

S3 Hospitality

Food Safety in Catering



Chartered Institute of Environmental Health

Food Hygiene

Food hygiene is ensuring that food is safe to eat. It is important that customers have confidence that food produced by a food business is safe.

What are the benefits of high standards of food safety (staff, business, customers)	What is the cost of poor standards of food safety (staff, business, customers)

FOOD SAFETY is the protection of consumer health and well being by safeguarding food from anything that could cause harm

Food companies have a legal duty to produce food that is "safe to eat". Food should be protected from "Field to Fork".

FOOD CONTAMINATION is the presence in food of any harmful or objectionable substance or object.

Hazards in food are anything that could cause illness, injury or discomfort.

There are 3 types of hazard

1. Physical




2. Chemical

3. Biological

Place these contaminants under the correct heading

Plaster	Viruses	Fly spray	Salmonella	fungi
Sanitiser	E.Coli	String	Hair	finger nail
Metal Bolt	Yeast	Pesticides	Bleach	soil

Can you think of any more?

Physical	Chemical	Biological
		

What or who do you think is the major source of physical contamination?

How can they help reduce the risk of physical contamination?

ALLERGENS are a hazard to anyone with an allergy, a small group of people may have an allergic reaction, sometimes fatal if they eat:

-
-
-
-

Care needs to be taken to avoid accidental contamination by foods linked to allergies

Physical Contamination

Identify the possible source/sources of the following contaminants. How could it be controlled?

Contamination	Possible Source	Control Measure/s
Hair in a plate of roast lamb & vegetables in restaurant		
Metal Washer in a chocolate bar		
Large pieces of grit in dried lentils		
Length of string in bread rolls from an in-store bakery		
Blue plaster in a home made quiche		
Broken glass in a ready to eat packaged dessert		

Biological Hazards

Biological hazards are the main cause of food poisoning and most cases of illness are caused by bacteria.

There are 3 types of bacteria

- ❖ Helpful - 'friendly bacteria' help grow crops and make food like yoghurt
- ❖ Pathogenic - 'the baddies' that cause illness
- ❖ Spoilage - 'the rotters' make food spoil, go mouldy

Pathogenic Bacteria 'the baddie'

Where does it come from?

Raw Food

Meat, poultry, fish, shellfish & eggs
Naturally found in animal intestines

Water

Untreated water can carry pathogenic bacteria, so all water used in food preparation must be **potable**. Potable means it has been treated and is safe to drink

Soil

Bacteria is found in the soil which is why raw food, fruit & vegetables, need to be washed before eaten

People

Pathogenic bacteria can be found on human skin and in ears, nose, throat and hair!!! Also in cuts and spots. Food handlers spread bacteria by touching parts of their body before handling food. Which is why hand washing is SO important.

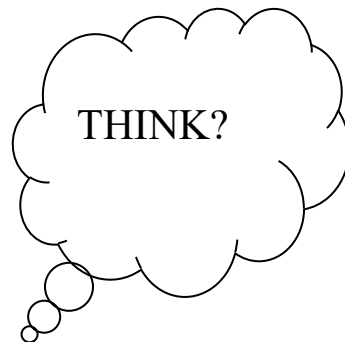
Air, dust, dirt and food waste

Air carries 'the baddies' which is why food should be covered
Bacteria from food waste can also contaminate which is why you should get rid of waste properly

Pests and pets

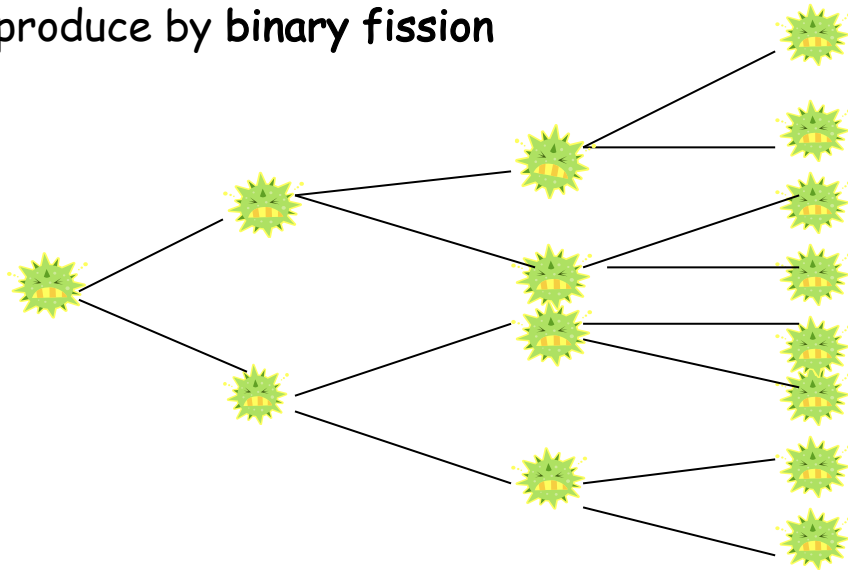
All animals carry harmful micro-organisms on their bodies and should be kept away from food preparation areas

Now you know where pathogenic bacteria is, think about how easy it can be spread bacteria on to your food.



And so it starts with one.....

Bacteria produce by binary fission



And so on...
and so on...
And so on...

Each bacterium needs just 10 to 20 minutes to multiply in the right conditions, food, moisture, warmth, time, so within a few hours there can be millions

Naturally Poisonous Foods

- ❖ Red kidney beans, until boiled for long enough
- ❖ Rhubarb leaves
- ❖ Fungi, certain mushrooms
- ❖ Green potatoes

Food companies should buy products from reliable sources and ensure they are processed correctly

Viruses

Viruses are micro-organisms smaller than bacteria and are carried on food and water.

Main sources of viruses are sewage & polluted water.

An example is the Norovirus a common cause of food-borne illness

Illnesses from Food

There are two types of illness from contaminated food

Food Poisoning - Pathogenic bacteria living on the food
- Harmful substances e.g. poisonous plants,
chemicals

Food-borne illness - Food carrying harmful micro-organisms

Pathogenic Bacteria	Linked to food	Symptoms
Salmonella		Stomach pains, diarrhoea, vomiting
Staphylococcus aureus		Stomach pain, cramps, vomiting, low temp
Clostridium Perfringens		Stomach pain , diarrhoea
Clostridium Botulinum		Difficulties in breathing & swallowing
Bacillus cereus		Stomach pain, diarrhoea vomiting

Food -borne illness	Linked to food	Symptoms
Campylobacter jejuni		Diarrhoea, feeling sick, fever
Escherichia coli (E.coli)		Stomach pain, vomiting
Listeria		Like flu

HIGH RISK GROUPS

Tick YES or NO

Babies & young children

Young adults

Elderly People

Athletes

Chefs

Pregnant Women

People who are already ill

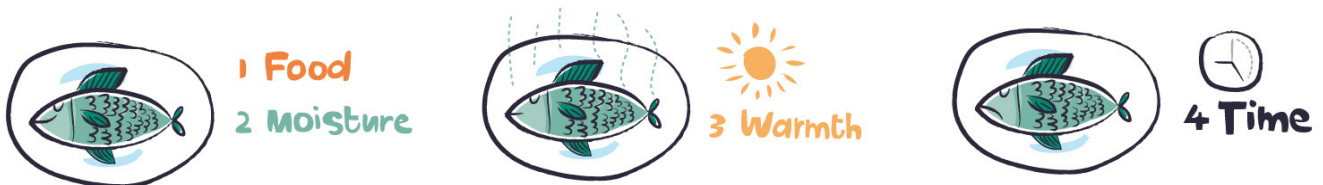
HIGH RISK FOODS

High risk foods are those more likely to cause food poisoning

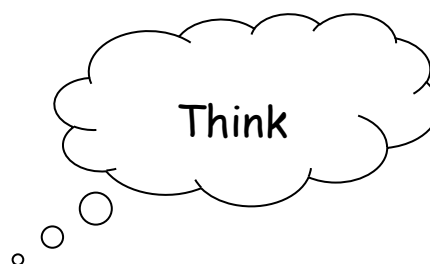
It is important to identify high-risk foods to prevent steps that cause illness; they are generally ready to eat:

- Cooked meats and poultry
- Cooked meat products - stews, soups made with meat stock
- Milk & eggs, mayonnaise, mousses
- Shellfish & sea food
- Cooked rice
- Soft cheese
- Prepared salads

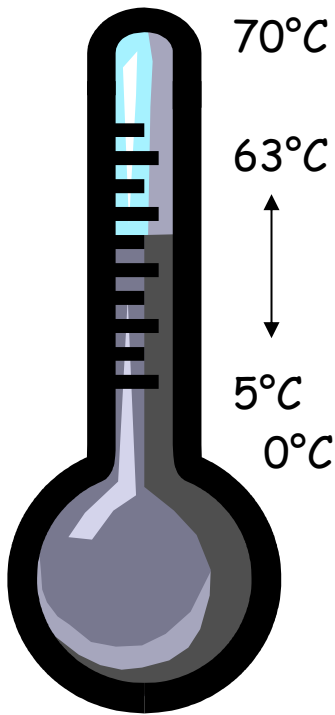
Ideal conditions for multiplication of bacteria



How can you stop bacteria growing?



Write what happens at different temperatures to bacteria?



What is a spore?

Handling High Risk Foods

- 1 Avoid touching by hand - prevent cross contamination
- 2 Keep raw and high risk foods apart
- 3 Cover food during storage
- 4 Keep food out of the 'danger zone'

Taking Control

Where possible keep foods out the danger zone, or limit the time, so bacteria cannot multiply, check temperatures so food not at risk.

Stage of Food Handling	Check Temperature	Safe Temperature
Delivery	On delivery	
Refrigerator storage	Daily	
Fridge Counter display	Daily	
Deep Freezer	Daily	
Thawing	When food thawed	
Cooking	When food cooked	
Cooling	When food cooled	
Reheating	When food is reheated	
Hot Holding (Buffet)	Often during hot holding time	
Cold Holding	Often during cold holding time	

Equipment used to check temperatures should be tested regularly, known as calibration

Personal Hygiene

When should you wash your hands?

	Before	After
Stroking your dog or cat	<input type="checkbox"/>	<input type="checkbox"/>
Putting rubbish in the bin	<input type="checkbox"/>	<input type="checkbox"/>
Combing your hair	<input type="checkbox"/>	<input type="checkbox"/>
Handling raw eggs	<input type="checkbox"/>	<input type="checkbox"/>
Digging in the garden	<input type="checkbox"/>	<input type="checkbox"/>
Visiting the toilet	<input type="checkbox"/>	<input type="checkbox"/>
Touching high risk food	<input type="checkbox"/>	<input type="checkbox"/>
Touching raw meat	<input type="checkbox"/>	<input type="checkbox"/>

In a restaurant there should be a sink JUST for hand washing, which should be done regularly

Cuts should be covered with a _____
to stop the spreading of Staphylococcus aureus.

Employees must tell their manager if they are suffering from food poisoning or any similar illness

Appropriate Clothes

Would you want this lady cooking your food?
Label reasons why not



What would you expect to see if someone was working in a restaurant?

Premises and Equipment

Food premises should be set up to help staff prevent contamination

R__w and c____d foods should be kept apart

Clean and d____y tasks should be kept apart

Storage areas should be near d_____y areas.

All food contact surfaces should be s_____h, without cracks.

Windows and d__s should have screens or strip curtains to help stop p____t infestation

Food handlers should p____n their work to limit walking around the kitchen

All equipment must be cleaned regularly so it does not cause any p_____l contamination

Food or food equipment should never be washed in an h____d wash basin

The design of the kitchen should make it easy for staff to c___n

A f____t aid kit should always be provided

Cleaning and disinfection

Consumers expect food premises to be clean

Why clean?

Protect against biological contamination

Protect food against physical & chemical contamination

Avoid pests

Can you match these key words to their definitions?

1. Sterilisation	A chemical that dissolves grease and removes dirt
2. Disinfection	Time a disinfectant or sanitizer must remain on the surface to work
3. Cleaning schedule	Process of killing ALL pathogenic organisms
4. Disinfectant	A chemical that cleans and disinfects
5. Contact time	Cleaning carried out as you work
6. Sanitizer	Document that sets out times of cleaning
7. Clean as you go	Process reducing pathogenic bacteria to a safe level
8. Detergent	Free from dirt & grease
9. Clean	A chemical that reduces pathogenic bacteria to safe level

Six stages of wet cleaning



What is happening in each stage?

Prepare _____

Clean _____

Rinse _____

Disinfect _____

Final Rinse _____

Dry _____

A Day In The Life Of A Bacteria

Write a 1 minute story using the following sentences and phrases to show your understanding of bacteria.

- My name is Betty Bacteria. I am a single celled micro-organism. This morning I woke up and.....

- My favourite places to live are.....

- I need four things to grow- Food, Time, Temperature and Water. This is how I make sure that I get them.....







- To reproduce I.....

- I nearly died when.....

FOOD PESTS

Definition: Living creature which live on, or in, human food causing contamination, damage or both

What kind of hazards will pests bring to a kitchen?

PEST	Sign of infestation	Control Measures
 <p>mouse</p>		
 <p>rat</p>		
 <p>blue bottle</p>		
 <p>cockroach</p>		
 <p>flour beetle</p>		
 <p>pigeon/birds</p>		

There are four things that attract pests to food premises, what do you think they are:

- 1 _____
- 2 _____
- 3 _____
- 4 _____

Biological Hazards from Pests

Pests visit unhealthy places where they pick up pathogenic bacteria on their bodies and legs. For example rats live in sewers and flies feed and breed in rubbish tips. Some pests have pathogenic bacteria living *inside* their body and spread these onto food from their droppings or saliva as they eat.

Physical Hazards from Pests

So what physical hazards do you think pest are responsible for?

Effective Pest Control includes:

P_____g pests getting on to the premises

Protecting f____d from contamination

Taking i_____e action to deal with suspected infestation

F____d h_____s should report sightings to their employer

FROM PRODUCTION TO SAFE STORAGE

Food handlers have legal responsibility to do everything possible to keep food safe and it is illegal to sell spoilt food.

Spoilage is the natural process of ageing, or deterioration that makes food unacceptable to customers.

Spoilage is caused by spoilage b____a, m____d and y____t.

Recognising spoilt food



Date Marks... 'Use by' or 'best before'

_____ highly perishable foods, meat fish, dairy. Any food that has passed this date is likely to be unfit to eat and will cause illness. It is against the law to sell or serve foods that has gone beyond this date.

_____ less perishable items, frozen food, flour, biscuits. This date indicates when the food is in its best condition

Preservation techniques help to prevent spoilage from bacteria, moulds and yeasts. The main methods are:

Heat treatment - cooking, canning, sterilization e.g. _____
 low temperature treatment - freezing & refrigeration e.g. _____
 Drying - dehydration e.g. _____
 Chemical preservation - salting, pickling e.g. _____
 Vacuum sealing - controlled atmospheres e.g. _____
 Smoking - e.g. _____
 Irradiation - kills spoilage and pathogenic bacteria

Food Deliveries

Would you accept this delivery?	Yes	No
Frozen peas, temperature in the van -15°C	<input type="checkbox"/>	<input type="checkbox"/>
Very clean and tidy van but a little damage to packaging	<input type="checkbox"/>	<input type="checkbox"/>
Chilled delivery, temperature in the van 3°C	<input type="checkbox"/>	<input type="checkbox"/>
Delivery arrive late	<input type="checkbox"/>	<input type="checkbox"/>
You notice some dented tins	<input type="checkbox"/>	<input type="checkbox"/>
The delivery is on 22/3 and best before date says 22/3	<input type="checkbox"/>	<input type="checkbox"/>

Deliveries should be checked for condition, temperature and shelf life and then stored appropriately.

Key Points for Food Storage

- Foods must be stored in appropriate storage areas set aside for the purpose
- Storage areas must be kept clean and free from pests
- Use stock rotation, which involves using stock with the shortest shelf life first

Refrigerator Storage

High risk and perishable foods must be refrigerated at temperature of _____°C.

Best practice is to have separate fridges for r__ foods, such as m__ and poultry, and for high risk foods, such as d_____ and c_____ meats.

3 Rules for using a fridge

1. _____

2. _____

3. _____

Freezer Storage

Frozen food should NEVER be re-frozen once it has thawed as this increases the risk of illness.

Freezer storage should be _____°C or colder, so that micro-organisms remain dormant.

Dry Good Storage

Dry goods must be kept in cool, dry and well ventilated conditions

The Law

Everyone who deals with food as part of his/her work has a legal responsibility to safeguard food.

Employers must ensure that all staff are t_____d to do their job.

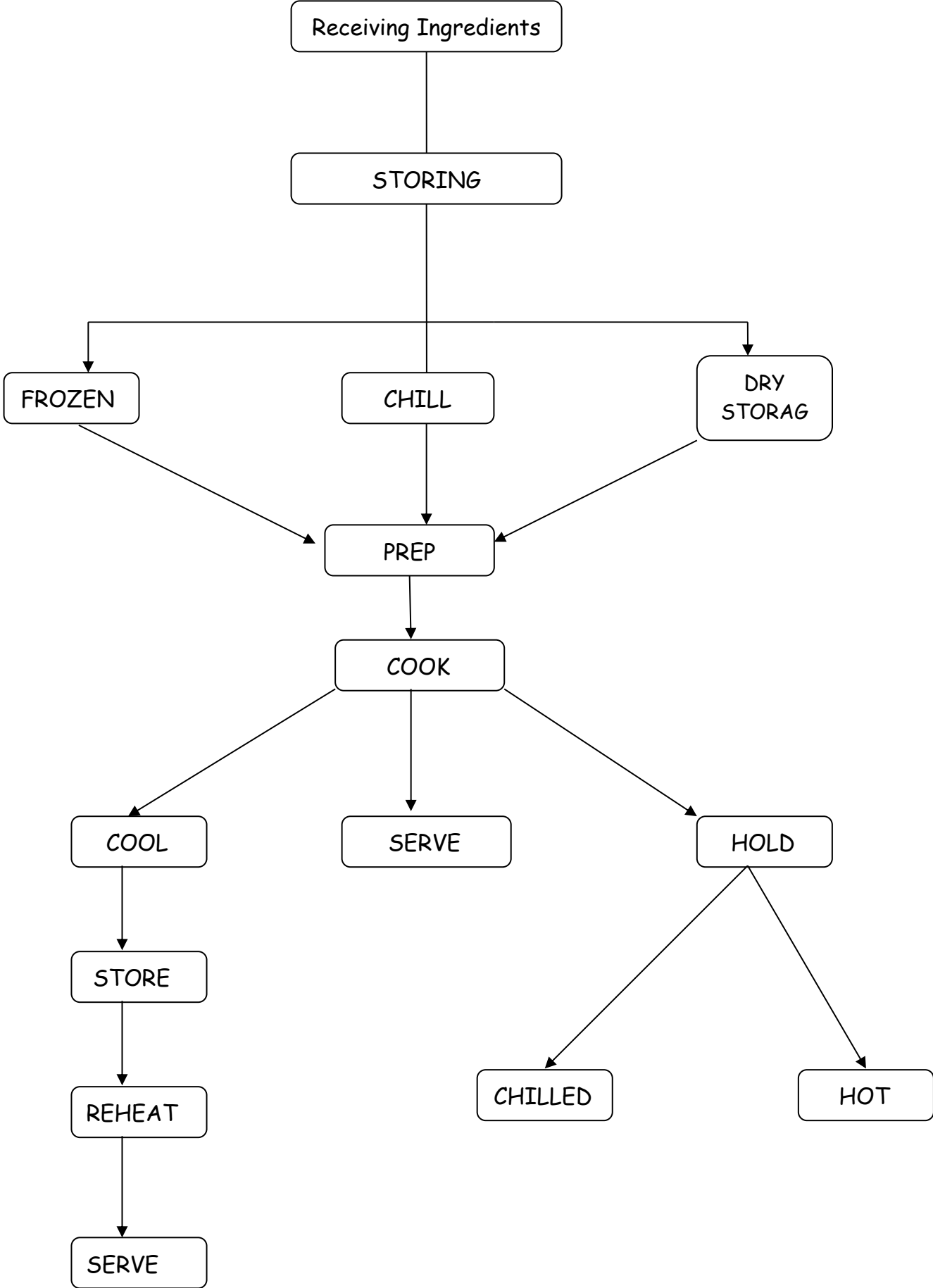
Food businesses are by law required to have procedures based on HACCP in place to help minimise the risk from food hazards.

HACCP stands for _____



On the next page annotate where there are threats to food safety, and what controls can be put in place

HACCP



Enforcement

Environmental health officers (EHO's) or trading standards officers have the job of giving out advice and assistance to food businesses as well as ensuring food companies obey the law.

EHO's have the power to:

- Enter and inspect food premises
- Investigate outbreaks of food poisoning
- Remove suspect food and have it destroyed if it is unsafe to eat
- Take companies to court for breaking food safety laws.

Food companies must always co-operate with food enforcement officers.

Food companies can avoid breaking the law by ensuring *due diligence* (reasonable care).

Penalties

If a court decides a law has been broken it can result in:

- ❖ A fine
- ❖ Prison sentence
- ❖ Closure of the business
- ❖ A ban on being an owner or manager in the food business
- ❖ A criminal record

Butcher jailed over food poisoning epidemic that killed five-year-old pupil 8/9/2007

Simon de Bruxelles

A long-established family butcher who was responsible for food poisoning that killed a five-year-old boy and infected more than 100 other children was yesterday jailed for 12 months.

William Tudor, managing director of the firm that supplied school lunches across South Wales, had failed to observe basic food hygiene precautions.

Cardiff Crown Court was told that meat sent out by the firm was contaminated with E. coli 0157 bacteria, causing Britain's second-largest food-poisoning epidemic.

Lax hygiene at the firm's premises allowed raw meat to come into contact with cooked ham, turkey and lamb. Mason Jones ate the food in his school canteen. For two weeks he was critically ill, suffering fits, high temperatures, diarrhoea and kidney failure before dying in hospital.

Judge Neil Bidder, QC, told Tudor: "You failed to adopt safe procedures. Your staff were inadequately trained and poorly supervised.

"Cleaning at the premises was sub-standard and an inspection found blood splashes, cobwebs, dead insects and congealed dirt on your machinery. You put the health of the public at risk for the sake of saving money."

The court was told that Tudor, 56, had cut corners in hygiene, telling staff to clean machinery only when health inspectors were expected. An uncleaned vacuum-packing machine was at the centre of the outbreak.

Graham Walters, prosecuting, said that within days of Tudor's firm supplying cooked turkey, ham and lamb to schools in September 2005 a number of pupils fell ill with symptoms of diahorrea. Environmental health officers were called in, an outbreak control team was set up and the poisoning was confirmed as E. coli 0157. The outbreak led to 157 cases of food poisoning being investigated - with 109 cases at 44 schools traced back to Tudor's business, John Tudor and Son.

Mr Walters said that the plant had only one vacuum-packing machine, which was used for both raw and cooked meats. He said: "It was not uncommon for juices from raw meat to get into the vacpacker. There was blood on the trays, and workers were having to wipe it off while they were packing cooked meat. The health inspectors found fundamental failures in cleaning and there was general concern over hygiene.

"There was evidence the vacpacker was covered in congealed debris and dirt. Tudor was fully aware of the dangers because he had taken his advanced food hygiene standards certificate in 2004, which was a matter of law." A legally required log of the cleaning records for the machinery had not been completed daily or weekly.

Tudor pleaded guilty to charges under the General Food Regulations of selling "unsafe food" to six schools, including Deri Primary School in Bargoed, where Mason was a pupil. Other charges related to five other junior and primary schools. He also admitted failing to protect food against the risk of contamination at his factory.

Huw Davies, QC, defending, said: "Mr Tudor blames himself for poor Mason's death - he is devastated." The court was told that the once-thriving "family butchers", in Bridgend, had now "collapsed in debt". Tudor was also banned from working in the management of the food industry for the rest of his life.

Mason's mother, Sharon Jones, 32, said after the hearing: "We were shocked and appalled by the state of William Tudor's premises which came out in court."

A public inquiry is due to be held by expert Professor Hugh Pennington into the outbreak, which left some victims with long-term kidney problems.

ACT	What is the main aim?	Who does it affect?	What does the act cover?
<p style="text-align: center;">Food Safety (General Food Hygiene) regulations 1995</p>			
<p style="text-align: center;">The Food safety (Temperature Control) Regulations 1995</p>			
<p style="text-align: center;">The Food Safety Act 1990</p>			