**Unit 3**

**PREVENTION AND CONTROL OF INFECTION**

**STRUCTURE**

1.0 Learning points

1.1 Introduction

1.1.1 Pathogenic organisms

1.1.2 Vulnerable people

1.2 Chain of infection

1.3 Breaking the chain

1.3.1 Hand hygiene

1.3.2 Personal Protective Equipment (PPE)

1.3.3 Soiled linen

1.4 Caregivers’ Safety from Infections

1.4.1 Wearing and Taking Off Gloves

1.5 Hygienic Environment

**1.0 Learning points**

* Describe how to prevent the spread of infection
* Understand why clean environment is important for the health and safety of the person under your care
* Understand the measures to maintain a clean and hygienic environment
* understand the measures to protect Caregivers’ from Infections
  1. **Introduction**

Infection and infectious diseases in humans are caused when harmful germs, known as pathogens, enter the body and multiply. These micro-organisms are so small they can only be seen by using a microscope

**Pathogens:** A pathogen is something that causes a disease.

**Pathogenic organisms can be:**

* Bacteria- can multiply quickly at body temperature and reach harmful levels very fast. Examples of harmful bacteria include meticillin-resistant Staphylococcus aureus (commonly known as MRSA) and Clostridium difficile (known as C.Diff or C. Difficile). These two types of bacteria caused, or contributed to, 9000 deaths in hospitals or primary care in 2007.
* Viruses- can survive on surfaces and in food but can only multiply in living cells. It takes very few virus organisms to cause illness. They can be spread from person-to-person and from environment-to-food. Examples of viruses include Norovirus (also known as ‘winter vomiting disease’) and Influenza (the flu virus).
* Fungi-are organisms which live on hosts that can be alive or dead. Examples of fungal infections include athlete’s foot and ringworm.
* Parasites-Live on or in another plant or animal, known as the host. Scabies is caused by mites that burrow into the skin causing severe itching.
* Protozoa-are single-celled organisms that live in water and damp conditions. Malaria is an example of a disease caused by protozoa.

**1.1.2 Vulnerable people**

* Some groups of people may be more vulnerable to infection, for example because of age or ill or general health
* If these groups become infected the symptoms may be serious and life-threatening
* Micro-organisms that are resistant to antibiotics can make it difficult to treat the illness

**People with weakened immune systems including:**

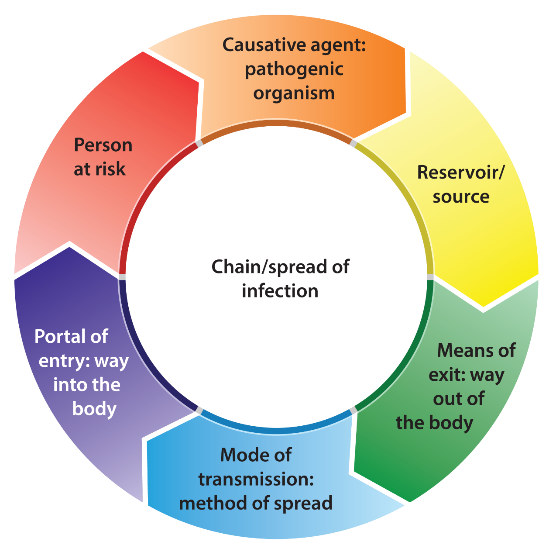
* Elderly people
* New born babies
* People with some long-term health conditions

**People who have broken skin (portal of entry) including:**

* An open wound
* A catheter or intravenous drip
* Burns or cuts to the skin
* Skin conditions such as ulcers
* People who have poor nutrition or poor general health

**1.2 Chain of infection**

For the spread of infectious diseases to take place, the ‘chain of infection’ must be completed.

 **Causative agent:** This is the harmful germ or pathogen that can cause infection, illness and disease. Examples include bacteria and viruses.

**Reservoir or source:** This is where pathogens live and multiply.

Remember, that could be in or on a person or animal (host), or in soil or water.

**Means of exit:** This is how pathogens leave the source. For example, pathogens that live in the respiratory tract (the lungs, throat, etc.) can leave the body through the mouth or nose in saliva or mucus when coughing or sneezing. Other examples of means of exit are broken skin, mucous membranes such as the eyes, via the stomach and via the intestines and anus.

**Mode of transmission:** It refers to how the pathogen is passed on from one person to another. Contact transmission is the most common route of transmission of pathogens in a health and social care workplace. This can happen by direct (hands) or indirect contact (equipment). Pathogens such as those that cause influenza and chicken pox can stay in the air for a long time and can be breathed in by other people.

**Portal of entry:** This is the way that the pathogen enters the body of the potential host. Pathogens can enter the body by coming into contact with broken skin, being breathed in or eaten, coming into contact with the eyes, nose and mouth or, for example when needles or catheters are inserted.

**Person at risk:** A person at risk is the individual the pathogen moves to. The risk of a person becoming infected depends on factors such as their general health and the strength of their immune system (which is the body’s system for fighting germs and micro-organisms).

**1.3 Breaking the chain**

* Preventing infection means breaking the links in the chain so that an infection cannot spread
* Not everybody who carries harmful micro-organisms will show symptoms

Examples of standard precautions taken in EVERY situation to reduce the risk of infection:

* Good hand hygiene
* Safe disposal of waste
* Safe management of laundry
* Correct use of Personal Protective Equipment (PPE).

In a workplace it may be necessary to take additional measures when supporting people who are known to be carrying some harmful micro-organisms to protect others from contamination. This can be particularly important if the pathogens travel through air.

**Your health and hygiene**

You have an important role to play in preventing the spread of infections

**Vaccinations:** It is your responsibility to keep up to date with your own vaccinations in line with the vaccination schedule as it is part of your duty to protect the individual.

**Illness:** If you have cold or flu symptoms, an upset stomach or skin infections, you should speak to your manager before reporting for work.

If you have diarrhoea or vomiting you should not attend work until you have been free from symptoms for 48 hours.

**Clothing:** Your clothes can become contaminated with harmful micro-organisms. Disposable aprons and over-sleeves should be used when handling anything contaminated with body fluids to protect clothes from contamination. Changing your clothing daily reduces the risk of remaining contaminants being spread to the individuals you provide support for. Uniforms or work clothing should be washed on a hot wash, then tumble-dried or hot ironed, to kill any bacteria present.

**Personal hygiene:** Personal hygiene is extremely important for people who take care of others. Daily washing, showering, or bathing will remove most of the micro-organisms on your skin. Hand hygiene is also extremely important. Fingernails should be kept short. Rings (apart from plain wedding bands), wristwatches or bracelets should not be worn as they can make hand washing less effective.

**Skin health:** Micro-organisms can live on the skin. The number of pathogens increases when skin is damaged. All cuts should be covered with a waterproof dressing. Using hand cream, good quality paper towels and soaps can help to protect the skin.

**Good hand habits:** Having good hand habits means not touching areas that can be a source of pathogens more than you need to. These areas include your nose, hair and mouth, and not biting nails. This also applies to work practices such as using foot operated bins rather than lifting bin lids with your hands.

**1.3.1 Hand hygiene**

Hand hygiene is an important part of preventing infection Hands can be cleaned, or decontaminated by:

* Washing with water and soap that removes dirt and germs from the hands but doesn’t kill them
* Using alcohol hand rubs and gels which kill most bacteria

**Not**e: Alcohol rubs are less effective against Clostridium difficile and some viruses that cause vomiting and diarrhoea if hands are visibly dirty.

**5 moments for hand hygiene**

The World Health Organisation has identified ‘5 moments’ when health and social care workers should clean their hands. These moments are:

1) Before and after touching the individual you are supporting

2) Immediately before carrying out a ‘clean’ procedure

3) After exposure to body fluids

4) Before wearing and after removing gloves

5) After touching the area or objects surrounding the individual you are supporting

**Effective hand washing**

For hand washing to be effective every part of your hands are carefully washed, rinsed and dried. The steps below show you how to ensure that your hands are washed correctly:

1) Wet hands and wrists thoroughly using warm running water

2) Apply liquid or foam soap

3) Produce a good lather; rub palms together, interlock fingers, rub together again

4) Rub palms ensuring fingertips and fingernails are cleaned

Ensure that the backs of your hands are lathered and cleaned

5) Rub with fingers locked, maintaining a good lather to ensure that wrists are cleaned

6) Rinse hands thoroughly using running water

Hands and wrists should be thoroughly dried using paper towels or a hand dryer. Rubbing and lathering your hands should take around 20 seconds.

**1.3.2 Personal Protective Equipment (PPE)**

Your employer must provide you with the equipment you need to protect you from harm; that includes:

some examples of PPE that can be used to protect them from the spread of pathogens.

* Enough uniforms for regular changing and washing
* Disposable aprons to protect clothing and uniforms from contamination from blood and body fluids etc.
* Skin protecting paper towels and soaps
* Hand cleansing gels or wipes
* The correct type of gloves to reduce the risk of cross-contamination of you and the individual you are supporting
* Masks and respiratory masks to protect you from breathing in harmful micro-organisms
* Goggles, eye protection and face shields – if there is a risk of being splashed with body fluids

**1.3.3** Safe management of laundry

Linen refers to anything that is made of cloth including bedding, towels, and clothing.

Once linen has been decontaminated it must be stored separately from contaminated linen to prevent cross-contamination. You must always follow your agreed ways of working. If you have any questions about these you should speak to your engager, family, or manager.

Linen can become contaminated with harmful micro-organisms and body fluids

Precautions for dealing with contaminated linen include:

* Wearing PPE
* Washing contaminated linen separately
* Washing clothing in 40°C-50°C wash followed by tumble-drying or hot ironing
* Washing bedding and towels in a hot wash
* Sealing laundry in colour coded bags and moving to the washing area
* Washing infected linen immediately if you are supporting people in their own home

**Changing Linen**

* Change bed linen weekly, or earlier, if it gets dirty
* For a person who spends most of their time in bed or a person who frequently eats in bed, you may need to change bed linen multiple times in a week
* If the person soils the bed, change bed linen immediately
* Put bath, hand and face towels for drying as soon as they become damp
* Replace towels once in four days, or earlier, if they get dirty
* If hand and face towels are used to wipe off food or dirt, change them immediately
* Observe how often a bathroom rug gets wet or dirty and change it accordingly
* To get rid of germs, dust mites, and bed bugs, soak and wash linen in hot water
* Ensure that before you use it, linen has been dried and ironed properly

**1.4 Caregivers’ Safety from Infections**

* Use gloves and aprons when there is a possibility of exposure to blood and other body fluids
* Wear an apron or gown when you are caring for a wound or near equipment with a suction pipe
* Wear gloves when handling items that are soiled with blood or other body fluids
* Discard disposable gloves after each use
* Wear gloves if you have a skin disease, cuts, or cracks on your hands
* Wear a barrier mask if the person under your care is coughing
* Avoid breath to breath contact with the person you are caring for
* Wear a barrier mask if the patient under your care is known to have a communicable disease
* Wash your hands before and after care of the person
* Wash all contaminated skin surfaces immediately after contact with blood or bodily fluids
* Wash hands after removing gloves
* Change from your work clothes into clean set of clothes when you return home after work
* Wash your work clothes every day
* Bathe twice a day

**1.4.1 Wearing and Taking Off Gloves**

* Wear disposable gloves for activities that involve contact with body fluids, mucous membranes, non-intact skin, or other potentially infectious material
* Always use disposable gloves and do not reuse them
* When wearing and taking off gloves:
  + Ensure proper hand hygiene
  + Ensure your hands are completely dry
  + Take care not to touch the outer part of the glove
* Dispose off the gloves properly

**1.5 Hygienic Environment**

* **Importance of a Clean Environment**
* Dust and dust mites cause allergies, sinus infections, respiratory problems, and asthma
* A dirty kitchen attracts pests, which are carriers of several diseases
* Bacteria in bathrooms can also cause health issues
* A person, especially an elder or a baby, can get a urinary tract infection from using dirty toilets and showers
* Wet bathrooms can cause a dangerous fall
* A cluttered bathroom or loose bathroom fittings can cause injuries
* Molds, caused due to high moisture content, can trigger asthma and other respiratory diseases
* Clutter attracts pests and dust; can also result in falls and injuries
* Poor ventilation increases the risk of respiratory irritation, cold, or flu
* Odors and smoke can cause respiratory diseases and allergies

**Measures to a Maintain Clean and Hygienic Environment**

* Dust every day or on alternate days
* Clean the ceiling, mats, window frames, fans, and air conditioners once a month
* Once in a month, clean the shelves and cabinets and dry clean curtains and rugs
* Use the vacuum cleaner at least once a week to clean rugs, upholstery, windowsills, and carpets
* To avoid dust bunnies, dust corners and under furniture and objects
* To reduce clutter, keep things back in their place
* Change linen regularly; soak linen in hot water before washing
* Store food in closed containers
* Ensure that things that you do not need regularly need in the kitchen are easily accessible; store rarely used items on higher shelves
* Clean wall tiles, bathroom fittings, and ceiling of the bathroom once a week
* Clean bathroom floor, sink and commode every day
* To improve ventilation:
  + - Open windows
    - Clean filters of air conditioners and heaters
    - Avoid smoking
    - Avoid aerosol sprays
    - Use natural air fresheners
* To avoid pest problems:
  + - Do not leave open food
    - Seal all cracks
    - Ensure windows have screens
    - Avoid the use of pesticides