

Food Handler Exclusion Guidelines

A guide for determining suitable exclusion periods for ill food handlers

November 2017

Food handler exclusion guidelines

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Contents

1.	Introduction	1
2.	Detailed descriptions of pathogens	2
2.1	<i>Bacillus cereus</i>	2
2.2	Campylobacter	3
2.3	<i>Clostridium botulinum</i>	4
2.4	<i>Clostridium perfringens</i>	5
2.5	<i>Cryptosporidium</i>	6
2.6	<i>E.coli</i> (STEC, Shiga toxin-producing).....	7
2.7	<i>E.coli</i> (other than STEC)	8
2.8	<i>Giardia</i>	9
2.9	Hepatitis	10
2.10	Influenza.....	12
2.11	Listeriosis	13
2.12	<i>Salmonella</i>	14
2.13	<i>Shigella</i>	15
2.14	<i>Staphylococcus aureus</i>	16
2.15	Typhoid and Paratyphoid Fever	17
2.16	<i>Vibrio cholera</i>	18
2.17	<i>Vibrio parahaemolyticus</i>	19
2.18	Viral gastroenteritis	20
2.19	Unknown aetiological agent	21
2.20	Yersiniosis.....	22

Appendix 1 - Summary of exclusion periods for food handlers

1. Introduction

Foodborne disease continues to be an important cause of illness worldwide and in Australia. It has been estimated that approximately 5 million people in Australia experience foodborne disease each year. Gastroenteritis is a term used for irritation or infection of the digestive tract. Major symptoms include diarrhoea, vomiting, nausea and abdominal cramps. Sometimes these symptoms may be accompanied by fever, headache and overall weakness.

There are many causes of gastroenteritis. The most common causes are infecting organisms such as certain bacteria, viruses and parasites. There are many vehicles for transmission including food, water, faeces, contaminated surfaces and aerosols. Person to person transmission can occur via the faecal-oral route or by aerosols generated after a person has vomited.

Bacterial gastroenteritis, such as *Salmonella* and *Campylobacter* infections, are usually self-limiting. The incubation period, that is the period from the time the person ingests the microorganism or toxin to developing the symptoms, may range from a few hours to several days.

Specific treatment is not usually required for infective gastroenteritis. Infective gastroenteritis generally subsides without further complications but symptoms can be serious in the very young and the elderly and can sometimes result in hospitalisation. The most common complication is dehydration, so maintaining good fluid intake is important.

People with gastroenteritis are potentially infectious. Strict personal hygiene should be observed to avoid infecting other people. Viral gastroenteritis is highly infectious.

To help reduce the number of cases of foodborne illness, it is essential that food handlers who are suffering from a gastrointestinal illness, or have recently suffered from a gastrointestinal illness, are excluded from food preparation roles. This document provides guidance regarding suitable exclusion periods for food handlers when suffering illnesses.

This document does not address all illnesses and medical advice should always be followed. This document covers common foodborne illnesses or illnesses associated with incidents in Queensland.

2. Detailed descriptions of pathogens

The following sections of this document provide an overview for each pathogen:

Signs and symptoms

Incubation period

Infectious period

Treatment

Transmission

Control of spread and

Exclusion period for food handlers.

Appendix 1 provides a summary table of exclusion periods for food handlers.

2.1 *Bacillus cereus*

Bacillus cereus gastroenteritis is caused by the bacterium *Bacillus cereus*. These bacteria are often present in the environment as spores which can survive boiling. If the cooked food is then left out of refrigeration after cooking, the spores can germinate, multiply and produce a toxin in the gut, which causes the illness.

Signs and Symptoms:

Illness is characterised by sudden onset of nausea and vomiting and in others by colic and diarrhoea. The illness usually lasts only 24 hours.

Incubation period

From 1 to 6 hours where vomiting is the main symptom, to 6 to 12 hours where diarrhoea is the main symptom.

Infectious period

This illness cannot be passed from one person to another, so there is no infectious period.

Treatment:

Your doctor will advise you if you need any treatment. Most gastroenteritis infections resolve without treatment. It is very important to drink plenty of fluids to avoid dehydration.

Transmission:

There are two distinct forms, caused by two different toxins. The first may not be destroyed by heating and causes nausea and vomiting. The other can be destroyed by heat and causes stomach pains and diarrhoea. Outbreaks of vomiting have often been associated with cooked rice that was not refrigerated before reheating.

Control of spread:

Food should be kept steaming hot (above 60°C) after cooking until it is eaten, or put in a refrigerator or freezer immediately after cooking. Reheated food should be reheated quickly and thoroughly to prevent bacteria from multiplying. Throw out any suspect food.

Exclusion period for food handlers:

The food handler should be excluded from food handling operations until the vomiting and diarrhoea has ceased.

2.2 Campylobacter

Campylobacter jejuni and, to a lesser extent, *Campylobacter coli* is the most common foodborne illnesses in Australia. *Campylobacter* infection is a bacterial gastroenteritis.

Campylobacter is common on raw poultry and may be present in unpasteurised (raw) dairy foods. Infected pets, especially puppies and kittens, and various domestic stock can also cause infection.

Signs and Symptoms:

Symptoms of infection include diarrhoea (frequently with bloody stools), abdominal pain, malaise, fever, nausea and/or vomiting. Symptoms most commonly occur 2-5 days after exposure and can last up to two weeks.

Incubation period:

Usually 2-5 days, with a range of 1-10 days.

Infectious period:

For as long as the *Campylobacter* bacteria are in the faeces of the patient, which may be for a few days, or weeks after symptoms are gone. The risk of infecting others decreases when symptoms are no longer present.

Treatment:

Your doctor will advise you if you need any treatment. Most gastroenteritis infections resolve without treatment. It is very important to drink plenty of fluids to avoid dehydration. Persons with severe or long lasting diarrhoea should seek medical advice.

Transmission:

Infection most commonly occurs as a result of eating contaminated foods such as undercooked poultry, raw (unpasteurised) milk, or consuming untreated drinking water.

Infection can also occur as a result of contact with infected pets, farm animals or infected infants. Infected individuals are infectious throughout the course of their infection and for some time after.

Control of spread:

Good food handling, hand washing and cleaning procedures should be followed.

The risk of food becoming infected with *Campylobacter* can be minimised by:

- cooking all raw foods, especially meat, and washing raw vegetables properly
- storing food below 5°C or above 60°C to prevent the growth of bacteria
- washing tongs, knives and cutting boards between using them for raw foods and cooked or ready-to-eat foods.
- Making sure the internal temperature of reheated foods reaches at least 75°C
- Keeping all kitchen surfaces and equipment clean

Exclusion period for food handlers

Food handlers should not return to work until 48 hours after resolution of diarrhoea and vomiting.

2.3 *Clostridium botulinum*

Botulism is a condition caused by the ingestion of a neurotoxin produced, under certain conditions, by the bacterium *Clostridium botulinum*. This neurotoxin, which is thought to be one of the most toxic compounds known to man, can result in serious illness and even death if not treated promptly. Fortunately, botulism is rare.

Signs and Symptoms:

Early symptoms are often fatigue, weakness and vertigo followed by blurred vision, dry mouth, and difficulty in swallowing and speaking. As the illness progresses, paralysis begins in the shoulders and descends through the body. Death can result from paralysis of the breathing muscles if artificial respiration is not provided.

Incubation period:

Neurological symptoms of foodborne botulism usually appear within 12-36 hours, but may take several days.

Infectious period:

This illness does not seem to be passed from one person to another, so there is no infectious period.

Treatment:

Botulism is most commonly treated with the use of an anti-toxin.

Transmission:

There is no person to person transmission with *Clostridium botulinum*.

The toxin is produced by *Clostridium botulinum* in improperly processed, canned, low-salt, low-acid or alkaline foods and in pasteurised and lightly cured foods (such as

fermented, salted or smoked fish and meat products) held without refrigeration, especially in air-tight packaging.

Control of spread:

Make sure that home-preserved, home-canned or home-bottled foods are properly heated or processed. Such foods that are also low in acid should be boiled for 10-15 minutes before eating.

Exclusion period for food handlers:

There is no exclusion period prescribed for food handlers who have suffered botulism. Food handlers may return to work when they are capable of doing so.

2.4 *Clostridium perfringens*

Clostridium perfringens gastroenteritis is an illness caused by toxins produced by the bacterium *Clostridium perfringens*.

This bacterium can multiply during slow cooling, storage at room temperatures or inadequate reheating.

Illness generally results from eating contaminated meat that has not been properly heated or reheated. Stews, meat pies and gravies have usually been the cause.

Signs and Symptoms:

Symptoms include abdominal pain and diarrhoea. Nausea is common, but vomiting and fever are usually absent. Illness often starts suddenly, usually lasts only 24 hours and is rarely fatal.

Incubation period:

From 6-24 hours, usually 10-12 hours.

Infectious period:

This illness is not passed from one person to another, so there is no infectious period.

Treatment:

Your doctor will advise you if you need any treatment. Most gastroenteritis infections resolve without treatment. It is very important to drink plenty of fluids to avoid dehydration.

Transmission:

Illness generally results from eating contaminated meat that has not been properly heated or reheated. Stews, meat pies and gravies have usually been the cause.

There is no transmission from person to person.

Control of spread:

Cook food properly, and keep it steaming hot (above 60°C) after cooking until it is eaten, or put in a refrigerator or freezer immediately after cooking. This is particularly important for stews, meat pies and gravies.

Reheated food should be reheated quickly and thoroughly to prevent bacteria from multiplying.

Meat and poultry should not be partially cooked one day and reheated the next. In particular, food-handlers for large functions should be made aware of the risks of this bacterium.

Throw out any suspect food.

Exclusion period for food handlers:

Food handlers should not return to work until the diarrhoea has ceased.

2.5 *Cryptosporidium*

Cryptosporidiosis is an intestinal infection caused by *Cryptosporidium parvum*, a microscopic parasite. Cryptosporidiosis occurs worldwide and appears to be a relatively common cause of acute diarrhoea in young children and tends to be more common during the warmer months.

As well as infecting humans, *Cryptosporidium parvum* occurs in a variety of animals including cattle, dogs and cats.

In people with normal immune systems, the disease is generally not serious. However, people with weakened immune systems (eg. some people receiving cancer treatment, people on steroid therapy and people with HIV/AIDS) may develop severe and long lasting illness, which may contribute to death.

Signs and Symptoms:

The most common symptom is diarrhoea, which is usually watery and may be profuse. Other symptoms that may occur are nausea, vomiting, fever, headache and loss of appetite. Some people infected with *Cryptosporidium* may not develop any symptoms.

In healthy young children, the illness is self-limiting and lasts only a few days. In people with normal immune systems, the symptoms often fluctuate but recovery is expected in less than 30 days. People with weakened immune systems may not be able to clear the parasite and the illness may persist.

Incubation period:

1-12 days, usually about 7 days from contact with the parasite.

Infectious period:

As soon as the infected person develops symptoms and for several weeks after the disappearance of symptoms.

Transmission

Cryptosporidium is shed in the faeces of infected humans and animals from the onset of symptoms and may continue to be excreted in the faeces for several weeks after symptoms have resolved. The infectious agent can survive in a moist environment for up to six months. It may then be transferred to humans in several ways:

- person to person contact
- handling of infected pets, farm animals, or their faeces
- food and water contaminated by the faeces of infected animals or persons, including swallowing contaminated recreational water

Treatment:

There is no specific treatment for cryptosporidiosis. Replacement of fluid lost through diarrhoea may be needed. Persons with severe or long lasting diarrhoea should seek medical advice.

Control of spread:

Be sure good hand washing and cleaning procedures are followed.

Cryptosporidium is highly resistant to chemical disinfectants used to purify drinking water. People with immune suppression, particularly AIDS patients, should consider additional strategies to avoid infection. These include boiling or additionally filtering drinking water particularly for food businesses not utilising reticulated water supplies.

Exclusion period for food handlers

Food handlers should not return to work until 48 hours after resolution of diarrhoea and vomiting

2.6 *E.coli* (STEC, Shiga toxin-producing)

Escherichia coli (*E. coli*) are bacteria which are present in large numbers in the intestines of humans and animals. Most of these bacteria are not harmful. However, some types, such as Shiga toxin-producing *E. coli* (STEC), produce toxins which can cause illness in humans and may lead to serious complications in the bowel and kidney.

Signs and Symptoms:

Symptoms of infection include abdominal pain and watery or bloody diarrhoea. Vomiting and fever may occur.

Symptoms can begin anywhere between 2 to 10 days but usually 3 – 4 days after eating the bacteria. Infection may sometimes cause no or very mild symptoms.

Incubation period:

Usually ranges from 2 to 10 days (with a median of 3-4 days), though may be as long as 14 days.

Infectious period:

Adults are generally infectious for one week or less.

Children can continue to pass on the infection for around three weeks.

People can occasionally remain infectious for considerably longer.

Treatment:

Most people with mild illness recover without any specific treatment. Occasionally complications such as dehydration and kidney failure may require hospitalisation.

Transmission:

The infection is mainly spread through people eating contaminated food. Meat can be contaminated during slaughter and processing, particularly if minced. Unpasteurised milk, contaminated raw vegetables and contaminated water are also potential sources.

It can also spread from person to person if hands are not washed thoroughly after going to the toilet or changing nappies.

People infected and their close household contacts should consult a doctor before returning to work or school.

Control of spread:

Once diarrhoea has stopped, the person no longer needs to be excluded from childcare, preschool, school or work - see section 11.8, *Exclusion of food handlers*.

All animal products, particularly from cattle and sheep, which are not thoroughly cooked or pasteurised may harbour shiga toxin-carrying *E.coli*.

All vegetables and fruits, especially if consumed raw, should be protected from contamination from uncooked, unpasteurised animal products and should be washed before consumption.

Handwashing will prevent most person-to-person transmission. Hands should be washed after contact with animals, especially farm animals.

Toddlers who are not toilet trained should not use swimming pools and when faecal accidents occur, swimming pools should be properly disinfected.

Exclusion period for food handlers:

Food handlers should not return to work until at least 48 hours after the symptoms have ceased and a negative stool sample has been achieved.

2.7 *E.coli* (other than STEC)

E.coli bacteria form part of the normal gastrointestinal flora of humans and all warm-blooded animals. However, there are some strains of *E.coli* that are known to cause illness in humans.

Signs and Symptoms:

Diarrhoea is the main symptom associated with *E.coli* infections. Diarrhoea may be quite mild to severe and be accompanied by abdominal cramping, vomiting, mild fever and malaise. Symptoms may become apparent in as little as 10 hours after exposure.

Treatment:

Drinking fluids to prevent dehydration is an important part of treatment. It is also important to continue eating, as this will encourage recovery.

Transmission:

E.coli infections are typically transmitted via the consumption of contaminated food or water.

The infection can be spread from person to person, particularly where good hygiene is not practised.

Exclusion period for food handlers:

Food handlers should not return to work until 48 hours after resolution of diarrhoea and vomiting.

2.8 *Giardia*

Giardiasis is an intestinal infection caused by *Giardia lamblia*, a microscopic parasite. Giardiasis occurs worldwide and more commonly affects children rather than adults.

Signs and Symptoms:

Infection with *Giardia* can result in acute diarrhoea with pale and greasy stools, weight loss, fatigue, abdominal cramps. Some people infected with *Giardia* may not develop any symptoms at all while others can develop chronic effects (e.g. chronic diarrhoea).

Incubation Period

3-25 days or longer (usually 7-10 days).

Infectious Period

For as long as the organism is present in the faeces (often months), whether or not the person is ill.

A person with diarrhoea is more likely to spread the infection than a well person. However, a well person is still potentially infectious to others.

Treatment:

Antibiotics are usually prescribed to relieve symptoms and usually makes the person non-infectious within a few days.

Drinking fluids to prevent dehydration is an important part of treatment. It is also important to continue eating, as this will encourage recovery

Transmission:

Giardia is shed in the faeces of infected humans and animals from the onset of symptoms and may continue to be excreted in the faeces for several weeks to months after symptoms have resolved.

The infectious agent can survive in a moist environment for up to six months. It may then be transferred to humans in several ways:

- person to person contact
- handling of infected pets, farm animals, or their faeces
- food and water contaminated by the faeces of infected animals or persons, including swallowing contaminated recreational water

Control of Spread:

Good hand washing and cleaning procedures are to be followed.

If water is contaminated, it should be boiled before drinking.

Treatment of infected people reduces spread.

Exclusion period for food handlers

Food handlers should be excluded from work until 48 hours after resolution of diarrhoea and vomiting.

2.9 Hepatitis

Hepatitis A (also known as infectious hepatitis) is an acute infection of the liver.

Hepatitis B & C is a virus that infects the liver with both acute and chronic conditions left untreated and is spread through blood to body fluid contact.

Hepatitis D is a defective virus affecting the liver which is also known as the Delta Virus, this strain of Hepatitis requires the helper function of the hepatitis B virus to multiply and is therefore only found in people who are infected with hepatitis B.

Hepatitis E is caused by an infection with hepatitis E virus and is transmitted mainly through contaminated drinking water.

Signs and Symptoms:

The symptoms of hepatitis are fever, generalised aches and pains, nausea, lack of appetite and abdominal discomfort.

Dark urine is usually the first specific sign of acute hepatitis, followed a day or two later by jaundice (yellow skin and eyes) and pale coloured bowel motions.

Incubation period:

Hepatitis A – 15 to 50 days, usually 28-30 days.

Hepatitis B – 45 to 180 days, with an average of 60–90 days.

Hepatitis C – 2 weeks to 6 months. It is most commonly 6–9 weeks.

Hepatitis D – 2 to 8 weeks.

Hepatitis E – 3 to 8 weeks, with an average from 26 to 42 days.

Infectious period:

A person is infectious:

Hepatitis A - in the two weeks before symptoms occur, and is slightly infectious during the first week of symptoms.

Hepatitis B –several weeks before symptoms occur and throughout the acute clinical course of the disease and during the chronic state.

Hepatitis C - from 1 or more weeks before the onset of symptoms, and during the acute clinical stage of HCV infection.

Hepatitis D - Blood is potentially infectious during all phases of active hepatitis infection. People infected with HDV are thought to be most infectious before the onset of acute illness. Following onset of acute symptoms, viraemia probably falls rapidly to low or undetectable levels.

Hepatitis E - The period of communicability is unknown. HEV has been detected in stools 14 days after the onset of jaundice and 4 weeks after ingestion of contaminated food or water.

Treatment:

There is no specific treatment for acute hepatitis as it is a virus and antibiotics are therefore of no value in the treatment of the infection. Anti-viral medication may be prescribed.

Management of people infected with the virus is aimed at treating the symptoms of the infection, i.e. rest, good fluid intake and alteration in diet may decrease symptoms.

Transmission:

The **Hepatitis A and E** virus is usually spread when faeces from an infected person contaminates something which is transferred to another person's mouth. The virus can be passed on by:

- food that has been handled by or shared with an infected person
- drinking contaminated water
- hands after touching infected faeces, nappies, linen and towels
- sexual contact.

Hepatitis B, C & D virus is generally spread through contact with infected blood, through sex with an infected person, and from mother to child during childbirth, whether the delivery is vaginal or via caesarean section.

The virus can survive in a dried form at room temperature for several weeks and in water for longer periods. It usually takes about 28 to 30 days from contact with the virus until a person starts to feel unwell. However, it can take up to 50 days.

Infected people can pass on the virus to others from about two weeks before and up to one week after the appearance of dark urine or jaundice. Some people, especially

small children, may not show any symptoms even though they may have the virus and can pass it onto others.

Control of spread:

Follow good personal hygiene practices, especially thorough hand washing.

Immunoglobulin is offered to all non-immune household contacts of a case of hepatitis A. Under certain circumstances, immunoglobulin (available from GPs or hospitals) may also be offered to child care contacts, food handlers and restaurant patrons. In contacts of a case of hepatitis A, immunoglobulin will prevent or decrease the severity of symptoms of hepatitis A if given within 7-10 days after exposure. Contacts (including those given immunoglobulin) may remain infectious to others even if they do not develop symptoms themselves and should therefore continue to follow good personal hygiene practices.

Vaccines are available for Hepatitis A and B.

Exclusion period for food handlers

Food handlers should be excluded until seven days after onset of jaundice and/or symptoms, or two weeks after onset of prodromal symptoms if no jaundice/dark urine.

2.10 Influenza

Influenza, or flu, is a respiratory illness that is caused by a virus. Flu is highly contagious and is usually spread by the coughs and sneezes of a person who is infected.

Signs and Symptoms:

People who have the flu often feel some or all of these signs and symptoms:

- fever or feeling feverish/chills
- cough
- sore throat
- runny or stuffy nose
- muscle or body aches
- headaches
- fatigue (very tired)
- some people may have vomiting and diarrhoea, though this is more common in children than adults.

Treatment:

Most people with the flu recover within one to two weeks without treatment. However, serious complications of the flu can occur. It is important to keep well hydrated drinking plenty of fluids and rest.

Transmission:

Flu viruses spread mainly by droplets made when people with flu cough, sneeze or talk. These droplets can land in the mouths or noses of people who are nearby. Less often, a person might also get flu by touching a surface or object that has flu virus on it and then touching their own mouth, eyes or possibly their nose.

Exclusion period for food handlers:

It is recommended that the infected person is excluded until the signs and symptoms of the common flu have resolved, generally this means 24 hours after resolution of fever (provided the infected person/s has had an influenza vaccine) or 5 days have elapsed since the onset of respiratory symptoms.

2.11 Listeriosis

Listeriosis is a bacterial infection caused by *Listeria monocytogenes*.

The people who are most at risk of infection which can be serious, are new-born babies, the elderly, immune suppressed people and pregnant women. Pregnant women have relatively mild symptoms (fever, and aches) and make a quick recovery. However, they may transfer the infection to their unborn child who may then be stillborn or born very ill. The case-fatality rate among non-pregnant adults can be as high as 35%.

Signs and symptoms:

Symptoms vary from a sudden onset of fever, headache, nausea, vomiting and neck stiffness to a gradual onset of confusion and decreased alertness.

Foetal infections can be severe and may result in stillbirth, or with postnatal septicaemia or meningitis.

Incubation period:

Varies from 3-70 days with an average of 3 weeks.

Infectious period:

Infected people may carry *Listeria* in their faeces for several months after infection.

Treatment:

Hospitalisation is usually necessary and antibiotic therapy is given.

Transmission:

The main way in which *Listeria* infection is spread is by eating contaminated foods. Foods associated with the spread of *Listeria* include unpasteurised (raw) dairy products (eg milk, yogurt and cheese), soft cheese (eg brie), raw vegetables, shellfish, raw fish and processed meats such as pate.

Contact with infected farm animals, particularly stillborn animals, can also spread the infection.

Control of spread

Pregnant women and immune suppressed people should take special care to avoid foods which may be contaminated with *Listeria*. All meat should be properly cooked and only pasteurized dairy products eaten. Raw vegetables should be thoroughly washed before eating. Pate should be avoided.

Pregnant women and immune suppressed people should avoid contact with sick or stillborn farm animals.

Good hand washing hygiene should be practiced.

Exclusion period for food handlers:

Food handlers should be excluded from work until 48 hours after vomiting has ceased and provided the person is well to return to work.

2.12 Salmonella

Salmonella infection (*salmonellosis*) is a type of gastroenteritis caused by *Salmonella* bacteria. In Australia, most *Salmonella* infections occur after eating contaminated food but also sometimes after contact with another person with the infection. There are about 2,500 different strains of *Salmonella*, many of which cause infection in both animals and humans.

Signs and Symptoms:

Symptoms of *Salmonella* infection include fever, headache, diarrhoea, abdominal pain, nausea and vomiting. Symptoms usually develop 6 to 72 hours after exposure to the bacteria, but sometimes up to 2 weeks. Symptoms typically last between four and seven days but can sometimes last much longer.

Incubation period:

The incubation period is usually 6–72 hours, with an average of 12–36 hours.

Infectious period:

The faeces are infectious when symptoms are present.

Some people continue to carry *Salmonella* bacteria in the bowel and shed them in the faeces for months after recovering.

Treatment:

Most people recover with rest and fluids. Sometimes admission to hospital is required e.g. for intravenous fluids to treat dehydration. Antibiotics are not usually given as they can make the illness worse, but are sometimes recommended in complicated cases.

Transmission:

Salmonella bacteria are mainly spread to humans via poorly cooked food made from infected animals e.g. meat, poultry, eggs and their by-products. Spread by 'cross-contamination' can occur when the bacteria contaminate ready-to-eat food, e.g. when food that will not be cooked further is cut with a contaminated knife.

Salmonella can spread from person to person if hands are not washed properly, particularly after going to the toilet or changing nappies. It can also spread from animals to humans.

Control of spread:

Good food handling, hand washing and cleaning procedures should be followed.

Exclusion period for food handlers

Food handlers should not return to work until 48 hours after resolution of diarrhoea and vomiting.

2.13 *Shigella*

Shigella infection (shigellosis) is a type of gastroenteritis caused by *Shigella* bacteria.

Signs and Symptoms:

The symptoms of *Shigella* infection include fever, diarrhoea, (sometimes with blood and mucous), vomiting and stomach cramps.

The disease is more severe in children and older people. The infection usually lasts for several days but can last longer. Sometimes people infected with *Shigella* do not have symptoms.

Incubation period:

Symptoms usually develop in one to three days, although in some cases it may take up to a week.

Infectious period:

People are infectious while they have diarrhoea and until the bacteria are cleared from the bowel (usually within 4 weeks after illness).

On rare occasions people who have recovered and without symptoms can shed *Shigella* in their faeces for many months.

Treatment with appropriate antibiotics generally reduces the time a person is infectious to a few days.

Transmission:

Shigella is very easily spread. It spreads from person to person by the faecal-oral route, by direct or indirect contact with faecal matter. This commonly occurs if hands are not washed properly, particularly after going to the toilet or changing nappies.

Shigella infections may also be acquired from eating food contaminated with the bacteria. Flies can carry *Shigella* and can contaminate food.

Shigella can be present in a person's faeces for some weeks after their symptoms have ceased, and the infection can still be passed on to others..

Treatment:

Antibiotics are usually prescribed to people who are ill and whose tests show they have *Shigella*.

Drinking fluids to prevent dehydration is an important part of treatment. It is also important to continue eating, as this will encourage recovery.

Control of spread:

Be sure that good hand washing and cleaning procedures are followed.

Exclusion period for food handlers:

Food handlers should not return to work until two consecutive negative stool specimens, at least 24 hours apart and at least 48 hours after the last dose of antimicrobials, have been obtained.

2.14 *Staphylococcus aureus*

Staphylococcus aureus (often referred to as 'staph' or 'golden staph') is a common bacterium. About 30 percent of people carry it either on their skin or in their nose, mostly without it causing any problems. However, *Staphylococcus aureus* can produce a potent enterotoxin that, when consumed, can cause acute gastroenteritis.

Signs and Symptoms:

Symptoms can appear quickly after exposure, sometimes as early as in 30 minutes after exposure but more commonly between 2 and 4 hours after exposure.

Symptoms can arise abruptly and include severe nausea, cramps, vomiting, sometimes coupled with diarrhoea. Illness typically lasts one to two days.

Incubation period:

30 minutes to 8 hours, usually 2-4 hours.

Infectious period:

The illness cannot be passed from one person to another, so there is no infectious period.

Treatment:

Drinking fluids to prevent dehydration is an important part of treatment. It is also important to continue eating, as this will encourage recovery.

Transmission:

Transmission occurs via the consumption of food contaminated with the enterotoxin.

Contamination is often a result of poor hygiene practised by food handlers combined with inadequate temperature control.

Foods such as pastries, custards, salad dressings, sandwiches, sliced meats and other meat products have been implicated in previous outbreaks.

Control of spread:

Educate food handlers in the preparation of food, prompt refrigeration of food, the danger of working with exposed skin, nose and eye infections and the need to cover wounds.

Reduce food-handling time so that food is kept out of the fridge for an absolute minimum time, and no more than 4 hours.

People with boils, abscesses and other skin infections on their hands should have those infections covered, eg with a bandaid, and wear gloves. Such infections on other parts of the body, such as the face, should also be covered, such as with a bandaid.

Exclusion period for food handlers:

Any food handlers with boils, abscesses and other skin infections on their hands, arms or face should have the infections completely covered, eg with a bandaid, and wear gloves.

2.15 Typhoid and Paratyphoid Fever

Typhoid and paratyphoid fever are diseases of the intestinal tract caused by the *Salmonella Typhi* and *Salmonella Paratyphi* bacteria.

Almost every Australian case is acquired during overseas travel.

Signs and Symptoms:

The symptoms of **typhoid fever** may be mild or severe and may include prolonged fever, severe headache, malaise, constipation or diarrhoea, rose-coloured spots on the torso and an enlarged spleen.

Most people usually recover fully over several weeks, although it can be fatal if left untreated.

Relapses are common and occur in up to 20% of cases.

The symptoms of **paratyphoid fever** are similar but tend to be milder.

The time from contact with the bacteria to the start of symptoms is usually 8-14 days for typhoid and 1-10 days for paratyphoid fever.

Incubation period:

The incubation period for **typhoid** is usually 7 to 14 days, but ranges from three to 30 days.

For **paratyphoid**, the incubation period is about 1 to 10 days. The onset of symptoms may be slow, gradually worsening over about 3 or 4 days. Untreated, the illness typically lasts about four weeks.

Any complications tend to occur after about two or three weeks.

Infectious period:

The infection can be passed to other people until 24 hours after all symptoms have cleared.

With antibiotics, symptoms usually clear within a week.

Treatment:

Antibiotics are usually used for the treatment of typhoid and paratyphoid fever.

Transmission:

Typhoid and paratyphoid fever are usually spread when faeces or urine from an infected person contaminates something that is transferred to another person's mouth.

Contaminated water and food are the most common sources of infection. Flies may also spread the bacteria to food products.

Exclusion period for food handlers:

At a minimum, food handlers should not return to work until at least 48 hours after all symptoms have cleared **and** the course of antibiotics has been completed.

However, it is recommended that a food handler does not return until they have returned two consecutive negative stool specimens, one week apart (at least 48 hours after completion of antibiotic therapy).

2.16 *Vibrio cholera*

Cholera is an acute diarrhoeal disease caused by eating or drinking food or water contaminated with *Vibrio cholerae* bacteria. Cases in Australia are typically seen only in travellers arriving from regions where the disease is still common.

Signs and Symptoms:

Most people infected with *V. cholerae* will NOT become unwell. Of those who do develop symptoms, most will have mild or moderate diarrhoea with little fever. However, some people will develop profuse watery diarrhoea with severe dehydration, which can lead to death within hours if not treated.

Incubation period:

The incubation period ranges from a few hours to 5 days, usually 2 to 3 days.

Infectious period:

During the acute stage and for a few days after recovery. However, some people (called 'carriers') who do not have symptoms may still carry the bacteria and be infectious, sometimes for months to years.

Treatment:

Antibiotics shorten the duration of the illness and lessen the severity, but they are not as important as rehydration.

Dehydration due to cholera can be easily treated in most cases with oral rehydration solution.

Transmission:

Cholera is usually spread by food or water that has been contaminated by human faeces. People can also become infected if they eat raw seafood taken from contaminated sea waters.

Direct person-to-person spread of cholera is uncommon.

Cholera can spread rapidly in areas where sewage and drinking water supplies are not adequately treated. It is very rare in countries that have adequate sanitation and safe water supplies. The risk of a cholera outbreak anywhere in Australia is extremely low.

Exclusion period for food handlers

Food handlers should not return to work until at least 48 hours after symptoms have ceased and the course of antibiotics (if prescribed) have been completed.

2.17 *Vibrio parahaemolyticus*

Vibrio parahaemolyticus is a bacterium found in brackish and saltwater that can cause gastroenteritis in humans. Cases of illness caused by *V. parahaemolyticus* are commonly attributed to the consumption of contaminated seafood.

Signs and Symptoms:

Infections with *Vibrio parahaemolyticus* are characterised by watery diarrhoea, abdominal cramps, nausea, vomiting, fever and headache. Some people that are infected will develop a dysentery-like illness. The infection is relatively fast acting with most people experiencing symptoms between 12-24 hours after exposure.

Incubation period:

Usually 12-24 hours, but it can range from 4–30 hours.

Infectious period:

This illness cannot be passed from one person to another, so there is no infectious period.

Treatment:

Drinking fluids to prevent dehydration is an important part of treatment. It is also important to continue eating, as this will encourage recovery.

Transmission:

Infection with *Vibrio parahaemolyticus* is most often the result of consuming seafood that is raw or is undercooked. *Vibrio parahaemolyticus* is not normally spread from person to person.

Control of spread:

Consumers need to be educated about the risks of eating raw seafood.

Seafood should be cooked to a temperature of 70°C for 15 minutes to kill the organism. Seafood needs to be kept properly refrigerated and not cross-contaminated.

Exclusion period for food handlers:

Food handlers should not return to work until 48 hours after resolution of diarrhoea and vomiting.

2.18 Viral gastroenteritis

Viral gastroenteritis is the inflammation of the stomach and intestines. It is often caused by rotavirus or norovirus.

Signs and Symptoms:

The main symptoms are diarrhoea and vomiting. The time from contact with the bacteria or the virus and the development of symptoms is usually about one to three days.

Incubation period:

24 to 72 hours.

Infectious period:

During illness and for 48 hours after symptoms have disappeared.

Treatment:

Most gastroenteritis infections resolve without treatment. Drinking fluids to prevent dehydration is an important part of treatment. It is also important to continue eating, as this will encourage recovery.

Transmission:

Viral gastroenteritis is highly infectious and can be passed from person to person very easily. The organisms may also be found in contaminated water or food. Viral gastroenteritis usually spreads when hands, food, objects and surfaces become

contaminated with faeces or vomit and the infectious organism is transferred to the mouth when eating, drinking or touching the mouth. For some viruses, spread can also occur via small airborne particles circulating in the air during or after vomiting attacks.

People with viral gastroenteritis are very infectious while they are feeling unwell and they can continue to be infectious for days or weeks after they have recovered.

Control of spread:

Be sure good hand washing techniques and cleaning procedures are practised.

Exclusion period for food handlers:

Food handlers should not return to work until at least 48 hours after resolution of diarrhoea and vomiting.

2.19 Unknown aetiological agent

Gastroenteritis is the inflammation of the stomach and intestines. It may be caused by bacteria (such as campylobacter, salmonella and shigella), viruses (such as rotavirus or norovirus) or parasites (such as giardia and cryptosporidium).

Signs and Symptoms:

The main symptoms are diarrhoea and vomiting. The time from contact with the bacteria or the virus and the development of symptoms is usually about one to three days. Parasitic infections take about 5-15 days.

Treatment:

Your doctor will advise you if you need any treatment. Most gastroenteritis infections resolve without treatment. It is very important to drink plenty of fluids to avoid dehydration.

Transmission:

Gastroenteritis is highly infectious and can be passed from person to person very easily. The organisms may also be found in contaminated water or food. Gastroenteritis usually spreads when hands, food, objects and surfaces become contaminated with faeces or vomit and the infectious organism is transferred to the mouth when eating, drinking or touching the mouth. For some viruses, spread can also occur via small airborne particles circulating in the air during or after vomiting attacks.

People with gastroenteritis are very infectious while they are feeling unwell and they can continue to be infectious for days or weeks after they have recovered.

Exclusion period for food handlers:

In many cases, the cause of a gastrointestinal illness will not be determined. In these cases, food handlers should be excluded from work until 48 hours after resolution of diarrhoea and/or vomiting.

2.20 Yersiniosis

Yersinia infection (yersiniosis) is a bacterial infection of the bowel usually caused by *Yersinia enterocolitica*. It is a zoonotic disease many birds and animals carry in their bowel. While it occurs worldwide, it is fairly uncommon.

Signs and Symptoms:

Symptoms vary with age and include: fever and bloody diarrhoea in young children and symptoms similar to appendicitis in older children and adults. Joint pain occurs in half of affected adults.

Incubation period:

3-7 days, generally under 10 days.

Infectious period:

Usually 2-3 weeks. If not treated with antibiotics, the organism may be shed in the faeces for 2-3 months.

Treatment:

Effective antibiotic treatment is available.

Transmission:

Yersinia is spread to humans by eating food or water contaminated by infected human or animal faeces.

Yersiniosis is particularly associated with eating raw or undercooked pork but can be spread from other foods such as unpasteurised milk or from person to person occasionally.

Infected pets and domestic stock may also cause infection.

Control of spread:

Good food handling, hand washing and cleaning procedures should be followed.

Avoid eating raw or undercooked pork.

Exclusion period for food handlers:

Food handlers should not return to work until 48 hours after resolution of diarrhoea.

Appendices

Summary of exclusion periods for food handlers

Pathogen	Exclusion period
Unknown agent	48 hours after resolution of diarrhoea and vomiting
<i>Bacillus cereus</i>	None required. May return once diarrhoea and vomiting have ceased.
<i>Campylobacter</i>	48 hours after resolution of diarrhoea and vomiting
<i>Clostridium botulinum</i>	None required
<i>Clostridium perfringens</i>	None required
Cryptosporidiosis	48 hours after resolution of diarrhoea and vomiting
<i>E. coli</i> (other than STEC)	48 hours after resolution of diarrhoea and vomiting
Giardia / Entamoeba	48 hours after resolution of diarrhoea and vomiting
Hepatitis A & E	7 days after onset of jaundice and/or symptoms, or 2 weeks after onset of prodromal symptoms if no jaundice/dark urine
Influenza	24 hours after resolution of fever (provided the infected person/s has had an influenza vaccine) or 5 days have elapsed since the onset of respiratory symptoms.
<i>Salmonella</i>	48 hours after resolution of diarrhoea and vomiting
Shiga toxin-producing <i>E. coli</i> (STEC)	2 x consecutive negative stool specimens, ≥ 24 hours apart (at least 48 hours after last dose of antimicrobials)
<i>Shigella</i>	2 x consecutive negative stool specimens, ≥ 24 hours apart (at least 48 hours after last dose of antimicrobials)
<i>Staphylococcus aureus</i>	Exclude any food handlers with purulent lesions on hands, arms and face (nasal carriers do <u>not</u> need to be excluded)
Typhoid / Paratyphoid	2 x consecutive negative stool specimens, one week apart (at least 48 hours after completion of antibiotic therapy)
<i>Vibrio cholerae</i> (toxigenic)	2 x consecutive negative stool specimens, ≥ 24 hours apart (at least 48 hours after last dose of antimicrobials)
<i>Vibrio parahaemolyticus</i>	48 hours after resolution of diarrhoea and vomiting
Viral gastroenteritis	48 hours after resolution of diarrhoea and vomiting
Yersiniosis	48 hours after resolution of diarrhoea