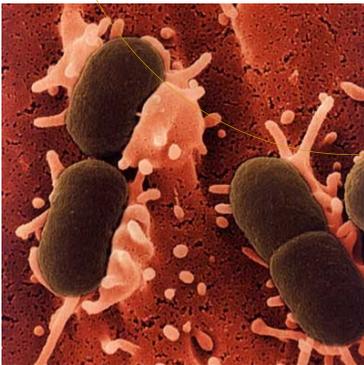


# FOOD POISONING



An estimated 55% of food poisoning cases are caused by improper cooking and storage of foods, and 24% by poor hygiene (not washing hands before handling food). Only 3% of cases are from an unsafe food source. Keeping your hands clean while working with food is the single most important thing you can do to prevent food poisoning.

About 5.4 million Australians contract food poisoning each year and most cases can be prevented.

This results, on average: in 120 deaths, 1.2 million visits to doctors, 300,000 prescriptions for antibiotics, and 2.1 million days of lost work.

The estimated annual cost of food poisoning in Australia is \$1.25 billion. NSW and the public health system bear roughly one-third of these costs. (*source: NSW Food Authority*)

## What is food poisoning?

Food poisoning generally results from consuming food or drink contaminated with pathogenic bacteria, viruses or toxins. It often produces symptoms such as nausea, vomiting, stomach pain, diarrhoea, or fever. The symptoms are often the same as for gastrointestinal illnesses, which can be easily spread by people carrying the bacteria and passing it on via poor personal hygiene practices, unhygienic surfaces, etc). This usually makes it hard to tell if a person is sick from consuming contaminated food or has contracted another form of illness.

About 20 organisms can cause food poisoning. After eating food contaminated with bacteria, the bacteria multiply in the stomach and the bowels. Some bacteria give off a toxin when they multiply. As a result, nausea, vomiting, abdominal cramps and diarrhoea occur. Vomiting and diarrhoea are the body's way of eliminating the toxin. Although the experience is unpleasant, most common cases of food poisoning run their course without needing medical attention.

Eating a substance and getting sick immediately afterwards is not the typical course for food poisoning. Most people are not aware that food eaten several days previously can be the cause of food poisoning.

## Types of foodborne illness

Most food poisoning is caused by pathogenic bacteria or viruses in food. Other less common food poisoning occurs from accidental chemical poisoning and natural contaminants. The most common types of food poisoning are:

1. **bacterial** e.g. *Salmonella*, *Campylobacter*, *E.coli*, *Shigella* and *Listeria*;
2. **viral** e.g. Norovirus, Rotavirus and Hepatitis A;
3. **intoxication** caused by toxins produced by pathogens such as *Staphylococcus aureus*, *Bacillus cereus* and *Clostridium perfringens*.

Symptoms will vary depending on the type of pathogen, and may include diarrhoea, vomiting, nausea, abdominal pain, and fever. Other symptoms may include headache, jaundice, and numbness. Symptoms can take between a few hours to a few days to develop and may last for a few days, depending on the type of pathogen.

# FOOD POISONING



## How do bacteria get in food?

Some foods accommodate pathogens more than others.

- Bacteria, including pathogens, may be present on foods such as raw meat, poultry, seafood, eggs, uncooked rice, flour, raw vegetables and salads at the time of purchase.
- Other pathogens develop in food as a result of poor temperature control or spoilage.

Pathogens are also carried on the bodies of food handlers. Pathogens are frequently present in the throat, nose, skin, hair and faeces. Pathogens can be transferred to food by touching hair or the nose, or smoking without washing hands before handling food. Sneezing or coughing around or near food can also lead to contamination.

This means food handlers can bring potentially harmful bacteria into food preparation areas and contaminate food.

Prepared foods, including cooked and ready-to-eat foods, may become contaminated with potentially harmful bacteria either directly via unclean surfaces or indirectly when bacteria are transferred from raw products or food handlers with poor personal hygiene.

## Who is at risk?

In many cases the effects of food poisoning are only mild but sometimes the symptoms can lead to serious illness. In rare cases, foodborne illness can result in long-term health problems and even death. Some people are extremely vulnerable, no matter what type of pathogen is involved. These include:

- children less than 5 years old
- pregnant women
- people over 70 years of age, and
- people with compromised immune systems.

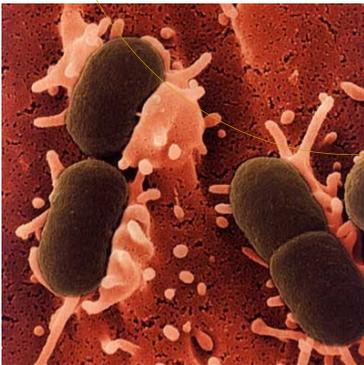
Some people may become ill after ingesting only a few harmful organisms while others may remain symptom free after ingesting thousands.

## How to reduce the risk?

### Personal hygiene

Wash your hands thoroughly with soap and warm running water for at least 15 seconds and dry them with a single use disposable towel before eating or preparing food.

# FOOD POISONING



Make sure you wash your hands thoroughly:

- Immediately before working with food;
- Immediately after using the toilet;
- After touching your hair, scalp, mouth or nose;
- Before you start handling other food after handling raw meat
- Before going back to handling food after doing other work;
- Immediately after smoking, coughing, sneezing, using a handkerchief or disposable tissue, eating or drinking.

People with symptoms of foodborne illness, especially vomiting or diarrhoea, should not prepare food for others for 48 hours after the symptoms have finished.

## Temperature control

Storing food at incorrect temperatures known as the "temperature danger zone" (above 5°C or below 60°C) can result in the multiplication of bacteria that cause food poisoning.

As a precaution ensure that:

- Refrigerators are kept at a temperature below 5°C with adequate air flow around food to ensure even temperature distribution
- Hot foods are kept above 60°C (i.e. "steaming" hot)
- When reheating foods they should be reheated rapidly until all parts of the food reach 75°C
- Frozen foods are thawed in either the refrigerator or the microwave. The longer raw food is left at room temperature the more quickly bacteria multiply and toxins may form.

## Storage

Raw meat, fish, poultry and raw vegetables can contain large numbers of bacteria and can cross-contaminate ready-to-eat food if they are not stored and handled carefully.

It is advisable to:

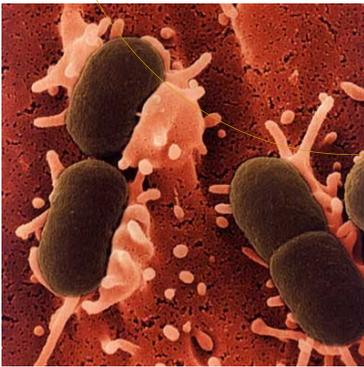
- Store raw foods in covered or sealed containers below other ready-to-eat foods inside the refrigerator to prevent food parts touching and meat juice spilling or dripping on to other food
- cover foods before storage in the refrigerator, freezer, and cupboards to protect them from contamination
- wash hands immediately after handling raw foods and before handling cooked or ready-to-eat food
- use different chopping boards, utensils, and plates for raw foods and ready-to-eat food. If the same chopping board or knife is used ensure it is washed thoroughly in hot soapy water and sanitised before re-use

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# FOOD POISONING



- thoroughly wash raw vegetables before preparation and eating
- store food items carefully away from toxic chemicals, insect sprays, cleaning agents, etc
- Do not use cloth towels which have been used to wipe hands or bench tops for drying dishes.
- regularly wash or replace dish cloths

## Food Poisoning Myths

### 1. I was sick after eating a certain food so it must have been that food that made me sick.

Symptoms of foodborne illness, particularly vomiting, can occur within a short time after the consumption of contaminated food. The last meal you ate may well have made you sick. But it is also possible that the illness was due to another food consumed prior to your last meal. Onset periods after eating the contaminated food will vary according to the type of pathogen, so you will need to consider all the foods eaten over the past 3 days.

### 2. I can get diarrhoea within a few hours after eating contaminated food.

Usually diarrhoea from a contaminated food does not start until at least 4-6 hours after having eaten that food and can be as long as 3 days after consumption. So if you experience diarrhoea in less than 4 hours of eating it is most unlikely to be that meal which made you sick as a result of "food poisoning". You need to consider the previous meal or even food you ate the day before.

### 3. I was sick after eating so it must be "food poisoning".

Contaminated food can be the cause of gastrointestinal illness, but it is not the only cause.

- Contaminated water can also cause similar symptoms, for example after ingesting some water from a contaminated swimming pool.
- Viral gastroenteritis, which can cause vomiting and diarrhoea for about 2 days, can be spread from one person to another. It is very contagious and can be easily transmitted to family and friends by someone who is already infectious.

### 4. The food must have made me sick because it smelt or tasted bad.

Most food poisoning bacteria do not cause foods to appear bad. There can be enough harmful bacteria in food to make you sick even though the food still seems normal in appearance, taste and odour.

The reverse situation is also true: there are some types of bacteria that will spoil food but will not make you sick if you accidentally eat it.

The best option is if in doubt don't eat it.

# COMMON TYPES OF FOOD POISONING

<b>PATHOGEN</b>	<b>INCUBATION PERIOD</b>	<b>DURATION OF ILLNESS</b>	<b>SYMPTOMS</b>	<b>GENERAL FOODS INVOLVED</b>	<b>CONTROL MEASURES</b>	<b>TYPE OF ILLNESS</b>
<b>Bacillus cereus (vomiting)</b>	1-6 hours	1 day	Sudden onset of severe nausea and vomiting	Cereal products, rice, spices, sausages, meatloaf	<ul style="list-style-type: none"> <li>- Cook food quickly</li> <li>- Cool food quickly</li> <li>- Store foods under temperature control</li> <li>- Thoroughly reheat leftovers.</li> </ul>	Infection and or intoxication
<b>Bacillus cereus (diarrhoea)</b>	6-24 hours	1 day	Abdominal cramps, nausea, watery diarrhoea	Meats, stews, gravy, vanilla sauce	<ul style="list-style-type: none"> <li>- Cook food thoroughly</li> <li>- Cool food quickly</li> <li>- Store foods under temperature control</li> <li>- Thoroughly reheat leftovers</li> </ul>	Infection and or intoxication
<b>Campylobacter jejuni</b>	2-7 days	2-11 days	Diarrhoea (sometimes bloody), abdominal pains, nausea, fever, vomiting, muscle pain and headaches.	Raw and undercooked poultry, mince, sausages, unpasteurised milk and dairy products, contaminated water.	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Effective cleaning &amp; sanitising</li> <li>- Store foods under temperature control</li> <li>- Cook food thoroughly</li> </ul>	Infection
<b>Clostridium botulinum</b>	18-96 hours	Up to 2 years	Headache, double vision, dizziness, loss of reflex to light, weakness, droopy eyelids, constipation, dry mouth, muscle and respiratory paralysis.	Improperly canned low-acid foods (green beans, corn, beets, asparagus, mushrooms, tuna). Improperly home-cured hams and smoked fish. Baked potatoes wrapped in aluminium foil, cooked beef and turkey, gravy, dressings, stews, casseroles and meat pies.	<ul style="list-style-type: none"> <li>- Discard swollen cans</li> <li>- Store foods under temperature control</li> </ul>	Intoxication
<b>Clostridium perfringens</b>	6-24 hours	1-2 days	Acute abdominal pain, watery diarrhoea, nausea.	Stews, casseroles, gravy, dressings and meat pies. Cooked beans and stews and soups that have been cooled slowly in deep containers.	<ul style="list-style-type: none"> <li>- Store hot and cold foods at proper temperatures.</li> <li>- Cool foods quickly</li> <li>- Reheat food thoroughly</li> <li>- Divide large portions into smaller containers.</li> </ul>	Intoxication

<b>PATHOGEN</b>	<b>INCUBATION PERIOD</b>	<b>DURATION OF ILLNESS</b>	<b>SYMPTOMS</b>	<b>GENERAL FOODS INVOLVED</b>	<b>CONTROL MEASURES</b>	<b>TYPE OF ILLNESS</b>
Escherichia coli (E. Coli) 0157	2-8 days	5-10 days	Watery or bloody diarrhoea, abdominal cramps and pain, vomiting, fever, chills, headache and muscular pains	Raw and undercooked ground beef, sprouts, lettuce, spinach, salami, unpasteurised milk and juice, contaminated dairy products.	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Cook all ground beef thoroughly</li> <li>- Effective cleaning and sanitising</li> <li>- Store foods under temperature control</li> </ul>	Intoxication
Listeria monocytogenes	2 days to 3 three weeks	1-5 days	Persistent fever, muscle aches, nausea and diarrhoea	Raw milk, cheeses (particularly soft ripened varieties), ice cream, raw vegetables, fermented raw meat sausages, raw and cooked meats (all types)	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Thoroughly cook raw food from animal sources (meat)</li> <li>- Wash raw vegetables thoroughly before eating</li> <li>- Keep uncooked meats separate from vegetables and cooked or ready to eat foods</li> </ul>	Infection
Salmonella	12-36 hrs	1-10 days	Fever, diarrhoea, vomiting, abdominal pain. Cramps, headache, chills, dehydration.	Meats, poultry, smoked fish, dairy products, mayonnaises, salads, juices, eggs and egg products, raw vegetables	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Effective cleaning &amp; sanitising.</li> <li>- Cook food thoroughly</li> <li>- Avoid cross contamination.</li> <li>- Do not thaw at room temperature</li> </ul>	Infection
Shigella	1-7 days	1-8 days	Mild to sever abdominal cramps, fever, chills, diarrhoea (sometimes bloody), nausea, vomiting, dehydration	Salads (potato, tuna, pasta, turkey and chicken), raw vegetables, milk and dairy products, seafood, eggs and poultry	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Chill foods rapidly and in small quantities</li> <li>- Cook food thoroughly</li> <li>- Avoid cross contamination</li> </ul>	Infection
Staphylococcus aureus	1-6 hours	1-2 days	Nausea, vomiting, cramps, weakness, sweating, diarrhoea, dehydration. Usually no fever	Salted ham and meat products, cold meats, fish, starchy foods, cream filled pastries, custards, salads, eggs, poultry, dressings, gravy and sauces.	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Avoid cross contamination</li> <li>- Cook and reheat food thoroughly</li> <li>- Store foods under temperature control</li> </ul>	Intoxication

<b>PATHOGEN</b>	<b>INCUBATION PERIOD</b>	<b>DURATION OF ILLNESS</b>	<b>SYMPTOMS</b>	<b>GENERAL FOODS INVOLVED</b>	<b>CONTROL MEASURES</b>	<b>TYPE OF ILLNESS</b>
Vibrio parahaemolyticus	2-48 hours	2-5 days	Diarrhoea, cramps, vomiting, headache and fever	Recontamination of cooked foods or eating raw seafood—usually squid, mackerel, tuna, sardines, crab, prawns, oysters, clams and mussels	<ul style="list-style-type: none"> <li>- Cook to above 65°C</li> <li>- Do not eat shellfish that do not open during cooking</li> <li>- Do not allow seafood already cooked to touch raw seafood</li> <li>- Do not touch cooked seafood after you have handled raw seafood without washing your hands first</li> <li>- Store foods under temperature control</li> </ul>	Infection
Listeria monocytogenes	2 days to 3 weeks	1-5 days	Persistent fever, muscle aches, nausea and diarrhoea	Raw milk, cheeses (particularly soft ripened varieties), ice cream, raw vegetables, fermented raw meat sausages, raw and cooked meats (all types)	<ul style="list-style-type: none"> <li>- Thoroughly cook raw food from animal sources (meat)</li> <li>- Wash raw vegetables thoroughly before eating</li> <li>- Keep uncooked meats separate from vegetables and cooked or ready to eat foods</li> <li>- Strict personal hygiene</li> </ul>	Infection
Salmonella	12-36 hrs	1-10 days	Fever, diarrhoea, vomiting, abdominal pain. Cramps, headache, chills, dehydration.	Meats, poultry, smoked fish, dairy products, mayonnaises, salads, juices, eggs and egg products, raw vegetables	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Effective cleaning &amp; sanitising.</li> <li>- Cook food thoroughly</li> <li>- Avoid cross contamination.</li> <li>- Do not thaw at room temperature</li> </ul>	Infection
Hepatitis A	2-6 weeks	6-12 months	Fatigue, fever, abdominal pain, nausea, diarrhoea appetite loss, jaundice	Raw or undercooked seafood or shellfish. Can be on any ready to eat foods that have been contaminated by an infected food handler.	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Cook food thoroughly</li> </ul>	Viral Infection

PATHOGEN	INCUBATION PERIOD	DURATION OF ILLNESS	SYMPTOMS	GENERAL FOODS INVOLVED	CONTROL MEASURES	TYPE OF ILLNESS
Norovirus	1-2 days	1-3 days	Sudden onset of nausea, vomiting, watery diarrhoea, abdominal cramping, tiredness, headaches and muscle aches	Any food can be contaminated by a person infected with the virus and they can contaminate their environment directly or spread virus particles through aerosolized droplets when throwing up. The virus is very hardy and can live for days or weeks on surfaces	<ul style="list-style-type: none"> <li>- Strict personal hygiene</li> <li>- Effective cleaning and sanitising</li> <li>- Do not prepare or handle food for other people when sick</li> </ul>	Viral Infection