Use hygienic practices for food safety

SITXFSA001
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**Please note the following condition**

This Didasko learning resource should be used as a training tool for students and trainers. While the information contained within addresses the elements and performance criteria, and the knowledge and performance evidence of individual competencies it remains the responsibility of the training organisation to ensure it meets training framework requirements and to provide additional documentation where necessary.
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Overview

Have you woken in the middle of the night and experienced stomach cramps, diarrhoea or vomiting? It’s very unpleasant, isn’t it?

Often, this pain and discomfort can be traced back to food we have eaten.

Quite rightly, we believe the food may be contaminated with food poisoning bacteria, and our suffering is caused by poor hygiene standards at the establishment where we purchased the food.

Food hygiene procedures were established and are enforced to prevent these situations. If you fail to use good food hygiene practices, you jeopardise the health of your customers and place your workplace and yourself in danger of serious consequences.

Let’s look at what you will learn on completion of this unit.

Section 1: Follow hygiene procedures and identify food hazards

Section 2: Report any personal health issues

Section 3: Prevent food contamination

Section 4: Prevent cross-contamination by washing hands

Section 1: Follow hygiene procedures and identify food hazards

In this section you’ll learn how to follow organisational hygiene procedures and report unsafe work practices that breach these procedures.

You’ll also learn how to identify food hazards and remove or minimise hygiene hazards.
Why is it necessary to have food hygiene procedures?

There have been more than a few horror stories in the media in recent years about serious illness, and even deaths, caused by food poisoning. 

Click on the icon to find out more.

In an effort to make food safer for everyone, federal, state and territory governments have enacted strict food safety laws. These set minimum standards for any business involved in the delivery, processing, preparation, storage, transportation or service of food.

Even with food safety standards in place, it is estimated there are over 5.4 million cases of food poisoning in Australia each year. That’s nearly 15,000 people a day, every day of the year!

Here are some of the consequences of food poisoning every year.

- 120 deaths
- 1.2 million visits to doctors
- 300,000 prescriptions for antibiotics
- 2.1 million days of lost work per year
- An estimated annual cost to the Australian economy of $1.25 billion.

[source: http://www.foodsafety.asn.au ]

Note...

Approximately, only 20% of food poisoning cases are reported to medical authorities. This means the statistics could be even higher!

Where did our food safety laws come from?

Food Standards Australia New Zealand (FSANZ), an independent statutory agency, was established in the early 1990s to set food safety standards for both countries.

After a lengthy consultation process, the current Australia New Zealand Food Standards Code (the Code) was developed. The Code includes requirements for product labelling, use of additives, food safety, GM foods (glossary), primary production and processing standards.

The area within the Code which directly affects the hospitality, tourism and events industries is the section on food safety.
What does the Code cover?

The Code has four major sections (or Chapters). However, Chapter Three - Food Safety Standards relates specifically to food hygiene issues in Australia. It outlines the responsibilities of a food business in the production, manufacture and handling of food.

What are the basic principles of the Food Standards Code?

- Any food sold from the premises must be safe and suitable for human consumption.
- The premises (including the equipment, appliances and utensils used in the premises) must be kept in a clean and sanitary condition.
- Prepared food is stored in a manner that protects it from contamination (glossary).
- Food handlers must take all reasonable measures to ensure the safety and suitability of the food they help produce.
- Food handlers must have the skills and knowledge they need to handle food safely as they carry out the work they are responsible for.
- Staff skills and knowledge must include food safety and food hygiene matters.

Food handling processes

Chapter Three outlines minimum standards for handling food during receipt, storage, processing, display, packaging, distribution and recall of food. We will look at these in more detail later.

Requirements for food premises

Standards covered include the design and construction of the food premises, fixtures and fittings installed, materials used on floors, walls and ceilings, and personal hygiene facilities available.

Food safety programs

The Code details what must be contained within a food safety program using the HACCP (glossary) system of hazard identification and control.

Do we have to follow these Standards?

Yes. Most of the Standards are mandatory. As a result, every state and territory’s food safety legislation is based on the principles and standards outlined in the Code. However, the types of food premises that must have a food safety program can vary between states as this Standard is not mandatory.

Let’s have a look at what legislation is currently in place and how it affects you.

Food safety legislation

Australia has a system of national, state, territory and local legislation, regulations, standards and codes of practice which enforce minimum food hygiene standards. These standards are designed to ensure the food we eat is kept free from any form of contamination during all stages of production, service and consumption.

Click on the tabs to explore food safety legislation further.
What is the aim of all the laws?
All food safety legislation in every state and territory essentially has the same aim: to prevent situations which can cause food to become unsafe to eat.

How extensive are the laws?
There are a number of different Acts and Regulations which cover the production and processing of food from the farm or manufacturer through all stages until it reaches the customer. This is sometimes called ‘from the farm to the fork’.

Who enforces the laws?
While food safety legislation is enacted at the state or territory level of government, local government is responsible for ensuring the laws are complied with by all food businesses within their jurisdiction. Your local council employs Environmental Health Officers (EHO) who are responsible for inspecting food premises and enforcing legislative requirements.

Who has legal responsibilities?
Everyone involved in the manufacturing, production, processing, sale and service of food has a responsibility to comply with food safety legislation. This includes the owner of the food premises, the manager, supervisor, stores person, delivery van driver and you.

Let’s find out what legislation applies in your state or territory and then what your employer’s and your responsibilities are.

What laws apply in my region?

Click on your state or territory to see the food safety legislation that applies to you.

Australian Capital Territory
- Food Act 2001
- Food Regulation 2002
- Local government health by-laws

New South Wales
- Food Act 2003 (NSW)
- Food Regulation 2015
- Local government health by-laws

Victoria
- Food Act 1984
- Local government health by-laws

Queensland
- Food Act 2006
- Food Regulation 2006
- Local government health by-laws
Tasmania

- Food Act 2003
- Food regulations 2012
- Local government health by-laws

Western Australia

- Food Act 2008
- Food Regulation 2009
- Local government health by-laws

South Australia

- Food Act 2001
- Food Regulations 2002
- Local government health by-laws

Northern Territory

- Food Act 2004
- Food Standards Regulations
- Local government health by-laws

What about Commonwealth legislation that applies to all of Australia?

Commonwealth legislation is designed to support state and territory specific laws and provide a minimum national standard.

They include:

- Food Standards Australia NZ Act 1991
- Food Standards Australia NZ Regulations 1994

Does food safety legislation ever change?

Yes it can. Sometimes the whole Act is revised, or specific sections might be updated to meet changes in food production, service or technology.

Any changes are usually communicated to registered food businesses by their local council. Your employer should notify you of any changes which affect your job role or work practices. However, due to the legal implications for non-compliance with food safety legislation, it is important you keep up-to-date with any changes.

If you would like to find out more, good sources of information are your local council’s health department and the environmental health officer (EHO), your state, territory or federal Department of Health website, or your industry body such as the Australian Hotels Association or Restaurant and Caterers Association.
What are the consequences of not complying with food safety legislation?

There are both legal and personal consequences to you and your employer.

Click on the tabs to find out what they are.

**Legal**

If a business is found to not be complying with food safety requirements, it can be fined, closed either temporarily or permanently, and both the business and its owners prosecuted. Heavy fines can be imposed and even imprisonment for those found negligent.

Those affected by food poisoning can also sue the business, its owners and employees in a civil court action.

**The business**

Nobody wants a bad reputation. However, this is one of the consequences of poor food safety standards. Customers will not tolerate unhygienic conditions and are quick to complain. With the rise of extensive social media networks, one person can share their bad experience at your workplace to a lot of people over a range of networks.

This can lead to fewer customers, reduced profits and even closure.

Some state governments operate a ‘name and shame’ website which names food businesses that have been fined or sued for breaching food safety legislation. Potential customers can check out the site before choosing where to dine.

**You**

Do you want to be the one responsible for making people sick? The consequences of your poor food safety practices may be felt by others and will eventually come back to haunt you.

If you are found to have caused a major food safety issue through poor food safety practices, you could be held liable in the event of any legal proceedings. This could be a fine or a criminal prosecution, leaving you with a criminal record for the rest of your life.

If your workplace gains a bad food safety reputation, and loses customers or closes, you will lose your job. To make sure this doesn’t happen to you, you need to know what your responsibilities are and what safe work practices you should be using. Let’s look at those now.

**What are my legal responsibilities?**

No matter what type of establishment you work in, everyone has responsibilities under food safety legislation.

Click on the pictures to see some examples of what they are.
Employees

- Exercise overall responsibility in doing whatever is reasonable to make sure that you do not make food unsafe or unsuitable for people to eat.
- Follow all workplace food safety, health and hygiene procedures.
- Know and understand food safety and food hygiene procedures.
- Take all reasonable measures not to handle food or surfaces likely to come into contact with food in a way that is likely to compromise the safety and suitability of food.
- Report health concerns to your supervisor and do not handle food if there is a possibility of contamination.
- Notify your supervisor if you know or suspect that you may have contaminated food whilst handling it.

Employer

- Supply all necessary equipment, cleaning materials and PPE to clean, maintain and sanitise equipment correctly.
- Provide appropriate and adequate personal hygiene and hand washing facilities.
- Maintain the premises, fittings, fixtures and equipment to a high level of cleanliness.
- Ensure food handlers have appropriate skills and knowledge in food safety issues and food hygiene practices through on-the-job or formal training.

Shared responsibilities

Many responsibilities are shared by both employers and employees.

- Work in a manner that minimises risk of harm or illness to any person, whether that person is a customer consuming food or a fellow staff member.
- Make sure any food sold from the premises is safe and suitable for human consumption.
- Report food safety and food hygiene concerns as they arise.
- Maintain appropriate food safety documentation such as temperature logs and illness registers.

Note...

Some of the responsibilities listed here mention food safety issues and food hygiene practices. We will look at the difference between them shortly.

What is the difference between food safety and food hygiene?

Food safety issues cover what staff must do to keep food safe. Food hygiene practices cover what staff must do to keep things clean so they do not contaminate food.

Good food hygiene practices are one part of the skills and knowledge you need to work within your workplace’s overall food safety program.

Sound confusing? Let’s look at an example of food safety and food hygiene skills and knowledge you need to safely prepare a whole stuffed chicken.
Food safety

Know that raw chickens can be contaminated with dangerous bacteria and must be thoroughly cooked to prevent food poisoning.

Know the correct temperature and cooking time for the chicken to make sure it is thoroughly cooked.

Know how to use a thermometer correctly to check the internal temperature of a roast chicken.

Know the correct temperature to store both the raw and cooked chicken.

What do I need to know about food safety?

No matter where you work, there is basic information you need to know to be able to fulfil your responsibilities and comply with food safety standards and legislation.

- The purpose of a food safety program
- How to identify a food hazard and what to do about it
- What food safety and hygiene procedures your workplace might have to control hazards

We will discuss these over the rest of this Section. Let’s start with finding out about food safety programs.

Food safety programs

A food safety program (FSP) is a written document that lists the food safety hazards (glossary) (or problems) that could occur in your business, how you would control them, and what records you will need to keep to show that you have controlled these hazards. It details the procedures and work practices you must use to ensure food is safely produced and sold.

Food hygiene

Know that you need to wash your hands before preparing the raw chicken.

Know that the container the chicken is going to be placed into for cooking must be clean and dry.

Know how to clean the thermometer hygienically.

Know that all surfaces, equipment and utensils used to prepare the raw chicken must be cleaned and sanitised before being used to handle the cooked chicken.
Implementing appropriate corrective actions when a hazard is found not to be under control.

Provision for the regular review of the program by the food business to ensure its adequacy.

Provision for appropriate records to be made and kept by the food business demonstrating action taken in relation to, or in compliance with, the food safety program.

**Does my workplace have a food safety program?**

That depends on the type of place you work in and where your workplace is in Australia. 

Click on the icon to find out more.

Some states and territories in Australia have made food safety programs compulsory for all food businesses. Others have made it compulsory for specific types of business such as hotels, restaurants, fast food outlets or off-site catering businesses.

However, any business which prepares and serves food to vulnerable persons (glossary) anywhere in Australia must have a food safety program. This includes hospitals, aged care and child care facilities.

If you are not sure if you have a food safety program, ask your supervisor or manager. Your workplace may call it a food safety plan.

**What if my workplace doesn’t have a food safety program?**

Although your workplace may not be required to have a formal food safety program, they still need to comply with the mandatory Standards set out in the Food Safety Code and the requirements of your state or territory’s Food Act.

This means your workplace must still have a system of procedures and work practices for controlling or eliminating food safety hazards, and you must follow those procedures.

**Food safety hazards**

The objective of the Food Standards Code, food safety legislation and regulations, mandatory formalised food safety programs, and your workplace’s food safety policies and procedures is to identify and control food safety hazards.

However, to be able to do this, you need to know what a food safety hazard is. Without this basic knowledge, it is going to be very difficult to recognise a hazard or know how to complete your daily tasks in a safe manner.

So let’s start at the beginning by finding out how food can become contaminated, why this contamination can make you sick, and how to identify hazards and control them so you can stop this from happening.

Can you see some food safety hazards in this picture?
When does food become contaminated?

The Food Standards Code defines contamination as 'the introduction or occurrence of a contaminant in food.'

What does this mean?

It means food can become contaminated by exposure to a contaminant from another source, or the contaminant may already be present in the food.

There are a number of different types of contaminants. The Code defines a contaminant as ‘any biological or chemical agent, foreign matter, or other substances that may compromise food safety or suitability.’ Let’s look this is more detail on the next screen.

How does food become contaminated?

Essentially, there are three main types of contaminants.

Click on the tabs to discover more about them.

Microbiological contaminants

Microbiological contaminants are naturally occurring organisms such as bacteria, viruses, yeasts, moulds and naturally occurring toxins (glossary). Bacteria are the most common form of biological contamination in food.

Bacteria are micro-organisms that live and breed on food and various parts of the human body. They are too small to be seen with the naked eye and multiply at a rapid rate in certain conditions.

Chemical contaminants

Chemical contamination occurs as a result of food coming into contact with chemicals. The most problematic area is kitchens where food is handled, cooked or stored.

Chemicals used for cleaning can leak, seep or give off toxic residues and potentially contaminate the food. Make sure chemicals are stored separately from food production and service areas.

Another source can include malfunctioning glass or dishwashers where the rinse cycle does not wash off cleaning detergents properly.

Chemical contamination can come from solvents, detergents, degreasers and sanitisers.

Physical contaminants

Physical contamination occurs when items fall into or are mixed with food during production, handling or cooking processes.

Physical contamination includes hair, glass, fingernails, adhesive bandages, plastic, worms or flies.
Note...

As biological contamination is the most common cause of *foodborne illnesses* (glossary), it is important we learn more about this source of contamination and how to control it. Let’s look at this next.

Sources of microbiological contamination

Some types of bacteria, yeasts and mould are actually helpful! We use bacteria to make yoghurt and yeast to make bread or beer. Viruses and toxins are rarely good for us. They all exist naturally and can be found either already present in the food we eat or in the environment around us.

Yeasts and mould are not a common source of food poisoning compared to viruses and bacteria.

**Viruses**

Viruses don’t normally live in food. Food is contaminated with the virus from an external source. They’re easily spread from an infected person to food though direct contact, or contaminated water.

Viruses are excreted in large quantities in *faeces* or in vomit. A food handler with viral *gastroenteritis* (glossary), who does not wash their hands thoroughly after going to the toilet, can infect large numbers of people.

Two common types of viral contaminants are Rotovirus (found commonly in infants and children) and Norovirus. They are highly contagious and only small quantities are needed to make a person sick. These infections cause gastroenteritis. Symptoms are vomiting and diarrhoea, often accompanied by abdominal pain, nausea and headache.

Hepatitis A, which affects the liver, is another foodborne virus but it is less commonly transmitted via food. It is transmitted through direct contact with an infected person.

**Bacteria**

Bacteria which are harmful are called pathogenic bacteria. They are present in the air, skin, hair, nose, mouth and intestinal tract of humans and animals, soil, food, equipment, surfaces, plants and water. So it’s not hard to imagine how easily they can be transferred.

As bacteria are the most common cause of foodborne illnesses, we will look at them in more detail over the next few screens.

**How do bacteria get into food?**

There are two simple ways: the bacteria are already naturally present in the food or they’re introduced from an external source. This is called cross-contamination.
**How does cross-contamination occur?**

Cross-contamination occurs when safe food comes into contact with bacteria from a contaminated source. Examples include a sick food handler, other contaminated food, or dirty utensils, equipment or surfaces.

Cross-contamination from poor food handling practices is a major cause of food contamination and food poisoning incidents.

**How does food poisoning occur?**

Food poisoning bacteria are often naturally present in food. Very small amounts rarely make you sick. However, given the right conditions, they can multiply very quickly. A single bacterium can multiply into more than two million bacteria in just seven hours!

![Click on the pictures to find out what the right conditions are.](image)

**Temperature**

Bacteria grow best when the temperature is between 5 °C and 60 °C. This is called the Temperature Danger Zone. One of the most basic food safety practices is to make sure food is held in the temperature danger zone for as little time as possible.

**Food**

Bacteria need a food source to multiply. They grow on some types of foods more easily than others. These are known as potentially hazardous or high risk foods. We will look at what they are shortly.

**Moisture**

Bacteria need moisture to grow. If there is little or no moisture, the growth rate of the bacteria slows down or stops. Therefore, drying is an effective way to preserve food.

**Time**

It only takes 20 minutes for individual cells to separate into two. The more time bacteria are in the right conditions to multiply, the higher the risk of a food poisoning incident.

**Other factors**

The presence or absence of oxygen, the acidity or alkalinity level of the food and the number of chemicals present such as preservatives, can also affect the bacteria’s ability to multiply. For example, some bacteria don’t like very acidic or very salty foods.

It is important to note that once inside a person’s intestine, bacteria can continue to multiply. This means that a person may eat contaminated food having lower levels of bacteria on it but eventually still suffer from food poisoning.
Hot tip

Have you ever wondered why some foods must be refrigerated and not others? For example, flour, uncooked pasta or breadcrumbs are safely stored at room temperature for long periods. Which of the conditions is missing that allows them to be stored this way?

What types of food are considered potentially hazardous?

Potentially hazardous foods are those which have to be kept at certain temperatures (outside the temperature danger zone) to minimise multiplication of any food poisoning bacteria that may be present in the food, or to prevent the formation of toxins in the food.

Click on the dot points to see a list of high risk foods.

- Milk and dairy products containing milk products (butter, yoghurt, cream cakes, dips, baked custard tarts)
- Egg products (quiche, fresh pasta, duck and game bird eggs)
- Raw and cooked meat and poultry (all cuts of meat including poultry and game)
- Smallgoods (ham, salami, bacon)
- Processed meat products (pâté, meat pies, sausages, meat balls, casseroles)
- Raw and cooked fish, shellfish and fish products (caviar, patties, sauces, soup, stocks)
- Cooked rice and pasta and products based on them, such as sushi and pasta salads
- Pre-prepared foods (pizza, prepared meals, sandwiches, salads, rice dishes)

Note...

Virtually all perishable foods are potentially hazardous. They provide a good environment for bacteria to multiply, are more likely to already contain pathogenic bacteria, and have a short shelf-life before they are unsafe to eat. Check your state or territory’s food safety websites for more information on potentially hazardous foods.
How can I tell if food is contaminated?

You can’t! This is one reason why food poisoning incidents still occur even though we have extensive food safety programs.

Food poisoning bacteria do not produce any noticeable changes to the food. You can’t see them, they do not change the taste or smell of the product, and the texture of the product is not affected.

If there is a distinct ‘off’ smell or taste or a visible change, it is more likely to be due to food spoilage bacteria, not food poisoning.

What is food spoilage?

Not all bacteria are potentially deadly. Some bacteria just make food unfit to eat. Food spoilage occurs when food is kept for longer than it should be or stored inappropriately.

Use-by date

A ‘use-by’ date indicates when a product must be consumed by. After this date, it may no longer be safe to eat and must be discarded. Under food safety regulations, you are not allowed to sell food past its use-by date to customers.

Best-before date

A ‘best-before’ date is an indication of quality rather than a food safety standard. A product will remain fresh and of good quality right up to the ‘best-before’ date (and sometimes beyond) if it is properly stored. The potential for food spoilage increases beyond the best-before date.

Reducing spoilage

- Limit the time that food is kept at temperatures between 5 °C and 60 °C.
- Don’t buy food that is near the end of its shelf life or close to the use-by or best-before date.
- Do not allow dried foods to absorb moisture.
- Rotate your stock so you use older stock first.

Hot tip

While some food spoilage is obvious (you can see mould or mildew growth), other foods may just lose quality over time and be unfit for human consumption.
How do food poisoning bacteria affect me?

There are a variety of symptoms commonly associated with pathogenic bacteria. Depending on the type of bacteria, symptoms can start appearing in as little as 6 hours or take as long as 90 days after they come into contact with the digestive system.

- stomach cramps
- nausea / vomiting
- headaches
- cramps
- fever
- diarrhoea.

What pathogenic bacteria are responsible?

Most people who have food poisoning-like symptoms tell you they have ‘caught a bug’ or have ‘gastro’. Gastro (or gastroenteritis) is a general term used for symptoms such as stomach cramps, vomiting and diarrhoea. It is not a type of bacteria.

Click on the poisoning bacteria to find out more.

**Salmonella**

Sources: mainly found in raw meats, poultry and dairy products including mayonnaise, milk and custards.

Contamination: usually from poor food handling that allows contaminated food to come into contact with safe food (such as raw and cooked foods), or because foods are left in the temperature danger zone for too long.

**Campylobacter**

This is one of the most common causes of foodborne illness in Australia. It is often what overseas travellers suffer from when eating and drinking the local cuisine.

Sources: found in the gut of animals, especially birds.

Contamination: usually from eating undercooked poultry, sausages and mince, unpasteurised milk, or cross-contamination from raw to cooked foods.

**Listeria monocytogenes**

While rare, these bacteria can seriously affect pregnant women, young children and the elderly.

Sources: most raw foods have these bacteria in low levels.

Contamination: it is easily killed by heat, but raw foods can reinfect cooked foods.
**Escherichia coli**

Sources: E. Coli is found naturally in the gut of humans. Other sources can include unpasteurised apple and orange juices, sprouted seeds, fruit, raw milk cheese, salads, meat and meat products, especially undercooked minced meat patties in hamburgers.

Contamination: usually from raw foods which have not been washed prior to preparation (fruit, vegetables, salad ingredients) or from food handlers who do not wash their hands thoroughly after going to the toilet. Heat easily kills this bacterium, so cooking food thoroughly is important.

**Staphylococcus aureus**

This bacterium produces a toxin, and it is the toxin which makes you sick. The toxin is resistant to heat, so cooking doesn’t always make the food safe.

Sources: found naturally on our skin and nasal passages, also animals and poultry. It likes sweet and salty foods such as custards, hams, frankfurters, salami, potato or meat salads, cream-filled bakery products.

Contamination: from food handlers with infected cuts or sores, so keep them covered. Also found in inadequately cooked foods, or contamination between raw and cooked foods.

**Clostridium perfringens**

Large numbers of these bacteria are needed to make you sick. However, it multiplies very fast. It also passes through your system quickly. You’re often only sick for about 24 hours. It produces a spore which is very heat resistant and a toxin which is what makes you sick.

Sources: soil and the intestinal tract of humans.

Contamination: cooked foods which have been allowed to stand for several hours in the temperature danger zone, unwashed raw foods, food handlers with poor personal hygiene standards.

**Clostridium botulinum**

Cases of food poisoning from these bacteria are thankfully rare, as it has severe, and often fatal, consequences. It produces a neurotoxin which initially causes vomiting and diarrhoea but can lead to paralysis and death.

Sources: food which has been inadequately sterilised, especially canned or bottled foods.

Contamination: do not use food from a can which may have been pierced such as when dented, is swollen or blown, or a bottle where the seal is broken.

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**In a nutshell**

While you may not remember the names of the main types of pathogenic bacteria which cause food poisoning, it is important you have an understanding of common sources and how contamination occurs.
Who is most vulnerable to food poisoning?

Certain sections of the population are more susceptible to food poisoning bacteria than others. This is usually because their immune system is not able to fight the bacteria the same as a healthy person’s.

Click on the pictures to see who the most vulnerable people are.

- Babies and young children
- Pregnant women
- Elderly and frail persons
- Those who are already sick with other illnesses
- Those who are undergoing treatment such as for cancer or HIV (glossary)

Food poisoning bacteria can make everybody sick. The difference is how much bacteria needs to be present to affect you. Often, it takes only small amounts to make more vulnerable people very sick or even cause death. This is why hospitals, aged care and child care facilities have such strict food safety procedures.

What can I do to prevent food poisoning?

There are three ways to break the chain of events that lead to food poisoning.

Click on the links of the chain to see how.

**Prevent bacteria from multiplying**

Removing one or more of the conditions bacteria need to reproduce prevents them from multiplying or slows down the rate of multiplication.

Bacteria will not grow in dried foods such as rice, pasta, breadcrumbs, herbs or sugar due to the lack of moisture. This changes once you add water.

Keeping food cold (below 5 °C) or hot (above 60 °C) slows down the rate of multiplication.

**Destroy harmful bacteria**

Temperatures above 75 °C kill most types of food poisoning bacteria. Freezing does not kill bacteria. As frozen food thaws, multiplication recommences if the conditions are right.

Make sure high risk foods are thoroughly cooked. This especially applies to foods which have been processed in some way prior to cooking: minced meats, rolled or stuffed meats and poultry, and pre-prepared raw meals such as chicken cordon bleu, veal schnitzel, shaslicks and marinated kebabs.

**Prevent cross-contamination**

Use hygienic work practices to prevent safe food from becoming contaminated. Simple procedures such as washing your hands, keeping work areas clean, cleaning **food contact surfaces** (glossary), equipment or utensils between tasks, or keeping food covered and stored correctly all reduce the potential for food to become contaminated. We will look at hygienic work practices in more detail later in this section.
What systems are used to reduce the risk of food poisoning?

Earlier we mentioned that the purpose of a food safety program is to identify food safety hazards and then establish procedures to control the hazards.

The most common system used to identify and control hazards is the HACCP system (Hazard Analysis at Critical Control Points). HACCP is a practical system that enables food handlers to implement and maintain high food hygiene standards, and to comply with food regulations and legislation.

Let's briefly look at how this system helps you identify and control hazards. We can then discover what hazards you have in your workplace and the procedures you can use to control them.

Note...
HACCP is the most widely used food safety system throughout the world.

The HACCP system

Put simply, HACCP is all about identifying food safety hazards that may occur in your workplace, and determining which of those hazards present a risk to customers. A HACCP plan details how those hazards are to be controlled, and what to do in the event of loss of control.

There are seven principles or stages in a HACCP Plan.

Click on the tabs to learn about each principle.

Principle 1
Conduct a hazard analysis

This involves taking a close look at how food is produced within the business…. from initial delivery to storage, preparation, cooking and cooling of food, display, service or transportation. You are looking out for any hazards that may occur at any point in the process.

For example, a potential hazard may be growth of bacteria in a carton of raw chickens when delivered to the loading dock.

Principle 2
Identify the Critical Control Points (CCP)

A Critical Control Point (CCP) is a step in the production process where control can be applied to eliminate or prevent a food safety hazard, or reduce it to an acceptable level. If a hazard is likely to cause illness or injury, then you must address it at this point.

Is the raw chicken in the delivery dock a CCP? Yes, it is. It is a point where we can take action to control the hazard.
Principle 3
Establish critical limits for each CCP

A critical limit is a cut-off point after which food can no longer be deemed safe. Each CCP must have critical limits set in order to keep the system working within safe limits.

For example, a critical limit could be that the delivery of raw chickens must be placed in the refrigerator within 15 minutes of delivery.

Principle 4
Monitoring is the scheduled measurement or observation of a Critical Control Point relative to its critical limits. In simpler terms, we are checking that the system is safe and it is working. If it is not, then we do not have control of the hazard and further action must be taken.

The store person may have to keep a log of all deliveries: when they arrived, the time they were placed into storage, and where they were stored. This will document if the chickens were stored within the specified time.

Principle 5
Establish corrective actions

When establishing your procedures, you must also consider what to do if the system breaks down. What action(s) do you take to correct the situation?

For example, must the chickens be thrown out if they are not stored quickly enough? Must they be used within a specified period (eg. 24 hours)?

Principle 6
Establish record keeping and documentation procedures

Accurate and efficient record keeping is essential for a food safety program. The extent of recording will vary according to the type of business, customer base and legislative requirements.

Examples of records include approved suppliers list, goods received forms, cool room temperature logs and hot/cold food display logs.

Principle 7
Establish procedures for verification of the effectiveness of the HACCP plan

This principle involves verifying whether the HACCP plan is operating effectively. Verifying can take the form of procedures and tests, including random sampling and analysis. The most common forms of verification are internal and external audits.
In a nutshell

Your owners, managers and food safety supervisors (glossary) are responsible for establishing, implementing and monitoring the business's food safety systems. It is up to you to support the program by identifying and reporting any hazards, maintaining food safety standards by following procedures correctly, and using hygienic work practices.

Identify food hazards

Even if most food hazards have been identified and controlled in your workplace, you need to be aware of where they can occur. This helps you identify if something has gone wrong and understand why you need to use certain procedures.

Hazards in the workplace

Check out this workplace. It’s not the most hygienic place to work! There are some food hazards here which could lead to a number of serious food safety issues.

How many can you identify in 30 seconds?

Click on the timer to start.

List the potential hazards you identify.

Identifying hazards

How did you go? Being able to identify food hazards is an important step in maintaining great hygiene standards.

Let’s look at food hazards on the next screen. Consider which hazards you didn’t identify and which hazards could apply to your workplace.

Food hazards

A food hazard has the potential to contaminate food or cause food to become contaminated.

Click on the dot points to check out some potential hazards.

- Airborne dust
- Food which is already contaminated
- Contaminated garbage
- Dirty equipment and utensils
- Equipment not working correctly, especially fridges and thermometers
- Contaminated linen such as towels, tea towels and table linen
- Pests and vermin such as rodents, flies and cockroaches
- Colleagues who lack training or understanding of good hygiene practices and procedures
- Colleagues who do not use current workplace procedures or standards

Note...
Many sources of food hazards are common across a wide range of businesses and preparation processes. This means, no matter where you work or what you do, these hazards could exist in some or many areas of your workplace.

How do I remove or minimise a food hazard?
This depends on the type of hazard, where it is located, and how easy or difficult it is to remove. Following your organisation's food safety and food hygiene policies and procedures is the simplest way to minimise most food hazards.

What are some ways I can do this?
- Remove the hazard yourself. Clean the item of equipment, remove waste or throw out out-of-date food items.
- Bring the hazard to the attention of a supervisor or manager.
- Report the hazard using appropriate documentation.

We will look at how and to whom you should report hazards, later in this section.

Food hygiene procedures
We have mentioned many times how the procedures contained in a food safety program are designed to help you control or eliminate food hazards.

If your workplace handles food, they must have food hygiene procedures in place. The only time these types of procedures might not apply is if you handle only pre-prepared, pre-packaged items that require no further processing (packets of crisps, peanuts, chocolate bars, etc.).

Let's take some time to consider what hygiene procedures you and your workplace should follow.
What procedures does your workplace have?

Take a moment to think about how food is stored, prepared, served, packaged, delivered or displayed in your workplace and the various tasks you complete. Now, list all the procedures you can think of that relate to food safety. You have 30 seconds to record your answer.

Click on the timer to begin.

List all the workplace procedures you can think of that relate to food safety.

Handling garbage safely? Cleaning and sanitising equipment and surfaces effectively? Washing your hands? These procedures exist in most workplaces. Let’s look at some common good hygiene procedures.

Food hygiene procedure categories

Hygiene procedures are often grouped in different categories. What are some categories your workplace could have procedures for?

Click on the pictures to find out.

- Safe and hygienic handling of food and beverages
- Food storage
- Handling and disposal of garbage
- Cleaning and sanitising practices to avoid contamination of food
- Safe handling and disposal of linen and laundry
- Regular hand washing
- Suitable dress and personal protective equipment and clothing
- Personal hygiene standards
- Use of cleaning equipment, clothes and materials to avoid contamination of food

Hot tip

Many procedures are the same across the hospitality, events and tourism industries. It doesn’t matter where you working, the basic requirements for handling food safely are the same.
How can food hygiene procedures be the same across different industries?

Let's consider three different scenarios and see which food hygiene procedures might apply in each situation.

Click on the tabs to consider the scenarios.

**Scenario 1**
You work in a suburban restaurant which serves an international style menu. Food is prepared in the kitchen and served to customers at the table.

**Scenario 2**
You are a guide on a bus tour through central Australia. All food is carried with you in a refrigerated trailer, which is also a small portable kitchen.

**Scenario 3**
You are working in a temporary stall at a major sporting event. All food and equipment is transported to the event, set up and then packed up and removed afterwards.

Which procedures would be followed in each situation?

<table>
<thead>
<tr>
<th>Food hygiene procedure</th>
<th>Scenario 1 Restaurant</th>
<th>Scenario 2 Tour bus</th>
<th>Scenario 3 Stall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe and hygienic handling of food and beverages</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Food storage</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Handling and disposal of garbage</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cleaning and sanitising practices to avoid contamination of food</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Safe handling and disposal of linen and laundry</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Personal hygiene standards and regular hand washing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Similarity of food hygiene procedures**

On the previous screen, each scenario had ticks against all the food hygiene procedures because food was being handled in every location. The only difference was the bus tour might not use linen, such as table cloths.

In every situation, food must be stored, prepared and cooked safely, the person handling the food must have good personal hygiene standards and wash their hands regularly, and they must make sure all equipment is cleaned during and after use.

The location as to where they complete these procedures might be different. However, this doesn’t change the fact they must be done.
In a nutshell

Food hygiene procedures describe how to complete a task safely and hygienically. These are called hygienic work practices. Incorporating hygienic work practices into your daily routines greatly reduces many food hazards.

Safe and hygienic work practices

Do you keep your work areas clean? Do you regularly clean your equipment and utensils? Do you clean your chopping board between tasks? Do you wash your hands? Do you make sure you remove all rubbish and waste at the end of your shift? These are all great examples of hygienic work practices.

Click on the icon to find out more.

One of the most common causes of food poisoning is the inappropriate handling of high risk foods.

It is important to handle high risk foods safely and hygienically at each stage of the production process.

1. Food storage and temperature control
2. Thawing
3. Preparation
4. Cooking and cooling
5. Displaying food

Let’s look at these in more detail over the coming screens.

1. Food storage and temperature control

For an establishment to produce safe food it must store food properly at the correct temperature. There are three main food storage areas in a food premises: dry goods, refrigerators and freezers.

Click on the storage areas to discover good hygiene.

Dry store

- Keep storage area dry, cool and well ventilated.
- Do not store chemicals and other hazardous substances in the same area.
Refrigerator
- Store perishable foods below 5 °C.
- Do not overcrowd the refrigerator with excessive stock.
- Do not place hot food directly into the refrigerator. Cool it first.
- Store cooked food above raw food to reduce the risk of cross-contamination.

Freezer
- Store frozen foods at temperatures below -18 °C.
- Securely wrap food to be frozen or place in sealed containers to prevent contact with other foods.
- Clearly label and date frozen stock.
- Store frozen goods immediately after delivery.

General work practices
- Store food in its original, sealed packaging, in sealed or covered containers, or wrap securely in cling film or foil.
- Store food together in similar food groups. Put all dairy products together, all vegetables and fruit together, all cooked meats together.
- Keep storage areas clean and free of pests.
- Check use-by and best-before dates.
- Rotate stock, using the oldest stock first.
- Check deliveries for damaged or broken packaging.

2. Thawing

Always thaw food in the refrigerator, not on the bench in the open air or in hot water. Make sure that you never re-freeze food once it has thawed, and start cooking food within 24 hours of thawing.

Make sure that food is completely thawed before you start cooking. If it isn’t completely thawed, the heat of cooking will defrost the food but will not heat the inside of the food to a sufficient temperature to kill food poisoning bacteria.

Food thawed in a microwave oven should be cooked immediately, as the temperature of the food may exceed 5 °C and allow bacteria to grow rapidly.

3. Preparation

Using safe and hygienic practices is vital when completing preparation tasks, as you are often handling a variety of raw and cooked foods at the same time.

Click on the pictures to see examples of hygienic preparation practices.

Chopping boards
Prepare raw meat, poultry, seafood, fruit and vegetables on different, colour-coded chopping boards.
Washing
Wash vegetables and fruit prior to preparation.

Keep refrigerated
Only remove high risk foods from the refrigerator just prior to commencing the preparation task to keep them out of the temperature danger zone for as long as possible.

Be quick
Store or cook foods as soon as preparation is completed.

Clean as you go
Clean equipment, utensils, chopping boards and food contact surfaces between preparation tasks.

Separate different foods
Keep raw, cooked and ready-to-eat foods separate during preparation tasks to prevent cross-contamination.

Change the cloth
Do not use the same cloth to clean different surfaces, equipment or areas that have been used to prepare food.

4. Cooking and cooling

How you cook and cool foods is as important as how you prepare it.

- Click on the dot points to learn some food safety practices.
- Cook food thoroughly so the internal temperature reaches 75 °C.
- Always reheat cooked food to at least 75 °C or above.
- Check that soups, casseroles, sauces and gravies boil to ensure they are thoroughly cooked and have reached at least 75 °C.
- Clean *temperature probes* (glossary) with a sanitising wipe between each use.
- Place large quantities of foods such as soups and casseroles into smaller containers to cool faster.
- Place cooled foods in clean, dry, covered containers before refrigerating.
- Do not place hot foods into the refrigerator immediately after cooking.

If food is not cooked properly, is left on the bench to cool for too long or stored incorrectly afterwards, the food may still have food poisoning bacteria present in unacceptably high levels.

Cooling food safely
Some bacteria or their toxins are heat resistant. This means they are not destroyed during the cooking process.
To make sure this type of bacteria do not have time to multiply to unacceptable levels, cool cooked food to 21°C within two hours. Once cool, place the food in the refrigerator and cool to 5°C or less within a total of four hours.

Larger items or bulk quantities of foods may take up to two hours to cool enough to be placed in the refrigerator. However, smaller items can be refrigerated faster as they cool quicker.

5. Displaying of food

A simple practice to remember when displaying food is ‘keep hot food hot and cold food cold’. This means you must store displayed food outside the temperature danger zone of 5 °C to 60 °C.

Click on the checkboxes for more practices to adopt.

- Serve food using utensils such as tongs, lifters, service spoons or forks.
- Do not use the same utensil to serve a range of food items.
- Regularly check the temperature of displayed food to make sure it is being held at the correct temperature.
- Make sure all display equipment, containers and utensils are clean and dry prior to use.
- Cover all food displayed on counters to protect it from contamination.
- Make sure processed, ready-to-eat foods such as sandwiches, wraps and salads are stored in refrigerated display cabinets below 5 °C.
- Separate raw and cooked foods in refrigerated displays.
- Make sure all food is already at the correct temperature prior to being placed in displays. Display equipment (such as bain-maries) (glossary) cannot thaw or heat food quickly enough to prevent the growth of bacteria.
- Do not overfill display containers as the food cannot be held at the correct temperatures.

Note...

Consider this...

Why do you think food displays have clear plastic protective shields between the food and the customer?

Why do you see food service attendants gently stirring food on a regular basis in hot food displays?

Do these procedures apply to me?

Don’t be fooled into thinking these procedures only apply if you work in a kitchen. If you handle food, they apply to you too. Make sure you find out what practices are used in your workplace.
Do you remember the three scenarios we looked at earlier? Let’s revisit them and add some more information.

Click on the scenarios to begin.

**Scenario 1**
You work as a cook in a suburban restaurant. You use fresh, frozen and processed foods in your menu items. Food is prepared and plated in the kitchen and served to customers at the table.

Let’s look at the hygiene practices you should follow in this job role.

- Store perishable foods below 5 °C.
- Store frozen goods immediately after delivery.
- Store or cook foods as soon as preparation is completed.
- Clean equipment, utensils, chopping boards and food contact surfaces between preparation tasks.
- Cook food thoroughly so the internal temperature reaches 75 °C.
- Always reheat cooked food to at least 75 °C or above.
- Serve food using utensils such as tongs, lifters, service spoons or forks.

**Scenario 2**
You are a guide on a bus tour through central Australia. All food is carried with you in a refrigerated trailer, which is also a small portable kitchen. You prepare meals using fresh, dried, tinned or ready-to-eat foods.

Let’s look at the hygiene practices you should follow in this job role.

- Store perishable foods below 5 °C.
- Store or cook foods as soon as preparation is completed.
- Clean equipment, utensils, chopping boards and food contact surfaces between preparation tasks.
- Cook food thoroughly so the internal temperature reaches 75 °C.
- Always reheat cooked food to at least 75 °C or above.
- Serve food using utensils such as tongs, lifters, service spoons or forks.

**Scenario 3**
You are working in a temporary stall at a major sporting event. All food is prepared in a central kitchen and transported to the event prior to service. It is reheated or cooked on-site and held in hot and cold displays for self-service by the customers.

Let’s look at the hygiene practices you should follow in this job role.

- Store perishable foods below 5 °C.
- Cook food thoroughly so the internal temperature reaches 75 °C.
- Always reheat cooked food to at least 75 °C or above.
- Serve food using utensils such as tongs, lifters, service spoons or forks.
- Make sure all display equipment, containers and utensils are clean and dry prior to use.
What are unsafe work practices?

Essentially, they are work practices which can directly or indirectly cause food to become contaminated and unsafe to eat. Unsafe and unhygienic practices can cause harm to those consuming potentially contaminated food. They directly contravene your organisation’s food safety policies and practices or legislative requirements.

Why do unsafe practices occur?

- Lack of food safety knowledge.
- Lack of food safety training.
- Lack of awareness of changes to workplace procedures and practices, so out-dated procedures are still used.
- Directed to use unsafe practices by another person.
- Not following the directions provided by supervisors, managers or workplace hygiene signage.
- Seeing others using unhygienic work practices.

What are some unsafe practices?

- Poor personal hygiene standards.
- Using broken or malfunctioning equipment.
- Handling food while sick with an infectious disease such as a cold or influenza.
- Not covering wounds, cuts and abrasions when preparing food.
- Not washing your hands between preparation tasks, or when returning to the work area after going to the toilet, smoking or having a meal break.
- Not keeping work areas, equipment, utensils and food contact surfaces clean.
- Leaving high risk foods in the temperature danger zone for long periods of time.
- Allowing safe food to come into contact with potential sources of contamination.

Note...

Ask yourself! Do you use any of these unsafe practices, or are any used by others in your workplace? Unsafe food safety and hygiene practices can lead to a food poisoning outbreak.
What should I do if food safety procedures are not followed?

If food safety procedures are not followed, you must report it to your team leader, supervisor, manager or food safety supervisor. When and how you report it may depend on the type and seriousness of the problem.

Verbal reporting

If it is a minor breach, you could report it to your supervisor verbally when it occurs. If follow-up is required or a food poisoning incident has resulted from the incident, document it on an incident report.

Food safety records

Some food safety documents allow breaches to be recorded at the time of the incident. For example, a Goods Receiving Form records if an item is not delivered at the appropriate temperature or the packaging was damaged. It allows you to record what actions you took to resolve the situation.

Incident report

More serious breaches could be recorded on an incident report. Some workplaces require all breaches or incidents to be recorded, no matter how small or large.

You must detail what happened, when, who was involved, what actions were taken at the time and any consequences. Most workplaces will have a formal, standardised document for recording the details of breaches or incidents.

Food safety supervisor

If your workplace is required to implement a food safety program, they will also have a food safety supervisor. Their role is to oversee the implementation of the food safety program and ensure procedures are followed correctly.

If you see or know of a food hazard, unsafe work practices being used or a breach in food safety procedures, report it to your designated food safety supervisor for follow up.

Hot tip

Unsafe and unhygienic practices and food hazards should also be reported, as they increase the potential for food to become unsafe for consumption.

Reporting procedures and recording of the actions taken are an integral part of a formalised food safety program.

End of section

You have reached the end of section 1.

Click to the next section to continue.
Section 2: Report any personal health issues

In this section you’ll learn the following.

- How to report any personal health issues likely to cause a hygiene risk.
- How to report incidents of food contamination resulting from personal health issues.
- When to cease participation in food handling activities.

Are you fit to work?

How would you feel if you saw a person sneezing and blowing their nose while preparing your lunch-time chicken and salad wrap? Food handlers can easily contaminate food with viruses and bacteria if they are working when ill.

Click on the icon to find out more.

Food safety records maintained by state and federal health departments show one of the most common causes of cross-contamination and foodborne illness is from food handlers working when sick. As a result, the Food Standards Code has established clear guidelines for food handlers and employers.

Before we look at the standards set out in the Code, let’s find out if you are a food handler.

Are you a food handler?

Chapter Three of the Food Safety Standards describes a food handler as anyone who works in a food business and who either handles food or surfaces that are likely to be in contact with food such as cutlery, plates and bowls.

Click on the icon to see the wide range of jobs this applies to.

Food handling roles

All of these workers handle food directly or indirectly, are responsible for the storage or display of food, or handle equipment, machinery or surfaces which come into contact with food.

- A food and beverage waiter
- A barista (glossary)
- A stores person in a hotel or café
- A bar person
- A qualified or apprentice cook
A service station attendant
A sandwich maker in a café
An events coordinator
A worker in a yoghurt factory
A small goods delivery driver
A salesperson in an ice-cream shop

What health issues affect my ability to work?

There are three types of health issues which directly impact food handlers.

Click on the tabs and see what they are.

Airborne diseases

Airborne diseases are caused by bacteria or viruses which can be transmitted through the
air in dust particles or small water droplets expelled from your respiratory system (lungs, throat and nose).

Coughing and sneezing is a common method of transmission. Infected water droplets
from your respiratory system can also be suspended in cigarette smoke. Examples of
airborne diseases include tuberculosis, the H1N1 flu (commonly called swine flu) and measles.

Food can be contaminated from a food handler coughing or sneezing directly over food, or
anywhere in a food preparation area, as the infected droplets can travel some distance on
air currents.

Food prepared in kitchens with open, uncovered doors and windows, or in open, outdoor
spaces, can become contaminated from airborne dust and soil.

Foodborne diseases

Foodborne diseases are a result of the bacteria and viruses we discussed in section 1. A
food handler can become infected from eating contaminated food and pass the illness
onto others when handling food while ill.

Infectious diseases

The World Health Organisation defines infectious diseases as those caused by
pathogenic microorganisms, such as bacteria, viruses, parasites or fungi. The diseases
can be spread, directly or indirectly, from one person to another.

This can include not only the pathogenic bacteria and viruses discussed in section 1 but
also colds and influenza and Hepatitis A.

What are my responsibilities?

The Food Safety Standards state that ‘food handlers have an overall responsibility for
doing whatever is reasonable to make sure that they do not make food unsafe or
unsuitable for people to eat. Food handlers also have specific responsibilities related to
their health and hygiene.’
Click on the icons to learn some of your responsibilities if you are sick.

**Responsibility 1**
You must tell your work supervisor if you have any vomiting, diarrhoea, a fever, or a sore throat with a fever while at work, unless you know it does not relate to a foodborne illness (for example, pregnancy).

**Responsibility 2**
You must also tell your supervisor if you have been diagnosed as having or carrying a foodborne illness.

**Responsibility 3**
You must tell your supervisor if you have or are carrying a disease that might be transmitted through food. Hepatitis A and illnesses caused by *giardia* (glossary), salmonella and campylobacter are examples of diseases that can be passed on through food.

**Responsibility 4**
You must tell your supervisor if you have any infected skin lesions or discharges from your ears, nose or eyes, as these could contaminate food.

**Responsibility 5**
You must not handle any food where there is a chance you might make the food unsafe or unsuitable because of your illness.

**Responsibility 6**
You should not return to work until you have been symptom-free for at least 48 hours.

**What if I think I have contaminated food?**
The Food Standards Code clearly states your responsibilities in this situation.

- If you stay on at work to do other work, you must do everything reasonable to make sure that you do not contaminate any food.
- You must tell your supervisor if you know or think you may have made any food unsafe or unsuitable to eat.

**Who do I report health issues to?**
In most workplaces, you would report any health issues or potential food contamination to your direct supervisor or manager.

Some organisations may want you to report any absences from work to a Human Resources Department or Payroll Office, along with a doctor’s certificate for the time off work, and a clearance for your return to work.
End of section

You have reached the end of section 2.

Click to the next section to continue.
Section 3: Prevent food contamination

The clothes you wear and your personal hygiene is just as important as keeping food outside the temperature danger zone.

In this section you’ll learn the following.

• Why it’s necessary to maintain clean clothes, wear required personal protective clothing and only use organisation-approved bandages and dressings.
• How to prevent food contamination from clothing.
• How to minimise direct contact with ready-to-eat food.
• How to ensure hygienic personal contact with food or food contact surfaces.
• How to use hygienic cleaning practices.

Food contamination

So far, we have discussed how pathogenic bacteria can contaminate food from poor or unsafe hygiene practices and the consequences of contamination.

However, this is not the only way food can become contaminated. The clothes you wear, your personal hygiene standards, and the cleaning procedures you use can also impact on your food safety standards.

Let’s start with looking at how the clothes you wear and your personal hygiene is just as important as keeping food outside the temperature danger zone.

Off to work we go

Most workplaces have a standard uniform for their employees. This uniform may identify your place of work with names or logos, your job role or your area of work within the organisation.

You may be allowed to wear whatever you want to work. In this case, you should be selecting clothes based on food safety requirements as well as comfort and image.

Under the Food Safety Standards, food handler’s personal hygiene practices and cleanliness must minimise the risk of food contamination.

You have a responsibility to do whatever is reasonable to prevent your body, anything from your body, or anything you are wearing, coming into contact with food or food contact surfaces.

Let’s find out what you wear at work, and discuss how you can meet this responsibility.
What do you wear when handling food?

Do you wear an official uniform? Do you wear casual style clothes? Do you wear clothing that relates to your job role such as a chef’s uniform or a suit? There’s a wide range of clothing worn in the industry.

Click on the checkboxes for some examples.

- Chef’s jacket and pants
- Apron
- Jeans or casual trousers/pants/skirt
- Shorts
- Shirt or t-shirt
- A formal suit (trousers/pants/skirt and jacket)
- Chef’s hat or scarf
- Baseball or other style hat
- Necktie
- Clogs
- Boots or sport shoes (runners)

The clothing you wear at work can also have functions other than to identify where you work. There may be safety requirements, or they may be part of the business’s food safety standards. Let’s look at this next.

Clothing and food safety

Some clothing is worn as part of your workplace’s food safety requirements or for safety purposes. This is called personal protective clothing.

Click on the items of clothing to find out their safety roles.

**Chef’s pants and jacket**

These are generally made from natural fibres such as cotton. They are more fire-retardant than man-made fabrics and can be laundered at higher temperatures to remove stains and kill any bacteria. A chef’s jacket is double-breasted which provides added protection against hot surfaces and equipment.

**Chef’s hat or cap**

A hat or a cap provides some protection to your head but, more importantly, stops hair from falling onto food and contaminating it.

**Apron**

Aprons provide an extra barrier between you and hot surfaces or exposed flames in a kitchen. They can also be easily removed if they become stained and dirty, and replaced with a clean one. This reduces the risk of cross-contamination between food stains such as raw meat juices and other items being prepared.
Shoes

Shoes not only protect your feet from sharp or heavy items, they also protect from spills and dropped food. They should be made from leather, as it is resistant to liquids compared to the soft fabric of sports shoes which will absorb liquids.

What about other clothing?

Many food handlers don’t wear a chef’s uniform. Waiters, bar or flight attendants, tour guides, sandwich or kitchen hands and catering staff often wear semi-formal or more casual clothing such as pants or skirt and a t-shirt or shirt.

If possible, wear an apron to protect food from any sources of contamination on your clothing, and change the apron regularly.

If you wear your own clothes, choose ones which can be easily cleaned to remove food residue and other contaminants, which don’t have decorations which could fall off and contaminate food (e.g. beads, diamante, chains, tassels), and which provide some protection from the dangers of food processing such as heat and sharp objects.

Cleanliness of clothing and food safety

The cleanliness of your clothing has a direct impact not only on your workplace’s business image but also on hygiene standards.

Keep it clean

Any clothing worn at work by a food handler must be cleaned regularly. You should be wearing freshly laundered clothing at the start of every shift. If your workplace launders your uniforms, make sure you hand it in for cleaning at the end of the shift.

Wash and wear

Personal clothing should be washed after use to remove any food residue. Shoes should be cleaned, especially the soles, to remove soil so it is not carried into the food preparation area.

Get changed

Food handlers should not wear their uniforms to or from work. Contaminants such as dust, dirt, pet hair or fabric fibres from home or from your journey to work can contaminate food, food surfaces, equipment and utensils. Always change into a clean uniform at your place of work and change back into casual clothes for your journey home.
Hot tip

If you wear a chef’s hat, scarf or baseball style cap at work, when was the last time you cleaned it? Oil from your scalp, flakes of skin, dirt, hair and hair products can build up inside your hat, creating a wonderful, warm hatching ground for bacteria.

Personal hygiene and food safety

Your own personal hygiene standards are as important as clean clothing. Things such as finger nails, jewellery and hair can also contaminate food. These are all forms of physical contamination since bacteria can be transmitted through these mediums.

Click on the pictures for some personal standards you should maintain.

Finger nails

The sight of a waiter serving your food with dirty finger nails will make you question the hygiene of the whole establishment. Dirt and food build-up under nails is unhygienic and looks terrible. Finger nails should be cleaned regularly, both before and during work.

Nail polish may or may not be permitted in your workplace. Check with your supervisor if you are not sure. It is often not allowed as it chips easily and can fall unnoticed into food. If you do wear nail polish, check it regularly for chips, or wear gloves while handling food.

Jewellery

Individual establishments will generally set their own standards for compliance. Many establishments limit the type of jewellery that you wear to plain banded rings, sleepers for pierced ears, plain and simple watches, and minimal or no visible body piercings. Avoid wearing jewellery (such as watches, rings) with stones as they may fall into food.

Make sure you clean watch bands regularly as perspiration and food can build up between metal links or soak into leather bands. When washing your hands, clean under and around any rings thoroughly.

Hair

Did you know that we lose about 100 hairs each day? To prevent hair from contaminating food or falling on utensils or people, long hair should be tied back when handling or serving food. This prevents you from wanting to touch it and contaminate your hands, and it is safer.

In a food preparation area, regardless of its length, hair should be covered with a chef’s hat, cap or hairnet.

If wearing hair accessories such as pins, clips, elastic bands or decorative items, make sure they are firmly secured to your hair so they won’t fall out. Shampoo hair regularly, as clean hair is also a sign of good personal health.
**Skin**

Skin particles carry bacteria and, because we shed skin all the time, the bacteria can easily be transferred. Make sure you bathe daily and look after your skin.

If wearing personal clothing at work, consider how much uncovered skin is exposed to food and food contact surfaces. This is both a hygiene and a safety issue.

**Oral hygiene**

The smell of bad breath from your waiter, bar attendant or tour leader will put you off your food. Most of us have had bad breath, whether we were aware of it or not. Clean your teeth and tongue twice a day and use a breath freshener, especially after smoking, eating and drinking beverages such as coffee.

**Bandages**

One of your responsibilities, discussed in the previous section, was to cover or protect any wounds such as cuts or abrasions. You must use organisation-approved bandages and dressings. This means, for example, using blue coloured waterproof band-aids. If a bandaid falls off while preparing or serving food, it can be seen easily.

Your workplace’s first aid kit should stock these brightly coloured dressings. Make sure you remove any flesh-coloured one you may have put on at home, and replace it with an organisation-approved one while at work.

If you are using fabric bandages for a sprain or more significant wound, you should be using plastic disposable gloves to cover the injured finger or hand.

**What personal habits could contaminate food?**

Many areas of your body contain high levels of bacteria. Touching them, and then handling food or touching food contact surfaces immediately afterwards, could be a source of cross-contamination. You could unknowingly be spreading dangerous micro-organisms.

Click on the tabs to learn more.

**Ways of contaminating food**

While handling food, do you consciously or unconsciously do any of these things?

- Eat or chew gum in a food preparation area.
- Smoke in or near a food preparation area.
- Touch your nose, mouth, eyes, ears or hair.
- Sneeze, cough or blow your nose over food, or near food preparation or service surfaces or equipment.
- Use your fingers to taste food.
- Bite your finger nails.
- Touch any part of another’s body.
If you are not sure, try to be more self-aware when you are working, and think about what you are doing.

**Reducing the risk of cross-contamination**

- Cover your mouth with a handkerchief or disposable tissue when coughing or sneezing. Dispose of tissues immediately, or regularly replace used handkerchiefs with a clean one. Wash your hands before returning to handling food.
- Make sure your hair is secured in place prior to commencing work so you don’t need to keep readjusting it. For example, flicking a fringe or tucking hair behind your ears.
- Only eat food in designated areas such as a staff room.
- Use a clean utensil such as a teaspoon to taste food. Discard or wash it immediately after each use.
- Only smoke in designated areas, usually outside of the building or, if at an outside venue, away from all preparation and service areas.
- Wash your hands regularly. We will look at this in the next section.

**How can food contact surfaces contaminate food?**

Most bacteria can live for some time on a surface or in a droplet of moisture. If you sneeze or cough over an item of equipment, a dinner plate or a menu, bacteria could remain on that surface and contaminate any food that comes into contact with it.

If you touch or blow your nose, scratch your arm or lick your fingers, your hands are contaminated. This can be transferred to the knife or chopping board you are using to prepare food, or the container you are putting food into for the sandwich bar.

**What are some examples of food contact surfaces I could contaminate?**

Surfaces you could potentially contaminate

- Chopping boards
- Containers
- Cooking and service utensils
- Crockery
- Cutlery
- Glassware
- Pots and pans
- Sinks
- Workbenches

**What foods are most susceptible to contamination?**

In section 1 we discussed potentially hazardous or high risk foods. Of these foods, some are very susceptible to cross-contamination.

Click on the icon to find out what they are.
Ready-to-eat foods are high risk foods and susceptible to cross-contamination from poor handling practices at the point of sale. Examples of ready-to-eat foods are pre-prepared sandwiches, rolls and wraps, sushi rolls and salads.

You should try to limit direct contact with ready-to-eat foods as much as possible as cross-contamination is a major cause of food poisoning in this type of food.

To reduce cross-contamination through poor handling, many pre-processed, ready-to-eat foods are delivered from the supplier already individually wrapped, packaged and ready for sale. Great care and high personal and equipment hygiene standards are necessary for foods that are delivered in bulk and portioned in the workplace.

If you prepare ingredients for or assemble ready-to-eat foods, make sure you limit direct contact with your hands, clothing or skin as much as possible. Wear clean protective clothing, use utensils such as tongs and sandwich cutters, wash your hands and wear rubber gloves, cover ingredients when not in use and package assembled items as soon as finished.

How else can food be contaminated?

The cleaning practices you use also have a significant impact on your ability to keep food safe. Throughout this resource we have regularly referred to keeping work areas and food contact surfaces clean.

If your workplace has a food safety program, you should find extensive policies and procedures on cleaning processes, as it is an important component of any program.

The Food Safety Standards outlines requirements for the types of materials which can be used in a food premises during their construction, and also for surfaces, fittings, appliances and equipment.

Taking control

To keep your premises clean on an ongoing basis, you need a written cleaning schedule. This should outline all the cleaning which needs to be completed in all food preparation and service areas. It includes cleaning which must be completed on a regular, ongoing basis, and periodical cleaning which is completed at set intervals.

What’s included in a cleaning schedule?

- Location of cleaning
- Person responsible for the cleaning
- Details of cleaning tasks such as the procedure for dismantling a piece of equipment
- Frequency of cleaning
- Cleaning agents, their concentration and any other equipment to be used
- Precautions for preventing cleaning agents contaminating food

Click on the icon to see an example of an entry in a cleaning schedule.
Cleaning schedule

<table>
<thead>
<tr>
<th>Item to be cleaned</th>
<th>Chopping boards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How</strong></td>
<td></td>
</tr>
<tr>
<td>• Scrape food scraps into bin.</td>
<td></td>
</tr>
<tr>
<td>• Rinse in warm water.</td>
<td></td>
</tr>
<tr>
<td>• Wash in warm water with detergent, use brush and scourer as needed. Soak if needed.</td>
<td></td>
</tr>
<tr>
<td>• Rinse in clean water.</td>
<td></td>
</tr>
<tr>
<td>• Apply sanitiser and soak.</td>
<td></td>
</tr>
<tr>
<td>• Rinse in clean water.</td>
<td></td>
</tr>
<tr>
<td>• Allow to air dry.</td>
<td></td>
</tr>
<tr>
<td><strong>When</strong></td>
<td>Every day after use</td>
</tr>
<tr>
<td><strong>Cleaning equipment/chemicals</strong></td>
<td>Scraper, brush, scourer, detergent, sanitiser</td>
</tr>
<tr>
<td><strong>Who</strong></td>
<td>Kitchen hand</td>
</tr>
</tbody>
</table>

What needs to be cleaned?

Cleaning tasks are usually broken down into two categories: daily or regular cleaning tasks and periodical cleaning.

Click on the pictures to see examples of what would be cleaned.

**Regular cleaning**
- Cutlery, crockery and glassware
- Food preparation utensils (knives, chopping boards, pots and pans, blenders)
- Service utensils (tongs, service spoons, lifters)
- Linen (tea towels, table, waiters cloths and cleaning cloths)
- Bench tops, shelving, floors and sinks
- Food preparation and cooking equipment (stoves, ovens, mixers, grills, stockpots, barbeques)
- Toilets and hand washing facilities
- Display equipment (hot and cold display cabinets and containers)

**Periodical cleaning**
- Storage areas (including internal walls and shelving of dry store, freezer, refrigerators, fixed and portable cool rooms)
- Walls, ceilings, floors underneath fixed equipment if not accessible normally
- Ventilators, exhaust fans, canopies and filters
- Drains and grease traps
- Degreasing of floors and other surfaces
How do I clean?

Cleaning food surfaces, equipment and utensils thoroughly and hygienically involves both cleaning and sanitising.

There are six simple steps to cleaning an item properly.

1. Pre-clean. Scrape, wipe or sweep away food scraps and rinse with water.
2. Wash. Use hot water and detergent to remove any grease and dirt. Soak if needed.
3. Rinse. Rinse off any loose dirt or detergent foam.
4. Sanitise. Use a sanitiser to kill any remaining bacteria.
5. Final rinse. Wash off sanitiser.

Remember, the aim of cleaning is to remove all dirt, soiling, food residue and any other sources of contamination from the item being cleaned.

What is the difference between cleaning and sanitising?

Cleaning removes visible grease, dirt and food residue. Sanitising kills some types of micro-organisms, reducing the number on a surface to a safer level. Heat or chemicals are the two common methods used to sanitise.

Items must be cleaned first before sanitising as sanitisers don’t clean and cannot kill bacteria encased in dirt or food still on a surface.

Heat

Hot water is the most common method of sanitising eating and drinking utensils and food contact surfaces. Hot water sanitising can be done manually or mechanically through the use of a glass washer or dishwasher. To achieve an adequate level of sanitation, an item needs to be in contact with 77 °C hot water for at least 30 seconds.

Bleach

Bleach is a common chemical sanitiser. You must rinse any items sanitised with bleach afterwards, otherwise you could be chemically contaminating any food which comes into contact with the sanitised item.

Food-grade sanitisers

Food-grade sanitisers do not have to be washed off surfaces after use. The chemicals used do not contaminate food and cause illness. Food-grade sanitisers are recommended for high use items such as chopping boards and bench surfaces but can be used on all types of surfaces.
In a nutshell

The Food Safety Standards state that food contact surfaces and equipment must be cleaned and sanitised before use.

What about the linen I use to clean with?

Linen used as part of your normal duties and cleaning tasks is one source of cross-contamination if not used and disposed of correctly.

Click on the tabs to see examples of unsafe cleaning practices.

Cleaning cloths

Cleaning cloths are used in a wide variety of areas and for different tasks. However, they are often used incorrectly. They don't get cleaned properly between jobs, or a different cloth doesn't get used for each task.

This can lead to high levels of contamination in the cloth, which are then easily passed onto other areas or surfaces. Let's look at some examples.

- Cleaning guest toilet facilities in a restaurant followed by cleaning service equipment or surfaces in the dining area.
- Cleaning toilet facilities in a guest room and then cleaning surfaces in the bedroom and mini-bar areas.
- Cleaning kitchen areas before moving on to clean reception, dining or accommodation areas.
- Cleaning using the same cloth and a range of different chemicals.

Tea towels

Using a dirty, contaminated tea towel for multiple tasks is a common mistake made by food handlers. Using a tea towel to wipe down surfaces, dry equipment that has been cleaned and sanitised, or using it to wipe greasy hands and clean drips from a plated menu item is very unhygienic. Bacteria breed in warm, moist environments and contaminate the clean surfaces the tea towel comes into contact with.

Table linen

Table linen such as guest napkins and waiters cloths are also often used for cleaning purposes. Using a guest’s napkin which has been used to wipe their mouths, and then using it to wipe over surfaces or polish cutlery or glassware is very unhygienic.

Towels

Some workplaces provide towels in staff toilet facilities to dry hands. This is unhygienic. If a person has not washed their hands properly, other staff will be contaminated after they wash and dry their hands. Disposable paper towels are a much more hygienic option for drying hands.
Infected linen

Dirty linen is not the only source of cross-contamination. Linen can also become infected with blood, urine or faeces, and bodily fluids such as saliva and sweat.

It is not uncommon for tea towels to be used to block a cough or sneeze, or clean the blood from a cut, and then later used to clean with. Towels in staff toilets, guest rooms or public toilets can all be contaminated with infectious bacteria or viruses.

Hot tip

How often do you swap cloths for a new, clean one during your shift? Next time you are working, think about the variety of tasks you use a cloth for, and how you might be spreading food poisoning bacteria as a result.

How can I reduce the potential for contamination?

There are a couple of simple procedures you can follow to reduce cross-contamination between linen and food or food contact surfaces.

Click on the icon to learn what they are.

- Use single-use, disposable towels in hand washing and toilet facilities.
- Use single-use, disposable dishcloths for wiping down surfaces and equipment.
- Clean cleaning cloths in hot water and detergent after each use and sanitise regularly.
- Replace tea towels and cleaning cloths regularly throughout a shift.
- Remove any infected linen from the food preparation area immediately and place in a linen bag for cleaning.

End of section

You have reached the end of section 3.

Click to the next section to continue.
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Section 4: Prevent cross-contamination by washing hands

In this section, you’ll learn the correct procedure and facilities for washing your hands.

Wash your hands!

How many times have you heard your mother tell you that? It was for a good reason!

Click on the icon to find out why.

Your hands make contact with many surfaces during the course of a day. This is a sobering thought when you consider the amount of bacteria on these surfaces. Take, for example, the bacteria that can build up on the screen of a register, the handle of a tap or the counter in a sandwich bar during lunch service. How many strangers have touched those surfaces before you?

Washing your hands regularly and thoroughly when handling food is the only real way of making sure you are not passing on any of those bacteria to others through their food.

Do you know when you should wash your hands and how to do it properly? Let’s look at that now.

When should I wash my hands?

The Food Safety Standards set out very clear guidelines for when a food handler must wash their hands.

Food handlers are expected to wash their hands whenever their hands are likely to contaminate food.

This includes washing their hands:

- immediately before working with ready-to-eat food and after handling raw food
- immediately after using the toilet
- before they start handling food or go back to handling food after other work
- immediately after smoking, coughing, sneezing, using a handkerchief or disposable tissue, eating, drinking or using tobacco or similar substances
- after touching their hair, scalp or a body opening.
Are these the only times?

No. You should also wash your hands immediately after handling garbage or dirty linen, and after handling cleaning or other chemicals.

What are some examples of when this might happen?

For example, if you work as a kitchen hand, you must wash your hands when you return to the kitchen after emptying the bins. You may be washing dishes at the end of the night, but you may also be touching food contact surfaces that have already been cleaned.

If you work as a food service attendant, tour guide or a flight attendant, you must wash your hands after cleaning up or after serving a meal. Your hands could be contaminated with the cleaning chemicals you have used.

What facilities must my employer supply?

Your employer must supply appropriate hand washing facilities, either in the food preparation area or adjacent to the toilet facilities. They must be used solely for hand washing, not for other purposes such as washing vegetables or dishes. This is a basic requirement under all food safety legislation.

The hand washing facilities must be large enough to wash your hands correctly, have a constant supply of warm running water, and soap, single-use paper towels or other hand drying facilities (such as a hot air hand dryer) must be provided.

How do I wash my hands correctly?

Many people do not wash their hands correctly. They don’t wash the whole of their hands thoroughly or for long enough. The Food Safety Information Council recommends the 20/20 rule: 20 seconds to wash your hands and 20 seconds to dry thoroughly. Bacteria can spread more easily to and from moist hands.

Click on the pictures to check out the correct way to wash your hands.

1. Use the designated hand washing sink, not the preparation sink in the kitchen or bar.
2. Apply soap and develop a thick lather by working your opposite hand up and down.
3. Wash palms, fingers, thumb, wrist and finger nails. Use a nail brush if necessary.
4. Rinse the soap with warm or hot running water.
5. Dry your hands with single use paper towels or hot air dryer.
I use disposable gloves so I don’t need to wash as much

You may not need to wash your hands as much if you use disposable rubber gloves when preparing food. However, be conscious that wearing disposable gloves can give you a false belief that you are using good hygiene practices.

Click on the icon to find out more.

Ask yourself these questions. How often do you change the gloves? Do you change them when swapping between preparation tasks? Do you change them if you touch your face, nose or hair?

Have you ever seen someone wearing the same pair of gloves, make a sandwich, take the customer’s money, wipe the bench with a cloth and start to make another sandwich? This is a prime example of how cross-contamination can occur.

Gloves should be removed in between tasks, especially when handling money. Sometimes, using clean service equipment such as tongs can be more hygienic than using gloves.

What about hand sanitisers?

The use of alcohol-based hand sanitisers is becoming more widespread in domestic situations. Most food businesses do not supply these as part of their hygiene programs as yet.

Like any other chemical, hand sanitisers must be approved as suitable for use in a food preparation area. As the hand sanitiser is left on your hands, it cannot contain any chemicals which could contaminate food and harm those consuming it.

Before you use one in your workplace, check with the supplier and the sanitisers SDS (glossary) first to make sure it is approved.

Note...

A hand sanitiser works the same as any other sanitiser. You must wash your hands prior to using it. It does not clean your hands. It only removes the bacteria it comes into contact with. If your hands are not clean when you use the sanitiser, you will not have killed all the bacteria present.

End of section

You have reached the end of section 3.

Click to the next screen to read the summary
Summary

Customers have an expectation of how food will taste, smell and look. They also have an expectation that you have used safe and hygienic methods to prepare and serve their food. It is not difficult to follow safe food preparation, storage and handling procedures. Most of what you have learnt is basic common sense.

Remember those statistics at the very start of this resource? Nearly 15 000 people per day suffer some form of food poisoning. Let's make sure your workplace isn't the one that has made them sick!

Remember, workplace hygiene is your responsibility.
<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bain-marie</td>
<td>A container holding hot water into which a pan is placed for slow cooking or to keep food warm.</td>
</tr>
<tr>
<td>Barista</td>
<td>A person who prepares and serves coffee to the public.</td>
</tr>
<tr>
<td>Contamination</td>
<td>The introduction or occurrence of a contaminant in food.</td>
</tr>
<tr>
<td>Faeces</td>
<td>Bodily waste matter derived from ingested food and the secretions of the intestines and discharged through the anus.</td>
</tr>
<tr>
<td>Food contact surfaces</td>
<td>Any surface which food may come into contact with during storage, preparation and service. Examples include bench tops, equipment, containers and wrappings.</td>
</tr>
<tr>
<td>Food safety hazard</td>
<td>A biological, chemical or physical agent, or condition of food, with the potential to cause harm or an adverse health affect when the food is eaten.</td>
</tr>
<tr>
<td>Food safety supervisor</td>
<td>A person who has had additional food safety training and has the authority to supervise and give directions about matters relating to food safety.</td>
</tr>
<tr>
<td>Foodborne illness</td>
<td>Illness caused by the consumption of contaminated food. Also known as foodborne disease or food poisoning.</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>A common term used for infection or irritation of the digestive tract. Symptoms include nausea, vomiting, diarrhoea and stomach cramps.</td>
</tr>
<tr>
<td>Giardia</td>
<td>A parasitic intestinal infection which can cause diarrhoea, nausea, abdominal pain and fatigue.</td>
</tr>
<tr>
<td>GM food</td>
<td>Genetically modified food which has had its DNA modified or altered through genetic engineering. Most common products are meat and edible plants.</td>
</tr>
<tr>
<td>HACCP</td>
<td>Hazard Analysis at Critical Control Points. HACCP is a practical plan (or program) that enables food handlers to implement and maintain high food hygiene standards and comply with food regulations and legislation. HACCP is the most widely used food safety system throughout the world.</td>
</tr>
<tr>
<td>HIV</td>
<td>Human immunodeficiency virus.</td>
</tr>
<tr>
<td>SDS</td>
<td>Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS). Suppliers and manufacturers must provide up-to-date SDSs for all chemicals. They provide information on hazards associated with the chemical, how to safely handle and store it, and any first aid or emergency procedures.</td>
</tr>
<tr>
<td>Temperature probe</td>
<td>It is a thermometer with a long, pointed shaft used to check the internal temperature of large items such as roasts or casseroles.</td>
</tr>
<tr>
<td>Toxins</td>
<td>Poisons produced by some types of bacteria when they multiply in food.</td>
</tr>
<tr>
<td>Vulnerable persons</td>
<td>People who are at greater risk of foodborne illness, such as the very young, the elderly and people whose immune system is compromised (immunocompromised) because of disease or treatment.</td>
</tr>
</tbody>
</table>