Infection Prevention and Hygiene

Caredemy

Online Training Academy

Course Name:

Infection Prevention and Hygiene

Course Description:

This course will give an overview of prevention and control of healthcare-associated infection, how they are spread, and the impact these infections have on patients and your duty of care.

Course Learning Objectives:

At the end of this course, the learner will be able to:

- Describe and explain the consequences of infection and how infections are spread in a healthcare setting
- Describe the impact of infections on patients and your duty of care to your patients
- Understand how personal protective equipment, hand hygiene, management of blood, body fluids, shares, the environment, and care equipment can help prevent the spread of infection

Course Requirements:

Participants must complete all learning modules and pass the multiple-choice course assessment.

Introduction

Healthcare-associated infections (HAI) occur when a person receives medical care in a healthcare setting such as a hospital, community, or at home. Infections can worsen existing health conditions or make a patient's recovery more challenging. Infections commonly occur in hospitals to patients who are unwell or recovering from surgery. Patients may also be at risk of infection in nursing homes, mental health facilities, and dental offices.

If you work in a healthcare setting, you need to know what HAIs are, how they spread, and what you can do to prevent the spread. Healthcare practitioners and non-clinical staff have a duty to protect patients and their own health as well.

Types of HAIs

There are many different types of HAIs, but there are four that are common in a healthcare setting, sometimes referred to as 'superbugs'.

1. MRSA: Methicillin-resistant Staphylococcus aureus
2. MSSA: Meticllin-sensitive Staphylococcus aureus
3. C.difficile: Clostridium difficile
4. E. coli: Escherichia coli

These infections can spread easily in healthcare settings when not properly managed.

How HAIs Spread

The most common causes of HAI spread are:

- Healthcare staff who do not clean their hands
- Medical equipment that has not been properly cleaned
- Healthcare staff who do not follow local policies, procedures, and guidelines

The development of germs that do not respond to drugs are an increasing problem in healthcare. Incorrect use of antibiotics contributes to this issue. Clean hospitals are vital, but this alone is not enough to prevent the spread of infections. HAIs can be reduced when everyone works together on infection prevention.

HAI Overview

HAIs are caused by bacteria, viruses, and fungi. Infections caused by bacteria can be treated with antibiotics, but infections caused by viruses cannot be treated with antibiotics and can spread quickly when uncontrolled. Healthcare providers monitor the number of new infections so they can advise staff, patients and visitors on proper infection prevention procedures. Some bacterial infections, such as MRSA, are becoming resistant to antibiotics. This is a problem because it limits treatment options to very ill patients.

Types of HAIs

There are several different types of HAI.

Lower Respiratory Tract Infection – 22.8%
Infection of the lungs, trachea, or bronchi. Most serious type is pneumonia.

Urinary Tract Infection – 17.2%
Likely to occur in patients who have a urinary catheter and older patients, especially those who are dehydrated

Surgical Site Infection – 15.7%
Infections of the wound that occur at the surgical site procedure. Many are minor, but others may be serious or even life-threatening, resulting in further surgery or prolonged treatment.

Clinical Sepsis – 10.5%
Occurs when vital areas of the body become inflamed due to a severe infection. When not treated quickly, can lead to multiple organ failure and death.

Gastrointestinal Infection – 8.7%
Commonly caused due to C. difficile or norovirus.

Bloodstream Infections – 7.3%
Can be serious or even fatal, typically occurring due to infection at another site in both or may be introduced through an intravenous catheter or line.

Unknown – 6.6%
The cause of these infections is not known.

Skin and Soft Tissue Infection – 4.3%
Occurs when germs get into the tissues, typically as a result of invasive procedures or where the skin has been damaged, such as a pressure sore or leg ulcer.

Eye, Ear, Nose, or Mouth Infection – 2.8%
Infection of the upper respiratory tract and eyes

Bone and Joint infection – 1.4%
Difficult to treat infection of the bones and joints

Patient Experiences

Patients can be affected by HAIs by:

- Fear of infection causing them to lose confidence in their ability to be safely treated and cared for
- Delay in discharge, worsening of condition, or a slow recovery
- Pain, worsening illness, or long-term disability affecting quality of life
- Anxiety and delays in returning to work and normal activities

Signs of Infection

When a cut becomes infected, certain signs become apparent:

- Fluid begins to discharge from the cut.
- The affected area experiences pain.
- The surrounding skin appears red, swollen, and feels warm to the touch.

In the case of an infection in a body part or system:

- Pain is felt in the infected area.
- Nausea or vomiting may occur.
- The individual may feel unusually hot or cold.
- Profound fatigue sets in.

Appearance and Hygiene

It is vital to maintain a high standard of personal hygiene if you work in a healthcare setting. Preventing infections is everyone's responsibility. This includes:

- Fingernails kept short, clean, and free from false nails or polish
- Wearing minimal earrings and visible body piercings
- Wearing jewelry except a minimal wedding band
- Wearing short-sleeved, clean clothing during patient care

Duty of Care

Everyone in the healthcare industry plays an important role in protecting patients from the risk of infection. When every member of the team, including executives, doctors, nurses, pharmacists, cleaning staff, and reception staff, does their part, the instances of infection drop. This responsibility to patients is known as 'duty of care'. It is a legal term that means to take reasonable care to avoid causing harm to another individual.

The Chain of Infection

A chain of events needs to occur to allow germs to be transmitted and for infection to spread. There are six links in the chain.

1. Germ – The germ that can spread directly or indirectly from person to person
2. Source – Where the germs are found and are able to grow and multiple
3. Exit Point – Germs must leave the source through the exit point, such as through blood, urine, breath, or vomit
4. Method of Spread – Germs need a method to spread from one person to another, such as a person's hand or a piece of improperly cleaned equipment.
5. Entry Point – The entry point is where the germs get into the other person, likely through an open cut, broken skin, the nose, or mouth
6. Person at Risk – Patients with chronic or severe illnesses, patients using medical devices, or those who are very old or very young are most vulnerable.

Standard Principles

These are standard principles everyone should follow to prevent the spread of infection:

- Hand hygiene
- Environmental hygiene
- Safe disposal of sharps and waste
- Personal protective equipment

The Principles of Asepsis

Asepsis means being free from micro-organisms. Aseptic technique is the process of preventing susceptible sites, such as a wound, from being contaminated. Asepsis is performed during clinical procedures that involve

contact with an invasive device or susceptible site on the patient. To minimize risk of infection, clinical procedures must be performed in a way that prevents contamination. Procedures that bypass the body's normal defenses, such as inserting an intravenous line, provide opportunities for micro-organisms to access susceptible tissues where they can cause infection.

Aseptic techniques are used when:

- Administering intravenous drugs
- Change the dressing on a venflon
- Taking blood cultures
- Vaginal examinations
- Inserting a urinary catheter

It is not necessary when taking blood pressure, doing a bed bath, or emptying a urine bottle.

Aseptic Technique

When a procedure is performed under sterile conditions, the procedure is aseptic. Any part of a device or other equipment that comes into contact with a susceptible site on a patient remains sterile. The parts of the equipment that come into contact with non-intact skin or tissue should be protected by keeping them within sterile packaging or placing them in a sterile surface or sterile fields. Sterile items do not come into contact with anything that is not sterile and only sterile items come into direct contact with the susceptible site.

The following equipment needs to stay sterile:

- Contents of a drug vial
- Urine catheter tip
- Wound dressing
- Syringe tip and both ends of the need used to draw up medication

Urine bag tap and barrel of a syringe should not be contaminated if possible, but do not need to be sterile.

Hand Hygiene

Hands should be washed at the following times:

- After removing gloves
- After touching patient surroundings
- After touching a patient
- After body fluid exposure

- Before touching a patient
- Before a clean (aseptic) procedure
- Before eating, drinking, or touching food
- After going to the toilet
- After blowing your nose
- After coughing or sneezing into your hand or a tissue

Patients who are bed-bound should also have the opportunity to wash their hands before meals and after using the toilet.

Types of Hand Cleaning

Even though your hands may not appear dirty, they can still be contaminated. There are two ways you can clean your hands:

Alcohol-based Hand Sanitizer – An alternative to liquid soap and water. Takes less time than washing and is a good method of killing germs like bacteria, provided your hands are not contaminated with body fluids.

Liquid Soap and Water – The physical act of hand washing with soap and water removes dirt and organic matter, as well as any germs you may carry.

Using Alcohol-Based Hand Sanitizers

To properly apply alcohol-based hand sanitizer:

- Rub palms together
- Rub one palm over the back of the other hand and repeat on the other side
- Weave fingers together and slide them backwards and forwards
- Place palms of your hands together and grip the ends of the fingers on the other hand, rubbing the backs of your fingers and then repeat on the opposite side
- Grip and turn your right thumb in a twisting motion and repeat on the other side
- Rub your right wrist with your left hand and repeat on the other wrist
- Do not dry your hands, the solution will evaporate on its own

Alcohol-based hand sanitizers should only be used when your hands are visibly clean and have not touched dirt, waste, or organic matter.

Hand Washing

To properly wash your hands, do the following:

- Rub the palms of your hands together
- Use the palm of one hand on the back of the other and repeat on the other side
- Link your fingers together and slide them back and forth
- Grip your right thumb in a twisting motion with your left hand and repeat on the other hand
- Use the fingertips of one hand to work soap into the palm of your other hand a repeat on the opposite side
- Use a twisting motion on your wrists

Be sure to rinse with running water, turn the taps off with your elbows if you're able, dry hands thoroughly with a paper towel, and dispose of the paper towels in a pedal bin.

Personal Protective Equipment

Personal Protective Equipment (PPE) helps to prevent the spread of infection. It creates a barrier between individuals and protects patients from infection the healthcare staff may be carrying. PPE also helps keep clothing and uniforms clean, so germs are not spread between tasks. Employers have a duty to provide PPE.

PPE can include gloves, aprons, face protection, and eye protection.

Types of Gloves

Gloves help to protect your hands from contamination with germs found on a patient's skin, in bodily fluids, or from dirt and dust. Gloves can also help protect hands from disinfectants and chemicals. Essential in breaking the chain of infection, there are three types of gloves used by non-clinical staff:

1. Domestic – Used for general cleaning purposes. When you are finished using them they should be rinsed under running water, dried while they are still on your hands, removed and stored. You should wash and dry your hands following removal. Never share your gloves with others.
2. Non-sterile – Used by clinical staff when they believe they may come into contact with blood or other bodily fluids.

3. Heavy-duty – Required when handling sharps bins and clinical waste. Heavy-duty gloves are not shared and should be checked regularly for holes and damage. Wash your hands after removal.

Putting On and Removing Gloves:

Putting on Gloves:

- Remove any sharp jewelry before putting on gloves.
- Choose the correct glove size (small, medium, or large) that fits your hands properly.
- Take gloves from the box.
- Most gloves are pre-powdered rubber latex; however, if allergic to latex, opt for vinyl gloves.
- Hold the glove with your thumb and forefinger and insert your hand into the glove.
- Ensure fingers are properly positioned within the glove.

Removing Gloves Without Contaminating Your Hands:

- Pinch the palm of one glove and pull it away from your hand.
- Insert the fingers of the pinching hand inside the other glove, stretching the material towards the cuff until it emerges at the wrist.
- Pull the fold-down until the glove is nearly off (inside-out).
- Do not remove the glove entirely.
- Hook the ungloved thumb between the wrist and skin of the other hand and pull down to remove both gloves (both gloves will now be inside out).
- Dispose of the gloves properly.

Key Moments for Hand Hygiene

- Before touching a patient, even when wearing gloves.
- Before leaving the patient's care area after touching the patient or their immediate environment.
- After contact with blood, body fluids, excretions, or wound dressings.
- Before assisting with an aseptic task such as implementing an IV.
- When transitioning from a contaminated body site to a clean one during patient care.
- After removing gloves.

Managing the Environment

Healthcare facilities and residential care homes should be clean, tidy, and safe environments for both patients and staff. A clean environment reduces the risk of HAIs. Dead skin cells, which can carry germs, are found in dust. Germs can survive and multiply in dust for months, especially in damp environments. Dust also makes clinical areas look dirty, causing patients to lose confidence in their healthcare provider or care home.

Cleaning Schedules

There are three types of cleaning schedules:

1. Routine – normal cleaning completed on a regular basis, such as flat surfaces, radiators, light switches, handles, bed frames, toilets, windows, and floors. This includes damp dusting, high dusting, and spot cleaning.
2. Specialist – takes place regularly but less frequently. It may include using bleach or another disinfectant.
3. Terminal – Cleaning of a room after a patient has died. After the patient has been discharged, all surfaces and equipment are thoroughly cleaned.

Storing Cleaning Equipment

Cleaning equipment must be stored in an area that is clean and dry. Floor mops must be disposable or changed daily, or reusable mops must be laundered in a dedicated machine. Buckets should be stored upside down when possible to reduce the risk of water remaining in the bottom. Used disposable clothes should be disposed of in the correct waste bag as they become visibly dirty and at the end of each cleaning session. Some organizations use color-coding for their materials and cleaning equipment.

Promoting Environmental Cleanliness

Maintaining a clean environment not only enhances lifestyle but also fosters a safe and pleasant atmosphere for both caregivers and seniors receiving care. A tidy home eliminates chaos and creates a happier living space.

Tips for Environmental Cleanliness:

- Organize caregiving tools systematically.
- Stay on top of daily cleaning tasks.
- Acquire custom-cleaning materials for specific care needs.
- Establish daily and weekly cleaning schedules.

By keeping yourself and the care environment tidy, visitors will naturally be inclined to maintain cleanliness, simplifying the caregiver's responsibilities. Standards of cleanliness reflect the overall quality of care provided, raising concerns if cleanliness is neglected.

Maintaining a Clean Environment

- Immediately launder soiled clothing, sheets, and towels.
- Properly dispose of disposable gloves, needles, and wipes.
- Empty trash daily and dispose of it outside.
- Wash dishes promptly after meals.
- Dispose of mail and newspapers.
- Clean out the refrigerator weekly.
- Ensure glasses, plates, and utensils are sanitary.
- Regularly clean the bathroom and kitchen.
- Vacuum and mop floors at least weekly.

Clean Food Handling Practices

If you are handling food as a caregiver, you should be sure to do the following to prevent contamination and to keep bacteria from spreading.

- Store food properly to prevent contamination.
- Keep meat separate from other food items to avoid cross-contamination.
- Refrigerate or freeze meat immediately upon returning from the grocery store.
- Follow cooking temperatures to eliminate pathogens.
- Handle meat with extra care, washing hands and utensils before and after preparation.
- Use a food thermometer to ensure food reaches the required temperature for killing germs.
- Educate yourself on cooking instructions and temperatures to prevent foodborne illnesses.

Blood and Body Fluid Spillage

Spillages of blood or body fluids should be cleaned up as soon as possible by a trained individual since blood and body fluids provide an idea environment for germs. If you've been trained to clean up spillages, clean it immediately using the appropriate cleaning and protective equipment.

Spillage Kits: Some healthcare organizations supply equipment needed to clean up spillages in a 'spillage kit'. Depending on the surface, you'll need:

- Apron, gloves, and face protection
- Clinical waste bag
- Sharps bin for collecting sharps or broken glass
- Disinfectant granules
- Paper towels
- Scoop and bucket
- Disposable cloths
- Disinfectant tablets

Soft furnishings may need to be steam cleaned after being cleaned with water and detergent. Bleach must not be used on soft furnishings.

Sharps Disposal

In a person's home, you might come across syringes, needles, or lancets, which are used by individuals with certain medical conditions. These items, known as sharps, must be disposed of correctly to ensure safety.

- Avoid touching sharps (e.g., syringes) with bare hands. Always use gloves and, if possible, a tool to pick them up.
- Proper disposal of sharps is crucial to prevent injuries or infections, protecting both Direct Care Workers (DCWs) and garbage collectors.
- Consult your supervisor to determine if you are responsible for disposing of sharps.

Use a proper container: Purchase a medical sharps container from a pharmacy or healthcare provider, or use a heavy-plastic or metal container. Avoid clear or glass containers. The container should be puncture-proof with a tight-fitting lid. Household containers, such as plastic detergent bottles, can be used if the following precautions are taken:

- Label the container: Write "Not Recyclable" on the container with a black indelible marker to ensure it is not mistakenly placed with recyclables.
- Do not overfill: Fill the container to about three-quarters full. Do not over-stuff it.
- Keep out of reach: Ensure the container is kept away from children and pets.

- Seal and dispose: When the container is full, secure the lid with heavy-duty tape (such as duct tape or electrical tape). Then dispose of it with regular trash.
- Wash your hands after handling or touching medical sharps.

By following these steps, you can safely manage and dispose of sharps in the home, protecting yourself and others from potential harm.

Handling Contaminated Linens

When dealing with laundry that has been soiled with feces or vomit, follow these steps to ensure proper hygiene and safety:

1. Wear gloves: Always put on gloves before handling soiled linens or clothing.
2. Contain the items: Place the soiled linens or clothes in a plastic bag immediately. Do not place them on the floor.
3. Rinse solids: Take the bagged items to the toilet and rinse off any large solid matter into the toilet. Then, return the items to the plastic bag.
4. Immediate washing: Wash the soiled linens and clothes as soon as possible, separate from the rest of the household laundry.
5. Use bleach if possible: If the fabrics are bleach-safe, add bleach to the wash cycle. If bleach cannot be used, ensure the items are thoroughly dried in a dryer.
6. Utilise heat: The heat from the dryer will kill bacteria. Alternatively, hanging the clothes out to dry on a clothesline in direct sunlight will also eliminate bacteria.

By following these procedures, you can effectively manage and sanitize contaminated linens, ensuring the health and safety of the household.

Cleaning the Environment

To create a bleach solution for cleaning, mix one part bleach to ten parts water (1:10). This means that for any measuring device you use—whether it's a 1/3 cup, 1 cup, or a tablespoon—you combine one measure of bleach with ten measures of water. For example, you could mix 1/4 cup of bleach with ten 1/4 cups of water (2 1/2 cups) in a spray bottle and label it accordingly.

The contact time, or the time needed for the bleach to be effective, is the duration it takes for the surface to air dry after being sprayed with the bleach solution. Bleach can act as a sanitizer at higher concentrations or as a

disinfectant at lower concentrations. Be aware that bleach solutions can irritate sensitive skin. If a client comes into contact with the solution, rinse the affected area with water.

Always store the bleach solution in a labeled spray bottle and prepare a fresh batch every 24 hours to ensure its effectiveness.

Safety Data Sheets

Safety Data Sheets (SDS), presented in a user-friendly 16-section format, offer crucial information on potential hazards associated with chemical products. These include details on physical properties, fire hazards, reactivity, toxicity, and safe handling practices.

Government regulations, such as the Occupational Safety guidelines, ensure your protection by mandating that chemical manufacturers provide SDS for their products. These sheets are readily accessible to anyone seeking information on chemical safety. To find precautions for off-the-shelf cleaning products, simply perform a Google search using the product name followed by "SDS."

The Hazard Communication Standard further mandates that chemical manufacturers, distributors, and importers supply SDS (formerly called MSDS, or Material Safety Data Sheets) to downstream users. This communication tool aims to inform users about potential hazards associated with hazardous chemicals. Key Information Included in SDS includes:

- Chemical properties
- Physical, health, and environmental hazards
- Protective measures
- Safety precautions for handling, storing, and transporting chemicals