

Food safety in the home



Te Pou Oranga Kai o Aotearoa

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Published in February 2009 by the New Zealand Food Safety Authority, PO Box 2835, Wellington, New Zealand

ISBN 978-0-478-32255-2 (Print)

ISBN 978-0-478-32256-9 (Online)

This document is available on the New Zealand Food Safety Authority's website www.nzfsa.govt.nz

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Stay well – keep food safe

Delicious, nutritious food is one of the great things in life. There's nothing better than a fantastic meal with family and friends. But there's also nothing worse than that same food causing days of misery thanks to it being contaminated by pathogens (bacteria, viruses and other organisms that can cause illness).

Foodborne illness is estimated to strike about 200,000 New Zealanders every year. Nearly half of these (at least 40%) are attributed to food handling, preparation or storage in the home – that's 80,000 people (about twice the population of Nelson, or four times that of Masterton).

Given those numbers, your chances of eating food that will make you sick seem pretty high. Luckily, you can reduce the risk of you, your family or friends having a nasty foodborne illness by following the food-safe tips and rules in this booklet.

Remembering the 4Cs (Clean, Cook, Cover, Chill) and hand washing rules can help keep those pathogens at bay.

Keep this booklet handy and make sure everyone who handles or prepares food knows the basics of food safety.



Clean

Good food hygiene starts with clean hands, but definitely doesn't stop there. Washing hands thoroughly is key in helping prevent foodborne illnesses (see page 10). But it's equally important to make sure your cooking area and tools are clean too.

Knives, utensils and chopping boards need to be scrubbed between tasks and especially between preparing raw and ready-to-eat foods. Without a thorough clean, pathogens will transfer to food and you'll be eating them too. Unclean chopping boards are a common way of transmitting bacteria and viruses. It is not important whether a chopping board is made from wood, plastic, glass or ceramic – what matters is how it is used and cleaned.

When working in the kitchen, remember to use dishcloths, hand towels and tea towels for the jobs they are meant for. Meat and poultry juice spills are best

cleaned up with disposable paper towels then wipe with a cloth and hot, soapy water. If you use a dishcloth or sponge for this and then wipe the bench you'll be spreading pathogens around.

Always clean dishcloths and tea towels regularly – it's way too late when they start to smell. A good idea is to put a fresh dishcloth out every day and to change tea towels when they get wet. To get your dishcloths nice and clean, soak them in shallow water overnight with 5–10 drops of ordinary household bleach or put them through the hot wash cycle of the automatic dishwasher. A good launder and a day on the line exposed to wind and the sun's ultraviolet rays will also do the job.





- **Clean your hands by washing them with warm water and soap and drying with a clean towel or paper towels (see page 10).**
- **Always wash your hands before handling any food and after touching raw meat and poultry, going to the toilet, changing nappies, touching pets and doing gardening.**
- **Wash knives and other utensils and scrub chopping boards between preparing raw and cooked food.**
- **Keep your fridge clean.**

Hot tips

A dishcloth or sponge can be effectively cleaned by placing the wet item in a microwave on high for three to four minutes. The heat will kill off bacteria and viruses. Be careful when removing from the microwave as it will be steaming hot.

Use separate sponges or cloths for the dishes, the bench and the floor. If you have different coloured cloths for different tasks it will be easier to distinguish what they are for. Some people use green for dishes (it rhymes with clean), blue for the bench (they both start with 'b') and yellow for the floor (when you wipe up spills, the light colour shows any dirt which reminds you to mop the floor). Preferably use paper towels for spills, especially wiping up meat juices and then wipe with a cloth and hot water and detergent.

Make sure you have two or three of each colour so when one's in the wash, there's a clean one ready to go.

Use separate chopping boards for raw and cooked meat, fish, vegetables and bread. Colour-coded boards make it easier to remember which ones to use for each type of food. White is still the best colour for visually spotting food debris. It is possible to get white plastic chopping boards that are colour-coded on the edge.



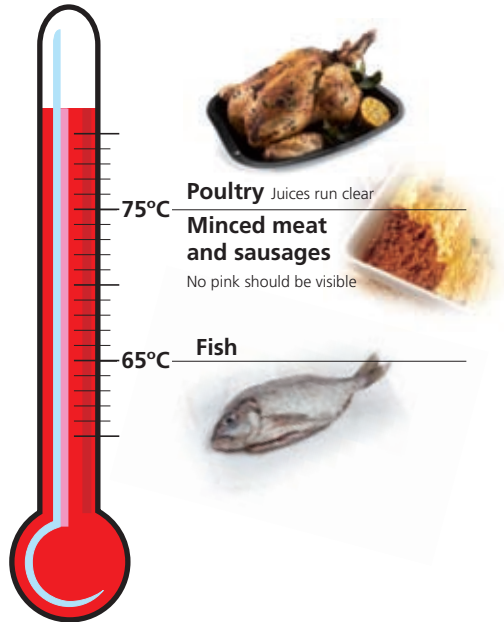
Cook

Ever sunk your teeth into a juicy chicken drumstick only to find the meat bloody at the bone? Apart from being unappetising, undercooked meat may be dangerous as it can carry a range of harmful bacteria including *Campylobacter*, *Salmonella* and *E. coli*.

Exposing yourself to these nasties can be avoided by following a few simple guidelines.

Always defrost frozen foods thoroughly before cooking, unless the manufacturer's instructions tell you to cook from frozen. Defrosting ensures the food will cook properly and within the normal cooking time. Foods shouldn't be left on the kitchen bench to defrost as this increases the chances of bacteria growing because the defrosted surface quickly warms to room temperature, even though the middle might still be frozen. The safest way to defrost foods is to put them in the fridge overnight or – if you are running out of time – use the defrost or lowest power setting on your microwave.

It is important to ensure that minced meat and sausages are cooked right through, and poultry is cooked through to the bone. The best way to be sure meat is properly cooked is to use a meat thermometer. Colour is not a good indicator – uncooked products can appear brown and some cooked meats can appear pink or red. If you don't have a thermometer, cook poultry and pork until the juices run clear and sausages and meat patties until they are no longer pink in the middle.



Any uneaten food should be put in the fridge within two hours of cooking, and when reheating leftovers make sure they are piping hot through to the centre.

Check the date

Always check the 'Use by' dates on any packaged food. Don't buy or eat food once the 'Use by' date has expired. But don't confuse this with the 'Best before' date – food can still be sold and eaten past the 'Best before' date if it has been stored according to the instructions on the label. (More information about labelling is given in our booklet *Understanding food labels*, see page 20 for how to order.)



- **Defrost frozen foods thoroughly before cooking.**
- **Minced meat and sausages should be cooked right through, and pork and poultry juices should run clear – use a meat thermometer to check temperatures.**
- **Pre-cook minced meat, sausages and poultry before barbecuing.**
- **Put leftovers in the fridge as soon as they're cool.**

Meat thermometers

Using a meat thermometer takes the guesswork out of cooking. No more slicing into your Sunday roast to find out whether it is done. Heat kills harmful bacteria, so it is important that meat is properly cooked. While a meat thermometer is most commonly used for large cuts of meat, such as roasts or whole poultry, it can also be used to test the temperature of a range of other dishes including sausages, burger patties, casseroles and meatloaves. Plus it makes overcooking a thing of the past – your roast will be safe and succulent!

A range of meat thermometers are available. The oven-proof variety is placed in the meat before the meat goes in the oven and is left there throughout the cooking time. Some come with a digital display that can be placed outside the oven so they can be read without opening the oven door. Instant-read ones are inserted into the food you want to check and the temperature can be read within about 15 seconds. To read the temperature correctly, the thermometer must be inserted into the centre of the meat (the thickest part).

Follow the instructions that came with your thermometer and after use remember to wash the stem in hot, soapy water. To test its accuracy, you can place it in boiling water to ensure it reads 100°C.



Cover

Pathogens can float in the atmosphere, people can sneeze over food, children can play with food and flies land on it. To avoid pathogens getting into your food keep it covered until you eat it.

Ready-to-eat foods, such as salads, that are not covered or stored properly can be cross-contaminated by raw food. Before putting anything in your fridge, cover it first with cling film or foil, or put it into containers with tight-sealing lids. Never re-use foil or film to wrap other foods. Covering up your food is also essential when eating outside to keep unwanted insects and bugs out.

If you open a can of food and don't use it all straight away, empty the food into a bowl, or other covered container, and put it in the fridge. (Food left in an open can may develop a metallic taste but will still be safe to eat.)

It is particularly important that raw meat and poultry are kept covered and away from ready-to-eat food, fruit and vegetables (these should all be covered too whenever possible). As a general rule keep raw meat at the bottom of the fridge to ensure any leaking juices, which often contain live bacteria, do not drip on to and contaminate other foods. To avoid unnecessary cleaning up, keep meat in containers that will catch any juices. You could also put a few paper towels in the bottom to make disposing of the raw juices less messy.

Food should never be allowed to sit at room temperature for longer than two hours. The warmer the temperature, the shorter the time food will stay safe. Bacteria love the warmth, and can double in numbers in minutes. After a few hours, one bacterium could have multiplied into more than 100. Remember – if in doubt, throw it out.



- **Always cover stored food – even in the fridge or cupboard.**
- **Keep raw meat and poultry covered in the bottom of the fridge and away from ready-to-eat food, fruit and vegetables to avoid dripping juices.**
- **When cooking outdoors, ensure that all food remains covered and cool until ready to cook or eat.**

Ready-to-eat food at top



Cover all food if not in sealed containers



Covered meat at bottom



Fruit and vegetables should be covered when possible



Chill

Keeping your fridge warmer than it should be can be a chilling experience. Keeping it at the recommended temperature of 2–4°C is important as it helps prevent harmful bacteria from multiplying. Most pathogenic bacteria (those that cause foodborne illness) cannot grow at low refrigeration temperatures. A suitably chilly fridge allows perishable foods to be stored and eaten safely over two or three days.

Following a few simple guidelines will help ensure food stays safe in your fridge.

Cooling hot foods slightly before refrigerating them will help avoid raising the temperature of other stored foods. If you have a large amount of food, such as rice or a casserole, spread it out in a flat tray and it will cool quicker. When it has stopped steaming, you can put it into a sealed or covered container and into the fridge.

Avoid stuffing your fridge full as overloading prevents the cold air from circulating properly and can stop it from keeping all your food nice and cold. Always let foods marinate in the coolness of your fridge, not on your kitchen bench.

Keep your fridge clean – wipe up spills immediately, wash surfaces with hot, soapy water and dry thoroughly with a clean towel or paper towels. It's a good idea to have a general stocktake and clean your fridge every week or two. Even though bacteria and fungi don't like the cold, some will still grow, though slowly.

Think about keeping food cool before it gets to the fridge too. Keep a chilly bin or bag in the car for taking those perishables home from the shop, especially if it's a hot day and the traffic's slow.





- **Ensure your fridge is between 2°C and 4°C.**
- **Keep all perishable foods in the fridge until you are ready to use them.**
- **When picnicking or carrying food keep it cool in a chilly bin with frozen drink bottles or chilly pads.**
- **Marinate food in the fridge, not on the bench.**

Keeping cool

Sometimes your fridge will let you know it is struggling to keep cool. If the motor is running a lot of the time or if perishables such as milk and meat go off quicker than they should, the fridge temperature setting might need tweaking, or the door seals replacing.

Many fridge control dials will only have settings of low and high, or a series of numbers rather than the actual temperature. It might mean trial and error getting the right setting.

Fridge thermometers are available from some hardware and kitchen or homeware stores. Alternatively, you can place an ordinary thermometer in a glass of water in your fridge overnight and take a reading when you first open the door the next morning.

Temperatures may vary throughout the fridge. The door is usually the warmest place and the top shelf is often warmer than the others, although this may vary depending on your model. To get an overall idea of the operating temperature, a reading should be taken in the middle of the fridge. Read the fridge manual for more information and tips on how best to use your particular model.



Hand washing

How often did your parents ask you to wash your hands before eating? It's one of the oldest and best ways to prevent a foodborne illness, but one that we tend to take for granted – and also forget. Giving your hands a good scrub is an important measure to prevent spreading pathogens to food.

Always wash your hands before handling food. It's equally vital to wash them after touching raw meat and poultry, going to the toilet, blowing your nose or sneezing into your hand while preparing food, changing nappies, handling pets and doing gardening.

To make sure your hands are really clean, you should wash them thoroughly using soap and warm water and then dry them on a clean, dry towel or paper towel. Making sure hands are dry is critical. Recent research shows washed hands that have not been dried can be more of a risk for transferring pathogens to food than hands not washed at all. If you want to be particularly careful, especially after handling raw meat for example, use a paper towel to turn off the tap. This is because you could have transferred bacteria to the tap when you turned it on with your unwashed hands.



Hand washing habits fall short

A study of Kiwis' hand washing habits shows there is room for much improvement.

In an observational survey carried out anonymously at shopping centres in Auckland, Hamilton, Wellington and Christchurch, women beat their male counterparts hands down when it came to washing and drying their hands after using the toilet.

While 92% of the women made some attempt at washing their hands, only 81% of men bothered turning on the taps. Soap was used by 71% of all people who did wash up and more than three-quarters of those were women.

When it came to lathering up, women again outdid the men with those females using soap taking 10% longer than the men on the task. The average time that women took to dry their hands also exceeded the men.

However, none of those observed were given full marks as they all fell well short of ideal. Thorough washing and drying of hands is the most effective way of preventing the spread of infectious diseases.



Clean under each fingernail using warm running water, soap and a nail brush.



Wash hands with warm running water and soap, rubbing vigorously (front, back and between fingers).



Dry hands thoroughly (front, back and between fingers).

Safer eating for people at risk

While everyone should take care to handle food safely, some people need to take more care. If you have low immunity, your immune system is weaker than usual and you are at higher risk of getting infections, including those carried by food. If you do get ill from what you eat, your illness may also be more serious.

Or you might have a food allergy, and consuming certain foods could have severe or even life-threatening consequences.

While there is no such thing as foods that are guaranteed to be safe for everyone, there is plenty of information to guide those more at risk to identify high-risk foods and select safer options.

Many things can make a person more vulnerable to foodborne illnesses. Having advanced cancer or undergoing chemotherapy, for example, can suppress the immune system. Low stomach-acid levels, whether caused by a stomach operation or medication, also place someone at higher risk of getting a foodborne illness as stomach acid normally provides a defence by killing many pathogens. Pregnant women, premature babies and sick children are part of the at-risk group too. If in doubt, your doctor will be able to help assess whether you have low immunity.



At-risk people are advised not to eat some foods, such as foods containing raw eggs or uncooked fish, but plenty of others can be safely enjoyed as long as extra caution is exercised when preparing and consuming them. Yoghurt for example should be eaten within two days of opening, so buying single-serve pots may be better than large containers. Eating stuffing from a chicken or turkey is not advisable if it is cooked in the bird, but can be eaten when cooked in a separate dish and eaten hot.

If you have food allergies and are invited out to dinner, let your hosts know what you need to avoid. If you're cooking for someone with an allergy, take special care as even minute traces can cause severe reactions in some people.

More in-depth information for at-risk people is available in NZFSA's three booklets *Food safety when you have low immunity*, *Food safety in pregnancy*, and *Eating safely when you have food allergies*.

NZFSA resources are available at no charge. Phone 0800 693 721 or email info@nzfsa.govt.nz to obtain copies. Or they can be downloaded from our website at www.nzfsa.govt.nz.



Poultry and meat tips

Be cool about the way you transport meat and poultry products from the supermarket to your home. If you have a long trip home or might make a few stops on the way, put meat or poultry products in a chilly bag or bin with an icepack to help keep them at a safe temperature.

A study carried out for NZFSA by Environmental Science & Research showed the difference it made putting meat into a chilly bag with an icepack when leaving it in a car on a hot day.

On a balmy January day with the air temperature inside the car hovering around 40°C and the air temperature in the boot roughly 10°C cooler, it took just 90 minutes for the surface temperature on a piece of un-insulated steak on the car's back seat to rise to 35°C. This is close to optimal growth temperature for many bacteria. In the cooler boot, the un-insulated steak rose to 21°C in the same time. On the other hand, the temperature of meat kept cold in a chilly bag with an icepack rose only slightly, regardless of whether it was kept in the back seat or the boot.



If meat that had a hot ride home in the car was well cooked before being eaten, the cooking process would destroy most, if not all, of the bacteria present. But spores and heat-stable toxins would still survive and there could be a chance of your health being affected. More worrying would be any ready-to-eat meat, such as ham and deli meats, that made the same trip, as they would be subject to the same temperature increases, but would not undergo further cooking to destroy bacteria.



Don't be chicken about meat safety

If you have a long trip from the supermarket to your fridge, take a chilly bag or bin and an icepack to keep raw meats and poultry cool.

Cook meat and poultry thoroughly. Undercooked meat may be dangerous as it can carry a range of bacteria, including *Campylobacter*, *Salmonella* and *E. coli*.

Cook minced meat and sausages right through until the juices run clear. Poultry needs to cook through to the bone. The only way to be sure meat is properly cooked is to use a meat thermometer – it's very cheap health insurance (see page 5).

Place raw meat and poultry at the bottom of the fridge where juices cannot leak on to and contaminate other foods.



BBQs and eating outside

When asking friends around for a barbecue, you don't want the FBI (foodborne illness) to crash the party. Cooking outdoors in warm spring and summer temperatures provides the ideal situation for pathogens to multiply and cause foodborne illness. Outdoor chefs need to take special care when preparing, cooking and storing food for a barbecue.

Before firing up the barbie, make sure all cooking paraphernalia and the surfaces food will be put on are spotlessly cleaned with soap and hot water and then thoroughly dried. Have one set of utensils for raw meat and poultry, and another set for cooked foods. Using just one set almost guarantees that you'll transfer pathogens from raw meat to cooked foods.

Make sure meat, poultry and other perishable foods are stored cold until they are ready for cooking. Once cooked, it is important to put food on a clean plate – not the one the raw meat was stored on.

It is recommended that chicken, meat patties and sausages are precooked before going on the barbecue to ensure they are thoroughly cooked by the time they turn brown and crisp. Cooking on a barbecue is not as accurate or consistent as using a kitchen cooker, so when cooking outdoors you should use a meat thermometer. If you don't have one – and you should – keep an eye on the meat to ensure the juices run clear and it is steaming hot right though (although this is still no guarantee of safety).

Summer and picnics go hand in hand. Following a few simple guidelines will make your outdoor meal a pleasurable experience. Transporting your food in cooled chilly bags or bins and keeping it cold until it's time to eat will slow the growth of pathogens. Also keep food covered as much as possible to keep unwanted insects and bugs out.



The leftovers

Holiday meals often result in some tasty leftovers, which can make for easy catering the following day, but again because of the higher summer temperatures, take some extra care:

- refrigerate or freeze any leftovers within two hours of their preparation
- cool leftover food in a shallow tray (to help it cool quickly and evenly) then store in a covered container in your fridge
- don't reheat leftovers more than once
- eat leftovers within two days
- when in doubt – throw it out.

10 tips for barbecue food safety

1. Defrost any frozen foods thoroughly before you cook them, or at least check that they are cooked right through before serving.
2. Don't place or prepare raw meat next to cooked or partially cooked meat or other ready-to-eat foods.
3. Use a meat thermometer to check meat is cooked. If you don't have one, cook minced meat burgers and sausages thoroughly (right through to the centre) and cook poultry until the juices run clear.
4. Turn the food regularly so it cooks evenly.
5. If you're expecting lots of guests, consider cooking the food in a conventional oven first then finishing it off on the barbecue.
6. Before you serve it, ensure the centre of the meat is piping hot – don't assume that if it's charred on the outside it will be cooked thoroughly on the inside.
7. Keep raw and cooked meat and poultry separate on the grill.
8. Don't use the same plate to transport raw and cooked foods.
9. It's OK to leave cooked meat for a short time on a corner of the barbecue or covered on a plate for late arrivals; just ensure it's protected from flies.
10. Handle food with tongs or other equipment, and use separate equipment to handle raw and cooked meats.



My cool lunch box

Keeping your family's food safe extends to the kid's school lunch boxes, especially during summer when lunch boxes might be sitting in the heat.

NZFSA has a brochure aimed at school kids (and their parents) that emphasises the importance of keeping lunch boxes 'cool'. The brochure shows a well-packed lunch box with some easy to remember food safety messages (see page opposite). Over the summer months it is particularly important to make sure perishable foods are kept cool and lunch boxes kept clean.

- Keep packed lunches in the fridge overnight.
- Don't eat perishable leftovers when you get home from school.
- Used lunch boxes need a good clean with hot soapy water and must then be thoroughly dried.



Schools can order food safety resources for the classroom at no charge. Call the consumer helpline on 0800 693 721, email info@nzfsa.govt.nz or visit our website www.nzfsa.govt.nz for brochures, posters, stickers and magnets, as well as the 'My cool lunch box' brochure.

For the Kids:

- Make sure your lunch is the coolest! Keep it out of the sun
- Remember to give your hands a good wash and dry before eating



Wash + Dry = Clean

FOR THE GROWN-UPS:

- Freeze drink bottles overnight for an instant ice block or use a mini freezer pack for kids
- Have clean hands and utensils when making packed lunches
- Pack perishable foods like cold meats or egg sandwiches between cold items such as yoghurt

Tip:

Use coloured stars for foods that might spoil to make sure they are eaten first



Meet the bugs

Foodborne illness is caused by bacteria, which can multiply very quickly in warm moist conditions. Foodborne illness can be mild, but sometimes (especially if you have low immunity) it can be life-threatening or cause death. Luckily illnesses caused by bugs like *Campylobacter* and *Salmonella* are avoidable. Proper food handling prevents bacteria from spreading, and thorough cooking kills them. Following the 4Cs – clean, cook, cover, chill – is the best way to keep you and your family safe.

It can take from as little as 20 minutes to several weeks to become sick from food that's been contaminated by pathogens and your illness may not be caused by the last thing you ate. If you think you have an illness caused by food, contact your doctor right away.



How to get more of our resources

A fuller list of some of the common pathogens that cause foodborne illness in New Zealand and advice on how to avoid them is available in NZFSA's *Meet the bugs* brochure.

If you've wondered about the difference between a 'Use by' date and a 'Best before' date, or are confused by claims made on a food label, NZFSA's booklet *Understanding food labels* explains these and more.

Printed copies of these booklets or any other publication mentioned here can be ordered at no charge by phoning 0800 693 721 or emailing info@nzfsa.govt.nz. This information is also available on NZFSA's website at www.nzfsa.govt.nz.

Some common pathogens that cause foodborne illness

Name	Possible symptoms (from most to least common)	Foods and causes linked to outbreaks	How soon it typically strikes
<i>Bacillus cereus</i> (bacteria)	Two different forms of foodborne illness: 1. Vomiting, nausea, occasional diarrhoea 2. Diarrhoea, abdominal pain, occasional nausea	Rice, starchy foods such as potato and pasta, meat, casseroles, vegetable dishes, foods containing spices	1 to 6 hours (vomiting) 10 to 12 hours (diarrhoea)
<i>Campylobacter</i> (bacteria)	Muscle pain, headache, fever, followed by diarrhoea (can be bloody), abdominal pain, nausea	Undercooked chicken, unpasteurised milk, chicken liver pâté, drinking water	2 to 5 days but can range from 1 to 10 days
<i>Clostridium perfringens</i> (bacteria)	Severe abdominal pain, watery diarrhoea, occasional vomiting and nausea	Meat dishes, especially rolled roasts, stuffed meat, soups, stews, gravies, pies	10 to 12 hours, but can range from 6 to 24 hours
<i>E. coli</i> O157:H7 (bacteria)	Severe abdominal pain, watery (then bloody) diarrhoea, occasional vomiting	Undercooked minced meat, unpasteurised milk, lettuce, sprouts, unpasteurised fruit juices	1 to 8 days
<i>Listeria</i> (bacteria)	Non-invasive: Diarrhoea, fever, muscle pain, headache, occasional abdominal cramps and vomiting Invasive: Fever, headache, diarrhoea, vomiting, septicaemia, encephalitis, meningitis, spontaneous abortion or stillbirth	Long shelf-life products stored under refrigeration such as deli meat and poultry products, smoked seafoods, cheeses (particularly soft ripened cheeses), pre-cooked sausage products. Also unpasteurised milk, corn salad, coleslaw	Non-invasive: 11 hours to 7 days Invasive: 1 day to at least 3 weeks
<i>Norovirus</i> (virus)	Nausea, vomiting, diarrhoea, abdominal pain, headache, low-grade fever	Shellfish, salads, sandwiches, cold meats, infected food handlers	24 hours but can range from 10 to 50 hours
<i>Salmonella</i> (bacteria)	Nausea, vomiting, abdominal cramps, diarrhoea, fever, headache	Raw meats, poultry, unpasteurised milk and dairy products, seafoods, fresh produce (including sprouts), foods handled by infected foodhandlers, egg kebabs, sandwiches	6 hours to 2 days



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FOOD SAFETY CONCERNS

0800 NZFSA1 (0800 693 721)

ISBN 978-0-478-32255-2 (Print)

ISBN 978-0-478-32256-9 (Online)

February 2009

New Zealand Government