

Level 1/2 Hospitality and Catering: Unit 1:

Food related causes of ill health (AC4.1)



Food related causes of ill health

Ill health could be caused by any of the following:

- **bacteria**
- **allergies**
- **intolerances**
- **chemicals** such as:
 - detergent and bleach
 - pesticides and fertilisers.

Intolerances

Some people feel unwell when they eat certain foods. Common foods that cause intolerance include:

- milk (lactose)
- cereals (gluten)
- artificial sweeteners (Aspartame)
- flavour enhancers (MSG).

Food poisoning bacteria

The main causes of food poisoning bacteria are:

- **Bacillus cereus**: found in reheated rice and other starchy foods.
- **Campylobacter**: found in raw and undercooked poultry and meat and unpasteurised milk.
- **Clostridium perfringens**: found in human and animal intestines and raw poultry and meat.
- **E-coli**: found in raw meat, especially mince.
- **Listeria**: found in polluted water and unwashed fruit and vegetables.
- **Salmonella**: found in raw meat, poultry and eggs.
- **Staphylococcus aureus**: found in human nose and mouth.

Food and the law

Food can cause ill-health if it is stored, prepared and/or cooked incorrectly or if a person unknowingly eats a food that they are allergic or intolerant to. All hospitality and catering provision need to follow laws that ensure food is safe to eat. They are:

- **Food Labelling Regulations (2006)**: A label must show all ingredients including allergens, how to store and prepare the food, where it came from, the weight of the food and a use-by or best-before date.
- **Food Safety (General Food Hygiene Regulations) 1995**: This law makes sure that anyone who handles food - from field to plate – does so in a safe and hygienic way. The **HACCP** system is used throughout the hospitality and catering sector.
- **Food Safety Act 1990**: This law makes sure that the food people eat is safe to eat, contains ingredients fit for human consumption and is labelled truthfully.

Food allergies

An allergy is a reaction to something found in food. In the case of a severe allergy, the reaction can lead to death.

Common allergens include:

Cereals	Eggs	Seeds
Soya	Fish and shellfish	Strawberries
Peanuts	Wheat	Milk and dairy
Celery	Tree nuts	Mustard

Level 1/2 Hospitality and Catering:

Unit 1: Symptoms and signs of food-induced of ill-health (AC.4.2)



Symptoms and signs of food-induced ill-health:

An “upset tummy” is a familiar symptom for someone who thinks they might have food poisoning; this is known as a non-visible symptom. There are many other signs and symptoms that could show that a person might be suffering from ill-health due to the food they have eaten. Some of the symptoms can be seen (visible symptoms) such as a rash. It is important to be able to recognise visible and non-visible symptoms to help someone suffering from food-induced ill-health.

Visible symptoms

Visible symptoms of food poisoning, chemical poisoning, allergic reaction and food intolerance include:

- **Diarrhoea:** a common symptom of most types of food poisoning bacteria and can also be a symptom of lactose intolerance.
- **Vomiting:** a common symptom of most types of food poisoning bacteria, but may could also be caused by taking in chemicals accidentally added to food.
- **Pale or sweating/chills:** a high temperature is a common symptom of E-coli and Salmonella.
- **Bloating:** a symptom of lactose intolerance.
- **Weight loss:** a symptom of gluten intolerance (coeliac disease).

Allergic/anaphylactic reaction

- **Visible symptoms:** red skin, a raised rash, vomiting, swelling of lips and eyes and difficulty breathing.
- **Non-visible symptoms:** swelling of tongue and throat, nausea (feeling sick) and abdominal pain.
- **Anaphylaxis:** a severe reaction to eating an allergen that can lead to death. An injection of adrenaline (for example, an EpiPen) is the treatment for an anaphylactic reaction.

Non-visible symptoms

Non-visible symptoms of food poisoning, chemical poisoning, allergic reaction and food intolerance include:

- **Nausea (feeling sick):** the most common symptom for all types of food-induced ill-health.
- **Stomach-ache/cramps:** abdominal pain is common symptom of lactose intolerance as well as a sign of an allergic reaction. Cramps may happen at the same time as diarrhoea.
- **Wind/flatulence:** a common symptom of lactose intolerance.
- **Constipation:** a symptom of Listeria food poisoning.
- **Painful joints:** a symptom of E-coli food poisoning.
- **Headache:** a symptom linked to Campylobacter, E-coli and Listeria.
- **Weakness:** non-stop vomiting, and diarrhoea can leave a person feeling weak. Gluten intolerance (coeliac disease) can leave a person feeling tired because their bodies can't absorb the correct amount of nutrients.

Pathogenic Bacteria	Source	Special points	Average onset time and duration of symptoms	Typical symptoms
Campylobacter	Raw meat, raw poultry, animal contamination, milk and milk products. Found in the intestines of many types of animals and birds; birds can contaminate food by pecking it and with their droppings. Inadequate pasteurised milk and contaminated water supplies are responsible for larger outbreaks of the disease.	The most common form of bacterial food poisoning in the UK. Less than 500 Campylobacter bacteria are required to cause infection. Destroyed by heat.	2-5 days after infection Usually lasts a week	Diarrhoea, vomiting, stomach pains and cramps, fever, generally feeling unwell
Salmonella	Eggs, poultry, cooked meats, unpasteurised milk, insects and sewage. Found in the intestines of farm animals and sometimes human beings. Pets and rodents can carry the bacteria.	AS Salmonella is infectious (it can be passed from person to person easily) make sure the toilet areas and personal bedding are kept clean Avoid drinking water from untreated sources. It is destroyed by cooking	12-72 hours after infection Usually lasts for 4-7 days	Abdominal pain, diarrhoea, vomiting, headache and high fever. Salmonella causes dehydration and this can be particularly serious in young children, the sick and the elderly. Fatalities (deaths) from the disease are rare
Escherichia coli (E.coli)	Raw and undercooked meats; raw poultry; untreated milk, water and dairy products. Found in the intestines of animals and humans.	Only a small number of bacteria can produce sufficient toxin to cause an illness. The bacteria can survive refrigeration and freezer storage Thorough cooking of food and pasteurisation will destroy it.	2 days Usually lasts 3-10 days	Abdominal pain, nausea, mild diarrhoea, bloody diarrhoea due to severe inflammation of the gut, vomiting, kidney failure Can be fatal
Clostridium perfringens	Healthy animals and people, raw meat, soil from root vegetables, dust and animal excreta, sewage and manure.	Can occur when food, usually meat, is prepared in advance and kept warm for several hours before serving. Clostridium perfringens can reproduce during slow cooling and unrefrigerated storage. Spores develop in the danger zone and can anaerobic conditions. Spores can survive low temperatures When consumed it produces a toxin that can cause illness.	Within hours of consuming the bacteria Usually lasts 24-48 hours	Abdominal pain, diarrhoea, nausea
Listeria	Cooked chilled foods (foods that have been cooked and then chilled and stored in the fridge), for example ready meals. Untreated dairy foods, pate, smoked fish, soil sewage, water, animals and people.	It can grow at low temperatures and will multiply in refrigerators at 5°C. It is destroyed by cooking food thoroughly and by the process of pasteurisation. Pregnant women, babies, those with weakened immune system and the elderly are most at risk. Infections during pregnancy can cause miscarriage or premature delivery. Vulnerable groups should avoid eating unpasteurised dairy products. Salads and raw vegetables should be washed before eating	Can take up to 90 days for symptoms to appear, so identifying the source of infection can be a challenge Usually lasts a few days, but can last up to 2-3 weeks	Mild flu to serious complications- blood poisoning or meningitis Gastroenteritis Can cause miscarriage
Bacillus cereus	Cooked rice and pasta dishes, meat and vegetable dishes, dairy products, soups, sauces, sweet pastry products, cereals and cereal products, dust and soil. Usually these food products have not been cooled or stored correctly; food that has been inadequately reheated can also be the source.	During cooling time after cooking, the spores will produce bacteria; bacteria can multiply rapidly at these warm temperatures and produce heat-resistant toxins that are not destroyed by further reheating. Only a small number of bacteria are required to cause illness	1-16 hours after infection Usually lasts 24-48 hours	Nausea, vomiting
Staphylococcus aureus	Raw milk, meat and meat products The human body- Staphylococcus aureus can live on the skin, in the nose or on the fingers of some infected people.	Cross-contamination occurs when an infected person handles ready-to-eat foods; storage of infected foods at room temperature before consumption allows the bacteria to multiply and produce a harmful toxin. High standards of personal hygiene are essential Most strains of Staphylococcus aureus are destroyed effectively by antibiotic but some are resistant to the antibiotic methicillin- they are known as methicillin-resistant Staphylococcus aureus (MRSA)	1-6 hours after infection Usually lasts 1-3 days	Abdominal pain, severe vomiting, low temperature, diarrhoea, stomach pain. An acute blood and wound infections if there is an opportunity for the bacteria to enter the body.

LO4 Know how food can cause ill health

4.1 Food-related causes of ill health

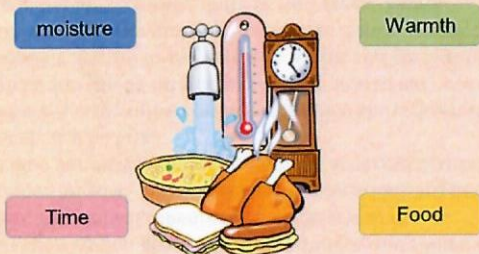
Microbes- are tiny micro-organisms that can contaminate food and spoil it, causing ill health. The micro-organisms discussed on this page are bacteria, yeasts and moulds

Bacteria

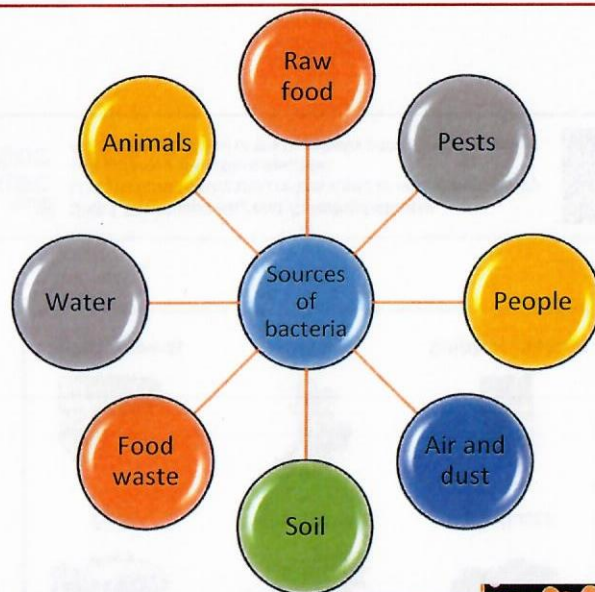
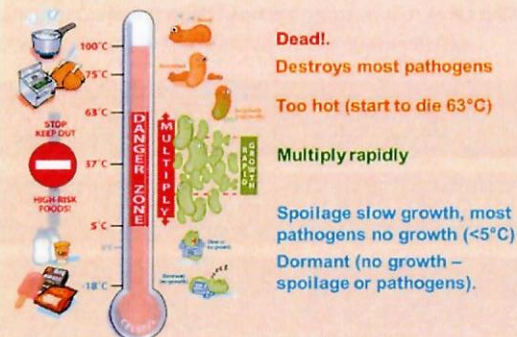


- Bacteria are single-celled micro-organisms. Bacteria can be found everywhere around you; on your skin, in food, in soil, in water and in the air.
- Most bacteria are harmless, but some are **pathogenic** and can cause food poisoning. General food poisoning **symptoms** are vomiting (being sick) and diarrhoea.
- Other types of bacteria cause food to decay; these are called food spoilage bacteria, which cause food to smell and lose its texture and flavour.

What do bacteria need to multiply?



Influence of temperature



Yeasts



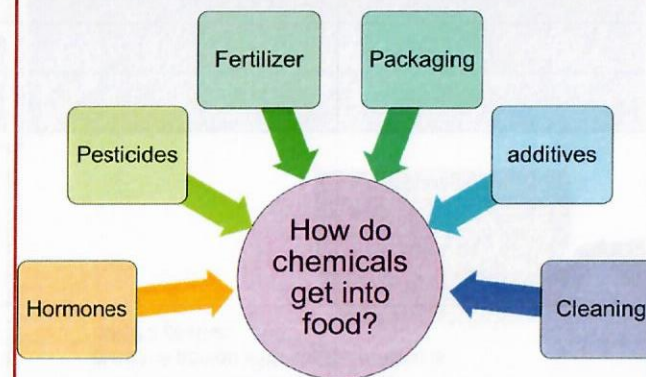
- Yeasts are a single celled fungi that reproduce by 'budding' - the yeast cell grows a bud, which becomes bigger until it eventually breaks off and becomes a new yeast cell.
- Yeast can grow in acidic, sweet foods; for example orange juice can ferment if it is not stored correctly, and honey can ferment if not pasteurised.
- Yeasts prefer moist, acidic foods.
- Yeasts can grow in high concentrations of sugar and salt.
- Yeasts grow best in warm conditions (around 25-29°C) but can also grow at fridge temperatures (0-5°C)
- Yeasts are destroyed at temperatures above 100°C.

Moulds



- Moulds are tiny fungi; they produce thread like filaments that help the mould to spread around the food.
- Moulds grow in warm and moist conditions.
- Moulds grow easily on bread, cheese and soft fruits, and can grow on foods with high sugar and salt concentrations.
- Moulds grow best between 20°C and 30°C, but can also grow in the fridge (0°C - 5°C)
- Mould growth may be speeded up by high humidity and fluctuating temperatures
- Moulds can grow on fairly dry food, such as hard cheese (for example Cheddar cheese)
- Moulds often spoil food such as bread and other bakery products.

Chemicals



Metals

Aluminium

- Aluminium is one of the most common metals used in cookware as it is lightweight and conducts heat well.
- When aluminium surfaces are in contact with acidic foods, such as tomatoes and citrus fruits, the aluminium reacts and can leach (dissolve) into the food. This can give the food an unwanted metallic taste.
- When aluminium has been associated with Alzheimer's disease, there is no evidence that this causes the disease. The world health Organisation estimate that adults can consume more than 50 mg of aluminium daily without harm, so day to day exposure to aluminium from cooking is considered to be safe.
- Aluminium cookware can be anodised (hardened through a process that makes it unreactive) or coated with a less-reactive material, such as stainless steel, so that it does not react with food.

Copper

- Copper may be used in cups, pots and pans. It warms quickly and is the best conductor of heat.
- Copper and copper-alloy surfaces react with acidic foods, such as tomatoes and citrus fruits, and can leach (dissolve) into the food. High doses of copper can be toxic, so most copper pans are lined with stainless steel to avoid this happening.



LO4 Know how food can cause ill health

4.2 The role and responsibility of the Environmental Health Officer

Environmental Health Officers (EHOs) are responsible for carrying out measures to protect public health and to provide support to minimise health and safety hazards.

Role of EHOs

- They look after the safety and hygiene of food through all stages of the manufacture or production from distribution to storage and service.
- They help develop, co-ordinate and enforce food safety policies.
- They have the right to enter and inspect food premises at all reasonable hours and can visit without advance notice.
- They carry out routine inspections of all food premises in their area; the frequency of routine inspections depends on the potential risk posed by the type of business and its previous record- some high-risk premises may be inspected at least every six months, others much less often.
- They visit premises as a result of a complaint.
- They have powers of enforcement and can close businesses in extreme cases.



Responsibilities of EHOs

- They check that food producers handle all food hygienically so as not to give customers food poisoning.
- They check that food is being kept at the specific temperatures at which it should be stored or held.
- They check that staff are properly dressed, with clean nails, no jewellery, hair covered or tied back, and showing good hygiene habits.
- They review processes in the workplace, such as the handling of food, use of equipment, use of colour coded chopping boards, washing-up and disposal of waste.
- They inspect food stores-fridges, freezers and dry stores.
- They check stock rotation and temperature logs
- They check that equipment is clean, well maintained and with safety notices if appropriate.
- They check the temperature of the food when it is cooked with probes to ensure that it is at the correct temperature.
- They ask questions to check compliance with the law or good practice
- They identify potential hazards
- They review safety management systems and plans
- At the end of an inspection they give verbal feedback, discuss any problems and advise on possible solutions. They complete a report of inspection findings, which tells the business what **enforcement action** is to be taken.



Unit 1 The Hospitality and Catering Industry
LO1 Understanding the environment in which hospitality and catering providers operate
AC 1.1 The structure of the hospitality and catering industry



Enforcement action

Enforcement action is required by law following an inspection from an EHO.

Enforcement action can range from verbal advice, informal or formal letters, and notices through to prosecution.

Formal Inspection letters- tells the food business which issues must be addressed to comply with the law. The EHO may revisit the business to check that the issues have been resolved.

Hygiene Improvement Notices- An EHO can serve a Hygiene Improvement Notice when they believe that a food business is failing to comply with food hygiene regulations. This notice will specify what's going wrong and what needs to be done by which date. The EHO will visit again to see if the required work has been done. If it has not improved, it can lead to a fine or imprisonment.

Hygiene Emergency Prohibition Notices- If an EHO believes that there is a significant risk to health and injury, a Hygiene Emergency Prohibition Notice may be served. The notice stops the use of the unsafe equipment, processes or premises immediately. It can only be removed by an EHO once the issues have been addressed.

Voluntary closure- A food business may elect to close voluntarily to carry out improvements. However, should the business reopen before the improvements are completed, the EHO will serve a Hygiene Emergency Prohibition Notice.

Seizure and detention of food- EHOs have the power to inspect and seize food suspected of not meeting food safety regulations. Food is taken if there is suspicion that it is contaminated and is likely to cause food poisoning or disease. Seized food may undergo microbiological examination and testing.

Condemnation of food- In order to condemn or seize food, the EHO must present their findings to a court. They will consider the information and decide whether the food poses a risk to human health and whether or not to condemn it.

Voluntary surrender of food- The owner of a business may surrender unfit food to the EHO voluntarily. This would avoid the involvement of the court.



LO4 Know how food can cause ill health

4.3 Food safety legislation

Food labelling regulations

Food labels are used by business to provide information about their products. They are needed to:

- Enable consumers to make informed decisions and choices, and to educate them about the food they choose to buy
- Help us to store, prepare and cook the food we buy correctly
- Identify the ingredients used in food-if a consumer has a severe allergy to certain ingredients (for example nuts), they need to check if the food contains those ingredients.
- Establish the nutrient content of the food- if a consumer has a health condition such as diabetes or high blood pressure, they may want to check the sugar, fat, carbohydrate or salt content of the food.
- Identify where the food comes from- some consumers may prefer to buy local ingredients.

Dates of minimum durability

Different types of dates are used to tell customers when food should be consumed by:

- **Use-by date-** usually on high risk foods such as soft cheeses, chilled meats, salads and sandwiches, which can go off quickly; it states the date that the food should be used by.
- **Sell-by or display-until date-** this date is aimed at shopkeepers rather than consumers; it is usually a few days before the use-by date to allow the consumer time to eat the food.
- **Best-before date-** these are given on foods that keep for longer, for example biscuits; the food should be eaten before this date for quality purposes, but it is not usually harmful to eat it after this date.



Nutritional labelling

Nutritional information must be expressed per 100g or per 100ml, and it must be listed in the following specific order:

- Energy-stated in kilojoules (kJ) and kilocalories (kcal) per 100g or 100ml
- Fat
- Saturated
- Carbohydrates
- Sugars
- Fibre (not required by law)
- Protein
- Salt
- Vitamins and minerals-these must also be expressed as a percentage of the **reference intake (RI)**

Mandatory information required on labels



Traffic light labelling

Traffic light labelling is a voluntary system that uses traffic light colours to indicate how healthy a product is at a glance in terms of fat, saturated fat, sugar and salt.

- **Red-** the food is high in something that consumers should try to cut down on in their diet; such foods should be chosen less frequently and eaten in small amounts.
- **Amber-** the food isn't high or low in the nutrient, so this is an acceptable choice most of the time.
- **Green-** the food is low in that nutrient; the more green, the healthier the choice.

Consumers should choose foods with more greens and ambers and fewer reds to ensure healthier choices.

Traffic light labels also give the amount of fat, saturated fats, sugars and salt in grams, the manufacturer or retailer's suggested 'serving' size, and information on the nutrient as a percentage of RI.

Each serving (150g) contains

Energy	Fat	Saturated	Sugars	Salt
1046kJ 250kcal	3.0g	1.3g	34g	0.9g
	LOW	LOW	HIGH	MED
13%	4%	7%	38%	15%

of an adult's reference intake
Typical values (as sold) per 100g: 697kJ/ 167kcal

Nutrition claims

There are strict rules about claims that can be made about food on its packaging so that consumers are not misled. For example, if the packaging says that the product is 'fat free', the product must not contain more than 0.5g of fat per 100g or 100ml. Any health claim the manufacturer makes has to be reviewed to ensure it is accurate before it appears on the label.



Level 1/2 Hospitality and Catering – Unit 1-1.4.1: Hospitality and catering and the law

There are several food legislations and laws that you need to be aware of, which are food labelling laws, food safety legislation and food hygiene.

Food labelling laws

By law, the following must be shown on food packaging and labels:

- name of the food
- list of ingredients
- allergen information noted clearly and in bold on the packaging or label
 - ◊ The 14 possible allergens include: celery, cereals containing gluten (e.g. wheat, oats and barley), crustaceans (e.g. lobster, prawns and crab), eggs, fish, lupin, milk, molluscs (e.g. oysters and mussels), mustard, peanuts, sesame, soybeans, tree nuts (e.g. almonds, hazelnuts, walnuts, Brazil nuts, cashews, pecans, pistachios and macadamia nuts) and sulphur dioxide and sulphites (information from www.food.gov.uk).
- storage instructions
- name and address of manufacturer
- nutrition information
- cooking instructions
- weight of ingredients
- use by dates and/or best before dates.

The label must not be misleading and must be clear and easy to understand.



Food safety legislation

Under the Food Safety Act 1990, any businesses that prepare, cook and sell food must meet the following criteria:

- make sure the food is safe to eat
- the food packaging or label must not be misleading in any way, e.g. if the packaging states the product is suitable for vegetarians it must not contain any meat
- the food product is what the consumer expects it to be.

Food hygiene

The Food Hygiene Regulations 2006 ensures that food at any time of production, apart from primary production (e.g. catching fish, milking animals, etc.), is handled and sold in a hygienic way.

These regulations also aim to do the following:

1. identify potential food safety hazards
2. enables to identify where exactly in the process that things could go wrong – these are called **critical control points**
3. put controls in place to prevent food safety risks from happening
4. ensure that the control measures that exists are always followed and are reviewed frequently.



Level 1/2 Hospitality and Catering:

Unit 1-1.4.3: Preventative control measures of food-induced of ill-health



Preventing cross-contamination

Food poisoning bacteria can easily be transferred to high-risk foods. This is called cross-contamination. It can be controlled by:

- washing hands before and after handling raw meat and other high-risk foods.
- using colour-coded chopping boards and knives when preparing high-risk foods.
- washing hands after going to the toilet, sneezing, or blowing your nose and handling rubbish.

Preventing physical contamination

Physical contamination is when something which is not designed for eating ends up in your food. Physical contaminants include hair, seeds, pips, bone, plastic packaging, plasters, broken glass, flies and other insects, tin foil and baking paper, soil, and fingernails.

Physical contamination can be controlled by:

- food workers following personal hygiene rules
- keeping food preparation and serving areas clean
- checking deliveries for broken packaging
- thoroughly washing fruits and vegetables before preparation
- using tongs or gloves for handling food.

Temperature control

Delivery	Storage	Preparation	Service
The temperature of high-risk foods must be checked before a delivery is accepted. The food should be refused if the temperatures are above the safe range. Refrigerated foods = 0-5°C Frozen foods = -22°C to -18°C	High-risk foods must be covered and stored at the correct temperature. Temperatures must be checked daily. Refrigerator = 0-5°C Freezer = -22°C to -18°C Unwashed fruit and vegetables must be stored away from other foods.	High risk-foods need to be carefully prepared to avoid cross-contamination. A food probe can be used to make sure that high-risk foods have reached a safe core (inside) temperature, which needs to be held for a minimum of two minutes. Core temperature = 70°C	Food needs to be kept at the correct temperature during serving to make sure it is safe to eat. Hot food needs to stay hot and cold food needs to stay chilled. Hot holding = 63°C minimum Cold holding = 0-5°C