteria can divide and multiply rapidly.

Click [here](https://www.youtube.com/embed/gEwzDydciWc?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch a short video to see how bacteria multiply.

# 5 of 17 – Types of bacteria

Bacteria can have pathogenic and non-pathogenic strains.

Pathogenic bacteria are capable of causing infection and disease.

Non-pathogenic bacteria are harmless and some are even useful.

For example, most strains of E. coli do not cause us harm. However, E. coli O157:H7 can cause food poisoning!

# 6 of 17 – Question 1

Are the following types of bacteria pathogenic or non-pathogenic?

* Bacteria that cause eye infections
* Bacteria used to make yoghurt
* Bacteria used to grow crops
* Bacteria that cause a sore throat
* Bacteria that cause skin infections
* Bacteria in our intestinal tracts which aid digestion

Answers:

Pathogenic bacteria:

* Bacteria that cause eye infections
* Bacteria that cause a sore throat
* Bacteria that cause skin infections

Non-pathogenic bacteria:

* Bacteria used to make yoghurt
* Bacteria in our intestinal tracts which aid digestion
* Bacteria used to grow crops

# 7 of 17 – Diseases and infections caused by bacteria

Some bacterial infections make people very ill, and others only have a mild effect.

Here are some examples of diseases and infections caused by bacteria:

* Bacterial meningitis
* Eye infections
* Ear infections
* Sinusitis
* Pneumonia
* Urinary tract infection
* Upper respiratory infection
* Skin infections
* Food poisoning

And many more.

# 8 of 17 – Question 2

The most common treatment for bacterial infections is antibiotics.

An antibiotic is a substance from a micro-organism that is used to either destroy other micro-organisms or prevent their growth.

Fill in the missing words to explain some of the problems with antibiotics.

Words: believed, growth, rise, problems, affect, resistant, place, harmless

Bacteria can become **blank** to antibiotics. Bacteria can mutate (change) so the antibiotic doesn’t **blank** them.

Antibiotics can destroy **blank** bacteria, allowing harmful bacteria to take their **blank**.

Over-use of antibiotics is **blank** to have led to the **blank** of super-bugs such as MRSA.

Answers:

Bacteria can become **resistant** to antibiotics. Bacteria can mutate (change) so the antibiotic doesn’t **affect** them.

Antibiotics can destroy **harmless** bacteria, allowing harmful bacteria to take their **place**.

Over-use of antibiotics is **believed** to have led to the **rise** of super-bugs such as MRSA.

# 9 of 17 – Viruses

A virus is a micro-organism that can infect any type of cell including bacteria, animal cells, fungi, human cells and plants.

Viruses cannot multiply on their own so they have to invade a ‘host’ cell and take over the genetic material responsible for reproduction.

Viruses can be found in:

* The air
* The environment
* Water

To learn more about viruses, click [here](https://www.youtube.com/embed/7KXHwhTghWI?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch the video.

You may wish to take notes.

# 10 of 17 – Diseases and infections caused by viruses

Some viral infections make people very ill, and others only have a mild effect.

Here are some examples of diseases and infections caused by viruses:

* Colds
* Glandular fever
* Influenza
* Herpes
* Chickenpox
* Hepatitis A
* Cold sores
* Norovirus
* Measles

And many more.

# 11 of 17 – Treating viruses

Some viral infections can be treated with anti-viral drugs.

However, viruses are NOT affected by antibiotics.

To get rid of a virus, the cell which has been invaded by the virus has to be destroyed, which results in damage to the cells themselves.

Doctors can usually only treat the symptoms of a viral infection as there are currently no cures.

# 12 of 17 – Fungi

Fungi include yeasts and moulds.

A fungus is normally found as a single cell and has a variety of shapes and sizes. It is a simple plant called a eukaryotic.

Fungi reproduce via spores.

Fungi do not make their own food. Instead they get their nutrition by breaking down the remains of dead plants or animals.

Click [here](https://www.youtube.com/embed/wweymhAuXG8?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch this video and find more about fungi.

You may wish to take notes.

# 13 of 17 – Diseases and infections caused by fungi

Infections caused by fungi include:

* Athlete’s foot
* Ringworm
* Thrush

Treating fungal infections:

Mild fungal infections may not require treatment as they will get better on their own. However, there are a range of anti-fungal medicines that can be used to treat more persistent infections. An employer

# 14 of 17 – Parasites

Parasites are organisms that need a host to complete their life cycle. Generally, specific parasites need specific hosts. Parasites can be found in:

* Soil
* Air
* Water
* Animals

# 15 of 17 – Diseases and infections caused by parasites

Infections caused by parasites include:

* Malaria
* River blindness
* Sleeping sickness
* Lyme disease
* Scabies

# Treating parasitic infections:

# Not every parasitic infection has a treatment.

# However, many can be treated with medication.

# 16 of 17 – Question 3

Match up the key terms with their definitions.

Key terms: Pathogen, Bacteria, Virus, Fungi, Parasites

Definitions:

1. Micro-organisms that cannot multiply on their own so have to invade a ‘host’ cell
2. Micro-organisms that are made up of one cell and can reproduce themselves
3. A micro-organism that causes diseases in humans
4. Yeasts and moulds that can cause infections in humans
5. Organisms that need a host to complete their life cycle

Answers:

1. Virus
2. Bacteria
3. Pathogen
4. Fungi
5. Parasites

# 17 of 17 – End

Well done. You have completed this session on the causes of infection.

In this session, we have covered:

* The importance of knowing about the causes of infection
* The causes of infection
* Bacteria
* Viruses
* Fungi
* Parasites

If you are unsure or have any questions about any of these topics, make a note and speak to your tutor for more help.

# 1 of 24 – Infection safety

Welcome to this session on infection safety.

In this session, we will be covering:

* The importance of knowing about infection safety
* Common causes of the spread of infection
* Poor hand hygiene
* Hand washing
* Cleaning procedures
* Personal protective equipment (PPE)
* Bed linen and clothing
* Handling food
* Airborne infections

# 2 of 24 – Why is it important to know about the causes of infection?

Health and Social Care workers have a duty of care to protect service users and others from harm, including harm from infectious disease.

All health and social care workers first need to understand the causes of infection. They can then understand how infection is spread from one person to another and learn about actions that can be taken to reduce the likelihood of infection spreading.

# In this session we will be focusing on actions that can be taken to reduce the likelihood of infection spreading.

# 3 of 24 – Question 1

In this session we will be using the following key terms.

Match the term with its definition.

Terms: Infection, Micro-organisms, pathogens

Definitions:

1. An invasion of micro-organisms into the body which causes harm.
2. Micro-organisms that cause infection
3. Living organisms so small that they cannot be seen without the use of a microscope

Answers:

Infection: An invasion of micro-organisms into the body which causes harm.

Micro-organism: Living organisms so small that they cannot be seen without the use of a microscope

Pathogen: Micro-organisms that cause infection

# 4 of 24 – Common causes of the spread of infection

The most common causes of spread of infections in health and social care settings are:

* Poor hand hygiene
* Poor hand cleaning procedures
* Incorrect use of personal protective equipment (PPE) such as gloves and aprons
* Contaminated bed linen or clothing
* Infected food handlers (those who prepare and serve food or support people to eat and drink)
* Airborne infection (such as colds and flu)

# 5 of 24 – Poor hand hygiene

People carry millions of micro-organisms on their hands.

Most are harmless (non-pathogenic) but others can cause infection (pathogenic).

We can spread these pathogens to:

* Ourselves (by touching our eyes, mouths, nose or cuts on the body with our hands)
* Others (through direct touch or through cross-contamination)

Direct contact is when we touch another person with our hands. The pathogens move directly from our skin to the other person.

Cross-contamination is where the pathogenic organisms move from their source to another location and then to a person. For example, pathogens can be picked up by touching door handles, wheelchair handles and taps that have been touched by another person who has not washed their hands.

Click [here](https://www.youtube.com/embed/M8AKTACyiB0?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch a video on how easily infection can be spready by the hands.

# 6 of 24 – Question 1

Do you know the facts about hand hygiene?

Read the following statement and decide if it is true or false.

The majority of people wash their hands after using a public toilet.

Answer:

True. Most people do wash their hands after using a public toilet, although a surprising 20% of women and 40% of men don’t.

# 7 of 24 – Question 3

Do you know the facts about hand hygiene?

Read the following statement and decide if it is true or false.

People spend the same amount of time washing each hand.

Answer:

False. A right-handed person will wash their left hand more thoroughly, and a left-handed person will wash their right hand more thoroughly.

# 8 of 24 – Question 4

Do you know the facts about hand hygiene?

Read the following statement and decide if it is true or false.

Pathogens can stay on your hands for up to three hours.

Answer:

True. Pathogens can stay on your hands for up to three hours, and can be passed on to other people during that time.

# 9 of 24 – Question 5

Do you know the facts about hand hygiene?

Read the following statement and decide if it is true or false.

Wearing a watch protects the skin from pathogens.

Answer:

False. Millions of pathogens hide under watches.

# 10 of 24 – Hand washing

Correct hand washing reduces the risk of spreading infection.

However, most people don’t wash their hands correctly.

Click [here](https://www.youtube.com/embed/mWe51EKbewk?autoplay=1&rel=0&start=0&end=70&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch a short video on the effects of incorrect hand washing.

# 11 of 24 – Hand washing

Please download the associated PDF to see the poster that shows the correct steps for hand washing.

Click [here](https://www.youtube.com/embed/KusIuq8wu_0?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch see the correct way to wash your hands being demonstrated.

# 12 of 24 – Cleaning procedures

Cleaning procedures are another method of reducing the risk of infection.

Cleaning procedures for the individual setting must be followed, including, the use, washing and disposal of colour-coded materials.

However, poor cleaning procedures can increase the risk of infection if pathogens are moved from their source and into the environment.

Cross-contamination can occur if pathogens are passed from their source to another area on hands or cleaning materials such as cloths or mops.

# 13 of 24 – Personal protective equipment

# Personal protective equipment (PPE) is equipment that will protect the user against health or safety risks, including the spread of infection, at work.

PPE used to prevent the spread of infection includes:

* Gloves
* Aprons
* Masks
* Hair nets

# 14 of 24 – Personal protective equipment

PPE should be used:

* During personal care
* When handling waste
* For each change of activity
* For any task where there is an increased risk of coming into contact with pathogens

If PPE is not used and disposed of correctly it can increase the risk of infection. For example, if a health and social care worker does not change their gloves between cleaning a toilet and preparing food, cross-contamination will occur where the pathogens from the toilet will be transferred to the food.

# 15 of 24 – Bed linen and clothing

Health and social care workers can become infected or cause cross-contamination when dealing with soiled bed linen and clothing if they do not use personal protective equipment such as gloves and aprons.

Pathogenic micro-organisms may still be present even if there is no visible blood, urine or faeces.

Click [here](https://www.youtube.com/embed/wl-8FaIruAk?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to see watch a video and see an example of soiled bed linen being collected safely. Watch carefully to see what steps are taken to make sure the pathogens are not spread.

# 16 of 24 – Question 6

Fill in the gaps below to complete the description of what you have just seen in the video.

Choose from the words below.

Words: laundry bag, gloves, personal protective equipment, mattress, hands

The worker wore **blank** a form of **blank**, to protect their **blank**. They gathered up the soiled bed linen, being careful not to touch the **blank** unnecessarily. The soiled bed linen was then put into a **blank** and disposed of safely.

Answers:

The worker wore **gloves** a form of **personal protective equipment**, to protect their **hands**. They gathered up the soiled bed linen, being careful not to touch the **mattress** unnecessarily. The soiled bed linen was then put into a **laundry bag** and disposed of safely.

# 17 of 24 – Handling food

Bacteria can cause food-borne illness, so safe food handling procedures are important for preventing the spread of infection.

When food is kept warm (between 5 degrees Celsius and 63 degrees Celsius) bacteria can rapidly grow.

The main causes of food-borne illnesses are:

* Not cooking food thoroughly
* Pathogens being present on hands when they touch food
* Leaving food in warm temperatures for too long
* Not storing food correctly
* Eating food that is past its use-by-date
* Cross-contamination (such as bacteria from raw meat coming into contact with food that will not be cooked)

# 18 of 24 – Question 7

Some people are particularly vulnerable to food-borne illnesses.

Select from the list below which four types of people would be most affected.

* Children and babies
* Pregnant women
* Teachers
* Students
* Older people
* People with existing health problems

Answers:

The correct answers are children and babies, pregnant women, older people and people with existing health problems. This is because they are less able to fight off infection.

# 19 of 24 – Airborne infections

Airborne infections such as colds and flu can be spread by coughing and sneezing.

Health and social care workers must take care if they have a cough or cold that they do not spread infection, especially if they might put vulnerable service users at risk.

Airborne infections can be prevented by:

* Coughing or sneezing into a tissue which is then disposed of safely
* Washing hands after each cough or sneeze
* Avoiding preparing or serving food if you have a cough or cold

# 20 of 24 – Question 8

A health care assistant picks up pathogens by touching a door handle that has been touched by another worker who has not washed their hands.

What is this an example of?

* Cross-contamination
* Direct contact
* Spreading pathogens to ourselves

Answer:

Cross-contamination

# 21 of 24 – Question 9

Which part of the hand is a person most likely to miss if they are not following the correct hand washing procedure?

* Index finger
* Palm
* Thumb

Answer:

Thumb.

# 22 of 24 – Question 10

Match the missing steps to show the correct procedure for hand washing.

Missing steps:

* Apply soap
* Rinse hands with water
* Use elbow to turn off tap
* Rub the back of each hand with fingers interlaced
* Rub each thumb clasped in opposite hand using a rotational movement
* Dry thoroughly with a disposable towel

Steps:

1. Wash hands with water
2. **Blank**
3. Rub hands palm to palm
4. **Blank**
5. Rub palm to palm with fingers interlaces
6. Rub with back of fingers to opposing palms with fingers interlocked
7. **Blank**
8. Rub tips of fingers in opposite palm
9. Rub each wrist with opposite hand
10. **Blank**
11. **Blank**
12. **Blank**

Answers:

2. Apply soap

4. Rub the back of each hand with fingers interlaces

7. Rub each thumb clasped in opposite hand using a rotational movement

10. Rinse hands with water

11. Use elbow to turn off tap

12. Dry thoroughly with a disposable towel

# 23 of 24 – Task

Download the associated PDF and use the knowledge you have gained during this session to complete the task.

Remember, if you are stuck, you can go back through the session.

Make sure you save your work!

# 24 of 24 – End

Well done. You have completed this session on infection safety.

In this session, we have covered:

* The importance of knowing about infection safety
* Common causes of the spread of infection
* Poor hand hygiene
* Hand washing
* Cleaning procedures
* Personal protective equipment
* Bed linen and clothing
* Handling food
* Airborne infections

If you are unsure or have any questions about any of these topics, make a note and speak to your tutor for more help.

# 1 of 15 – Spread of Infection

Welcome to this session on the spread of infection.

In this session, we will be covering:

* The importance of knowing about the spread of infection
* Types of infection
* Colonisation and infection
* The spread of infection
* Vulnerability to infection
* Conditions needed for bacterial growth
* Routes of infection

# 2 of 15 – Why is it important to know about the spread of infection?

Health and Social Care workers have a duty of care to protect service users and others from harm, including harm from infectious disease.

All health and social care workers need first to understand the causes of infection. They then need to understand how infection is spread from one person to another and actions that can be taken to reduce the likelihood of infection spreading.

In this session we will be focusing on understanding how infection is spread from one person to another.

# 3 of 15 – Question 1

In this session we will be using the following key terms:

Infection, Micro-organisms, Pathogens

Match each term with its definition.

1. An invasion of micro-organisms into the body which causes harm
2. Micro-organisms that cause infection
3. Living organisms so small that they cannot be seen without the use of a microscope

Answers:

Infection: An invasion of micro-organisms into the body which causes harm.

Micro-organism: Living organisms so small that they cannot be seen without the use of a microscope

Pathogen: Micro-organisms that cause infection

# 4 of 15 – Question 1

There are two types of infection, systemic and local.

Match the following descriptions to the infection type.

1. This is an infection that is restricted to a specific location of the body, for example, an infected wound.
2. This is when an infection has spread through different systems of the body, for example, the digestive, respiratory or circulatory systems.

Answers:

Localised infection: This is an infection that is restricted to a specific location of the body, for example, an infected wound.

Systemic infection: This is when an infection has spread through different systems of the body, for example, the digestive, respiratory or circulatory systems.

# 5 of 15 – Question 3

There are two types of infection, systemic and local.

Are the following examples systemic or local viruses?

1. Conjunctivitis
2. Cold

Answers:

A viral cold can cause a runny nose, sinus congestion, a cough and body aches. Because it affects many parts of the body it is systemic.

Viral conjunctivitis only affects the eye so it is local.

# 6 of 15 – Colonisation and infection

Do you know the difference between infection and colonisation?

Infection means that a micro-organism is present and is causing illness.

Colonisation means that a micro-organism is present in or on the body but is not causing illness. However, a colonisation can develop into an infection.

Here is an example:

An individual has become exposed to the micro-organism MRSA and they become colonised.

This colonisation may:

* Continue harmlessly
* Clear up
* Develop into an infection

# 7 of 15 – The spread of infection

Micro-organisms that cause infection may come from:

Ourselves: micro-organisms can move from one part of the body to another and cause infection

Other people: micro-organisms from other people can be spread by touch.

The environment: micro-organisms can be spread from contaminated material in the environment such as food, equipment, surfaces, laundry or even dust

# 8 of 15 – The spread of infection - continued

The spread of infection

Unfortunately, people can be infectious and not realise it because they haven’t developed any symptoms. They may spread pathogenic micro-organisms to others without meaning to.

Click [here](https://www.youtube.com/embed/e-3Li7iMqMM?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch a video and see how infections spread.

Cross-contamination

Infectious disease can be spread from person to person by cross-contamination or direct contact. Cross-contamination is where the pathogenic organisms move from their source to another location and then to a person.

Click [here](https://www.youtube.com/embed/9Yh8CW53tm4?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0) to watch a video and see how cross-contamination can occur.

# 9 of 15 – Question 4

Some people are more prone to infection than others.

Which of the following do you think might be vulnerable to infection?

You can choose more than one.

* Children
* Babies
* Older people
* Farmers
* People with existing health conditions
* Office workers

Answers:

The correct answers are children, babies, older people and people with existing health conditions. They are more likely to be affected by infections because their immune systems are less able to fight off the infection.

# 10 of 15 – Conditions needed for bacterial growth

To multiply and reproduce, bacterial micro-organisms need the following conditions:

Moisture: Bacteria need moisture to stay alive and reproduce. Most food, skin or damp areas of the environment will provide the right atmosphere for bacteria to multiply.

Nutrients: Bacteria need nutrients to stay alive. If bacteria have enough of the right kind of nutrients they will multiply. Some bacteria can make their own food from sunlight. Other bacteria absorb food from the material they live on or in.

Warmth: The ideal temperature for bacteria to multiply is around 37 degrees Celsius. If it is too hot or too cold bacteria will slow down or stop multiplying. However, once the temperature is more suitable they will continue to multiply.

Time: Bacteria need time to reproduce. If they have the right moisture, nutrients and warmth, bacteria can multiply very quickly.

# 11 of 15 – Routes of infection

There are four main ways that infection can enter the body:

The respiratory tract: Airborne pathogens can be breathed in through the nose, down the windpipe and into the lungs.

Broken skin: The skin provides protection against infection. However, if it is broken by bites, scratches, puncture wounds or dry chapped skin that breaks down, then infection can enter the body.

The digestive tract: Infected food, drink or other products can be swallowed. Infection enters the body via the mouth and can spread to the stomach or intestines.

The urinary and reproductive systems: Infections that enter the body here may remain localised or enter the blood stream and become systemic.

# 12 of 15 – Question 5

A care worker has become ill with a cough and cold.

What is the most likely route of infection?

* The respiratory tract
* Broken Skin
* The digestive tract
* The urinary and reproductive systems

Answer:

# The correct answer is the respiratory tract. The care worker is likely to have inhaled the airborne pathogens that caused the cough and cold.

# 13 of 15 – Question 6

A service user has developed a urinary tract infection after having a catheter fitted.

What is the most likely route of infection?

* The respiratory tract
* Broken Skin
* The digestive tract
* The urinary and reproductive systems

Answer:

# The correct answer is the urinary system. The pathogenic micro-organisms are likely to have been carried into the urinary tract of the service user as part of the catheterisation procedure.

# 14 of 15 – Task

Download the associated PDF and use the knowledge you have gained during this session to complete the task.

All the information you need to answer the questions are in this session.

Make sure you save your work!

# 15 of 15 – End

Well done. You have completed this session on the spread of infection.

# In this session, we have covered:

* The importance of knowing about the spread of infection
* Types of infection
* Colonisation and infection
* The spread of infection
* Vulnerability to infection
* Conditions needed for bacterial growth
* Routes of infection

If you are unsure or have any questions about any of these topics, make a note and speak to your tutor for more help.