

Food Hygiene & Safety in Catering Level 2



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MacWilliam Associates Est. 1993

Module 1: Food Contamination

Food handlers play a vital role in protecting consumers from harm and must ensure that anything that is prepared or served does not cause harm. High standards of food safety will protect you and your customers from harm.

Get it wrong and customers will complain and a bad reputation could follow not to mention possible legal proceeding. Get it right then food will be safe to eat, customers will be happy and you will comply with the law.





<i>A food hazard is anything in food that might cause harm to a consumer</i>	
	<p>Raw foods, especially meat, poultry, eggs, shellfish and vegetables. Food and Water carry pathogenic bacteria and other microorganisms that cause food borne disease.</p> <p>Raw foods may also be ready to eat such as fruit and veg (its important to wash or peel as they may be contaminated)</p>
	<p>Pests and Pets spread bacteria from fur, feathers, eggs, and droppings</p> <p>Ensure all deliveries are checked and suitable precautions on pest control are in place.</p>
	<p>People caused by poor hygiene, cuts, boils and carriers of Staphylococcus aureus which can be found on our skin, nose, throat, hair and live in our intestines Bacteria may also exist on Equipment that has not been properly cleaned and disinfected as appropriate.</p>
	<p>Air and dust carry countless microscopic particles of dead skin, food and other debris that carries pathogenic microorganisms, which will settle on uncovered food</p>
	<p>Dirt and food waste carry pathogens and attract pests.</p> <p>All food waste must be kept separate and disposed of properly. Bins in kitchens should be close fitting and operated by pedal so hands do not touch the bin.</p> <p>Soil on raw vegetables may contaminate so ensure items are washed and peeled.</p>
	<p>Allergies such as peanuts and dairy could lead to serious reaction such as anaphylaxis. Further detailed information is found later in this booklet</p>

Did you know?

Bacteria may be destroyed by thorough cooking or heat process;
Contamination can be described as the presence of any harmful substance in food

Food Poisoning

Food Poisoning bacteria are microscopic organisms, which are found everywhere. Most are harmless, some are essential. However, some cause illness and these are known as **Pathogenic Bacteria**.

Bacteria require four things in order to grow and survive – Keep them apart!	
	Food – Bacteria, like most other living things need nutrients to survive. Food poisoning bacteria can live on a variety of foods but most prefer those that are high in protein such as meat, poultry, eggs, milk, shellfish, cooked rice, pasta and products made from them.
	Moisture - Bacteria will not multiply in dried food but once moisture is added to products such as powdered egg, milk and rice these products will provide ideal conditions for pathogenic bacteria to multiply
	Warmth - The ideal temperature for bacteria to grow is 37°C (body temperature). Below 5°C bacteria will not grow and freezing will render them dormant although bacteria will not be killed. Foods that have been thawed are susceptible to bacterial contamination so always defrost in a separate container.
	Time - In ideal conditions (37°C body temperature) bacteria will double in number every ten to twenty minutes. They split in half a process known as binary fission. Given the right conditions one colony of bacteria can become equivalent to the population of china in just ten hours. But you won't be able to see them unless you have a microscope handy.

If enough sugar or salt is added this will absorb moisture and hinder the multiplication.
 Bacteria will struggle to grow where there is a high acid, fat, sugar or salt content
 Freezing will render bacteria dormant although they will survive

Pathogenic bacteria including **Salmonella** make you ill when they have been inside your body for a around a day (depending of which bacteria it is will depend on how long it takes for the symptoms to start). However, some bacteria, such as **Staphylococcus Aureus**, produce toxins in food even before you eat it, so you are likely to feel ill soon after eating. For, example if you ate a canapé when arriving at a wedding reception you are likely to be in the toilets by the time the speeches start. **Listeria** can take seventy days before any symptoms show.

There are also bacteria such as **Clostridium Perfringens** that make you ill as a result of spores forming with a protective coating that allows bacteria to survive harsh conditions, such as cooking that would otherwise destroy them.

Imagine a large pot of rice left uncovered in a fast food takeaway after they are closed. By the time they re open in the evening the takeaway that evening the spores would have regenerated into bacteria and multiplied.

In some cases the bacteria release a toxin when they multiply and although the bacteria might be killed during re heating the toxin won't be. Many cases of food poisoning are caused by preparation too far in advance.

Causes of Food Poisoning	
Bacteria	Microscopic cells that can grow on food
Viruses	Smaller than Bacteria that, don't grow on food
Chemicals	Insecticides, Weed Killers, Pest Bait
Metals	Lead, Copper, Mercury
Poisonous Plants	Toadstools, Yew Tree, Deadly Nightshade
Physical Contamination	Anything that might drop into food such as Hair; Wood; Plasters, Paperclips, Pips, String, Screws or something rather more dramatic such as a mouse's head.

Some food & ingredients may already be contaminated when they are delivered to your work place, be sure to make checks of suppliers and ask for certificates

Food poisoning is an illness caused by the consumption of food containing poisonous microorganisms or substances and there aren't many illnesses that human beings can experience that are as nasty as food poisoning

- Stomach pain
- Diarrhoea;
- Sickness;
- Nausea and Fever

Certain groups of people are more at risk including

- The Elderly
- Very Young People
- Pregnant Woman (be particularly aware of the dangers from *Listeria*)
- Nursing Mothers
- Hospital Patients

Did you know? People die from food poisoning every year.

Pregnant women are particularly at risk from *Listeria* found in soft cheese Pate and salads. Ensure all foods are properly cooked and purchased from reputable suppliers

Spoilage Bacteria



If food is not stored correctly or kept past recommended date code it may spoil, as all food gradually deteriorates through an aging process. This can be recognised from discoloration, mould, unpleasant smells and poor texture.

If in doubt chuck it out!

Food may be preserved by temperature control.

Heat treatment, dehydration & curing are also forms of preservation

Preservation may be achieved by drying (removing moisture)

Pickling (removes available moisture)

Chilling (removes warmth)

Freezing (removes moisture and warmth)

Sterilization/Canning (removes all life form)

Smoking and Drying removes moisture and can kill some microbes (smoking)

Contamination

There are three types of contamination	
Direct Contamination	Where raw food touches high-risk foods
Indirect Contamination	Where something assists the contamination
Cross Contamination	From touching raw food then high risk or cooked food

It is particularly important to ensure that raw and high risk foods are kept apart at all times including storage, transportation, preparation, display and point of sale. Any surface that comes into contact with raw food must be sanitized adequately. Food should always be covered during storage.

Cross contamination is one of the most common causes of food poisoning. It happens when harmful germs are spread onto food from other food, surfaces, hands or equipment.

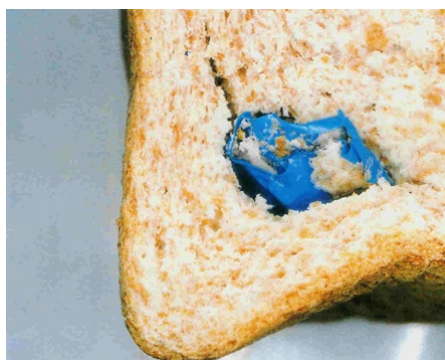
- Don't let raw meat; poultry or unwashed raw vegetables touch other foods.
- Never prepare ready-to-eat food using a chopping board, utensil or knife that you have used to prepare raw meat, poultry or unwashed raw vegetables unless they have been washed and disinfected thoroughly first.
- Clean worktops and utensils with hot water and detergent and remember to disinfect those surfaces that have come in contact with raw meat, poultry and unwashed raw vegetables. You can disinfect equipment and utensils using boiling water, a chemical such as an antibacterial leaner or in a dishwasher.
- Always wash your hands thoroughly after touching raw meat, poultry and unwashed raw vegetables, and before you touch anything else.
- Always cover raw meat and store it on the bottom shelf of the fridge where it can't touch or drip onto other foods.
- Root vegetables such as potatoes, leeks and carrots often have traces of soil on them, which can contain harmful bacteria, so wash them thoroughly before use. Don't forget to wash other fruit and vegetables too, especially if eaten raw.
- Keep dishcloths clean and change them regularly.
- Avoid preparing food for yourself or others if you are ill, especially with vomiting and/or diarrhoea.

Cross contamination may happen as easily as two people (one preparing raw meat the other ready to eat) touching the same fridge handle. During preparation colour coded chopping boards and knives should be used. Keep cooked and ready to eat foods apart throughout the process

High Risk Foods	
Cooked Meats/Poultry	Cold cooked/smoked/cured meat, poultry, fish and seafood. This includes items such as cold cooked chicken and poultry, smoke salmon and prawns.
Ready Meals	Particularly that contain gravy & sauces; Gravy may also be high risk when added to food.
Egg products	Quiche and freshly prepared mayonnaise
Cold cooked rice	Such as rice salads.
Dairy foods	Mousses, fresh cream cakes, fresh cream desserts

High Risk Foods are those that require no further preparation before being eaten including ready to eat foods. Low risk foods such as crisps, chocolate or pickled onions are those which are high in acid, salt, sugar or fat these foods won't normally support the growth of pathogenic bacteria – In addition these products are likely to have a longer shelf life

Physical Contamination of Food



If a customer finds something in their food it will rightly concern them. It may cause injury and can be very upsetting, while also likely to make the business look uncaring and unprofessional.

A customer may understand why pips or stalks are in food that contains grapes or other fruit, and may even understand why there are bones in filleted meat and fish or eggshell in an omelette. However, if a customer finds human hair or a

plaster they will probably complain.

FROM THE BUILDING Plaster, glass, fixings, brick and brick dust.

FROM EQUIPMENT

Nuts and bolts, screws, metal

By cleaning your equipment regularly you can keep a check on its condition but do not carry out repairs in areas where you are still preparing food.

FROM PACKAGING

Glass, staples, string, elastic bands, cardboard

Where appropriate, you should take food out of its delivery packaging and put it into food-safe containers before you take it into your food preparation area. Get rid of any packaging immediately to lower the risk of contamination.

FROM THE FOOD HANDLER

Hair, buttons, earrings, jewellery and pen tops could contaminate your food.

To protect your food from the risk of contamination, your food handlers should wear appropriate protective clothes. These work clothes should not have pockets as they may contain items that could fall into the food.

Did you know? A person may lose between 50 to 75 hairs a day and, unless they take precautions, some of these hairs may get into food. Clean hair falls out less than greasy hair so its important to have good personal hygiene. Food Handlers should tie long hair back at all times and wear a hairnet or hat.

Food Handlers should always cover any cuts, scratches or grazes with waterproof plasters to stop bacteria getting into the food. Plasters should be blue so they can be easily seen in food if they fall off. Food handlers should not wear jewellery as this could cause contamination (a plain wedding ring is usually acceptable but will depend on company policy). Food Handlers should not wear nail varnish or false nails as this can chip and get into food, and they should keep their fingernails short to avoid broken nails falling into food.

FROM PESTS

Rodents, insects, slugs and caterpillars



Your building should be built and maintained so as to be able to stop pests getting in.

You should have a good cleaning system in place in food storage, preparation and service areas as well as in waste-storage areas to deter pests from coming in.

You should store all your food off the floor in rodent-proof containers with lids.

You should keep your storage areas clean and tidy and check them regularly so you can spot any pests early; put all your rubbish and food waste outside and store in covered waste bins.

Look out for pests and signs of pests, if they are sighted report to management immediately; If food is contaminated by pests or small insects or grubs that may enter dry goods such as flour this must be discarded.

In 2015 a dead lizard was found in a tin of tomatoes in Birmingham

Chemical Contamination

Chemicals can contaminate food when cleaning fluids are left on surfaces used for preparing food

Ensure instructions are followed carefully along with cleaning schedules.

Keep cleaning equipment away from food

Wash or peel fruit and vegetables to remove any pesticide residue

Do not touch bait boxes from any pest control



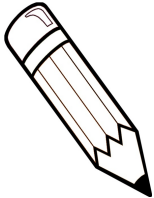
Ten Reasons for Food Poisoning

Listed below are ten of the main reasons for food poisoning they have been shuffled in no particular order – What do you think are the top three?

Answer at the bottom of the page

1. Cooked food already contaminated with bacteria
2. Not thawing meat sufficiently before cooking
3. Cross contamination
4. Preparation too far in advance
5. Cooling food too slowly before refrigeration
6. Not re-heating food to a high enough temperature
7. Infected food handlers
8. Storing food below 63°C (in the danger zone)
9. Undercooking
10. Poor use of leftovers

Write your answers in the space below



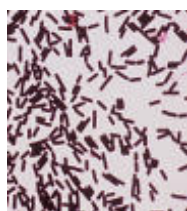
Module 2: Bacteriology

Food Poisoning Bacteria		
Pathogen	Source & Onset Time	Typical Symptoms and Information
Salmonella	Cross-contamination of foods. Uncooked eggs, poultry and meats should be kept separate from produce and ready-to-eat foods. Onset Time - 12-36 Hours	Abdominal pain, diarrhea, vomiting, fever Cook poultry, and eggs thoroughly before eating. Eggs should be cooked at least until the yoke is solid. Keep high standards of personal hygiene
Clostridium Perfringens Spore Former	Animal and human excreta, soil, dust insects and raw meat. Can only grow in the absence of oxygen Onset Time - 12-18 hours	Abdominal pain, diarrhea – Vomiting is rare Soups; Stews; Gravies and large joints of meat are vehicles of Clostridium Perfringens when reheated because of the spores
Staphylococcus Aureus	Human body Especially skin nose Mouth, cuts and boils - Also raw milk Onset Time - 1-6 Hours	Abdominal pain or cramp, vomiting, low temperature Heat Resistant Toxin Staphylococcus is salt tolerant
Bacillus Cereus * Spore Former	Cereals (especially rice), soil and dust 1-5 hours or 18-16 hours	Abdominal pain, some diarrhea, vomiting. Heat Resistant Toxin Avoid re-heating rice
Clostridium Botulinum (Botulism) * Spore Former	Soil, raw fish and meat, vegetables, smoked fish, canned fish and corned beef, hazelnut puree. Onset Time - 12-36 hours	Difficulties in breathing and swallowing, paralysis. Death often follows! Toxin Destroyed by Heat

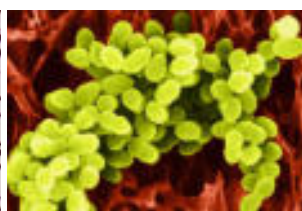
Those listed are examples only; Onset time is the period between consumption and the first symptoms of illness



Salmonella



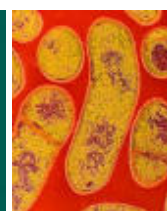
Clostridium Perfringens



Staphylococcus Aureus



Bacillus Cereus



Botulism

Did you know? Food might taste and smell completely normal but could still contain enough bacteria to make someone very ill as you often cannot see, taste or smell bacteria.

Food Borne Diseases		
Pathogenic Bacteria	Source and Onset time	Typical Symptoms and Information
Campylobacter	Raw poultry, raw meat, milk and animals (including pets) Onset Time - 48-60 hours	Diarrhea, often bloody, abdominal pain, nausea, fever Campylobacter was not recognized as a cause of human food borne illness prior to 1975. Now, the bacterial organism is known to be the most common cause of food borne illness and was found in 70% of chickens in a 2015 survey
E Coli 0157	Human and animal gut, sewage, water and raw meat especially minced meat Onset Time - 12-24 hours	Abdominal pain, fever, diarrhea, vomiting, kidney damage or failure Never eat undercooked minced meat
Listeria	Soft cheese, cheese made from unpasteurized milk, salad, vegetables and pate. Widespread in environment. Sewage, soil and river water. Unlike other food poisoning bacteria Listeria can grow in the fridge! Onset Time - 1-70 Days	Fever, muscle aches, and gastrointestinal symptoms such as nausea or diarrhoea. If infection spreads to the nervous system, symptoms such as headache, stiff neck, loss of balance, confusion, convulsions can occur. With brain involvement, listeriosis may mimic a stroke. Infected pregnant women will ordinarily experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage, infection of the new-born, or even stillbirth There is also a possibility of Meningitis and Septicemia. Listeria Can be fatal!
Bacillary Dysentery (Shigella)	Water, milk, salad, vegetables Onset Time - 1-7 Days	Diarrhea sometimes bloody, fever, abdominal pain, vomiting. Shigella thrives in the human intestine and is commonly spread both through food and by person-to-person contact.
Norovirus	People, Sewage, Contaminated Water Onset Time - 1-2 Days	Also known as the Winter Vomiting Bug. Alcohol gels are not effective; washing hands will help avoid the virus spreading.

Those listed are examples only; Onset time is the period between consumption and the first symptoms of illness.



Campylobacter



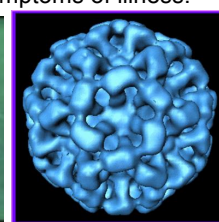
E Coli



Listeria



Dysentery



Norovirus

Did you know? Food Borne Diseases differ from food poisoning bacteria, as they cannot grow on food, they require relatively few micro organisms to cause illness and the onset period is often longer (as the food cannot grow on the food it only grows once eaten and inside the human body)



It's time to recap on Bacteria

1. Which bacteria carry spores that produce a protective coat when conditions become difficult for them?

- 1.
- 2.
- 3.

2. Which bacteria are carried naturally by 40% of humans?

3. What are the three main differences between food borne illnesses and food poisoning?

- 1.
- 2.
- 3.

4. True or False? – Alcohol gels are very effective to kill all pathogenic bacteria

5. Which food borne illness is particularly harmful to pregnant women?

6. Which food would you often associate with Bacillus Cereus?

7. If a tin can of fish has “blown” which bacteria might potentially be present?

8. Name a frequent symptom of Clostridium Perfringens?

Module 3: Temperature Control



Food handlers must do everything possible to prevent food borne illness by controlling conditions that will encourage bacterial multiplication. By keeping food under the correct temperatures control you will destroy many microorganisms or prevent them from growing.

Remember!

1. **Keep the time high-risk food is kept in the danger zone (5°C - 63°C)**
2. **Keep chilled food cold 5°C or colder**
3. **Ensure that food is the correct temperature on delivery and store immediately**
4. **A freezer should operate at -18°C to -22°C**
5. **Keep food hot at 63°C or hotter**
6. **The centre of cooked food should reach 75°C**
7. **Remember to keep records of your temperature control as part of the HACCP and food safety system**

Preparation of Food

- ⇒ Always check the centre temperature of the food near the end of cooking time (With a sanitized or infra red probe) to ensure the food is cooked throughout this (70°C for two minutes will normally kill most bacteria)
- ⇒ Whenever practical cut large joints and poultry into smaller pieces to ensure cooking through to centre
- ⇒ Always cook stuffing separately so it does not prevent cooking
- ⇒ Stir soups, stews, gravies & casseroles to ensure there are no cool spots

Cooling of Food

- ⇒ Hot food passes through the danger zone when it cools so the temperature should be reduced as rapidly as possible
- ⇒ The easiest way to cool food is via a blast chiller as this shortens the time food spends in the danger zone. If there is no blast chiller the target should be to get the food below 5°C within 90 minutes
- ⇒ Never place hot food in the refrigerator, as this will raise the temperature within the fridge and cause contamination, which could contaminate other foods
- ⇒ Use large shallow trays and pans for cooling food in liquid because the large surface area helps to speed up the cooling process
- ⇒ Remove cooked meat joints and whole chickens from their juices before placing them in a clean container with enough space to allow air to circulate
- ⇒ Protect all food from contamination while it is cooling
- ⇒ All foods should be properly covered or wrapped with use by dates in place
- ⇒ The maximum size joint should be 2.5kg;
- ⇒ Smaller quantities cool quicker so cut into smaller portions

Cooking

Cooking is a critical to ensure pathogenic bacteria and make food safe. If food is not cooked correctly then pathogens may survive.

To make sure that pathogens are killed by cooking the thickest part of the food (the core) should reach 70c for two minutes or the equivalent ratio.

Temperature	Time
70°C	2 Minutes
75°C	30 seconds
80°C	6 seconds
86°C	Instant reading

When re heating (which should be avoided wherever possible) the food should reach a core temperature of 75°C for 30 seconds. Once reheated the food must be served immediately or above 63°C until consumed



It is important to measure and record the core temperature of any solid high-risk food that is under refrigeration, being cooked, reheated cooled or defrosted.

There are a number of temperature measuring devices available including a temperature probe which may be used but care must be taken to avoid cross contamination and keep the probe clean.

When measuring the temperature of liquid stir before use.

Remember to probe food to ensure it is hot enough at the centre of the joint (or in the thigh of chicken as the centre maybe uncooked and still have bacteria) and record findings in your management system.



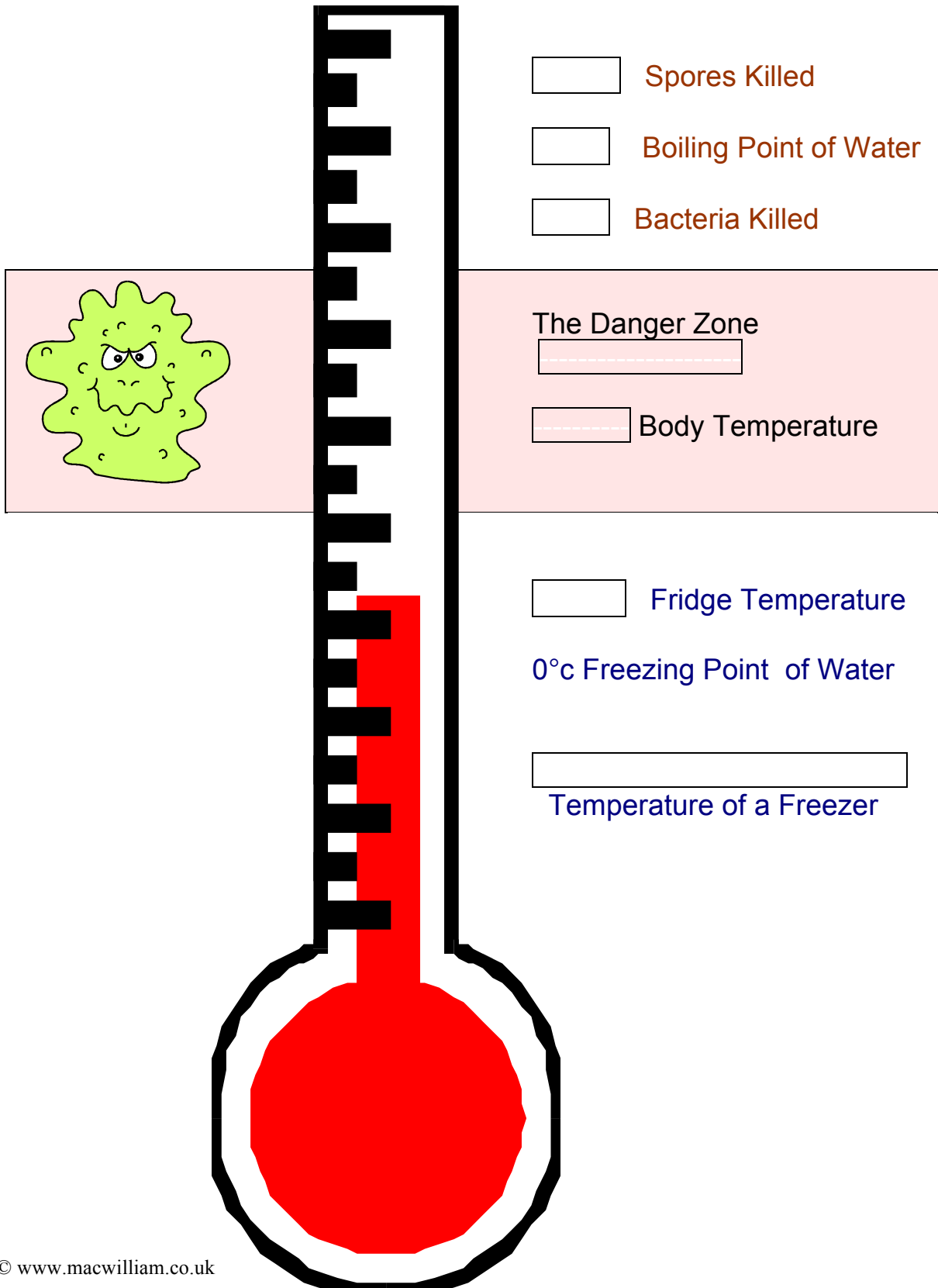
Don't forget to clean and sanitize your probe after use
Suitable probe wipes may be used but ensure they are moist and within their use by date

Ensure you follow manufactures guidelines and check it is accurate by using ice cubes at 0c and boiling water at 100c record your findings.

Individuals responsible for cooking must be trained in all aspects of monitoring temperatures such as when temperatures are checked, how to calibrate and clean the probes, how to record findings and complete the food management system

"The Germometer"

Can you fill in the blanks?



Module 4: Personal Hygiene



If you are ill with a cold, cough, skin infection, septic cuts or those with discharge; a sore throat, nausea and especially vomiting and diarrhoea you must phone in sick. If you become ill during service you must report to your supervisor who will send you home. You should not return to work until you have been given medical clearance or 48 hours after the symptoms have stopped. If you carry on working and pass on a bug to a customer who could, potentially die, you could be facing a large fine or prison sentence



Always cover cuts and spots with a blue waterproof, detectable plaster and change regularly, consider suitable protective gloves or finger stools. Ensure your uniform is clean, suitable for the job and light coloured with Velcro rather than buttons, which may fall into food. Hats, aprons, snoods and non-slip shoes should be worn as appropriate. Food handlers should not wear nail varnish or jewellery, leave it at home as it may collect dirt and or fall into the food. Wash regularly and often avoiding strong smelling deodorant or perfume. Ensure long hair is tied back and if necessary covered. Always wear appropriate overalls. Put on protective clothing before you go into a food prep area.

Hand Washing



Use comfortably hot water in a basin (used only for hand washing). Liquid, anti bacterial soap should be used (bars of soap may carry bacteria) - Don't forget your nails, wrists and between fingers. Rinse your hands before drying with a paper towel.

You can see a World Health Organisation film of how to wash your hands here <https://www.youtube.com/watch?v=vYwypSLiaTU>

When to Wash Your Hands

Before starting work; Between touching raw or high risk food; After handling raw food; After visiting the toilet, After handling raw eggs; Coughing or sneezing; Touching your face; Using cleaning chemicals; Eating drinking or smoking. If you wash your hands in a lavatory wash them again when you have entered the food room

Never!

- ⇒ Cough, spit or sneeze over food
- ⇒ Touch your face or pick spots
- ⇒ Test food with fingers
- ⇒ Pick your nose or ears
- ⇒ Bite your nails
- ⇒ Chew Gum or eat near **food** preparation or service
- ⇒ Blow or breathe onto utensils such as cutlery or glass

Module 5: Delivery and Storage

From the moment food is harvested it is a race against time to be correctly stored. Food needs constant care until it is sold or served including the time during delivery and storage. It is important to Handle and store food in the best way possible such as in the right conditions, at the correct temperature and for a safe length of time

Dealing with Food Deliveries

Delivery vehicles should be specifically designed for the purpose and kept clean. If carrying high risk or perishable foods they should be refrigerated

Deliveries must be checked as soon as they arrive and the food must be stored immediately

When accepting a delivery the food should be fresh, at the correct temperature with packaging clean and undamaged – If the food does not adhere to these criteria it should not be accepted or destroyed

Also reject the food if it

- X** Has high risk or perishable foods delivered at a danger zone temperature
- X** Frozen food or partly thawed
- X** Packaging dirty, wet or damaged
- X** Cans dented, bulging, rusty or leaking
- X** Signs of mould or spoilage bacteria
- X** Food with expired date coding

General Rules for Safe Storage

- ✓ Store food immediately after delivery and follow storage instructions
- ✓ Keep high risk and perishable foods out of the danger zone
- ✓ Always store food off the floor, on shelves or pallets
- ✓ Use dry, clean containers; Do not overload – allow air to circulate
- ✓ Clean up spillages immediately
- ✓ Check food before you use it

Correct storage will help to

Prevent food borne illness

Preserve the foods quality including taste and professional

Keep within the law

There should also be a separate store for cleaning chemicals well away from any foods

Food stores should be designed to conserve foods in the best possible way

Dry Stores (ideally cool and dry at around 10°C) Dry, Cool, Ventilated, Pest Proof

For short or long storage of canned & bottled food, cereals, grains, tea, coffee & spices

Refrigerators & Cold Stores (Ideal operating temperature of between 1°C -4°C)

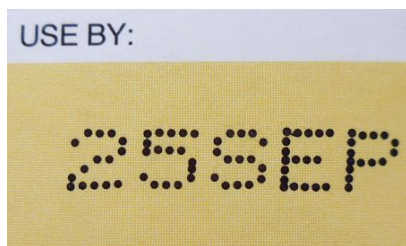
For storing perishable foods for short periods of time; ensure food is labeled and covered; Keep raw and high-risk food apart; regularly clean; do not overload;

Never put warm food in the refrigerator, as it will increase the temperature.
Check food daily and discard any food that is out of date or spoiled.

Freezers (Operating temperatures at -18°C to -22°C)

For storing high risk and perishable foods for short periods of time. Freezing does not improve the quality of food. Defrost foods at the bottom of a fridge in a sealed container away from high risk foods; Wrap well and label before freezing

Date Coding



All foods and many drinks will have a date code on the packaging.

Be certain to check the Use By or Best Before Dates before serving or consuming food.

Use By Date

For highly perishable foods which could become a food safety risk such as meat products and ready prepared foods. "Use By" does not necessarily mean "Eat By" because cooking or freezing the food before its "Use By" date can extend its life. It is illegal to sell food after its "Use By" date (although not a point of sale offence)

Best Before Date

This is the date up to and including which the manufacturer or retailer expects the food to remain at peak quality, providing it has been stored correctly. Food may still be edible after the "Best Before" date, however its appearance and quality could suffer. You may see "Display Until" codes in shops and cafes although these are not a legal requirement.

Have a look at the grid below and find which of the following should have a "Use by Date" and which a "Best Before"? Find the answers in your food stores

	Use By	Best Before	No Code Required
Sliced Cooked Ham			
Rich Tea Biscuits			
Scotch Whisky			
Fresh Eggs			
A Can of Diet Cola			
A Cornetto			
Raw Potato			
Fresh Minced Lamb			
Ready Salted Crisps			
Sliced Bread			
Cornflakes			
UHT Cream			
Milk Chocolate Bar			
Ice			
Pre Packaged Apples			
Tin of Baked Beans			

Stock rotation

Stock rotation will help to ensure that food is used within date. Ensure any food, particularly high risk food has been removed from sale. If food is frozen to or preserved ensure it is suitably re-dated as appropriate.

Remember The Golden Rule First in first out!

A. Dodgy Bakery

After consuming meat pies that were purchased from a local bakery several people were struck down with illness, later diagnosed as salmonella. Following further investigation and the testing of stool samples given by the bakery employees it was revealed that one of the employees was a symptomless excreter of Salmonella organisms. The employee had the habit of eating raw meat gelatine used for the filling. A mouse trapped in the bakery and specimens of other pies were proved negative. It was also found that the Butcher who supplies meat for your pies had a poor standard of hygiene.

You are the Bakery owner -

Q1. What action would you take against the employee?

Q2. What action would you take against the Butcher, if any?

Q3. What can you do to stop mice re-entering your premises?

Q4. What action will you take with regard to your customers who were affected?

B. Anyone for Salmonella

One hot day in June a suburban club held a Tennis tournament. A tea of cold roast chicken, salads, cakes and fruit jelly was served.

Early the next day several of those who ate the food were ill with vomiting, diarrhoea and stomach pains. When investigated Salmonella was diagnosed.

Q1 Which food from the tea was most likely to have caused the food poisoning?

The investigation showed that the raw meat had been uncovered and stored above cooked meat with the juices dripping down on to the cooked meat. The temperature of the fridge was 11c. The chicken had been frozen then defrosted at room temperature for half an hour before cooking. The chicken was then left for two hours before refrigeration. All food was then placed on the buffet tables in a warm room an hour before being eaten.

Q2 What action should have been taken to avoid the bacteria multiplying and causing the illness? (list the mistakes and how they could be avoided)

Q3 Who could check that you or your employees are not still carrying Salmonella after an outbreak (even though there are no apparent symptoms)?

Module 6: Cleaning and Disinfection

The process of cleaning ensures that something is free from dirt and contamination. This may take energy in the form of scouring, scrubbing, brushing and sweeping. Cleaning should be uppermost in the minds of food handlers in order to keep the workplace safe.

Reasons for cleaning include Producing a Pleasant and Safe Environment; Impress Customers; Reduce Contamination; Legal Requirement; Allows Disinfection; Discourage Pests; Remove Possible Foreign Matter

Cleaning aims to –

- ✓ Protect food from microbial contamination
- ✓ Reduce opportunity for bacteria to grow
- ✓ Protect food from contamination
- ✓ Maintain a safe working environment
- ✓ Comply with legislation

Detergents

Detergents help to dissolve grease and remove dirt. With the use of some energy a detergent with hot water may kill some pathogens but generally the detergent kills no bacteria at all. Ensure equipment is disinfected after use

Disinfection

Disinfection can reduce bacteria to a safe level by the use of hot water (82c for thirty seconds); Steam; Chemical disinfectants

Heat disinfection may be mixed with chemicals to produce a dual action process. Disinfectants must be used after cleaning because disinfectant cannot remove grease and dirt.

If a disinfectant is mixed with a detergent (by a chemical company) this produces a **Sanitizer** which both cleans and disinfects.

Bactericides

Bactericides are often used in dishwashers or spray form. Unless industry standard they will only kill some bacteria and not necessarily to a safe level.

Items and areas where there are likely to be food poisoning bacteria such as chopping boards and preparation areas must be clean and disinfected frequently throughout a work period – also known as “Clean as You Go”. For example you should clean and disinfect work surfaces after handling raw meat.

Each individual is responsible for cleaning as they go.

Anything that touches food should be disinfected/sanitized these include -

- Chopping boards, work surfaces, slicers, mixers, mincers, knives, tongs, containers,
- Contamination and bacterial multiplication hazards such as
- Cloths and mops
- Waste bins and their lids

Your cleaning schedule should show the following –

- 1) Method including chemicals to be used
- 2) Protective clothing to be worn
- 3) Employees involved and Supervisor responsible for checking
- 4) Relevant to COSHH data sheet

The cleaning schedule should be displayed for all to see and suitable information and training given as required,

The cleaning schedule may include the names of cleaning contractors who carry out specialist tasks such as moving or dismantling machinery or using particularly hazardous techniques – Suitable training must be given

Wet Cleaning and Disinfection

Pre-clean Remove loose and heavy soiling, e.g. scrape plates, chopping boards or pans

Main Clean Wash with hot water and detergent

Rinse Remove any traces of detergent or food particles with clean hot water

Disinfection Use chemical disinfectant (ensure correct contact time but no longer)

Final Rinse Use clean hot water

Dry If possible leave to air dry as cloths may spread bacteria

Cleaning a Work Surface

Protect food from contamination

Remove any loose dirt

Wash surface with hot water and detergent using appropriate cloth

Use chemical disinfectant (follow manufacturers guidelines)

Rinse with hot clean water and clean cloth

Air-dry or use clean absorbent paper

Washing Up

Dishwashers provide an effective way to clean and disinfect items used in the preparation of food. Rinse cycles usually run at 82oc to 89oc. Always follow manufacturers guidelines making sure the machine is stacked without blocking the cleaning jets and is filled with the right amount of cleaning chemicals.

Washing by Hand

Wherever possible use two sinks side by side. Wear rubber gloves to protect you from hot water and chemicals. Remove particles of food, scrape and rinse if necessary.

Wash the items, ideally in the first sink with hot water (at about 55oc) and detergent using a cloth or a brush. Replace the water if it becomes dirty or greasy. Rinse in very hot water 82oc is ideal, using a second sink if possible. Use a purpose made basket to lower the items into very hot water. Leave to air-dry safe from contamination.

Safety Points

Always turn off electrics and unplug before cleaning

Wear appropriate Personal Protective Equipment

Never mix chemicals

Leaving chemicals too long in disinfectant may lead to bacteria becoming resistant

Store all chemicals away from food in correct containers

Only start cleaning once food is safely stored away before cleaning

Never use tainting chemicals in food area

Clean the high-risk area then the raw food area



Use disposable single use cloths where possible

One recent report stated that a kitchen sponge was 200'000 times dirtier than a toilet seat. There are 10million bacteria per square inch of a kitchen sponge & 1million per square inch on a dish cloth.

Clean the high risk/ready to eat area first then the raw food area this will help reduce the likelihood of cross contamination

Always follow manufacturers instructions when using cleaning agents

Never mix chemicals

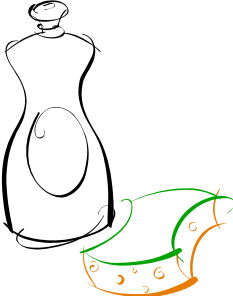
Keep containers away from food

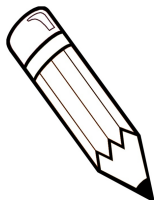
Wear suitable personal protective equipment

From June 2015 there are new symbols on chemical packaging and bottles



What effect do the following chemicals have on bacteria?

Tick the box in the column for the answer you think is correct		Destroys all Bacteria	Reduces Bacteria to a Safe Level	Destroys Some Bacteria	Destroys No Bacteria
	BACTERICIDE				
	DETERGENT				
	DISINFECTANT				
	SANITIZER				
	STERILIZER				
	WATER at 82°C for 30 seconds				



Module 7: Premises and Equipment

The design of food premises, equipment and operations ensures that food stays safe. Food Handlers play a vital role in food safety by following company rules about access to different parts of the building and processes and by looking after food areas, utensil and equipment. The set out of the kitchen must be in such a way to avoid cross contamination in a logical workflow.

All premises must be suitable for the type of food involved and the preparation and processes being carried out. There are some important principles including those detailed below –

- ⇒ Prevent contamination, such as allowing for a safe working environment with enough room for the separation of raw and cooked foods and the separation of clean and dirty processes
- ⇒ Provide good safe waste disposal areas
- ⇒ Ensure that employees have adequate facilities for thorough cleaning
- ⇒ Provide facilities for personal hygiene
- ⇒ Prevent pest infestation by proofing the building, installing door and window screens and having a pest control system (possibly including a contractor)
- ⇒ Provide means for employees to control the temperature of food, including; providing adequate ventilation to stores, food preparation, rooms, refrigerators and freezers
- ⇒ Provide chilling equipment away from direct sunlight

The most suitable materials for the structure of a food premises are

- ⇒ Durable
- ⇒ Impervious
- ⇒ Smooth
- ⇒ Light coloured so that dirt can be seen and easily cleaned
- ⇒ Easy to clean – steel or plastic cladding is ideal
- ⇒ Heat resistant
- ⇒ Floors should be slip resistant
- ⇒ Wall and ceiling surfaces should be smooth, without joints or cramps, which could harbor bacteria or pests
- ⇒ Walls, ceilings and floors should be grease resistant to prevent contamination
- ⇒ Doors and windows should have fly screens
- ⇒ Woodwork must be smooth and sealed without flaking paint
- ⇒ Work surfaces should be smooth without joints or cracks and heat resistant where appropriate

Utensils and Equipment

The best materials for food equipment and utensils are easy to clean, durable, smooth, non absorbent, durable corrosion resistant and resistant to chipping or cracking non toxic and resistant to rust; Tableware should have no chips or cracks that might harbor bacteria

Use colour coded equipment such as chopping board

Plant and Equipment

Processing machinery should be designed to provide easy access for cleaning and maintenance. Large cookers, fridges and freezers should be mobile so that they can be cleaned underneath.

There should be enough refrigerator space to store raw and cooked food separately. If there is not enough fridge space to store food separately. Extra care must be taken to store food correctly.

Services and Facilities; Suitable lighting and ventilation must be provided plus hot water and basins. Basins for hand washing must be provided in the toilet area and at least one hand washbasin in every food preparation area. These basins should not be used as or near to washing up and food washing sinks.

Requirements for Refuse Storage

Food waste and other rubbish such as food packaging can be a source of bacterial and physical contamination and can attract pests. If not disposed of properly. Food premises require inside and outside bins

Inside bins near food preparation areas

The inside bins should be within the food handlers easy reach but they must not be so close as to create a risk of contamination. Lids must be tight and well fitting and have a polythene disposable sack. Open bins allow bacteria to flow freely and attract pests. They must be emptied and cleaned regularly. By using two liners (double bagging) the likelihood of attracting pests is reduced

Foot operated bins are best as the operator does not have to contact the bin by hand



Always leave bin lids closed unless throwing something away (of course!)

A bin in constant use, such as one used for the waste from plates before they go into the dishwasher, may be used without a lid provided that it is emptied as soon as the task is finished. Remove rubbish throughout the day as soon as each bag becomes full. Tie the bag securely, take it outside and put it into a dustbin/skip with tight fitting lids.

Never let a bin overflow or leave rubbish inside a food premises overnight, as it is likely to attract pests. Keep bins, their lids and areas around them clean and tidy at all times and always empty and clean bins at the end of the working period (away from food)

Always wash your hands after dealing with refuse and waste food

Outside bins in special refuse areas - Refuse Areas

Keep bins and refuse areas clean. Always put the rubbish bins in the bins, making sure that the bin lids are on securely to protect from scavengers such as rats, birds, cats and foxes. Clean and disinfect regularly.

If your bins are often overflowing you may need additional bins or extra collections

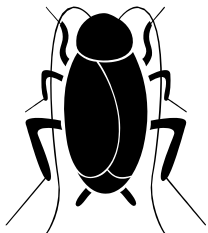
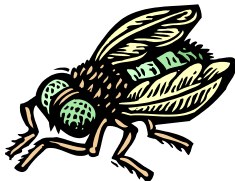

Where possible recycle rubbish



Module 8: Pest Control

A food pest is any creature that lives on, or in human food, causing damage or contamination or both. Pests are a serious source of food contamination.

Pests are attracted to places where food is stored, prepared, sold, served or thrown away and to where there is warmth and shelter. They can enter buildings through open windows and doors, or through the tiniest cracks in walls and around windows and pipes.

Food Pest	Contaminant	Treatment	Gallery
Cockroaches There are two sorts of cockroach The Oriental Cockroach, which is dark brown to black. They like areas of high temperatures such as a kitchen 20-30mm long The German Cockroach is Brown and found in warm dark places 12-15mm Long Sightings are rare as Cockroaches don't like the light	Bacterial Contaminants Cockroaches live in sewers and feed off the rotting carcasses of other insects and their excrement	If Cockroaches are sighted you will need professional help to rid yourself from this pest. Fumigation is normally the most effective way	
Flies When a fly lands on your food it may have already visited animal excrement, raw food, dirt or all three; they will then vomit on your food and regurgitate a number of times. Probably go to the toilet (the female may lay a few eggs) and then when they fly off it's your turn	Dead bodies and larvae Bacterial contamination	Erect fly screens and suitable electronic fly killer Keep rubbish covered in a suitable closed bin	
Rodents Rats and Mice Rats carry harmful bacteria including Weil's disease, which is carried in their urine. This is fatal in a significant number of cases	Droppings Damage from gnawing Spillage Rodent runs and smears Visual sightings noise and smell	Keep everything clean Deny the pests access; Place food in rodent proof containers	

Pests can cause damage to a business reputation and profit; Cause contamination and wastage; Damage buildings equipment and electrical cables causing fire and safety hazards; Non compliance with the law and spread disease. Check deliveries for pests, deny access and keep everything clean and tidy. Proof the area and ensure pest control is part of your management plan.

Module 9: Allergies and Intolerances

In December 2014 legislation (the EU Food Information for Consumers Regulation 1169/2011) came into force which required food businesses to provide allergy information on food sold unpackaged, in for example catering outlets, deli counters, bakeries and sandwich bars. There was also a change to existing legislation on labelling allergenic ingredients in pre-packed foods, which are shown below



With food allergy the body sees an otherwise harmless food as unsafe and activates the body's defense mechanism or immune system, it is this activation of the immune system that causes the symptoms of food allergy.

There is a wide range of symptoms for food allergies including those similar to the symptoms of food poisoning. Other allergy symptoms include rashes, swelling of the throat and mouth, difficulty in breathing, collapse and unconsciousness.

Allergic reactions can occur within minutes of eating just a small amount of a food or ingredient and may be life-threatening.

Did you know? Every year there are 4'500 people admitted to hospital and ten deaths from food allergy

Food Intolerance

With food intolerance, the body reacts whenever a particular food or food ingredient is eaten, but the body's immune system is not involved.

Food intolerance can be caused by a number of things, such as a defect in how the body processes food. Certain types of food intolerance are linked to specific conditions.

For example, lactose intolerance is when the body is not able to digest lactose (milk sugar) because of low levels of the enzyme needed for this (lactase).

Lactose intolerance causes abdominal symptoms such as bloating and diarrhoea, and is more common in older children and adults.

Most people who have a food allergy or intolerance know what to avoid, but they often need help in identifying exactly which ingredients have been used.

Where appropriate suitable information should be detailed on a menu notifying customers that foods may have traces of nuts.

Module 10: Legislation and Management

Controlling Food Safety

The laws relating to food safety are designed to protect consumers from harm and to help businesses to comply with the law.

Every person that deals with food as part of his or her work has a legal responsibility to safeguard food.

Food Handlers **must** -

- ⇒ Keep themselves clean
- ⇒ Keep workplaces clean
- ⇒ Confirm to workplace rules
- ⇒ Wear suitable protective clothing
- ⇒ Inform employer if you are unwell
- ⇒ Do not sell food that appears unfit for human consumption or past use by

Failure to comply can lead to fines, imprisonment, a criminal record, paying civil compensation and the closure of the business

If the premises are an Imminent Health Risk then an **Emergency Prohibition Notice** may be issued requiring -

- ⇒ Closure of all or part of the premises
- ⇒ Prohibition of a process
- ⇒ Prohibition of use of equipment.

In addition an Environmental Health Officer (EHO) may enter a premises at any reasonable time, take samples and offer advice. An individual as well as a business may be prosecuted resulting in fines or imprisonment.

Food Premises

A food business must not be carried on in unsanitary premises.

Food premises must be:

- ⇒ Registered with the local authority
- ⇒ Properly maintained
- ⇒ Adequately supplied with clean water
- ⇒ Well lit and well ventilated
- ⇒ Provided with suitable facilities for washing utensils, equipment and food
- ⇒ Supplied with suitable facilities for personal hygiene
- ⇒ Equipped with first-aid materials
- ⇒ Overalls should be clean, light coloured and washable (or disposable)

Did you know?

An employee could be prosecuted by law with fines and imprisonment
Keep it clean at all times!

Food Safety System and Hazard Control

(HACCP) Hazard Analysis and Critical Control Point

All food business must have a suitable food safety management plan in place that identifies all potential food hazards and puts in place procedures to control the risk of harm being caused.

There are nine areas of food safety management that must be controlled

- 1) Purchase, Receipt/Delivery or Collection
- 2) Storage
- 3) Preparation (including cross contamination)
- 4) Cooking
- 5) Hot Holding
- 6) Cooling
- 7) Storage
- 8) Reheating
- 9) Service

In addition there should be procedures for cleaning, such as a cleaning schedule and the overall management of the system in place

Whatever system is used ensure that records for temperature, training and cleaning are kept to show due diligence

Food handlers must receive training in the management and HACCP systems

HACCP is a written system that involves: -

- Knowing what can make food unsafe (hazard analysis),
- Making decisions on how food can be produced and sold safely,
- Putting these into practice (controlling hazards at critical points in the process),
- Carrying out checks to make sure it all works well.

There are seven principles of HACCP

1. Analyse Hazards and consider control measures
2. Determine critical control points
3. Establish limits for critical control points (CCP's)
4. Establish monitoring and procedures for CCP's
5. Establish correctives actions (record action taken)
6. Establish a verification procedure
7. Establish a record system;

Ensure the system is reviewed from time to time

If you would like a copy of a sample HACCP please request this at tim@macwilliam.co.uk

Food should be safe throughout the food chain from the "Farm to the Fork"
An outbreak of food poisoning may be due to a waitress forgetting to wash their hands, a delivery lorry not having correct temperature control or a farmer feeding their cattle infected feed

Legal Requirements

Any food business must ensure that legal requirements are met and implement a food safety system. In addition a food operator is required by law to –

- 1) Register the business with the local authority
- 2) Design, equip and operate food premises in ways that prevent contamination risk
- 3) Provide adequate toilets, hand washing facilities and changing facilities
- 4) Ensure food handlers are adequately trained and supervised

Food Handlers are required by law to –

- 1) Keep yourself clean
- 2) Keep the workplace clean
- 3) Protect food from contamination or anything that could cause harm
- 4) Follow good hygiene practices such as hand washing
- 5) Wear clean and appropriate over clothing
- 6) Tell your supervisor if you have symptoms of diarrhoea and vomiting

Enforcement

Environmental Health Officers from the local authority have a responsibility to inspect food premises and investigate and complaints about food hygiene. In addition there are Food Safety Officers and Trading Standard Officers (who would check, for example, there was no horse meat in a beef burger)

An officer may enter premises at any reasonable time to inspect as often as they see fit. They may offer advice, seize food and enforce legislation. A **Hygiene Improvement Notice** (would be given for example dirty work surface, broken tiles or damaged fridge seals); A **Hygiene Emergency Prohibition Notice will be served** to stop a business using parts of a property. In the most severe cases **A Prohibition Notice** which may lead to closure, fines and imprisonment for serving food unfit for human consumption or breaking the law – A summary of the current law in the UK is listed below.

[The General Food Law Regulation \(EC\) 178/2002](#) is directly applicable EU legislation and provides the general principles of food safety which include the requirement on food businesses to place safe food on the market, for traceability of food, for presentation of food, for the withdrawal or recall of unsafe food placed on the market and that food and feed imported into, and exported from, the EU shall comply with food law. [The Food Safety Act 1990 \(as amended\)](#) provides framework for all food legislation in Britain – similar legislation applies in N.I. [See the guidance for food businesses on the Food Safety Act 1990](#). In Scotland & Wales, [The General Food Regs. 2004 \(as amended\)](#) In England, [The Food Safety and Hygiene \(England\) Regs. 2013](#) (as amended) provides for the enforcement (including imposing penalties)

What is Due Diligence? Due Diligence can be used as a defence by a food business who has been taken to court for breaking food safety law. The food business operator must be able to demonstrate that everything possible was done to ensure that the food prepared was safe to eat. Providing records linked to the food safety management system. It is not a legal requirement to keep samples of food.

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