Section 1 - Hygiene Procedures & Hygiene Hazards

1.1 Access & Follow Hygiene Procedures

Know your food safety responsibilities

As a food handler, you have legal and job responsibilities to ensure that you maintain food safety in the workplace. As well as following safe day-to-day practices, this means understanding:

- All policies and procedures that exist in your workplace, eg a food safety program;
- Food safety hazards;
- Principles for safe food handling.

This knowledge will help you to understand the risks and follow specific safe food handling practices that we’ll discuss later in this guide.

It is also your responsibility to:

- Carry out duties to monitor food handling; and
- Take some action (according to your level of responsibility) to correct or report on any unsafe practices or situations you observe in your workplace.

Legal obligations of food handlers — these are laid down in the Food Act every establishment should have a copy of these on the premises and workers are advised to read through them. They relate to the correct storage, preparation and service of food, together with requirements relating to cleanliness, personal hygiene and the control of pests.

Workplace hygiene and the law

Customers rely on food staff to provide food that is safe to eat and in a clean environment. Following workplace hygiene rules will ensure:

- You are clean; and
- The environment is clean and safe.

When you follow workplace hygiene rules, you will be complying with food laws. These laws place a great responsibility on anyone who is handling food in a food business. They are there to ensure that food remains ‘safe and suitable’ for your customers to eat.

Environmental Health Officers

Right of entry — officers who police the Food Act (variously known as 'Health Inspectors', 'Health Surveyors or
correctly today 'Environmental Health Officers') have the right of entry to food premises at any time, providing they identify themselves and display their warrant card/authority.

Refusal to grant them admission is an offence and they are able to call police to assist them gaining entry: the moral of the story is simply to let them in when they arrive.

**Power to inspect** — health officers have very great powers, and when you consider that part of their job is to protect public health, this stands to reason. They have a right to inspect any food premises (and beverages/liquor is deemed to be food), its equipment and the food there.

They have the power to take samples of whatever food they want, but they must pay for it, offer the owner a sample of the same as the one they take, and take a third sample to act as a control in the case of dispute. Samples are analysed by a government agency or government approved agency to determine if they are in accordance with specifications.

Where a customer makes a complaint against a food premise, the health authority is obliged to investigate it.

Where a food poisoning outbreak occurs, the health officers have the power to detain a person until they can obtain a faecal sample for examination.

Inspection powers of health officers also cover the inspection of liquor with a view to assessing whether or not it has been contaminated or adulterated in any way (i.e., to check that liquor has not been watered down, and to check that one brand has not been substituted for another).

**Food safety policies and procedures**

For all food businesses — restaurant, retail food service, fast food, hospital, bistro or caterer — food safety policies and procedures have become increasingly important. Food businesses must conform to legal requirements and ensure that food is free from contamination and will not cause a food poisoning incident. Food poisoning outbreaks can have a devastating affect on a business, its staff and its customers. Sound food safety practices will identify food safety hazards, and reduce the likelihood of this occurring.

**What is a food safety program?**

A food safety program systematically identifies the food safety hazards that may reasonably be expected to occur in your workplace. It outlines the food safety procedures that must be followed to prevent, control and eliminate food safety hazards. It also documents how these procedures comply with food regulations and legislation.

A food safety program:

- Identifies where and how each hazard can be controlled;
- Describes how these controls are to be monitored;
- Describes the corrective action required if control conditions are not met; and
- Identifies records that must be kept.

A food safety program must comply with relevant federal, state and industry legislation and regulations. While not required by law in NSW, food safety programs are being adopted in many businesses.

Even without a formal food safety program, food safety procedures must be implemented to ensure legal compliance and ensure that all food produced for sale remains ‘safe and suitable’.

**HACCP**

A food safety management system may also include a **Hazard Analysis at Critical Control Point (HACCP) system**. A HACCP system is based on the idea that if significant biological, chemical, or physical hazards are identified at specific points within a products flow through an operation, they can be prevented, eliminated or reduced to safe levels.
To be effective, a HACCP system must be based on a written plan that is specific to each facility’s menu, customers, equipment, processes, and operations. A HACCP plan is based on the seven basic principles outlined by the National Advisory Committee on Microbiological Criteria for Foods. The HACCP Principle applies to most food venues.

A Hazard Analysis is a detailed list of the conditions or circumstances that can cause food hazards.

A Control Measures describe how to keep food safe and will also improve food quality. Control measures are established to prevent, control and eliminate food safety hazards.

A Critical Control Point is the point at which action can be taken to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

**Approach**

The HACCP principles are seven sequential steps that outline how to create a HACCP plan. Since each principle builds on the information gained from the previous principle, when developing your plan you must consider all seven principles in order. In general terms:

Principles One and Two help you identify and evaluate your Hazards.

Principles Three, Four, and Five help you establish how you will control those hazards.

Principles Six and Seven help you maintain both your HACCP plan and system and verify their effectiveness. Each of these principles will be discussed in the next slides.

**The Seven HACCP Principles**

**Principle One: Conduct a Hazard Analysis**

Identify and assess potential hazards in the food you serve by taking a look at how the food is processed, or flows through your establishment. Many types of food are processed similarly. The most common processes include:

- Preparing and serving without cooking
- Preparing and cooking for same-day service
- Preparing, cooking, holding, cooling, reheating, and serving which is also called complex food preparation

Once common processes have been identified, you can determine where food safety hazards are likely to occur for each one. Hazards include:

- Biological - Bacterial, viral, or parasitic contamination
- Chemical contamination by cleaning compounds, sanitizers, and allergens
- General physical contamination.

**Principle Two: Determine Critical Control Points (CCPs)**

After the hazard analysis has been completed, the next step is to determine the Critical Control Points (CCPs).

A Critical Control Point is a point, or step in the food production process, at which control can and should be applied to prevent or eliminate a food safety hazard or to reduce it to an acceptable level.

A Critical Control Point is usually the last point/step at which the food safety hazard can be controlled.

Most processes will only have a few CCPs, which make it easier to focus attention on parts of the process which are critical to the safety of the food.

One example of critical control point would be Temperature, which needs to be regulated to control the growth of the bacteria on food. This is established by the critical limits or principle three.
**Principle Three Establish Critical Limits**

Each critical control point must have limits, a cut-off point after which food can no longer be deemed safe. These limits may also be called specifications, range or standards.

These limits are the standard that must be met for each critical control point. It determines the difference between what is safe (acceptable) and unsafe (unacceptable).

Limits can be worded in several different ways depending on the critical control point. For example: A range eg: 70-75 degrees Celsius

A minimum eg: at least 75 degrees Celsius

**Principle Four Establish Monitoring Procedures**

Why have monitoring systems? We monitor how much petrol is in our car by checking the petrol gauge; we monitor the temperature of a sick child, we monitor the length of time left in the football game until the final siren.

Companies need to monitor critical control points to make sure they don’t lose control. Monitoring systems are a planned sequence of measurements used to demonstrate that a CCP is under control. They determine whether a product is “safe” or “unsafe”. The monitoring allows us to produce a record for future use. The monitoring may also indicate that there is a trend towards loss of control and we can take action to bring the process back into control. The monitoring process is done through the records which the Food Safety supervisor will need to fill out on a daily bases. This process will help with the control of the food born diseases which contribute to food poisoning.

**What happens when things go wrong?**

Monitoring enables us to determine when the critical limits have not been met. It is essential that, when these limits have not been met, the product does not enter the market place. This product is often known as non-conforming product. It may also be called out of specification (out of spec, o.o.s.) or non-complying product. The food may be unsafe/ contaminated or have the potential to become unsafe/ contaminated.

**Principle Five: Identify Corrective Actions**

Corrective action is the action to be taken when the results of monitoring at a CCP indicates a loss of control. Corrective actions should be documented in the food safety plan so as it is clear to everyone the necessary steps required.

The corrective action should:

- State how the affected product is to be identified
- Restore process control
- Identify and eliminate the cause of the deviation

Non-conforming product should be isolated; starting from the time monitoring indicated a loss of control until the last acceptable result. This is why an effective monitoring schedule is important and can save you time and money.

**Principle Six: Verify that the System Works**

Determine if the plan is working as intended. Plan to evaluate on a regular basis your monitoring charts, records, how you performed your hazard analysis, etc., and determine if your plan adequately prevents, reduces, or eliminates identified hazards.

Records will include hazard analysis, a written HACCP plan, records documenting the monitoring of critical control points and critical limits. It is important that records are filled out accurately and legibly. Records must be completed in the required format. For example if a log sheet says to record a yes or no, then a tick or cross is not sufficient.

If you are responsible for reviewing check sheets filled out by someone else then you should sign them off to
indicate that this has been completed and that the records are satisfactory. Also an audit record log will need to be done every six months to make sure that the system in place is still working and there has not been a change during this period of time.

Principle Seven: Establish Procedures for Record Keeping & Documentation

The HACCP system requires the preparation and maintenance of a written HACCP plan together with other documentation. This must records obtained while performing monitoring activities, whenever a corrective action is taken, when equipment is validated (checked to make sure it is in good working condition), and when working with suppliers (i.e., shelf-life studies, specifications, challenge studies, etc.).

Usually, the simplest record keeping system possible to ensure effectiveness is the most desirable

1.2 Report Poor Organisation Practices

Processes or practices that do not follow the food safety program should be reported. This includes the corrective action that has been taken.

Reporting enables poor food handling practices to be identified, and helps to prevent these practices occurring in the future. It also increases awareness of food safety issues.

You must report to your supervisor when:

- Critical limits are not reached and corrective action has been required, eg when products being received are returned due to incorrect temperature, use-by dates or packaging that does not meet standards.
- Equipment is not working properly or not operating at correct temperatures, eg when temperatures are not correct in cool rooms, freezers and other refrigeration units.
- Hygiene policy has been ignored leading to contamination of food or food contact surfaces.
- Lights in food preparation and storage areas are not working.
- Signs of pests are noticed.
- Supplies of equipment needed to reduce food safety hazards, such as cleaning and sanitising products or single-use gloves, are running low.

1.3 Identify Hygiene Hazards

Food safety hazards

A food safety hazard is something that is dangerous and likely to cause harm to food. Food safety hazards include physical, chemical and biological risks to food. These will be discussed in more detail later. It’s important to identify food safety hazards as some foods are more susceptible to microbial contamination than others and can be considered as ‘high-risk’ foods. These foods are the focus of food safety programs. These ‘high-risk’ foods include:

- Fish and seafood;
- Meat and smallgoods;
- Poultry and game;
- Dairy and egg-based foods;
- Wet dishes, soups, stock and sauces;
- Fruits including rockmelon, watermelon, blueberries and fruit salad;
- Pre-made salads;
- Pate and soft cheeses;
- Ice-cream; and
- Cooked rice and pasta.

To prevent food safety hazards you need to understand the key risks to food contamination, and the practices that need to be applied at each stage of food production.

Safe food handling is based on two key principles. These principles are the basis of safe food handling
practices that you are required to follow in your workplace. As a food handler you should understand these two basic principles:

- Preventing food being contaminated; and
- Controlling bacteria from growing in food.

These principles are the key to maintaining the hygiene of food and to preventing an outbreak of food poisoning.

**How does food become contaminated?**

Food can be contaminated by physical objects, chemicals, or bacteria transferred to the food either through poor handling practices or from another food source. This is known as cross-contamination.

**Physical contamination**

Physical contamination is caused by foreign objects entering food during the food preparation and service process and generally results in an injury rather than an illness. Physical contamination can come from a number of sources and can include items such as:

- Glass fragments from bar staff using a glass to scoop ice;
- Dust from poor cleaning;
- Metal shavings from slicers and mincers;
- A band-aid falling into food; and
- Pest infestation.

Premises can also pose a physical food hygiene risk — dust from air conditioning vents, peeling paint and chipped tiles can end up in food.

**Chemical contamination**

Chemical food poisoning is caused by the presence of toxic chemicals in food. Examples of chemicals that may contaminate food include pesticides, insecticides, rat poison, cleaning agents, or chemicals resulting from a chemical reaction between food and inappropriate storage containers, eg galvanised cans.

**Toxins**

Toxins are a poisonous chemical produced by some microorganisms.

Some food poisoning bacteria produce toxin when they grow in sufficient numbers in food, while some others produce toxin in the stomach after being eaten. Certain types of fungi or mushrooms can be poisonous.

Some algae also produce toxins; contamination may occur in shellfish and reef dwelling fish.

Mould on food should always be treated with suspicion as moulds produce toxins known as mycotoxins many being cancer-producing. These toxins or poisons are often water-soluble and not destroyed by conventional cooking.

**Biological contamination**

Your food handling practices should ensure that food is not exposed to any food safety hazards. Poor handling practices can result in food being contaminated by bacteria. People, animals or pests can all cause bacterial contamination. Examples of how this could occur include:

- Poor personal hygiene such as food handlers coughing or sneezing over food or not washing hands after eating or using the toilet;
- Food not being protected during self-service, e.g. salad bars require sneeze screens;
- Self-service such as buffet not being supervised;
- Pest infestations;
- Poor storage practices resulting in food being open to contamination;
- Animals on food premises.

**Cross-contamination**
Cross-contamination is the transfer of micro-organisms from raw foods (usually animal foods) to cooked or ready-to-serve foods. Raw foods can contain high numbers of bacteria and care must be taken to ensure bacteria from raw foods are not transferred to cooked or prepared foods. This involves a number of stages of food handling.

Cross-contamination can occur in all functional areas of hospitality. It is particularly dangerous in the kitchen as large numbers of harmful bacteria can be transferred to food or food contact surfaces, increasing the risk of food poisoning.

Cross-contamination is also linked to standards of personal hygiene, cleanliness and sanitising.

Practices to apply the food handling principles

- Wash and sanitise all equipment including utensils, knives, chopping boards and work surfaces before and after use when preparing different foods, eg raw meat and cooked meat;
- Wash hands between preparation tasks, in particular after you have handled raw meat, poultry or seafood;
- Change single-use gloves after handling raw foods;
- Use a clean utensil each time you taste food;
- Minimise contact with food wherever possible by using utensils or single-use gloves; and
- Don't store raw foods above cooked foods.
Correct use of single-use gloves

The Food Standards Code contains the legal requirement that food handlers must prevent contamination from anything on their bodies. Single-use gloves act as a barrier between the food handler and the food. They should be used to cover cuts, sores or dressings on the hands to prevent contamination of food products and when handling ready-to-serve foods. Gloves must be used properly to ensure this requirement is met.

- WASH AND DRY hands before and after using gloves.
- DISCARD gloves when they become soiled.
- CHANGE gloves whenever hands would normally be washed.
- CHANGE after picking anything up off the floor.
- DISCARD gloves when leaving the work area for ANY reason.
- WHEN RETURNING to the work preparation area, wash hands and use a new pair of gloves.
- DO NOT REUSE GLOVES — throw away immediately after removing gloves.
- DO NOT STORE GLOVES where they can be contaminated in the work area.

How can you control bacteria from growing in food?

Temperature control is the most effective practice for controlling bacterial growth in food. The growth of micro-organisms occurs most effectively when food is left in the danger zone, between 5°C and 60°C. Temperature control applies to every stage of food handling. Faulty equipment can also allow food to become exposed to the danger zone, eg poor seals on doors let hot or cold air escape.

Temperature control

The Food Safety Standards require temperature control for potentially hazardous foods throughout the production process. Temperature control is defined at Division 1 — Interpretation and application of Standard 3.2.2 Food Safety Practices and General Requirements as maintaining food at a temperature of:

5°C, or below
- if this is necessary to minimise the growth of infectious or toxigenic micro-organisms in the food. This ensures that the microbiological safety of the food will not be adversely affected for the time the food is at that temperature; or

60°C or above; or
- Another temperature — as long as the food business can demonstrate that maintenance of the food at this temperature for the period of time, for which it will be so maintained, will not adversely affect the microbiological safety of the food.
Remember the Danger Zone

These temperature requirements correspond directly with the temperature danger zone. Where the standard describes another temperature it is referring to limiting the time the food product is exposed to the danger zone. If time is limited, even in the danger zone, harmful bacteria will not grow to sufficient levels to pose a health risk.

As a general rule, the total time that a ready-to-eat high-risk food can be at temperatures between 5°C and 60°C is four hours. After this time it must be discarded, e.g. if raw meat is cooked, count the total time the meat is in the danger zone after cooking. The rules are that if any ready-to-eat high-risk food has been at temperatures between 5°C and 60°C:

- For a total of less than two (2) hours — it must be refrigerated immediately, or used immediately.
- For a total of longer than two (2) hours, but less than four hours — it must be refrigerated or used immediately,
- For a total of four (4) hours or longer — it must be thrown out.

Monitoring the temperature and appearance of foods

You may be asked to take the temperature of food or record the appearance of the food as part of following the food safety program. Your workplace may have a Food Safety Manual that contains check sheets. These are used by food handlers to monitor and record the hygienic handling of food.

Bacterial Food Poisoning

This occurs when enough of the particular organisms present in food are eaten and survive the passage
through the acid digestive juices to the gut, where they take up residence.

The multiplication can occur either in the food due to incorrect storage, or the intestine due to ideal conditions.

The ideal conditions for bacterial multiplication are set out below. The point to bear in mind is that these conditions are the ones found in a kitchen, especially where food is just left to sit around waiting to be used.

The following signs could indicate food poisoning:

- Vomiting;
- Diarrhoea;
- Headache;
- Nausea;
- Stomach cramps;
- Numbness;
- Impaired feelings;
- Unable to move;
- Fever and chills; and
- Dehydration.

Death can, and has, resulted in several cases.

The conditions for bacterial growth are:

1. **Food** — bacteria need food to grow and the sugars, complex carbohydrates and proteins found in food commonly prepared for human consumption provide this.

2. **Moisture** — bacteria will die without moisture. This is the main reason spills in food preparation areas must be wiped up and utensils dried.

3. **Warmth** — bacteria multiply rapidly between 5°C and 60°C (the temperature danger zone), so every effort must be made to keep food outside this range. There is no food poisoning bacterial growth below 0°C (no bacteria will grow below — 17°C), and little below 5°C, or above 50°C. it is for this reason that food should be stored below 5°C or above 60°C.

4. **pH** — is the measure of acidity of a solution. On the pH scale, 7 is neutral and bacterial growth usually occurs in the 5 — 7 pH range. Soured foods use their low pH (le, high acid) to prevent growth of food-spoiling bacteria, but they often require further preserving techniques such as refrigeration.

5. **Air** — aerobic bacteria need air for growth, whereas anaerobic bacteria grow without air. Anaerobic conditions can be present within the particles of food, particularly cooked foods and meat. These foods will require storage by refrigeration and/or heating above 60°C at the coolest point (le, in the middle) before serving.

6. **Time** — bacteria reproduce every 10 - 30 minutes, depending on conditions. This means that given sufficient time, their numbers will increase sufficiently to cause contamination and disease.

Control of bacterial growth

By being aware of the conditions for bacterial growth, food handlers can use this knowledge to control the growth. The basics are to keep foods outside the temperature danger zone, to minimise the time spent within that zone, and to prevent bacteria from entering the food.

Bacteria are hitch-hikers — they cannot fly from place to place, they hitch a lift in order to get from place to place.

Their destination is food, and the means of transport they use to get there can be our hands, a cloth, a utensil, or a drop of blood.

The bacteria can be transferred (le, hitch-hike) from the toilet to our hands, and from our hands to the
sandwich we are making.

They can travel from spilt stew to the cloth we used to wipe up, and then on to a clean plate that is later wiped with the same cloth prior to having food placed on it.

They can travel in a drop of blood that drips from a slice of raw meat onto prepared dishes stored below in the refrigerator.

Harmful bacteria can be present in raw food or they can be transported to both raw and cooked foods by careless handling such as slicing raw and cooked meat with the same knife/slicer without cleaning in-between. This is called 'cross-contamination'

Even small numbers of bacteria are dangerous because they can multiply so rapidly when the conditions are right: moisture, food, temperature, air and sufficient time.

**NOTE:** Infected food does not always look, smell or taste bad.

It is important to remember, that time spent in the temperature danger zone is cumulative. If a piece of meat is left out on the bench for 1 hour, refrigerated and then brought back out into the kitchen, the time it the spends in the temperature danger zone is added to the previous time. The clock does not get reset to zero when the food was put in the fridge again.

### 1.4 Take action to remove or minimise hazards

As a food handler there are some practices that you must follow to ensure that food does not become contaminated and pose a hygiene risk to customers and staff. If these practices are not followed, food poisoning could be the result.

Your responsibility as a food handler is that you handle food hygienically at all stages involved in the preparation and serving of food. These stages include:

- Receiving goods;
- Storage;
- Defrosting;
- Preparation and processing;
- Cooking;
- Cooling;
- Packaging;
- Reheating;
- Display; and
- Transportation.

Remember, you may also need to record temperatures and food-handling activities on check sheets that form part of a workplace Food Safety Manual.

You must also take necessary precautions when moving around the workplace and/or from one task to another to maintain food safety.

Let's look at each of these stages in detail.

**Receiving goods**

Receiving goods involves the handling and inspection of goods being delivered. Goods should comply with the paperwork for the order and should also be inspected for:

- Signs of damage or deterioration, eg strange colour, appearance or smell;
- Broken and damaged containers or packaging, or swollen cans or jars, no evidence of leakage and no signs of pest infestation;
- Use-by dates with appropriate time left;
- Temperature compliance, eg temperatures of chilled high-risk foods must be checked to ensure that they are at or less than 5°C;
- All frozen food must be delivered at or below −18°C (unless you have requested it be thawed) and there must be no evidence of defrosting or freezer burn on any frozen products.
• Practices to ensure food safety and quality of food;
• Put perishable goods in cold (or frozen) storage immediately;
• Unpack fruit and vegetables from cardboard containers and place in clean containers; and
• Keep the delivery area clean and free from pests.

It is important that deliveries are received at times that are suitable for your workplace, ie not in peak periods or before staff arrive for work. If deliveries are made in peak periods there is a risk that the checking of goods will be rushed or omitted and there may be a delay in moving perishable foods to temperature controlled storage areas.

Storage

All items — food, beverage, linen, uniforms, paper goods, chemicals, stationery, crockery, glassware, cutlery, etc — used in a hospitality establishment need to be stored correctly to maintain quality, prevent damage and prevent cross-contamination. Poor storage of non-food items such as straws, paper packaging and linen can also pose either food specific hygiene hazards or general workplace hygiene risks.

Incorrect storage temperatures will result in food spoilage or the growth of food poisoning bacteria. Dirty environments can cause pest infestations, which can lead to cross-contamination from these pests.

Storing foods with chemicals will result in chemical contamination of the food, particularly for dry goods or foods stored in plastic containers, as the chemical fumes will seep into food containers. Even placing food in the beer keg fridge can potentially spoil the beer or at least the taste of it.

Standard 3.2.2 Food Safety and General Requirements [6(1) – (2)] requires the safety and suitability of food be maintained by ensuring food is stored in an appropriate environment and protected from contamination. High-risk foods must be stored under specific temperatures to minimise the opportunity for bacterial growth.

The three main principles of safe storage

1. Temperature control for perishable food items;
2. Time control; and

Temperature control

Temperature control is essential for perishable foods. Practices related to this principle are to:

• Ensure refrigeration units keep food at 5°C or below;
• Move deliveries of high-risk foods, eg meat, poultry, seafood and dairy goods to cold storage as quickly as possible;
• Frozen foods should be kept a –18°C or less;
• Do not overload storage areas and ensure air can circulate;
• Limit the amount of time refrigerator doors are left open;
• Make sure refrigeration units are well maintained and calibrated;
• Do not place hot foods directly in the cool room;
• Measure temperatures with a thermometer; and
• Do not re-freeze foods that have thawed or partially thawed.

Time control

Practices related to this principle are to:

• Rotate stock — first-in-first-out — and make sure all food is used before its use-by date.
• Poor storage conditions will reduce the shelf life of food and beverages. Shelf life reflects the period from the time of manufacture until the time the food item is no longer fit for human consumption. The expected
shelf life, and therefore the ‘use-by date’, is assessed on the assumption that the food item is stored under appropriate conditions.

- If food is removed from the original packaging, ensure the use-by date is recorded on new packaging or container.

**Prevention of contamination**

Practices related to this principle are to:

- Cover or wrap, label and date all foods. It may be appropriate to write the number of serves on prepared foods;
- Do not store food on the floor in storerooms, cool rooms or freezers;
- Store raw and cooked foods or prepared raw foods separately. Never store raw foods above cooked or prepared raw foods as they may contaminate it;
- Store open foods in sealed containers;
- Control pests; and
- Clean storage areas regularly, including cool rooms and freezers.

**Defrosting**

As foods defrost, the temperature rises and eventually will reach the danger zone. Foods should be defrosted in the refrigerator or cool room, not at room temperature, to ensure they don’t reach the danger zone temperatures. As it takes much longer to defrost in cool temperatures you will need to remove foods from the freezer well in advance. If you are short of time, use a microwave oven or place food in a strainer under cold running water.

Practices to ensure safe defrosting of foods

- Place foods on a rack, with a tray or dish underneath to catch any juices, known as ‘drip’, that are released on thawing. This prevents them contaminating other foods
- Check foods are thoroughly defrosted before cooking as they may not cook through in the centre, allowing bacteria to grow to dangerous levels. Label and date when food was removed from the freezer
- Some processed foods can be cooked from a frozen state (eg frozen vegetables, chips, chicken nuggets) so leave them frozen until you are ready to use them
- Defrosted foods should be consumed or discarded within 24 hours of defrosting
- Do not refreeze any foods that have partially or fully thawed
- If defrosting is required urgently, cook and/or use immediately.

**Food preparation and processing**

Food preparation and processing exposes food to potential contamination from both the food handler and from the bacterial growth due to the food being exposed to the danger zone. There are some specific issues that food handlers must follow to ensure that food does not become contaminated and pose a hygiene risk to customers and staff.

Practices for safely preparing and processing food

- Minimise the danger zone time for perishable foods — ideally, high-risk foods should not be left in the danger zone for more than 30 minutes. So if you are preparing large quantities of perishable foods, prepare in batches and return to the cool room, rather than taking the whole lot out at once.
- Avoid unnecessary contact with and over-handling of food. Do not touch ready-to-eat food with your hands. Use tongs or disposable gloves when handling foods like salads, sandwiches, cold desserts and even garnishes.
- Change single-use gloves (if using them) when changing from raw to cooked foods.
- Prepare raw and cooked foods separately using separate chopping boards and utensils where possible and avoid cross-contamination of raw and ready-to-eat foods from hands, equipment and utensils.
- Never use the same cloths or sponges to wipe down areas or equipment used for raw food as you do for cooked foods.
- Wash all raw fruit and vegetables that may be contaminated with dirt, fertilisers and pesticides.
- Always follow manufacturers’ instructions for diluting sanitiser when sanitising fruits and vegetables that
will be served raw (high risk groups).

- Follow personal hygiene and cleaning and sanitising procedures at all times during preparation.
- Wash and sanitise equipment and utensils before and after use and when preparing different foods with the same equipment.
- Use a clean spoon each time for tasting food.
- Cover prepared foods when storing.

**The Don’ts of food processing**

- Prepare food too far in advance;
- Use crockery to dispense dry goods;
- Use eggs that have cracked or dirty shells;
- Sit, lean or stand on bench tops, bars or tables;
- Spit, smoke, eat food or chew gum in food preparation areas or while preparing food; and
- Sneez, blow or cough over food or food contact surfaces.

**Cooking**

Cooking foods to a high enough temperature destroys most bacteria. Inadequate cooking was found to be the cause of more than a quarter of all food poisoning outbreaks between 1980 and 1995. To ensure safe food you can’t always rely on your senses, eg the colour of cooked food, but need to use reliable methods of determining that food has reached a sufficient temperature to kill bacteria. Measuring the internal temperature of foods is the most commonly used method of ensuring that food has reached sufficient temperatures.

Practices to ensure safe cooking of foods

- Preheat cooking equipment prior to use;
- Do not overload cooking equipment;
- Ensure meat dishes are cooked adequately;
- Cook minced dishes, wet dishes, all poultry, stuffed fish and boned, rolled or stuffed roasts to at least 75°C;
- Solid pieces of red meat, e.g. whole roasts, chops and steaks can be cooked to individual preferences, e.g. rare. They are cooked until the surfaces are well browned;
- Cook seafood and fish fillets until adequately cooked. Oily fish, e.g. tuna and salmon, can be served rare;
- Ensure products are fully thawed before cooking unless food is intended to be cooked from frozen;
- Ensure all equipment and utensils are clean and sanitised prior to use.

**Cooling food prior to storage**

Foods that are not going to be served immediately or held hot for service should be cooled as quickly as possible to minimise the time spent in the danger zone.

Follow this rule for cooling high-risk foods prior to storage:

**Food must be cooled to less than 5°C:**

- within two (2) hours — from 60°C to 21°C
- within a further four (4) hours — from 21°C to 5°C.
- Practices to ensure safe cooling of food prior to storage
- To reduce the cooling time of large volumes of wet dishes such as soups and casseroles or large pieces of food you can:
  - transfer wet dishes to shallow containers (5 cm deep)
  - stir wet dishes
  - slice large pieces of meat
- Use a blast chiller if available
Do not place very hot foods in the cool room, refrigerator or freezer. When food reaches 60°C it can be placed in the cool room.

- Cover cooling foods with loose cover to protect from physical contamination while allowing heat to escape.
- Ensure all equipment and utensils are clean and sanitised prior to use.

### Packaging foods

Foods may be packaged for self-service, later use or freezing.

#### Practices for safe packaging

- Label and date all food
- Package high-risk food in small batches for refrigeration and return to refrigerated storage as soon as possible (within 20 minutes)
- Store packaging products in a clean environment and protect from contamination.

### Practices for safe freezing of cooked foods

- When packaging food for freezing, cover or wrap, label and date (production and freezing date) all foods
- Freeze food in small quantities to ensure food is frozen quickly
- Do not overload freezer units and ensure air can circulate
- Do not freeze foods that have been cooked, refrigerated and reheated.

### Reheating food

Heating foods thoroughly and holding them at boiling point will kill most bacteria. But some foods, such as creamy soups or sauces, cannot be boiled as this will spoil their texture or flavour. Strict storage times need to be applied to these foods.

#### Practices for safe re-heating

- Reheat small quantities thoroughly and quickly. Don't try to reheat too much at once;
- Stir wet dishes to make the process quicker and more even. Foods must reach 60°C or above within one hour;
- Heat foods to a temperature above 60°C and hold for two minutes. Use a thermometer to check the temperature;
- Never freeze foods that have been reheated;
- Reheat foods once only;
- Do not use a bain-marie or pie warmers for reheating; and
- Discard all leftover foods that have been reheated.

### Hot holding and display

Holding reheated foods at the correct temperature reduces further growth of bacteria. Examples of equipment used to hold hot foods include:

- Bain-marie
- Hot-box
- Pie-warmer

#### Practices for safe hot holding

- Pre-heat equipment used for holding hot food before placing food on hold or display
- Food must be pre-heated at or above 75°C before being placed on hold/display
- The temperature of the bain-marie should be at least 63°C
- Do not overload
• Do not mix fresh batches of food with old batches
• Stir all wet dishes, soups, sauces and gravies every 20 minutes
• Use lids to maintain temperature where product quality will not be compromised
• Separate service utensils are to be used on each food item
• At the end of service leftover food must be refrigerated immediately or discarded. Remember that food can only be reheated once
• At the end of buffet service where a chaffing dish has been used, the 2-hour/4-hour rule must be applied to all leftover food.

**Cold holding and display**

Holding cold foods at the correct temperature reduces further growth of bacteria. A refrigerated cabinet is used to hold cold foods for service. Examples include:

- Salad bar
- Display cabinet for drinks or cakes
- Sandwich bar.

Practices for safe cold holding

- Pre-chill the refrigerated cabinet before placing food on display
- Food must be pre-chilled at or below 5°C before being placed on display
- Separate service utensils are to be used on each food item
- Do not overload
- Do not mix new batches of food with old batches.

**Display — self-service foods**

Self-service is a high-risk practice because untrained people have access to the food. For this reason supervision of service is important to maintaining food safety. A food business must not display for sale on any counter or bar, any ready-to-eat food that is not intended for self-service unless it is enclosed, contained or wrapped so that the food is protected from likely contamination.

Self-service of foods include:

- Buffets;
- bain-maries;
- salad bars;
- refrigerated cabinets holding pre-packaged foods, eg drinks, sandwiches;
- frozen food chests, eg ice-cream chests.

Practices for safe display of self-service foods

- Self-service areas are to be supervised
- Remove and discard food that becomes contaminated during service
- Remove serving utensils that become contaminated during service and replace with clean, sanitised utensils
- Display a sign, (at least 10 mm): Customer — Use only the serving utensils provided — it is an offence to handle food with your fingers
- Cutlery and serviettes must be protected from contamination
- Always supply enough serving tongs, spoons and equipment to allow one for each food item
- During self-service the food must be protected from contamination with lids and/or sneeze guard
- Temperature requirements for cold display/holding and hot display/holding are to be applied when possible. Keep hot food above 60°C, cold food below 5°C and frozen food must stay frozen
- For foods that have not been under temperature control, for example a buffet, use the 2-hour/4-hour rule to determine whether leftover foods must be discarded or if they can be used immediately or refrigerated for later use. Remember that it is the TOTAL amount of time that food has been in the danger zone that is
Service of food

High standards of personal hygiene are essential when food is being served to ensure that it does not become contaminated and pose a hygiene risk to customers and staff.

Safe practices for serving food

- Hold plates by the base, cups by the handle, glasses by the base and cutlery by the handles
- Do not use any plates, glasses or utensils that are chipped, broken or cracked
- Disposable items such as straws and plastic cutlery should be stored and displayed so that they are protected from contamination before being used
- Food that has been served to a person must not be resold or served to another person unless the food has remained completely wrapped. If the food has been served to a customer by mistake, it can be re-served, provided the customer has not touched the food and the error is corrected immediately
- Hands must not be used to serve food or garnish. Use utensils or wear single-use gloves
- Do not use a glass to dispense ice due to the risk of physical contamination if the glass or cup breaks
- Wash hands thoroughly after handling money.
- Rejecting stock upon delivery (that does not meet the business standards)
- Moving stock (that has remained at or below 5°C) to alternative refrigeration, while one fridge is under repair
- Throwing out unsafe food
- Continue cooking food until the correct temperature is reached.

Pests

Pests, rodents and insects are an aesthetic problem in the hospitality industry as guests are repulsed and shocked by seeing cockroaches, mice, rats and fly in any area of a hospitality outlet. If they see those pests, they automatically wonder whether things behind the scenes are the same or even worse, and this can cause a loss of trade.

Pests can also cause severe physical damage to the premises by gnawing through walls, pipes and electrical wiring. Many fires where the cause is given as an electrical fault are caused by mice eating through live wires.

Pest control must involve an on-going and integrated approach, it can't be done once a year and forgotten, and all facets of control must be implemented or the whole program breaks down.

Physical exclusion involves checking all deliveries to eliminate pests coming in with foodstuffs, correct fitting of fly wire to doors and windows, the sealing of holes around pipes and other fittings that allow pests entry to the premises, and the exclusion of animals from food areas.

Chemical and mechanical control includes the use of electronic fly zappers, air curtains, and traps as well as bait stations, sprays and fogging.

Any pest control company must be properly licensed, as this licensing ensures that staff have been trained in the correct use of exceedingly dangerous chemicals.

Good housekeeping involves ensuring equipment, floors, benches and other areas are properly cleaned so that no liquid or food remains to serve as a food source for pests and rodents.

Also involved here is the removal of rubbish and boxes that may provide shelter for them, correct storage of food in vermin-proof containers, and immediate repairs to cracked surfaces and tiles that can provide an inadvertent source of food,

Staff are encouraged to report signs of pest and rodent infestation to management at the soonest opportunity.
Waste disposal

Health laws require management to supply sufficient garbage receptacles to cater for whatever garbage is produced. If the rubbish is scattered all around the existing bins, and it is flowing over the tops of bins, it is deemed that there are insufficient bins.

The garbage area must be kept in a tidy condition as well as clean; In general, there is a requirement that garbage be stored in such a way as to minimise contamination.

Consideration may be given to the use of garbage 'cool rooms' where food refuse is stored under refrigeration prior to removal from the premises: this helps control odour problems and infestation by rodents.

Frequency of disposal is very much an individual concern, and the use of commercial companies to clear garbage may well be required: attention should be paid to increasing garbage pick-ups during peak trading periods,

All garbage bins must be in good condition and must be fitted with tight-fitting lids which must be kept in position so as to provide protection against vermin gaining access to the rubbish.

It is often forgotten that garbage bins are required by legislation to be cleaned, but it is true. They must be regularly cleaned using brushes and utensils dedicated solely to that task, and using some form of degreaser to cut through the grease, and a deodorant to control smells.

Other food spoilage causes - Foreign objects in food

All food handlers must be on their guard to ensure that foreign objects do not find their way into food for human consumption.

Usually these objects find their way into the food inadvertently or by accident, so constant watchfulness coupled with other sound hygiene practices are the keys. Remember that the foreign object may have found its way into the food before the product/item arrived at your premises

Be on the lookout to guard against items like the following: —

- Hair from your head or beard
- Metal filings left by can openers
- Files and insects
- Band-aids
- Bits of glass.

These are only a small sample — the list is endless.

In terms of food equipment, be on the lookout for and ensure there is:

- No flaking paint
- No dripping grease
- No temporary repairs
- No loose pieces
- No cracked parts/plastic.

Personal habits

Not only must food handlers obey the regulations as laid down by the health authorities, but they need to overcome what may be unconscious habits such as scratching themselves, squeezing pimples, running their hands and fingers through their hair, playing with earrings, picking their nose, and wiping their hand across their mouth.

Not only are these things displeasing to look at from a customer's point of view, but they provide the means of transportation (hitch-hiking) for the spread of bacteria.

Infections and diseases

Staff should notify their doctor of their food handler status. (Staff should refer to their workplace policies and procedures as the requirements may vary depending on your work environment. They must notify management when suffering from an infection or disease so that they may be transferred to other duties.
Procedures that need to be implemented to prevent problems arising

Here are some ways that problems can be prevented:

- Effective staff training and refresher training in how to clean items, what to use;
- Implementation of effective cleaning schedules — identifying who is responsible for what, when, and how it should be done;
- Creation of effective communication channels so that problems can be reported and rectified, and so that action can be taken to stop them recurring: this is a critical component of workplace food safety and can never be underestimated;
- Adoption of standard operating procedures that embrace best practice, such as using gloves and tongs, adhering to required temperature guidelines, correct storage of food, proper defrosting of frozen product, correct re-use of leftovers;
- Display of signage advising staff of safe and hygienic practice — in-house notices to prompt and remind;
- An establishment-wide commitment to quality, hygiene and the maintenance of high standards;
- A management that demonstrates its serious approach to excellent food hygiene practices in all areas by allocating sufficient time, resources and staff to put everything into effect.

Inspections and safety checks

Regular checks and inspections of food areas will identify areas requiring attention before they become major problems. This covers staff practice, condition of facilities and operation of equipment,

Regular checks also reinforce to staff that management are serious about food hygiene. Safety inspections (where they are acted on) give staff the message that management is truly concerned with staff safety rather than simply paying it lip service. The point is that these checks are of benefit to everyone and shouldn't be regarded as a chore.

These reviews should embrace:

- Verifying temperatures as indicated by thermometers fitted to equipment;
- Physical operation of equipment;
- Condition of utensils;
- Observation of staff practices,
- Inspection of all food related areas from receiving, storage, preparation, service, and holding through pest control and rubbish control, to dish and pot washing.

1.5 Promptly report hygiene hazards

It is everyone's responsibility to report hygiene hazards. Whenever you become aware of any problem that jeopardises the integrity of food safety, you must either take action to fix the problem, or — if the problem is beyond your control — you must report it immediately.

A food safety risk will not fix itself, and will only get worse — so the sooner it is attended to, the better. There may be specific methods of notifying the appropriate person about a problem, but the key is to do it as quickly as possible, so:

- Do it in person — face-to-face, or
- Tell them over the phone.

Your report should contain as much information and detail as you can provide.

Section 2 - Report any personal health issues

2.1 Report any personal health issues that are likely to cause a hygiene risk

Key Point: Carrying diseases:
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Food handlers must practice hygienic work habits so that they become second nature. It is important to work clean and to work tidy. Whenever sick - do not work with food. Recognise that food handling at work must not be treated the same as at home. The potential risks are far, far greater.

Disease can also be transmitted from person to person by humans who do not realise they are sick because they have no symptoms of illness; these people are known as 'carriers'. People who have been sick may be 'convalescent carriers' meaning that they can carry the disease and be capable of infecting people for up to 12 months.

It is for these reasons food handlers should let their doctor know that they are employed in the food industry. Food handlers handling 'unwrapped food' are prohibited from working if they are:

- Suffering acute gastro including acute diarrhoea;
- Suffering from cholera, amoebic dysentery or bacillary dysentery;
- Suffering hepatitis a or e
- Suffering from taenia solium (pork tapeworm) infection;
- In the infectious state of tuberculosis;
- Suffering from cold or flu symptoms;

Policies for Reporting Illness and Injury

Food handlers must report health problems to the manager of the establishment before working with food. If they become ill while working, they must immediately report their condition, and if food or equipment could become contaminated, the food handler must stop working and see a doctor. There are several instances when a food handler must either be restricted from working with or around food or excluded from working within the establishment.

It is important for food handlers to report their health problems to their manager because:

- Their illness could contaminate food;
- Their illness could spread to customers eating the food they prepare;
- Their illness could cause financial loss to the business by hurting its reputation if there was a food poisoning outbreak because of their illness.

Cuts, Burns and boils

Any cuts, burns, boils, sores, skin infections, or infected wounds should be covered with a bandage when the food handler is working with or around food or food-contact surfaces. Bandages should be clean, dry, and must prevent leakage from the wound. As previously mentioned, waterproof, disposable gloves or finger cots should be worn over bandages on hands. Food handlers wearing bandages may need to be temporarily reassigned to duties not involving contact with food or food-contact surfaces.

Vaccination for Hepatitis A

Hepatitis A is a disease-causing inflammation of the liver. It is transmitted to food by poor personal hygiene or contact with contaminated water. It infects many people each year, resulting in community-wide outbreaks. Of all food-borne illnesses facing the foodservice industry, hepatitis A is the only one that can be prevented by vaccine. While effective hand-washing is a critical practice to prevent contamination, vaccinating your food handlers for hepatitis A can provide an additional barrier. This may be specially recommended in areas where hepatitis A outbreaks are highly prevalent.
2.2 Report incidents of food contamination that have resulted from the personal health issue

<table>
<thead>
<tr>
<th>Handling employee illness</th>
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<tbody>
<tr>
<td>If</td>
<td>Then</td>
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<td>The food handler has one of the following symptoms:</td>
<td>Restrict them from working with or around food. Exclude them from the establishment if you primarily serve a high-risk population</td>
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<tr>
<td>- Fever</td>
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<td>- Diarrhea</td>
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<td>- Vomiting</td>
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<td>- Sore throat with fever</td>
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<td>- Jaundice (a yellowing of the skin and eyes)</td>
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<tr>
<td>The food handler has been diagnosed with a food-borne illness,</td>
<td>Exclude them from the establishment and notify the local regulatory agency. Managers must report employee illnesses resulting from the following pathogens to the local health department:</td>
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<tr>
<td></td>
<td>- Salmonella typhi</td>
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<td></td>
<td>- Shigella spp.</td>
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<td></td>
<td>- Shiga toxin-producing E -coli</td>
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<tr>
<td></td>
<td>- Hepatitis A virus</td>
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<tr>
<td></td>
<td>The manager must work with the local regulatory agency to determine when the food handler can safely return to work.</td>
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</table>
Section 3 - Prevent food and other item contamination

3.1 Maintain clean clothes, wear required personal protective

Personal hygiene

A major cause of food poisoning is the lack of personal hygiene practised by food handlers.

Food handlers must be aware that they themselves, their actions, their health and their personal habits have a great impact on the wholesomeness of food served to the public.

As with many aspects of control in other areas, all personal hygiene requirements and regulations must be abided by: failure to follow just one rule can (and has) led to massive outbreaks of food poisoning causing not only loss of trade and jobs at the venue, but also deaths in the community especially among the very young, the very old, and the very weak.

Personal hygiene is a serious issue and must be treated as such: the industry simply cannot afford to tolerate workers who treat it as a joke. You are regarded by patrons and your employer as a professional and you must therefore know what is expected, cub/ate sound work practices, and be vigilant in ensuring regulations are complied with.

Proper Work Attire

A food handler's attire plays an important role in the prevention of food-borne illness. Dirty clothes may harbor pathogens and give customers a bad impression of your establishment. Therefore, managers should make sure food handlers observe strict dress standards. Food handlers should:

- **Wear a clean hat or other** hair restraint. A hair restraint will keep hair away from food and keep the food handler from touching it. Food handlers with facial hair should also wear beard restraints.
- **Wear clean clothing daily.** The type of clothing chosen should minimize contact with food and equipment, and should reduce the need for adjustments. If possible, food handlers should put on work clothes at the establishment.
- **Remove aprons when leaving food-preparation areas.** For example, aprons should be removed and properly stored prior to taking out garbage or using the restroom.
- **Wear appropriate shoes.** Wear clean, closed-toe shoes with a sensible, nonslip sole.
- **Remove jewelry prior to preparing or serving food while around food-preparation areas.** Jewelry can harbor microorganisms, often tempts food handlers to touch it, and may pose a safety hazard around equipment. Remove rings (except for a plain band), bracelets (including medical information jewelry), watches, earrings, necklaces, and facial jewelry (such as nose rings, etc.).

3.2 Ensure that no clothing or other items worn contaminate food.

An outbreak of food poisoning traced back to you is no laughing matter. The personal hygiene rules are:

- **No jewellery** to be worn on hands and wrists: food can lodge in the jewellery, deteriorate and then fall back into food. There is also a chance that stones/gems may fall out into the food providing a physical food contaminant. If you simply must wear a ring, then cover it using a glove or band-aid.
- **Facial hair must be kept neat and controlled:** hair should either be covered or sprayed to keep it controlled in such a way that hairs do not fall into food, long hair must be tied back (this is applicable to waiting staff as well as food preparation and food service staff), and beards should also be covered.
- **Fingernails must be short** (use a nail brush to clean under them as bacteria love hiding here), clean and free of polish: cracked fingernails and chipped nail polish can harbour bacteria and may also flake off into food - this applies even to clear nail polish.
- **Clothing must be clean:** a minimum requirement is for clean clothes for each shift with further changes as spillages and 'working dirt' dictate. It is not permitted to wear your 'food handling clothes to and from work.'
- **Cuts and sores must always be covered:** a proper, coloured, waterproof dressing must be applied and a finger stall used where necessary.
- **Food handlers with any communicable disease** should not return to work until they have been symptom free for 48 hours.
Hand Maintenance

In addition to proper washing, hands need other regular care to ensure that they will not transfer microorganisms to food. To keep food safe, make sure food handlers follow these guidelines:

**Keep fingernails short and clean.** Long fingernails, false fingernails, and acrylic nails should not be worn while handling food since they may be difficult to keep clean and can break off into food. Some jurisdictions allow false nails if single-use gloves are worn. Check your local requirements.

**Do not wear nail polish.** It can disguise dirt under nails and may flake off into food.

**Cover all hand cuts and sores with clean bandages.** If hands are bandaged, clean gloves or finger cots, a protective covering, should be worn at all times to protect the bandage and to prevent it from falling off into food. You may need to move the food handler to another job, where he or she will not handle food or touch food-contact surfaces, until the injury heals.

**Use of Gloves**

Gloves can help keep food safe by creating a barrier between hands and food. When purchasing gloves for handling food, managers should:

**Buy the right glove for the task.** Long gloves, for example, should be used for hand-mixing salads. Colored gloves can also be used to help prevent cross-contamination.

**Provide a variety of glove sizes.** Gloves that are too big will not stay on the hand and those that are too small will tear or rip easily.

**Other Good Personal Hygiene Practices**

Personal hygiene can be a sensitive subject for some people, but because personal cleanliness is vital to food safety, as a manager, you must address the subject with every food handler.

**General Personal Cleanliness**

In addition to following proper hand-hygiene practices, your food handlers must maintain personal cleanliness. Food handlers should bathe or shower before work. They must also keep their hair clean, since oily, dirty hair can harbor pathogens.

**Policies Regarding Eating, Drinking, Chewing Gum, and Tobacco**

Small droplets of saliva can contain thousands of disease-causing microorganisms. In the process of eating, drinking, chewing gum, or smoking, this saliva can be transferred to the food handler's hands or directly to the food they are handling. For this reason, food handlers must not smoke, chew gum or tobacco, or eat or drink while preparing or serving food, while in food preparation areas, or in areas used to clean utensils and equipment.

Some jurisdictions allow employees to drink from a covered container with a straw while in these areas. Check with your local regulatory agency. Food handlers should eat, drink, chew gum, or use tobacco products only in designated areas, such as an employee break room. They should never be allowed to spit in the establishment.

If food must be tasted during preparation, it must be placed in a separate dish and tasted with a clean utensil. The dish and utensil should then be removed from the food-preparation area for cleaning and sanitizing.

**3.4 Do not allow food to become contaminated from personal hygiene habits**

**How food handlers can contaminate food**

In previous chapters, you learned that food handlers can cause an illness by transferring microorganisms to food they touch. Many times these microorganisms come from the food handlers themselves. Food handlers can contaminate food when they

- Have a food borne illness.
- Show symptoms of gastrointestinal illness (an illness relating to the stomach or intestine).
Use Hygiene Practices for Food Safety

- Have infected lesions (infected wounds or injuries).
- Live with or are exposed to a person who is ill.
- Touch anything that may contaminate their hands.

Even an apparently healthy person may be hosting food-borne pathogens. With some illnesses, such as hepatitis A, an individual is at the most infectious stage of the disease for several weeks before symptoms appear. With other illnesses, the pathogens may remain in a person’s system for months after all signs of infection have ceased. Some people are called carriers because they might carry pathogens and infect others, yet never become ill themselves.

The next three paragraphs will help illustrate the routes by which employees can contaminate food.

- A deli food handler who was diagnosed with salmonellosis failed to inform his manager that he was ill for fear of losing wages. It was later determined that he was the cause of an outbreak that involved more than two hundred customers through twelve different products.
- A food handler suffering from diarrhea, a symptom of gastrointestinal illness, did not wash his hands and made approximately five thousand people ill when he mixed a vat of butter cream frosting with his bare hands and arms. Another large food borne-illness outbreak was caused by a food handler who scratched an infected facial lesion and then handled a large amount of sliced pepperoni.
- A food borne-illness outbreak was traced to a woman who prepared food for a dinner party. The investigation revealed that the woman was caring for her infant son, who had diarrhea. The woman could not recall washing her hands after changing the infant's diaper. As a result, twelve of her dinner guests became violently ill with symptoms that included diarrhea and vomiting.

Simple acts such as nose picking, rubbing an ear, scratching the scalp, touching a pimple or an open sore, or running fingers through the hair can contaminate food. Thirty to fifty percent of healthy adults carry Staphylococcus aureus in their noses, and about twenty to thirty-five percent carry it on their skin. If these microorganisms contaminate a food handler’s hands that then touch food, the consequences can be severe. Because of these factors, food handlers must pay close attention to what they do with their hands and maintain good personal hygiene.

**Diseases not transmitted through food**

In recent years, the public has expressed growing concern over communicable diseases spread through intimate contact or by direct exchange of bodily fluids. Diseases such as AIDS (Acquired Immune Deficiency Syndrome), hepatitis B and C, and tuberculosis are not spread through food.

Although these diseases are not transmitted through food, as a manager you should be aware of the laws concerning employees who are HIV-positive (Human Immunodeficiency Virus), have hepatitis B or C, or have tuberculosis.

**3.5 Clean in manner to prevent cross contamination**

Cross-contamination occurs when microorganisms are transferred from one surface or food to another. A food borne illness can result if cross-contamination is allowed to occur in any of the following ways:

- Raw contaminated ingredients are added to food that receives no further cooking.
- Food-contact surfaces are not properly cleaned and sanitized before touching cooked or ready-to-eat food.
- Raw food is allowed to touch or drip fluids onto cooked or ready-to-eat food.

**Preventing Cross-Contamination**

Employees must be carefully trained to recognize and prevent cross-contamination of microorganisms between food and food-contact surfaces. Some ways to prevent cross-contamination include the following:

- Make sure employees wash their hands frequently when working with raw food. They should never touch raw food and then touch ready-to-eat food without washing their hands. Hands must also be washed regularly to prevent cross-contamination.
- Do not allow raw food to touch or drip fluids onto cooked or ready-to-eat food.
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- Clean and sanitize cleaning cloths between each use.
- Clean and sanitize food-contact surfaces (such as equipment or utensils) that touch contaminated food before they come in contact with cooked or ready-to-eat food.
- Food-contact surfaces may be direct or indirect. A direct food-contact surface includes any equipment or utensil surface that normally touches food, such as tableware, cutting boards, knives, and other utensils used to prepare food, and counters where food is prepared. An indirect food-contact surface is a surface food might drain, drip, or splash onto during preparation, such as the backsplash of a counter. Food that splashes on an indirect food-contact surface may drain down onto a direct food-contact surface and contaminate it.
- Food-contact surfaces, cleaning cloths, and sponges must be cleaned and sanitized to prevent cross-contamination. Clean simply means free of visible soil. Sanitary, on the other hand, means that the number of microorganisms on the surface has been reduced to safe levels.

Environmental hygiene

Environmental hygiene is the overall hygiene of the food handling area.

This means all the areas that food comes into contact with: delivery areas, storage, pre-preparation, cooking, presentation and service, as well as the areas involved in cleaning pots, crockery and cutlery. Such an approach acknowledges that foodstuffs are susceptible to contamination at each and every of the many steps in its preparation & service. A foul up in any single area can cause death.

Cleaning schedule

It is a general rule that all these areas and all the equipment must be clean. To achieve this, a cleaning schedule (or cleaning program) should be used.

The cleaning schedule identifies every piece of food equipment, and every food area that must be cleaned. In addition it allocates the cleaning task to a specified person, at a specified time on specified days, and sets out what should be done and what should be used.

A major benefit of using a cleaning schedule is that no job gets left undone.

To supplement this schedule, sheets may be developed for each cleaning task that explain exactly how the job is to be done (e.g., how to dismantle the item, problem areas to target, chemicals and equipment to be used, safety issues).

Effective Management

Effective and efficient managers will check that all the listed jobs are done, and done when required, fully and properly. It will help if you adopt a 'clean as you go policy — which means that dirty swabs/cloths are not left sitting on work surfaces. ‘Clean as you go’ will minimise the buildup of ‘working dirt and assist in the eventual scheduled cleaning of each item.

Management must also ensure:

- That the right chemical is designated for the right job — so that you know what chemical cleans what;
- That measuring devices are provided — so that chemicals can be. Measured and used in the correct quantity;
- That chemicals are not inadvertently used for food,
- That commercial grade cleaners are used instead of domestic grade,
- That suppliers of cleaning chemicals and equipment demonstrate the use of the chemicals and the cleaning tools to the appropriate staff;
- That all surfaces and utensils that come into contact with food are cleaned, sanitised and rinsed;
- That staff wear protective clothing at all times when dealing with chemicals, and cleaning;
- That staff are instructed in the use of chemicals, and understand the consequences of improper mixing or dilution; and
- That staff work with chemicals in ventilated conditions.

An effective cleaning program will ensure the removal of dust and dirt, grease, grime and food remains, chemical residue, odours and taints, as well as minimize/eliminate physical damage such as rust and corrosion.

Hygienic practices and legislation
Health legislation sets the standards. In some establishments, more time and money is spent on this area than in other establishments. These establishments give hygiene a higher priority, realising its importance.

In others places, staff are expected just to do the best they can with what they are given. This style of manager/venue is fast disappearing.

Sometimes you may be unsure about exactly what the legislation requires you to do, or you may have a hygiene problem that you cannot remedy despite your best efforts. In either case, health officials are there to advise, assist and educate operators: they are not simply 'health police' who are Intent or issuing as many penalties as possible.

They are an excellent source of information when It is needed you should therefore view these officials as friends rather than as enemies.

**Cleaning and maintenance**

Specific practices in certain food-related areas have been identified by health authorities with a view to minimising food poisoning. Cleaning and maintenance will vary between establishments, however, due to equipment used, staffing levels, layout and the nature of the enterprise.

**Cleaning and sanitation**

Cleaning is the removal of visible dirt and debris (including rust) either from crockery, cutlery, glasses, equipment or fixtures and fittings.

Sanitation is the killing of microbes using either hot water and/or chemicals.

Cleaning is performed before sanitation and where chemicals are used, the manufacturer's instructions in relation to dilution rates, contact time and temperature must be adhered to.

Surfaces must first be cleaned and rinsed before being sanitised.

**Varieties of detergents and cleaners**

**Soap** the most common detergent, but not always suitable as it leaves residue.

**Alkaline detergents** — help to disperse and suspend particles (dirt) thus enhancing rinsing available in different concentrations to suit requirements.

**Acidic cleaners** — used as a scale remover in items such as dishwashers, coffee percolators and urns.

**Abrasive cleaners** — used to get off the baked-on grime and the more stubborn stains.

**Sanitisers** — chemicals designed to kill bacteria.

**Use of detergents and chemicals**

**Detergents** — get advice from your supplier and take into account water quality - soft or hard;

- The job to be done - what sort of dirt Is to be removed.
- Water temperature - find out the optimum water temperature to get the most from the detergent;
- Dilution rate - how much to use;
- The time factor - how long will it take to work; training - advice on how to use it properly.

When using a double bowl sink to wash eating utensils and dishes:

- One bowl must contain water at 45°C and detergent, for washing;
- One bowl must contain clear water at a minimum of 77°C for sanitising;
- Sanitising must involve soaking the items for a minimum of 3 minutes;
- A thermometer must be on hand to check water temperature.

In both instances, items must be left to air dry, which means draining and leaving to dry while hot: tea towels must not be used.

Operators must make sure that detergents and sanitisers are diluted according to manufacturer's recommendations, and that all other manufacturer's advice is adhered to,

If you are not sure how to use the dishwasher where you work, or not sure about what detergent to use for what job, or how much to dilute it, - ask!
In all instances, management must ensure staff are properly trained in how to perform their job.

**Factors Affecting the Cleaning Process**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect on Cleaning Process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of soil</strong></td>
<td>Certain types of soil require special cleaning methods.</td>
</tr>
<tr>
<td><strong>Condition of soil</strong></td>
<td>The condition of the soil or stain affects of soil how easily it can be removed. Dried or baked-on stains will be more difficult to remove than soft, fresh stains.</td>
</tr>
<tr>
<td><strong>Water Hardness</strong></td>
<td>Cleaning is more difficult in hard water hardness because minerals react with the detergent, decreasing its effectiveness. Hard water can cause scale or lime deposits to build up on equipment, requiring the use of lime-removal cleaners.</td>
</tr>
<tr>
<td><strong>Water Temperature</strong></td>
<td>In general, the higher the water temperature, the better a detergent will dissolve and the more effective it will be in loosening dirt.</td>
</tr>
<tr>
<td><strong>Cleaning Agent &amp; Surface Being Cleaned</strong></td>
<td>Different surfaces require different cleaning agents. Some cleaners work well in one situation, but might not work well or might even damage equipment when used in another.</td>
</tr>
<tr>
<td><strong>Agitation or Pressure</strong></td>
<td>Scouring or scrubbing a surface helps pressure remove the outer layer of soil, allowing a cleaning agent to penetrate deeper.</td>
</tr>
<tr>
<td><strong>Length of Treatment</strong></td>
<td>The longer soil on a surface is exposed treatment to a cleaning agent, the easier it is to remove.</td>
</tr>
</tbody>
</table>

**Sanitising**

There are two methods used to sanitize surfaces: heat sanitising and chemical sanitising. Which you use depends on the application.

**Heat Sanitizing**

The higher the heat, the shorter the time required to kill microorganisms. The most common way to heat-sanitize tableware, utensils, or equipment is to immerse or spray the items with hot water. Use a thermometer to check water temperature when heat sanitizing by immersion.

Commercial dishwashers are generally designed to rinse at 82°C. The lower temperature limit is 74°C for a stationary rack single temperature machine, and 82°C for other machines such as conveyor rack systems. These temperatures are based on the sanitising rinse contact time to achieve the 71°C temperature on the surface of utensils within the dishwasher.

Where equipment and utensils are cleaned and sanitised in a dishwasher, the following should be done to ensure the dishwasher is working correctly:

- the dishwasher should be regularly maintained and serviced according to manufacturer’s instructions and a detergent and/or sanitiser appropriate for the equipment should be used in the dishwasher
- the dishwasher should be operated using the hottest rinse cycle available (economy cycle should not be used as this is not designed to provide a high enough temperature for the time needed to sanitise)
- a visual check should be done of equipment and utensils when removed from the dishwasher to ensure they are clean
SITFXFSA101 Use Hygiene Practices for Food Safety

- the dishwasher should be cleaned so that there is no accumulation of food residues.

**Chemical Sanitizing**

Chemical sanitisers are widely used in establishments because they are effective, reasonably priced, and easy to use. The three most common types are chlorine, iodine and quaternary ammonium compounds (Quats).

**Factors Affecting Effectiveness of Sanitisers Contact**

**Time**

In order for a sanitizing solution to kill microorganisms, it must make contact with the object for a specific amount of time. Since minimum times may differ for each sanitizer, check with your supplier.

**Temperature**

Generally, chemical sanitizers work best at temperatures between 13°C and 49°C. Some may not be effective at temperatures lower than 13°C, while others may corrode metals or evaporate at temperatures higher than 49°C.

**Concentration**

Chemical sanitizers are mixed with water until the proper concentration-ratio of sanitizer to water is reached. Concentration is measured using a sanitizer test kit and is expressed in parts per million (ppm). The test kit should be designed for the sanitizer you are using and is usually available from the manufacturer or your supplier.

**Steps to proper cleaning**

The following sequence is suitable for cleaning:

- Remove visible food debris rinse with warm water wash with a detergent;
- Rinse again;
- Apply sanitizer;
- Rinse; and
- Allow to air dry.

Air drying is the preferred option as it eliminates using a cloth to dry equipment, which may inadvertently introduce bacteria to the surface that has just been cleaned and sanitised.

The procedure for washing eating utensils and dishes by machine is as follows:

- Scraper and rinse items prior to stacking In trays - use the right trays/racks for the right items;
- Wash for a minimum of 60 seconds at a temperature between 66°C and 71°C;
- Rinse for a minimum of 10 seconds at a temperature of at least 77°C.

In some circumstances there will be no dishwashing machine, and it is quite legal to use a double bowl sink providing certain requirements are observed.

**Bars and liquor outlets:**

- Cleaning of small equipment such as drip trays (including those provided under beer taps, under post mix nozzles, and those inside refrigerated equipment), chopping boards, knives, spoons, glassware, cocktail shakers and measures;
- Cleaning of large equipment such as refrigerators (with special attention to the seals around doors), ice machines and glass chillers;
- Cleaning of beer lines;
- Cleaning of fixed items such as the bar counter, cash registers and mirrors.

Cleaning is a predictable task, whilst maintenance is not: items will require maintenance when thermometers read above the designated temperature, when they make strange noises, and when they stop working. Staff should be familiar with all preventative maintenance requirements of all equipment they work with - proper cleaning is a prime preventative maintenance tool.

**Food preparation areas:**
All equipment must be cleaned at the completion of each work session — it is not sufficient to use, say, a slicer for breakfast, lunch and dinner and clean it just once at 9 pm it must be cleaned after the breakfast session, after the lunch session and after the dinner session.

Items such as Fridges, Freezers and dry stores must be thoroughly cleaned weekly, and have spillages cleaned up as they occur;

A scheduled cleaning program must ensure the cleanliness of all items and areas in the food preparation areas: manufacturer's recommendations as to cleaning procedures should be followed.

Stores areas:

- Special attention must be paid to flooring and shelving, as these are traditionally the areas where food is spilled, or dirt walked in;
- Food items themselves should be inspected for signs of deterioration and infestation,

Food service areas:

- Cleaning of food service equipment after each service;
- Cleaning of utensils after each session;
- Cleaning of floors after each session;
- Provision of facilities for cleaning up in-service spills.

Personnel responsible for hygiene processes

At law, any manager of any food area has legal responsibility for ensuring the Food Act is adhered to in their area

If you are effectively in charge of an area, then you are responsible. You don't have to be especially designated as a manager, ‘supervisor or ‘in charge’.

In addition, everyone who comes into physical contact with food, or who has responsibility for the cleaning or maintenance of any food related areas, also has responsibility for food hygiene.

Cutting Boards & Food Preparation

Separate cutting boards should be reserved for the preparation of either cooked or raw foods, and should be labelled/colour-coded accordingly:

- White — Dairy Products
- Red — Raw Meat
- Blue — Seafood
- Yellow — Poultry
- Brown — Cooked Meat
- Green — Fruit and Vegetables

After use all boards should be scraped with a flat metal scraper and washed. Note that Polyboards can be put through the dishwasher.

At the end of each day, cutting boards should be soaked in a sanitiser,

Wooden boards are not the preferred option but if they are used, they should be smeared with salt at the end of each day.

Management should try to organise staff so that staff handling raw food do not handle ready to eat food. Single serve containers must be clean and stored in a clean environment, and not be re-used.
Section 4 - Prevent cross-contamination by washing hands

4.1 Wash hands at appropriate times

Health authorities believe that the single most important aspect in preventing food poisoning outbreaks is for food handlers to wash their hands as set out by the regulations. For your information, this is what the regulations state:

- The recommended method of hand washing is to use warm running water (40°C is the recommended temperature), a nail brush, and antibacterial soap (bars of soap can pass on bacteria to the next user) coupled with an air dryer or disposable paper towels for drying.

You can easily see dirt, but you can’t easily see germs.

Are they clean? No obvious sign of dirt, but what about germs? Just because you can’t see germs doesn’t mean that they aren’t there. They are invisible to the naked eye. Take a magnifying glass and look at your hands. Is the skin smooth or can you see tiny cracks and lines?

Can you see where germs might hide? You really need to rub your skin well with soapy water & rinse them in clean water to get rid of them.

What about under your fingernails – could they hide there?

Germs are all around us; most of them are harmless. Some can make us sick, especially if we let them hitch a ride from our hands onto the food we eat.

How do germs get onto your hands?

Everything you touch is capable of transferring germs onto your hands - but especially dirty items, sores, pets, used handkerchiefs and tissues and the things you touch when you go to the toilet.

How do you wash your hands?

1. Rub hands together well to build up a good lather with soap, the suds help to float germs away. Don’t forget between your fingers and under your nails. You might have to use a brush.

2. Rinse well in warm water & get those germs off your hands.

3. Dry your hands thoroughly. Touching surfaces with moist hands encourages germs to spread from the surface to your hands.

Getting rid of most germs is simple - wash & dry your hands.

Always wash & dry your hands:

- Before touching or eating food;
- After touching raw meat, fish or chicken;
- After using the toilet;
- After blowing your nose; and
- After playing with a pet.

4.2 Hand washing facilities

The food premises must provide hand washing facilities that located where they can be easily accessed by food handlers:

- Within areas where food handlers work if their hands are likely to be a source of contamination of food; and
- Immediately adjacent to the toilets.
Hand washing facilities must be:

- Permanent fixtures
- Connected to, or otherwise provided with, a supply of warm running potable water,
- A size that allows for effective hand-washing
- Clearly designated for the sole purpose of washing hands, arms and face.
- Ensure that each hand basin is provided with soap, paper towels or other approved hand drying equipment.