



Government of **Western Australia**
Department of **Health**

Guideline for the Environmental Health Investigation of a Food-borne Disease Outbreak

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Feedback

Any feedback related to this document should be emailed to foodsafety@health.wa.gov.au

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Definitions

Associated/association	May have various meanings, depending on context. For instance, may be used to indicate a statistically significant association, between a risk factor (for example, eating a certain food) and an outcome (for example, the presence of an illness).
Authorised Officer	An authorised officer under Part 10 Division 3 of the <i>Food Act 2008</i> .
Case (confirmed)	An ill person who: <ul style="list-style-type: none">■ has had a food-borne disease pathogen confirmed in a faecal sample specimen by a laboratory; and■ has been epidemiologically associated with a particular outbreak by OzFoodNet.
Case (suspected)	An ill person who: <ul style="list-style-type: none">■ has not been laboratory confirmed through faecal sample specimen analysis (although has symptoms similar to a food-borne disease), and■ has been associated with a particular outbreak by OzFoodNet.
Code	<i>Australia New Zealand Food Standards Code</i>
Food Act	<i>Food Act 2008</i>
Food-borne disease	A disease that is likely to be transmitted through the consumption of contaminated food or water (as defined in the Code, Standard 3.2.2).
Food-borne disease outbreak	The occurrence of two people (not related) or more who have independently attended a food business or consumed a similar food product and experienced similar food-borne disease symptoms within a defined time period.
Food business	A business, enterprise or activity (other than a business, enterprise or activity that is primary food production) that involves — <ul style="list-style-type: none">(a) the handling of food intended for sale; or(b) the sale of food,

regardless of whether, subject to section 6 of the Food Act, the business, enterprise or activity concerned is of a commercial, charitable or community nature or whether it involves the handling or sale of food on one occasion only (section 10 of the Food Act).

Food Regulations	<i>Food Regulations 2009</i>
Food safety assessment	The process of reviewing a food business in order to confirm compliance or non-compliance with the Food Act, Food Regulations and the Code.
Food Unit	Department of Health Western Australia, Food Unit
FSANZ	Food Standards Australia New Zealand
Guidelines	Guidelines for the Environmental Health Investigation of a Food-borne Disease Outbreak
Incubation period	The length of time between consuming the food contaminated with an infectious agent and the onset of illness.
Local government notification	When a local government is made aware of a suspected or confirmed food-borne disease outbreak by either the Department of Health, ill case(s), associates of ill cases or a food business.
OzFoodNet	Department of Health Western Australia, OzFoodNet
PathWest	PathWest Laboratory Medicine WA
Potentially hazardous food	Means food that has to be kept at certain temperatures to minimise the growth of any pathogenic micro-organisms that may be present in the food or to prevent the formation of toxins in the food.
Public health units	Government agencies involved in the regulation of food safety and/or communicable diseases in the public.
Population Health Unit	Department of Health, Population Health Unit
Risk	The probability of something happening that may have an adverse effect.
Symptom	Food-borne disease symptoms such as, diarrhoea, vomiting, sore throat with fever, fever or jaundice (as defined in the Code, Standard 3.2.2).

Section 1: Introduction

Every year, 5.4 million people are affected by food-borne disease in Australia. Of these people, 42,000 develop long-term health effects. Many of these food-borne disease cases are preventable by implementing appropriate food safety interventions. The identification, investigation and control of food-borne disease outbreaks are essential for maintaining public health safety. In Western Australia (WA), the Department of Health (OzFoodNet, Food Unit, and Public Health Units) and local government are responsible for the surveillance and prevention of food-borne disease.

A successful food-borne disease investigation requires a team with specialist skills and understanding in epidemiology, microbiology, food safety, food-borne disease control, communicable disease control, risk communication and management, laboratory sampling and interpretation of laboratory results. Reasons why an environmental health investigation component of a food-borne disease outbreak may not be conducted satisfactorily may include insufficient training of the authorised officer or an authorised officer who does not understand the role of other team members in the investigation.

An environmental health investigation involves determining the environmental health factors likely to have caused or contributed to the food-borne disease incident or outbreak, followed by appropriate intervention, control and where necessary, enforcement action. The *Guidelines for the Environmental Health Investigation of a Food-borne Disease Outbreak* (the *Guidelines*) intends to provide authorised officers with sufficient information so that authorised officers are better skilled to undertake the comprehensive task of the environmental health investigation.

Application of legislation

Under the *Food Act 2008* (the Food Act) enforcement agencies (such as local government and the Department of Health) are empowered to investigate suspected or known food-borne disease outbreaks. Specifically, section 38 of the Food Act gives powers to 'authorised officers' to enter and inspect, examine, open, obtain samples, examine records or documents, stop and detain, take photographs, take measurements, and require a person to provide information or answer questions. Note that authorised officers are not empowered to enter any part of a food business premises that is used solely for residential purposes except with consent or under authority of a search warrant.

In addition to the above, the Food Act adopts the *Australia New Zealand Food Standards Code* (the Code) and the subsidiary legislation is the *Food Regulations 2009* (the Food Regulations). The Food Act and the Food Regulations can be accessed through the State Law Publisher website www.slp.wa.gov.au/Index.html, and the Code is available through the Food Standards Australia New Zealand (FSANZ) website www.foodstandards.gov.au.

Under the *Health Act 1911* and associated amendments, there are 14 enteric diseases that are legally notifiable by both laboratories and doctors. Notification data is stored in the Department of Health Western Australian Notifiable Disease Database and surveillance of this enteric disease data is carried out by OzFoodNet.

Privacy

Throughout the investigation process, authorised officers collect and record information and evidence (as permitted by various provisions of the Food Act) to help determine the cause and to ensure appropriate control measures are implemented by the food business to control the outbreak. As information is collected under an exercise of authorised officer powers, there is a duty to maintain the confidence that applies to the information collected, and it can only be disclosed for the purposes of the Food Act. The information collected by authorised officers under their designated powers is subjected to the provision of section 142 (of the Food Act) - 'Certain confidential information not to be disclosed'. This section makes it unlawful for authorised officers who obtain information about manufacturing or commercial secrets or confidential processes to disclose the information except in specific circumstances. The information obtained by authorised officers using their powers under section 38 may only be disclosed to another party if necessary, and if the other party is involved in the administration or execution of the Food Act, otherwise this would be a breach of the duty of confidence.

Authorised officers should also consult with their local government legal counsel for advice on privacy legislation and how it applies to the food-borne disease investigation.

Freedom of information

Freedom of information (FOI) is a process that gives the public a legal right of access to state and local government documents. It is given legal effect in WA by the *Freedom of Information Act 1992*. Communication, notes, correspondence and evidence collected in the food-borne disease investigation should be recorded in accordance with the enforcement agency's record keeping plan. These records can potentially be subject to access under FOI legislation. Queries relating to FOI matters should be directed to the local government's FOI officer.

Further information relating to FOI can be viewed through the Office of the Information Commissioner website www.foi.wa.gov.au.

Purpose of the Guidelines

The onsite environmental health investigation and the control of food-borne disease outbreaks are the responsibility of 'enforcement agencies' with support from other public health units (such as the Food Unit, OzFoodNet and Population Health Units). The *Guidelines* have been developed to assist Food Act authorised officers to complete thorough environmental health investigations of food-borne disease outbreaks. The *Guidelines* can also be applied to the investigation of a single case food-borne disease incident.

Specifically, the *Guidelines* provide authorised officers with step-by-step guidance on the investigation of a food-borne disease outbreak, from the time the local government is notified of a known or suspected food-borne disease case to the onsite investigation and the implementation of preventative measures. The *Guidelines* clarify each agency's roles and responsibilities (Section 2), the types of food-borne disease outbreaks and the local government notification process is outlined (Section 3). A comprehensive procedure for environmental health investigations is outlined (Section 4). Examples of appropriate control measures for

food-borne disease outbreaks are detailed (Section 5) as well as useful directions on the laboratory requirements for environmental health sampling and analysis (Section 6). In addition, information on the communication with external stakeholders (Section 7) and the contact details of relevant stakeholders are detailed (Section 8). The appendices contain supporting documentation such as technical advice, instructions and templates that may be useful during the investigation.

Cross state and territory borders

When responding to food-borne disease outbreaks that cross state and territory borders, the investigation may instigate the *National Food Incident Response Protocol - A guide for the coordination of Australian government agencies responsible for food safety and food issues in the event of a national food incident* (the National Food Incident Protocol). The National Food Incident Response Protocol has formalised current arrangements between responsible agencies responding to national food incidents and provide a link between the protocols of National, State and Territory agencies responsible for food safety and food issues.

The National Food Incident Response Protocol can be accessed through the Food Regulation website

www.foodregulation.gov.au/internet/fr/publishing.nsf/Content/incident-response.

Disclaimer

The information contained within the *Guidelines* is based on best available advice at the time of completion. The *Guidelines* are of a general nature and developed only to provide assistance to authorised officers when investigating food-borne disease outbreaks. Users of the *Guidelines* should not rely solely on the information contained within the *Guidelines*. It is important to note that the *Guidelines* do not replace the existing legislative responsibilities placed on government agencies involved in the investigation process. Enforcement agencies should use professional judgement when assessing each individual food-borne disease outbreak and consult their own local government legal counsel when making decisions regarding their Food Act regulatory role.

Section 2: Roles and Responsibilities

The identification, investigation and control of a food-borne disease outbreak (outbreak) require the coordination and sharing of information between various public health units. In Western Australia, these public health units are the Department of Health's OzFoodNet, Food Unit and Population Health Units who share this responsibility along with local government and PathWest Laboratory Medicine WA (PathWest). All units often work simultaneously during an investigation collecting and sharing information to identify, investigate, control and prevent the continuance of an outbreak.

During the outbreak investigation process there may be some cross over of responsibilities between the public health units. It is essential that all units achieve a high level of communication and work as a team to successfully manage an outbreak. In addition, from time to time, outbreaks may involve multiple local

government districts. When this occurs, the Food Unit will coordinate the investigations through the relevant local governments.

Department of Health - OzFoodNet

The key roles of OzFoodNet in outbreaks are to:

- Identify possible outbreaks of food-borne disease through notifiable disease surveillance, and
- Conduct epidemiological investigations to help identify which food is the source of illness.

OzFoodNet are often the first public health unit to be aware of emerging outbreaks as they monitor the incidence and patterns of notifiable food-borne diseases (see Table 1).

OzFoodNet's responsibilities include:

- Monitoring food-borne disease notifications to identify possible outbreaks.
- Investigating possible outbreaks, which will involve:
 - Reporting suspected outbreaks and epidemiological data to the Food Unit and other relevant agencies in a timely manner.
 - Interviewing cases of food-borne illness identified through notifiable disease surveillance or reported by local government.
 - Conducting epidemiological studies to identify associations between illness and foods eaten by ill cases.
 - Documenting the outcome of outbreak investigations.
- Supplying advice on food-borne disease infections.
- Providing signed PathWest Specimen Collection Forms to suspected cases to allow the submission of faecal specimens to PathWest Collection Centres.
- Liaising with the national OzFoodNet network to help identify and epidemiologically investigate cross-state outbreaks.
- Reporting food-borne disease trends, outbreak summaries and de-identified outbreak data to Western Australian and national agencies (which may be used by FSANZ in standard development and risk management strategies for preventing and controlling outbreaks).

Department of Health – Environmental Health Directorate, Food

The key role of the Food Unit in outbreaks is to:

- Support local government in coordinating the environmental health investigation.

This involves communicating timely information between public health units while overseeing and assisting the local governments' investigations. Outbreaks are referred to the Food Unit by either local government, OzFoodNet, food businesses or the public.

Food Unit's responsibilities include:

- Alerting local government of emerging or known food-borne disease outbreaks by forwarding the epidemiological investigation information received from OzFoodNet.
- Providing scope and guidance to all public health units involved in the investigation.
- Coordinating cross-jurisdictional outbreak investigations.
- Assisting local government in determining whether food business' processes and practices are compliant with legislative requirements and/or if food business' processes and practices could have caused or contributed to the outbreak.
- Reviewing reported food-borne disease pathogens detected in food and environmental samples (Regulation 15 of the Food Regulations).
- Providing technical advice on necessary food and environmental sampling during the investigation.
- Reviewing local government outbreak investigation reports and clarifying areas of concern.
- Providing general information and advice on food safety legislation.
- Supplying resources to local government to assist with the investigation of the outbreak when requested.
- Coordinating training programs for those involved in the investigation of outbreaks.
- Providing immediate public health intervention in emergencies in accordance with section 31 of the Food Act when necessary.

- Notifying OzFoodNet in a timely manner of suspected and known outbreaks referred by local government.
- Notifying OzFoodNet and local government of suspected or known outbreaks.
- Providing advice and communicating food recalls to enforcement agencies in WA.
- Informing stakeholders of emerging or current food safety issues.
- Preparing, when necessary, outbreak investigation reports and communicating outcomes to public health units.
- Initiating and/or participating in the National Food Incident Response Protocol when required.
- Undertaking outbreak investigations where the Department of Health is the appropriate enforcement agency.
- Reviewing and amending the *Guidelines* as required.

Local Government

The key role for local government in outbreaks is to:

- Take appropriate action in response to information indicating that an outbreak is occurring, or has occurred in a food business or at an event.

Outbreaks may be referred to local government via the Food Unit, through their local community, a food business or may be detected through their own observations and surveillance.

Local government's responsibilities include:

- Undertaking investigations of implicated food businesses or food products.
- Identifying food safety risks with food businesses or products that may have contributed to the outbreak.
- Undertaking food or environmental sampling from implicated food businesses or food products.
- Ensuring appropriate food safety controls are implemented to manage food safety risks identified in the investigation.
- Providing of faecal sample kits to cases.
- Reporting findings of the outbreak investigation to the Food Unit in a timely manner on appropriate forms.
- Undertaking, when required, preliminary interviews of ill cases associated with an outbreak and providing this information to OzFoodNet for further analysis.

- Undertaking appropriate Food Act enforcement action where required.
- Educating food businesses and the community on managing food safety risks to prevent food-borne disease.
- Collecting other information where necessary that may assist in the investigation and control of the outbreak.
- Referring outbreaks to the Food Unit for further epidemiological investigation by OzFoodNet.

Department of Health – Population Health Units

The key role of the Population Health Units is to:

- Conduct public health follow-up of single cases of important enteric diseases, such as cholera, hepatitis A and E, *Salmonella paratyphi*, *Shigella dysenteriae* and *Salmonella typhi* that occur in their region.

In general, clusters or outbreaks of food-borne disease, especially those occurring in the Perth metropolitan area are investigated by OzFoodNet.

Population Health Unit responsibilities include:

- Interviewing single cases to identify risk factors for their illness.
- Providing cases with specific and generic information about their disease and food-borne disease in general and how to reduce the risk of transmission.
- Organising the vaccination of hepatitis A contacts.
- Facilitating the clearance testing of faecal specimens when required (for example, typhoid, paratyphoid and cholera).
- Referring cases to OzFoodNet and/or local government for further action if required.
- Monitoring gastroenteritis outbreaks in residential care facilities, including providing infection control advice, and alerting OzFoodNet when food-borne transmission is indicated.

PathWest Laboratory Medicine WA

The key roles of PathWest in outbreaks are to:

- Provide suitable laboratory analysis of human and environmental specimens with quick, reliable communication of results to the Department of Health.
- Provide further discrimination of target microorganisms and the provision of clinical expertise, as required.

PathWest's responsibilities include:

- Providing advice on appropriate food and environmental sampling, storage and transportation of samples.
- Specialist analysis of food and environmental specimens.
- Routine and specialised laboratory analysis of human specimens.
- Further discrimination of food-borne pathogens when required.
- Providing microbiological consultation including the clinical interpretation of results, and the limitation of test, if required.
- Analysing samples and cultures from other laboratories, as required.
- Provision of sampling equipment.

Section 3: Food-borne Diseases

Food-borne Disease

A **food-borne disease** is a disease that is likely to be transmitted through the consumption of contaminated food or water.

Diseases resulting from the consumption of microbiological contaminated food can be commonly referred to as food poisoning or food-borne illness. However, many of these microorganisms that cause these diseases can also be transmitted through routes other than food (for example, direct person to person transmission, water and animal-person transmission).

Symptoms that indicate a person is potentially suffering from a food-borne disease can include: vomiting, diarrhoea, nausea, fever and abdominal cramps. A person with hepatitis A or E may also be jaundice. However, these symptoms may also be due to non-food-borne causes such as a woman vomiting because of pregnancy, people suffering from diarrhoea related to a diagnosed bowel disorder or people with a fever caused by a respiratory illness. The diagnosis of these illnesses can be confirmed by a doctor.

Food-borne illness is caused by either chemical or biological agents. The *Guidelines* will only deal with food-borne disease caused by biological agents. Examples of biological agents (including viruses, bacteria and parasites) are outlined in Table 1, with *Campylobacter* and *Salmonella* the most common food-borne pathogens reported.

For the purposes of the *Guidelines*:

- A **confirmed case** is defined as an ill person that has been laboratory diagnosed (confirmed) with a food-borne disease pathogen.
- A **suspected case** is a person with gastroenteritis that has *not* been laboratory confirmed through a faecal specimen (although has presented symptoms similar to a food-borne disease).

Food-borne disease outbreak

A **food-borne disease outbreak** is defined as the occurrence of two people (not related) or more who have independently attended a food business or consumed a similar food product and experienced similar food-borne disease symptoms within a defined time period. Outbreaks are generally described as an increase above expected in the incidence of a food-borne disease pathogen, where illness has been associated with a common event, food business or food.

Food-borne disease outbreaks can be small and localised (occurring only in one local government jurisdiction), or large scale (affecting persons across multiple local government jurisdictions in Western Australia or more broadly throughout Australia).

Generally, there are two different types of food-borne outbreaks:

Point source outbreaks are associated with a common event or venue, with people becoming ill over a short period of time. They are easy to identify if ill persons report their illness and relatively easy to investigate.

Community-wide outbreaks are not associated with a common event and involve people diagnosed with the same pathogen, which have eaten a contaminated food or ingredient that is sold at a number of food businesses. These investigations are very resource intensive, and identifying the source can be challenging, as it depends on people having good recall of foods they have eaten, or the food (or ingredients are difficult to identify).

Table 1- Common pathogens including notifiable diseases* transmitted via food or infected food handlers

Name of pathogen	Pathogen type	Name of disease
<i>Bacillus cereus</i>	Bacterium (toxin producing)	<i>Bacillus cereus</i> enteritis
* <i>Campylobacter jejuni</i> and * <i>Campylobacter coli</i>	Bacterium	Campylobacteriosis
<i>Clostridium botulinum</i>	Bacterium (toxin producing)	Botulism
<i>Clostridium perfringens</i>	Bacterium (toxin producing)	<i>Clostridium perfringens</i> enteritis
*Shiga toxin producing <i>Escherichia coli</i> (STEC)	Bacterium (toxin producing)	Diarrhoea caused by STEC
<i>Entamoeba histolytica</i>	Parasite	Amoebiasis
<i>Giardia</i>	Parasite	Giardiasis
*Hepatitis A	Virus	Hepatitis A
* <i>Listeria monocytogenes</i>	Bacterium	Listeriosis
Norovirus	Virus	Norovirus enteritis
*Rotavirus	Virus	Rotavirus enteritis
* <i>Salmonella</i> species (non-typhoidal)	Bacterium	Salmonellosis
* <i>Salmonella typhi</i> and <i>Salmonella paratyphi</i>	Bacterium	Typhoid fever, paratyphoid fever
* <i>Shigella</i> species	Bacterium	Shigellosis
<i>Staphylococcus aureus</i>	Bacterium (toxin producing)	Staphylococcal intoxication
<i>Streptococcus pyogenes</i>	Bacterium	Streptococcal disease
*Toxigenic <i>Vibrio cholerae</i> serotype O1 or O139	Bacterium	Cholera
* <i>Vibrio parahaemolyticus</i>	Bacterium	<i>Vibrio parahaemolyticus</i> enteritis
* <i>Yersinia enterocolitica</i> and * <i>Yersinia pseudotuberculosis</i>	Bacterium	<i>Yersinia</i> enteritis

*The isolation of these food-borne disease pathogens in human specimens legally required to be notified to the Department of Health under the *Health Act 1911*.

For more specific information regarding each food-borne disease view:

- Department of Health A-Z topics and diseases www.health.wa.gov.au
- Bad Bug Book via: www.fda.gov/food/foodborne-pathogens/bad-bug-book-second-edition

Purpose of an outbreak investigation

The purpose of an outbreak investigation is to **stop** the continuance of the outbreak and to **prevent** the likelihood of future outbreaks.

The specific objectives of an outbreak investigation are to:

- Identify the food business, food or ingredient associated with illness.
- Identify and control the contributory cause(s) and risk factors.
- Control the outbreak through:
 - Removing or recalling unsafe foods and ingredients
 - Eliminating unsafe food handling processes that have contributed to the outbreak's occurrence (or allowed the outbreak to continue)
 - Prevent the likelihood of future outbreaks by enhancing the food business' food safety management practices,
- Educate the food business on appropriate management of food safety risks to prevent the likelihood of a re-occurrence,
- Collect information that may assist in future community education programs, or for wider dissemination to the food industry, or to guide further research in the prevention of outbreaks.

Steps in an outbreak investigation

Below are the overall steps in the outbreak investigation, which are divided into three stages: the initial investigation, subsequent steps taken during the outbreak, and considerations at the completion of the investigation.

Stage 1 - Initial (epidemiological) investigation

- 1.) Interview a cluster of notifiable disease cases or ill cases to determine a common food link or food business.
- 2.) Determine if the information from these interviews suggests that an outbreak has occurred.
- 3.) Notify other stakeholder public health units.
- 4.) Plan the investigation.

Stage 2 - Subsequent (environmental health) investigation

- 1.) Develop an initial hypothesis for the cause of the outbreak (if there is enough evidence to do so).
- 2.) Further ongoing case-finding and epidemiological analytical investigations (by OzFoodNet).
- 3.) Onsite environmental health investigation.
- 4.) Laboratory analysis of food and environmental samples obtained.
- 5.) Review outbreak investigation findings and implement control measures.

Stage 3 - Completion of the investigation

- 1.) Environmental health monitoring of the food business' implemented control measures.
- 2.) Record keeping.
- 3.) Debriefing and evaluation of the process to public health units.

Major components of an outbreak investigation

Irrespective of the size of the outbreak, a successful outbreak investigation involves three main investigatory components – the laboratory, epidemiological and environmental health investigations. The three investigation components may occur in sequence, or may occur simultaneously throughout the outbreak investigation as detailed in Figure 1.

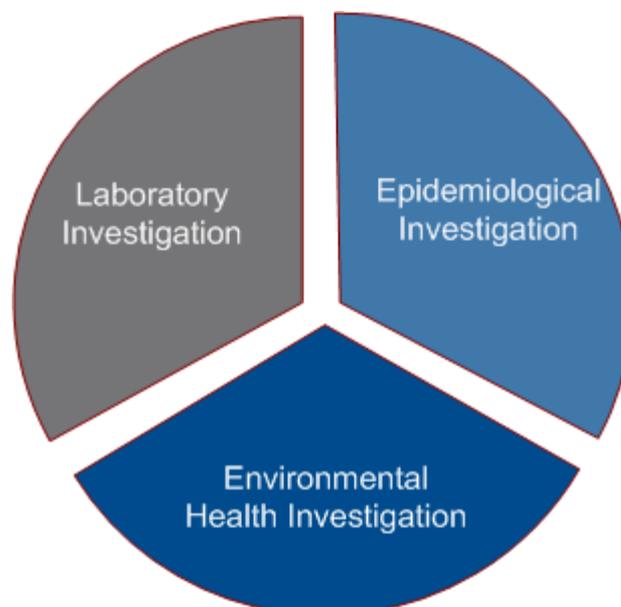


Figure 1: Three components of a food-borne disease outbreak investigation

A **laboratory investigation** involves the laboratory testing of human faecal specimens, as well as food and environmental samples to detect the presence of a food-borne disease pathogen or toxin that caused illness or to confirm its presence in food or the environment.

An **epidemiological investigation** involves investigating human cases suffering from food-borne diseases to describe the nature of the outbreak and assist in determining the source of the outbreak through statistical and descriptive studies. OzFoodNet undertakes epidemiological surveillance of food-borne disease notifications to determine if an outbreak is occurring. Steps in an epidemiological investigation normally include:

- Interviewing ill cases (confirmed and suspected cases) from the initial report or from a notifiable disease cluster to identify a common food or food business,
- Summarising and reporting information regarding ill cases, including; age, sex, place of residence, date of illness, dates of food consumption, incubation period, duration of illness, symptoms, hospitalisation, foods consumed and food businesses attended,
- Determining, through case-control or cohort studies, if there is a statistical association between illness and the particular food(s) consumed,
- Monitoring food-borne disease databases and other information sources for new cases of specific diseases.

An **environmental health investigation** involves an onsite investigation into the potential sources or processes that contributed to or caused the outbreak. The purpose of this investigation is to identify the environmental cause and implement immediate action to stop the continuance of the outbreak and prevent future outbreaks. The environmental health investigation process is further described in Section 4.

For a successful investigation, there needs to be on-going communication and review of the outbreak investigation findings from the three components of the investigation.

Local government outbreak notification process

For the purpose of the *Guidelines*, **local government notification** is defined as when a local government is made aware of a suspected or confirmed outbreak. Local government may receive information from one or more different sources that suggest an outbreak is occurring (Figure 2). The three most common pathways are:

- Food Unit reporting to local government
(*Notification of an outbreak – confirmed or suspected outbreak*).
- Ill case(s) directly reporting to local government
(*Notification of food-borne disease(s) by the ill case(s) – suspected outbreak*).
- Food business reporting to local government

(Notification of food-borne disease(s) by the food business – suspected outbreak).

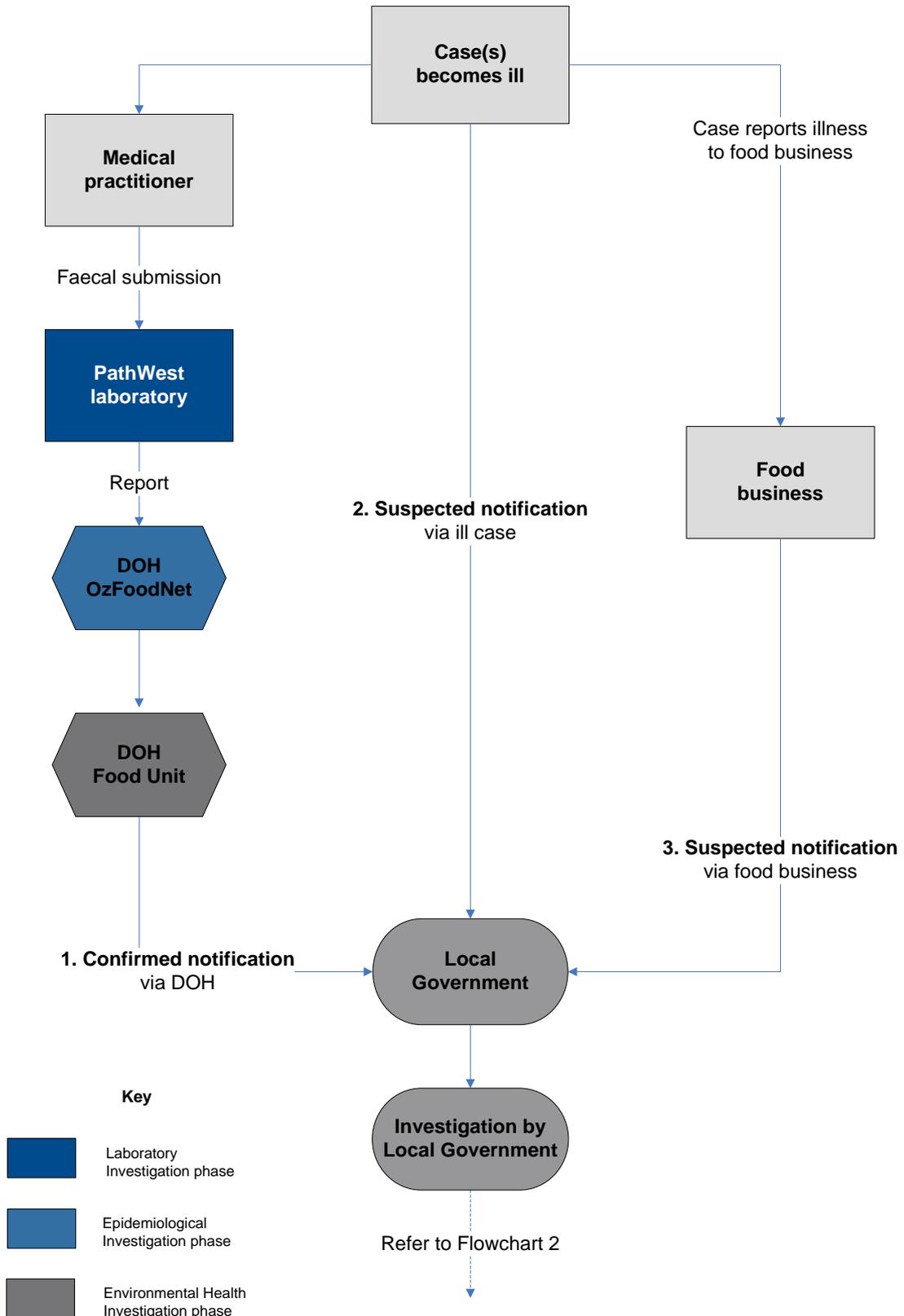


Figure 2: Flowchart 1 - Local government notification process

Food Unit reporting to local government (confirmed or suspected outbreak)

Ill cases that seek medical attention when suffering from a food-borne disease may be requested by a doctor to submit a faecal specimen for microbiological testing by PathWest. The positive isolation of a food-borne pathogen or detection of a toxin confirms that the ill case is suffering from a food-borne disease. As described earlier, medical practitioners and laboratories are legislatively required to notify the Department of Health of legally notifiable food-borne diseases (see Table 1). Other potential food-borne pathogens that produce toxins such as *Clostridium perfringens* and *Staphylococcus aureus* are not notifiable but can be reported by laboratories to the Department of Health during an investigation. Apart from notifiable diseases, ill cases may contact the Food Unit or OzFoodNet directly to report a suspected food-borne outbreak. The Food Unit will forward this information to local government.

Notification of a food-borne disease by the ill case (suspected outbreak)

Local governments can also be notified of a suspected outbreak (or incident) when an ill case contacts the local government directly to report an incident implicating a food business or a food product. The ill case may have confirmation that they are suffering from a food-borne disease (through laboratory testing of a faecal specimen sample), or may be unconfirmed (suffering from the symptoms of food-borne disease but not confirmed by laboratory testing).

It is important to note that cases often associate their illness with the food business where their most recent meal was consumed before they became ill. However, in many cases this is not the likely source, as most food-borne pathogens have an incubation period of at least 12 hours to up to 7 days. Cases should also be questioned about other foods eaten in the days preceding their illness.

A food-borne outbreak is suspected when two or more independent cases have an illness that appears to be connected to a particular food, or food business. When this occurs, local governments are encouraged to notify the Food Unit of a suspected food-borne disease incident or outbreak to allow the epidemiological investigation phase to simultaneously commence as the incident/outbreak may be more wide spread.

Notification of a food-borne disease by the food business (suspected outbreak)

Another less frequent method of notification of an outbreak (or incident) to a local government is via a food business. This situation arises when an ill case notifies the food business of their suspected food-borne disease. Again, in these circumstances, the food-borne disease may be suspected or confirmed, depending on whether a pathogen was isolated in a specimen.

As described above, a food-borne outbreak is suspected when two or more independent ill cases are connected to a particular food, or food business. When this occurs local governments are encouraged to notify the Food Unit of a suspected food-borne disease incident or outbreak to allow the epidemiological investigation phase to simultaneously commence as the incident/outbreak may be more wide spread.

Local government response to notification

Regardless of whether cases of food-borne illness are confirmed or suspected, a local government environmental health investigation phase can commence immediately when an outbreak is suspected, as there is sufficient information alleging a public health risk may be present in the community.

Section 4: Environmental Health Investigation

Planning the onsite environmental health investigation

After a local government has been notified of an outbreak, a high priority should be assigned to investigating the outbreak, and planning the investigation needs to commence immediately. Planning the onsite environmental health investigation is essential to establish the scope and direction of the investigation. To plan the investigation, information provided to local government during the notification process must be analysed together with the authorised officer's knowledge of the food business' activities. Analysing this information will provide clarity on the facts known about the outbreak, identify information gaps and highlight areas that require further investigation onsite. Most importantly, planning the investigation may enable authorised officers to determine a **probable cause** for the outbreak. Determining the probable cause can be a challenging task as it is highly reliant on the quality and quantity of information provided during the local government notification process. In most outbreaks, local governments are the first notified in the early stages of epidemiological investigation and further evidence indicating a probable food cause may only be available several days after the initial visit to the food business.

Outbreaks that have been confirmed by OzFoodNet through laboratory and/or epidemiological investigations will inherently have more information to assist authorised officers to formulate a probable cause. In some circumstances, the pathogen responsible for the outbreak may have been isolated in human faecal specimens. If the pathogen is known, the investigation should focus on the type of foods and environmental conditions that allow the identified pathogen to survive at the food business. Authorised officers should also apply their knowledge of the foods sold, and the processing activities undertaken by the food business to highlight potential high risk foods that may have allowed the pathogen to survive and proliferate.

If the pathogen is known, the onsite environmental health investigation should focus on the foods and conditions that allow the identified pathogen to survive and proliferate.

Similarly, if a particular food has been implicated through OzFoodNet's epidemiological investigation, the investigation should focus on the specific food business' processing activities to identify possible factors that may have led to provision of unsafe (implicated) food. Applying the knowledge of the food business' activities and compliance history will guide the authorised officer in establishing a probable cause.

If a food has been implicated, the onsite environmental health investigation should focus on the implicated food business processing activities to identify possible hazards.

There will be occasions when ill cases or food businesses incorrectly implicate foods that are later determined to be safe. Ill cases commonly and incorrectly associate their illness with the food business where their most recent meal was consumed before they became ill. As previously discussed, in many cases this is not the likely source, as most food-borne pathogens have an incubation period of at least 12 hours to up to 7 days. However, this does not suggest the unconfirmed

information is irrelevant, only that it may require confirmation during the onsite environmental health investigation especially if the food/meal has been the only food in common among a group of ill cases.

Whether or not the notification was provided by the Food Unit, the ill case or the food business, the following questions will provide direction to the investigation:

Pathogenic cause of the outbreak (confirmed or suspected)

- What environmental conditions does this pathogen need to survive (pH, water activity, temperature)?
- What foods are generally associated with this pathogen?

Implicated food identified

- What types of foods have been implicated?
- What are all the ingredients in the food?
- What is the step by step process for making and storing this food?
- What types of food does the food business sell that would normally be associated with, and allow the growth of a pathogen?
- Are there other known ill cases who have also consumed this food or food containing the same ingredient?
- What pathogens could survive and normally be associated with the implicated food?

Knowledge of the food business' activities

- What high risk foods or potentially hazardous foods does this implicated food business sell?
- Have previous outbreaks or complaints been linked to this food business?
- Does the food business undertake any high risk food processing activities? If yes, are there suitable procedures in place to manage the high risk foods?
- When was the last food safety assessment completed for the food business?
- What historical non-compliances have been previously identified with this food business which may have contributed to the outbreak?

Any unknown information should be further investigated and confirmed onsite with the food business. The next stage of the investigation is to conduct the onsite environmental health investigation, and liaise with the Food Unit to discuss the focus of the onsite investigation.

Example – determining the probable cause:

A local government receives notification from the DOH of an outbreak which has been epidemiologically associated with Jo Smith's Restaurant. The pathogenic organism responsible for the outbreak is *Clostridium perfringens* which has been isolated in faecal specimens of ill cases.

The authorised officer knows that:

- 1.) *C.perfringens* is often associated with foods that are stored at room temperature for extended periods of time, and;
- 2.) the restaurant has previously received non-compliances with clause 7(2) Standard 3.2.2 of the Code (*cooling Potentially Hazardous Food (PHF) within two hours – from 60°C to 21°C; and within a further four hours – from 21°C to 5°C*). It was discovered in a recent assessment that beef casserole was stored in a large cook pot in the cool-room, and was not cooled to 5°C within the required time-frames.

With this knowledge the authorised officer can hypothesise the probable cause for the outbreak is that PHF is not cooled within the appropriate time requirements.

The authorised officer may then plan the investigation reviewing:

- the cooling and reheating of PHFs
- the use of a thermometer to confirm food is cooled to 5°C within the required time-frames
- the monitoring of cool-room temperatures
- if storage containers and equipment are cleaned and sanitised effectively

Conducting the onsite environmental health investigation

When the planning stage is completed, the food business' activities and premises can be investigated to assess the likelihood of the probable cause. To assess the probable cause authorised officers will be required to review the likely hazards that were present **prior to** and during the outbreak. In many investigations it will not be known at the time of the onsite environmental health investigation whether the outbreak is still ongoing, or whether the outbreak is over. Therefore the investigation will need to examine practices at the time of the outbreak commenced, and if there is no evidence that the outbreak is over, practices up to the time of the investigation. This is often a difficult task as the onsite investigation may be weeks after the outbreak, and thus, historical information may be already lost, or recollection from the proprietor and food handlers may be limited. Often at the same time as the environmental health investigation, the epidemiological and laboratory investigations will be continuing and any new information will be notified to the local government to help focus the investigation.

As every outbreak is unique, authorised officers will be required to apply their food safety skills and knowledge during the investigation, searching for the **three major hazards** which may have led to the outbreak:

- Contamination of food

- Pathogen survival in food; and/or
- Pathogen growth in food (where the pathogen is bacterial).

Further information on the three major hazards can be viewed in Figure 3.

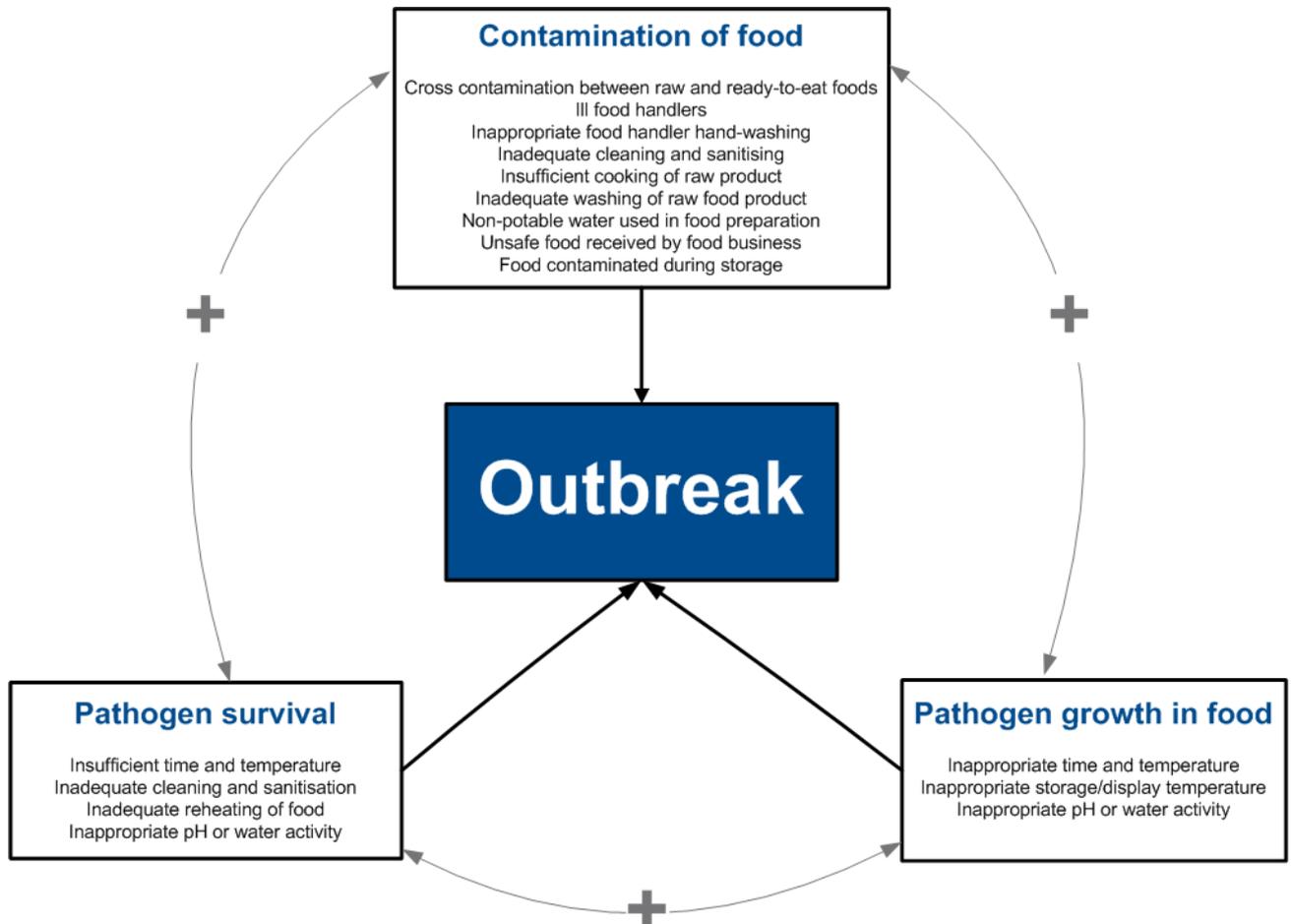


Figure 3: Three major hazards that cause an outbreak

Local governments are encouraged to have a 'food-borne disease outbreak investigation kit' available on stand-by. A list of contents expected in an outbreak investigation kit is detailed in Appendix 1.

The Department of Health *Suspected Food Borne Disease Incident(s) Outbreak Assessment Form* has been developed to guide authorised officers in their onsite investigation at the food business premises. As the investigation at the premises should focus on risks that were present prior to the outbreak, the form assists in capturing and identifying evidence of past activities that may have contributed to or are contributing to the outbreak. The form is available in Appendix 2 and authorised officers should read the explanatory notes prior to completing the form.

Specific food has been implicated

If a specific food has been implicated, the investigation should focus on the whole processing chain for the implicated food: supply and storage of ingredients, processing and handling of food, the cleanliness of the premises and the equipment used, storage and display of the final product. The purpose of reviewing the processes involved in the preparation of implicated food is to determine if any of the three major hazards (contamination, pathogen survival or bacterial growth) may have occurred in the past, causing the outbreak. Each food suspected of being involved in the outbreak must be thoroughly investigated.

Authorised officers should determine if there are any food safety concerns with the:

- Ingredients that make up the implicated food, including the batch codes, date markings and the storage conditions,
- Chemistry of the food - the water activity, pH, time and temperature requirements with any ingredients or the finished food product,
- Date and time the specific food was prepared and then later consumed,
- Processing and handling of the implicated food,
- Display and storage of the finished food product.

Identifying processing hazards may not always be apparent until a visual review of the process occurs especially if cross-contamination is a possibility. It is important to communicate with the food handlers that their description of the processing activities must reflect the exact process that occurred during the outbreak.

In addition to reviewing processing practices, food sampling may confirm the presence of the pathogen, confirming the association between the food and the outbreak. Further information on environmental sampling is contained within Section 6.

Specific food has not been implicated

If a specific food has not been implicated, then authorised officers will need to undertake a broad investigation, assessing the management of all food safety risks at the food business. In addition to completing the *Suspected Food Borne Disease Incident(s) Outbreak Assessment Form*, the following questions may assist authorised officers in identifying the possible outbreak cause or contributory causes.

Symptoms and onset of illness among cases (from the information provided by OzFoodNet or by the complainant)

- What are the overall symptoms of ill cases?
- What is the duration of symptoms?
- What is the average time duration from eating the food to cases becoming ill (incubation period)?

- Is there evidence of other ill cases (family members) that had not been to the food business but had contact with the ill cases (which could indicate viral infection)?
- Therefore, based on the symptoms, duration and incubation period, is the illness likely to be due to bacteria (e.g. *Salmonella*, *Campylobacter*), virus (e.g. norovirus, hepatitis A) or bacterial toxin (e.g. *Staphylococcus*)?
- What type of foods may be contaminated with this type of pathogen/toxin?

Food handlers

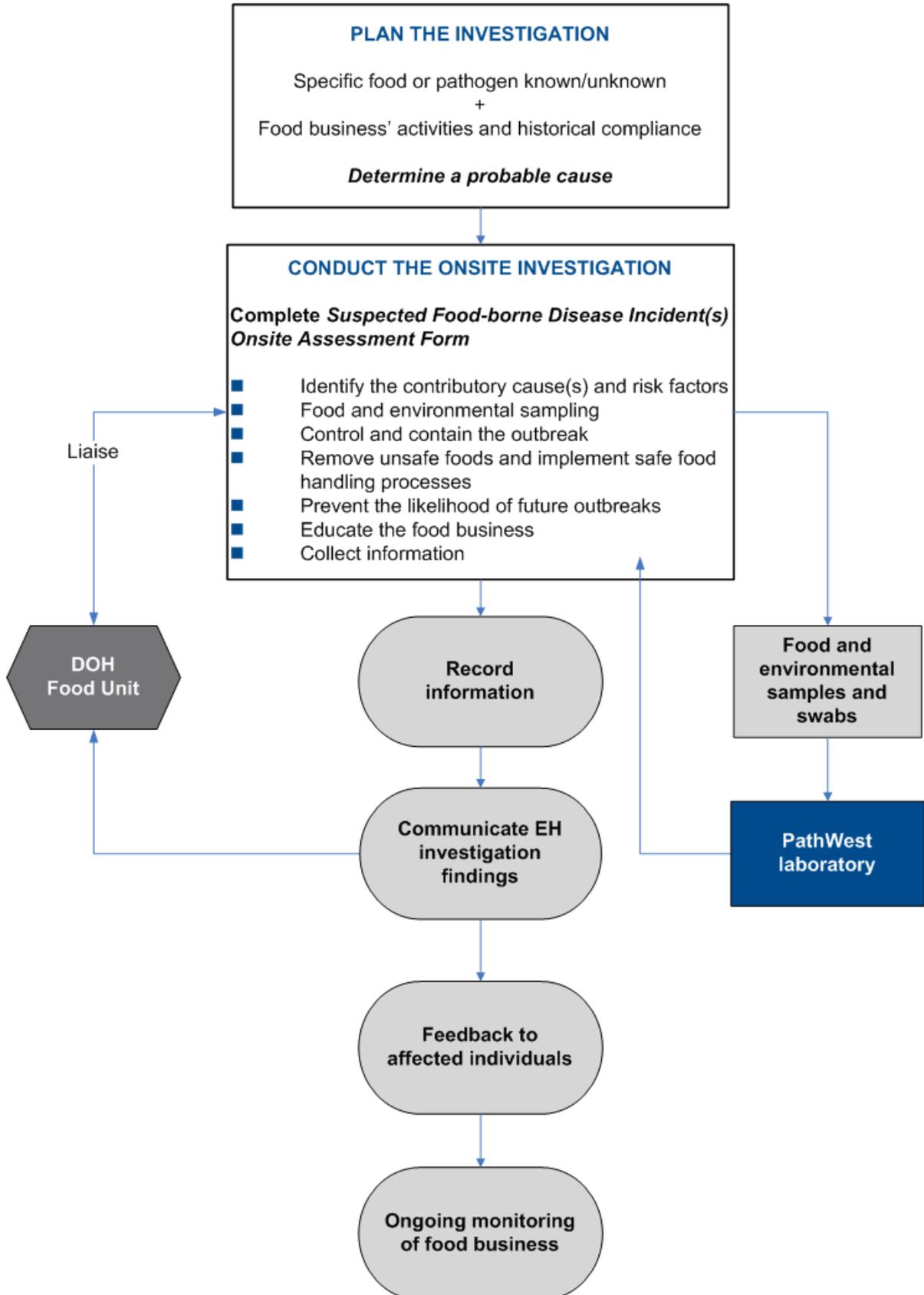
- Which food handlers were working on the days the ill cases consumed the meal? Is there a common food handler associated with the days of the outbreak?
- What were the duties for each of the food handlers on the days the ill cases consumed the meal?
- Was the food business short-staffed on the days of the outbreak?
- Were there unusual foods or quantities of food being processed?
- Were there any food handlers ill at the time the food was prepared that may have contributed to the outbreak?
- Are there any variations in skills and knowledge amongst food handlers?
- Has appropriate food safety training been given to the food handlers to complete their tasks?
- Were there any unusual circumstances or practices undertaken by the food handlers prior to the outbreak?

Food business premises

- What equipment was used during the outbreak? Is it suitable? Could it have contributed to the outbreak?
- Is the food premises suitable for the activities undertaken by the food business?
- Are there any cleanliness issues that may have contributed to the outbreak?
- Is the cleaning and sanitising method suitable and adequate? (Are the sanitisers food safe, is an appropriate dilution ratio used, is the specified 'contact time' used, are batches of dilution made on a regular basis i.e. daily).
- Is there any evidence of pests?
- Has the food business taken all practicable measures to process only safe and suitable food?
- Is there adequate storage available for the activities?

Environmental Sampling

In addition to reviewing the processing practices, food and environmental sampling may confirm the presence of the pathogen, confirming the association between the food and the outbreak and determining if contamination is widespread. Further information on environmental sampling is contained within Section 7.



Interpreting laboratory results

Most outbreak investigations will require laboratory analysis of food or environmental samples taken from the food business. The food and environmental samples can provide confirmation of the presence of a pathogen, support the likelihood of the probable cause and provide evidence to an authorised officer that the outbreak was linked to the unsafe food or unsafe food handling practices. The interpretation of the laboratory results should be completed with care and if assistance is required in the interpretation of the results, advice should be sought from PathWest or the Food Unit.

Laboratory results in an outbreak investigation are only useful if the correct foods and environments have been sampled which will benefit authorised officers in confirming the cause of the outbreak. Further information on appropriate food sampling and environmental swabbing is detailed in Section 7.

A **positive laboratory result** confirms the presence of a pathogen in the food sampled or within the food business premises. A positive result is evidence that a particular food or batch has been subjected to hazards, potentially causing the outbreak. It is important to note whether the batch sampled is the same batch of food consumed by the ill cases. A positive laboratory result for foods that are not the implicated food should be considered and assessed to determine the likely contribution the foods had to the food-borne disease outbreak.

To further help confirm the association between the food eaten and ill cases, the pathogens detected in the food and the ill cases can be further typed by molecular methods to confirm it is the same pathogen in both samples.

A **negative laboratory result** does not rule out an association between the food product or food business. A negative result simply represents that the food or environmental sample did not contain a pathogen at the time of collection. Often samples are collected after an outbreak is over, and the contaminated foods have been used or discarded. Other reasons for a negative result may be that:

- Not all batches/parts were contaminated
- The sample may not have been uniformly contaminated
- The product may be intermittently contaminated
- Competitive micro-organisms outgrew pathogens
- The sample size may have been too small
- Processing, handling and storage that has diminished or inactivated the pathogen
- The sample was not tested for the pathogen
- Laboratory error or false negative
- Contamination levels are below the limit of detection.

Record keeping

Good records are fundamental for authorised officers as part of food safety management, particularly during an outbreak. Authorised officers should maintain accurate file notes on the onsite investigation, the findings and the discussions had with the food business proprietor and food handlers. Any actions taken by authorised officers should be recorded on the day or as soon as the authorised officer returns to the office. It should be noted that outbreak investigation file notes may be subject to FOI requests or be used as evidence during prosecutions or other enforcement action undertaken by the local government. The Food Unit also keeps records including all PathWest results of food and environmental samples submitted by local government.

Finalising the investigation

The investigation can be considered closed when the outbreak ceases to exist (as there are no further ill cases associated with the outbreak) and there are no apparent food safety risks present at the food business. Local government are encouraged to contact the Food Unit to confirm no further ill cases have been reported and to discuss the findings of the investigation. However, ongoing monitoring of the food business at appropriate intervals (based on the level of risk) is recommended after finalising the investigation.

Ongoing monitoring

Any changes made to the food business as a result of the outbreak investigation should be monitored on an ongoing basis by the authorised officer. Ongoing monitoring allows the authorised officer to review whether any changes in practices or equipment are effective, ensuring the safety and suitability of food is maintained. It will also determine whether the changes made by the food business are sustainable and can be implemented on a long-term basis. Depending on the changes made, it may be necessary for the authorised officer to obtain environmental samples to confirm the effectiveness of the changes.

Section 5: Control Measures for Food Businesses

In response to the outbreak investigation, the food business will need to implement a number of control measures to **stop** the outbreak continuing and to **prevent** the likelihood of a future outbreak. All food businesses linked to an outbreak must:

- **Remove** unsafe food from sale,
- **Clean and sanitise** the premises, equipment, fixtures and fittings and food contact surfaces,
- **Enhance** food safety management practices by changing processes or equipment that have contributed to, or caused the outbreak. In addition, instigate appropriate food handler training,
- Ensure ill food handlers are **excluded** from handling food.

Removal of unsafe food

When a specific food is identified and confirmed to be unsafe during an outbreak investigation, the authorised officer should advise the food business that the sale of the unsafe food is an offence under section 15 of the Food Act. The food business should voluntarily remove the unsafe food product from sale to avoid potential enforcement action from the local government. An authorised officer must oversee the removal of the unsafe food from sale to be satisfied that the food business has demonstrated the traceability and destruction of all unsafe food.

If the food business is engaged in the wholesale supply, manufacture or importation of the unsafe food, then the unsafe food needs to be recalled in accordance with the food business' recall system or plan. The role of the authorised officer is to monitor the effectiveness of the recall and confirm all unsafe food is recalled in accordance with the recall system or plan that is in place. Again, an authorised officer should be satisfied that all unsafe food has been recalled from sale. For further clarification on the legislative requirements of a food recall, such as: what a food recall protocol is, who initiates a food recall, why FSANZ is involved in food recalls, what the legal requirements are, roles and responsibilities, conducting a food recall and writing a recall plan, FSANZ has produced a Food Recall Plan Template to help food businesses to develop their own food recall systems, this is available at

<https://www.foodstandards.gov.au/industry/foodrecalls/recalltemplates/Pages/default.aspx>

In accordance with Standard 3.2.2, clause 12 (Food Recall) of the Code:

A food business engaged in the wholesale supply, manufacture or importation of food must

- (a) have in place a system to ensure the recall of unsafe food;*
- (b) set out this system in a written document and make this document available to an authorised officer upon request; and*
- (c) comply with this system when recalling unsafe food.*

Cleaning and sanitising

It is essential for the food business premises to be thoroughly cleaned and sanitised regardless of whether the cleanliness of the premises was suspected to be a factor that caused, or contributed to the outbreak. Cleaning and sanitising must be completed to reduce or eliminate the risk of spreading the food-borne disease pathogen. It is for this reason that **all** food businesses linked to an outbreak should be cleaned and sanitised as soon as possible. All environmental samples and swabs necessary for the outbreak investigation must be taken **prior** to the food business commencing the outbreak cleaning and sanitisation.

If not already assessed through the outbreak investigation, the food business' cleaning and sanitising method must also be reviewed by the authorised officer before cleaning and sanitising commences to confirm their effectiveness. A particular focus on the use and application of chemical sanitisers by the food business may be warranted, as the efficacy of chemical sanitisers is reliant on:

- the concentration/dilution ratio (too much or too little)
- contact time
- pH, temperature and hardness of the water added to the sanitiser
- shelf life
- storage of the sanitiser
- the standard of cleaning prior to application of the sanitiser
- the absence of organic matter, and
- the application of the sanitiser in accordance with the manufacturer's instructions.

Any deficiencies in these areas may affect the efficacy of the sanitiser, and thus must be corrected by the food business before the outbreak cleaning and sanitising occurs.

Food businesses will need to be advised that deep cleaning and sanitising should not be limited to food contact surfaces, utensils and equipment. Areas commonly accessed or utilised by food handlers and patrons should also be targeted after an outbreak, such staff and patron toilets, change-rooms, tables and chairs and any other frequently touched environmental surfaces. The *Fact Sheet - Cleaning and Sanitising for Food Businesses* is available in Appendix 3 to assist food businesses.

If the presence of a food-borne disease pathogen was detected through environmental swabbing of the premises or equipment, an authorised officer may determine it necessary to verify the effectiveness of cleaning and sanitising to confirm the pathogen has been eliminated. Verification can include environmental swabbing of the premises or equipment by either the food business or the local government. It is recommended that food businesses routinely verify the effectiveness of cleaning and sanitising procedures if a pathogen was initially detected.

If the pathogen is again detected after cleaning and sanitising, the process will need to be completed again with supervision by the authorised officer. In some

circumstances it may be necessary for the food business to engage a specialist third party consultant to assist the food business in removing the pathogen from the premises and/or specialised equipment.

Exclusion of food handlers

During the investigation, authorised officers should seek evidence to confirm compliance with Standard 3.2.3, clause 16 of the Code. While food businesses are not required to retain written records of food handler illnesses and conditions, such documentation will assist the food business in demonstrating compliance with this clause of the Code. Other examples of evidence that demonstrate compliance with the Code include:

- Rosters or payroll details to confirm absence of ill food handlers during the outbreak,
- Interviews of food handlers to confirm absence during the outbreak,
- Medical certificates to confirm the food handler is no longer suffering from, or a carrier of, a food-borne disease,
- Training records to confirm the food handlers have been trained and informed of the requirements of clause 16, Standard 3.2.2 (Health of persons who handle food – duties of food businesses) of the Code.

In accordance with Standard 3.2.2, clause 16 (Health of Persons who Handle Food – duties of Food Businesses) the Code,

(1) A food handler who has a symptom that indicates the handler may be suffering from a food-borne disease, or knows he or she is suffering from a food-borne disease, or is a carrier of a food-borne disease, must, if at work –

- (a) report that he or she is or may be suffering from the disease, or knows that he or she is carrying the disease, to his or her supervisor, as the case may be;*
- (b) not engage in any handling of food where there is a reasonable likelihood of food contamination as a result of the disease; and*
- (c) if continuing to engage in other work on the food premises – take all practicable measures to prevent food from being contaminated as a result of the disease.*

(2) A food handler who suffers from a condition must, if at work –

- (a) if there is a reasonable likelihood of food contamination as a result of suffering the condition – report that he or she is suffering from the condition to his or her supervisor; and*
- (b) if continuing to engage in the handling of food or other work – take all practicable measures to prevent food being contaminated as a result of the condition.*

(3) A food business may permit a person excluded from handling food in accordance with paragraph (1)(a) to resume handling food only after receiving advice from a medical practitioner that the person no longer is suffering from, or is a carrier of, a food-borne disease.

Review of food business processing risks

During the environmental health investigation it may have become apparent that inappropriate control of the food business' processing risks caused, or contributed to the outbreak. Any processing activities that have not had all reasonable controls in place must be addressed immediately by the food business. Food businesses should be encouraged to discuss their proposed risk management controls with authorised officers to confirm their adequacy and compliance with the Code. Any controls put in place by the food business must be specific at rectifying the causative or contributory factors identified by the authorised officers in the outbreak investigation.

Examples of the type of amendments made to processing activities include, changes made to:

- suppliers of food
- display and storage temperature and time of raw ingredients and ready to eat foods
- temperature and timing of cooked products
- cooking duration times
- recipes
- food preparation methods
- chemistry of the food (i.e. water activity, pH)
- other work instructions for food handlers
- equipment or utensils.

Upon completion, authorised officers must be satisfied that the changes made, and the controls put in place by the food business will result in the production of safe and suitable food. Depending on the changes made, it may be necessary to verify the effectiveness of the controls implemented by the food business. Verification can include appropriate documentation or microbiological testing.

Food handler skills and knowledge

During the outbreak investigation, if a series of non-compliances with the Code have been identified, it is likely that the food handlers and supervisors do not have the appropriate skills and knowledge that are commensurate with their work activities as required by clause 3 of Standard 3.2.2 of the Code. As further training will be required of the food handlers to comply with this clause, food businesses can adopt a variety of approaches to ensure food handlers obtain the skills and knowledge required to produce safe food. Examples of these approaches are:

- Internal (in-house) training,
- Implementation of standard operating procedures that detail the responsibilities of food handlers and supervisors,
- Dissemination of relevant information to food handlers and supervisors,

- Participation and attendance at local government or industry food safety courses
- Food business engagement of expert consultants to train food handlers and supervisors
- Formal training courses.

In accordance with Standard 3.2.2, clause 3 (Food handling – skills and knowledge) of the Code:

(1) A food business must ensure that persons undertaking or supervising food handling operations have –

(a) skills in food safety and food hygiene matters; and

(b) knowledge of food safety and food hygiene matters, commensurate with their work activities.

(2) Subclause (1) does not apply to a food business in relation to persons undertaking food handling operations for fundraising events, that is, events –

(a) that raise funds solely for community or charitable causes and not for personal financial gain; and

(b) at which only food is sold that is not potentially hazardous or which is to be consumed immediately after thorough cooking.

Section 6: Sampling for laboratory analysis

Food, environmental and faecal sampling is an essential part of the overall investigation process. The laboratory results from the samples collected can provide evidentiary links between the food business and the outbreak, as they can:

- **Confirm** the likely food-borne disease pathogen responsible for the outbreak (if unknown).
- **Identify** the food or environmental condition that caused the outbreak.
- **Identify** and confirm food handling and/or hygiene practices that contributed to the outbreak.

As the early identification of the food-borne disease pathogen is an integral part of an outbreak investigation; the timely collection of all samples, in particular faecal samples from ill cases, is necessary. It is for this reason that following local government notification all sampling must be completed immediately in an attempt to collect as much evidence as possible that represent the conditions at the time of the illness or outbreak.

Sample results add value to an investigation if the correct samples are obtained. Authorised officers are encouraged to take multiple samples at the time of the investigation, provided that the samples collected will assist the authorised officer in determining the **causes** of the outbreak or **eliminate** probable causes.

Before undertaking any sampling, PathWest (food, water or enteric units) should be contacted and advised of the outbreak, the planned follow up activity and the impending samples to be submitted. In addition, authorised officers should confirm the date and time of dispatch, type and possible number of samples, method of transportation and estimated time of arrival. If necessary seek advice from the laboratory microbiologist in charge on additional sampling, storage and transportation requirements.

Food sampling

Applicable legislation

When the local government is notified of an outbreak, authorised officers must notify the food business immediately of the outbreak and request the food business to retain implicated foods, or potentially hazardous foods for the purpose of local government sampling. As the local government may decide to undertake enforcement action in response to the outbreak investigation findings, all food sampling must comply with the legislative requirements outlined in Part 7 (Taking and Analysis of Samples) of the Food Act.

In accordance with section 74 of the Food Act, an authorised officer who obtains a sample of food for the purpose of analysis, must either before or as soon as practicable after obtaining the sample, inform the proprietor (or if not available, the person from whom the sample was obtained or who was in charge of the food business) of the local government's intention to have the sample analysed.

If local government intends to undertake any legal proceedings under the Food Act, the sampling procedure must be completed in accordance with section 78. It is integral for these sampling procedures to be strictly followed.

The Food Act details specific procedures that must be followed when undertaking legal food sampling. It is imperative for these procedures to be strictly adhered to, if the local government intends to undertake any legal proceedings under the Food Act. These procedures are detailed in Section 78 (Procedures to be followed) of the Food Act.

Determining which food and water samples to collect

The food and water sampled must be selected on the basis that the sample results will be able to provide useful information (i.e. confirm the likely food-borne disease pathogen or link/eliminate the food or environmental conditions to the outbreak) in the environmental health investigation. Samples that do not bring value to the investigation are low risk foods that cannot support the survival or growth of pathogens.

When determining which foods to sample for the outbreak investigation, consider sampling the following:

Food samples

- Any remaining food batches that may have been consumed by the ill case(s).
- Specific foods and ingredients that have been implicated during the epidemiological investigation. Ensure implicated food is sampled at each stage of the manufacturing process to determine the point of contamination.
- Potentially hazardous foods sold by the food business.
- The individual ingredients that make up the potentially hazardous food.
- Food that does not undergo a pathogen kill step during the preparation process.
- Food products that have undergone inappropriate food handling or processing practices.
- Any ingredient added to the final food product, for example herbs, spices, garnishes and condiments.

When sampling implicated foods, authorised officers should give consideration as to how the implicated food is normally plated as the packaging and utensils could contribute to the contamination of the end product. It is recommended that food sampled should include both food served in-house and packaged take-away.

Water samples

- Water that is not connected to main scheme water and used for cooking, storage (including bain-marie) and cleaning within the food business (do not sample water out of a hot water system).

Food and water sample collection

The contents of a food sampling kit are outlined in Appendix 1. The following points may assist authorised officers in the sampling of food:

- The following is to be recorded when collecting food samples:
 - description of sample,
 - date and time the sample was collected,
 - if the sample is manufactured onsite,
 - the ingredients contained within the sample, including the brands and batch numbers of the ingredients,
 - where in the premises the sample was collected,
 - the temperature of the sample,
 - the date the sample was manufactured by the food business,
 - whether the food sampled is normally consumed on its own, or with another product (i.e. a mayonnaise can be served with multiple menu items). If so, what food does the sample normally accompany, and,
 - the reasons for obtaining this sample for analysis.

This information can be recorded on the *Suspected food-borne disease incident(s) onsite assessment form* (available through http://www.public.health.wa.gov.au/2/864/2/local_government.pm or Appendix 2).

- Whenever possible, collect samples in the food product's original unopened container.
- If products are in bulk or in containers too large for submission to PathWest, aseptically transfer a representative sample (at least 200g for each sample unit) into sterile containers. Take care not to overfill plastic containers or bags or permit puncture by wire closure, on bags.
- If collecting samples for legal purposes ensure tamper proof labels and appropriate chain of custody forms are used.
- The water sampling technique is available via ww2.health.wa.gov.au/-/media/Files/Corporate/general-documents/water/Drinking-

[water/Standard drinking water sampling technique -microbiological.pdf](#) or in Appendix 4.

Food sample packaging

All samples collected must be packaged to ensure the integrity of the samples is not affected during transport to the laboratory. The samples should be packaged and transported using the following methods to minimise the likelihood of contamination to the sample.

The packaging should consist of three components (see Figure 5):

- Primary receptacle (for example, a screw top container). In some circumstances a primary receptacle may not be necessary; as the sample may already be pre-packaged by the food business (i.e. packaged food goods).
- Secondary packaging (for example, a plastic sampling bag).
- Outer packaging (capable of maintaining a temperature of $<5^{\circ}\text{C}$, for example, an esky).
- Necessary documentation.

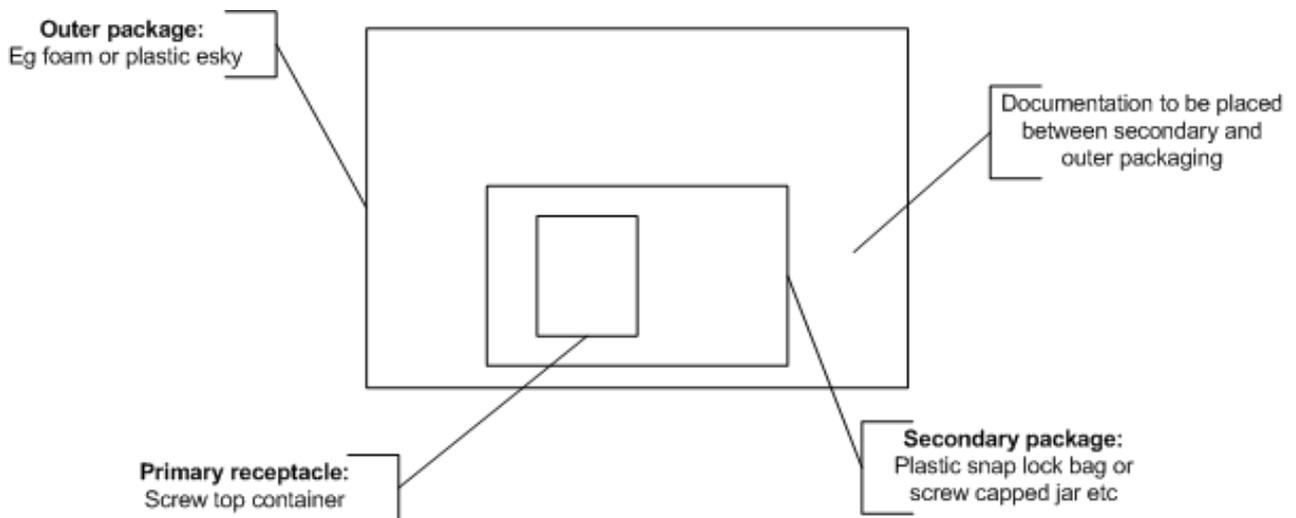


Figure 5: Three components of packaging for food samples

The **primary receptacle** must be leak proof and able to be packed in secondary packaging in a way that, under normal conditions of transport, it cannot break, be punctured or leak its contents. If multiple primary receptacles are placed in a single secondary packaging, they should be either individually wrapped or separated to prevent contact between them.

The **secondary packaging** must also be leak proof. Secondary packaging should be secured in outer packaging with suitable cushioning material if required. Any leakage of the contents should not be able to compromise the integrity of the

cushioning material or the outer packaging. Refrigerants such as ice bricks, carbon dioxide (dry ice) or liquid nitrogen must be used in conjunction with the sample to maintain the food (or environmental sample) at an appropriate temperature (see below). The refrigerant utilised must be suitable to the outer package used to contain the sample. **Warning: carbon dioxide, solid (dry ice) and liquid nitrogen produce gases that can be life threatening. Safe storage of chemicals is detailed in AS/NZS 2243.10 Safety in laboratories – Storage of Chemicals.**

The **outer packaging** must be a solid, strong and durable container fitted with a secure closure to prevent loss of contents under normal transport conditions.

PathWest Laboratory Food Sample Submission Forms (available in Appendix 5) and any other documentation identifying the contents of the primary receptacle must be retained outside of the secondary package.

Food sample transport

- Chilled samples should be $<5^{\circ}\text{C}$ but not frozen (loose ice is not to be used) and must reach the PathWest (QEII Medical Centre, Hospital Avenue, Nedlands) within 24 hours of collection, unless otherwise specified or approved by the laboratory.
- Keep frozen samples frozen at all times. Avoid freezing refrigerated products unless otherwise specified by PathWest.
- Dry or canned foods that are not perishable and are collected at ambient temperatures need not to be refrigerated. However, if transporting samples to the laboratory via courier ensure adequate packaging is used to prevent any breakages during transit.
- Complete the laboratory sample submission form in full. The arrival temperatures of the food samples will be recorded by the laboratory.

Environmental (swab) sampling

Environmental samples may be used as a qualitative assessment, to determine the presence or absence of pathogens. Swabbing food contact surfaces and equipment may be used to identify the likely mode and extent of pathogen transmission.

Determining which environmental (swab) samples to collect

When determining which environmental samples to obtain, consider swabbing:

- cutting boards, preparation benches, packaging material, equipment (for example, vitamisers, blenders, mixers, slicers) used in the process or manufacturing of the implicated or high risk foods,
- Food handler hands

- Common food handler contact points, such as door handles, food handler change-room facilities and cash registers.
- Food premises drains (to confirm its existence of the suspected pathogen in the food business at one point in time),
- Any surface or equipment before and after cleaning (to verify the effectiveness of cleaning and sanitising).

Environmental (swab) sample collection

- The instructions on how to undertake an environmental (swab) sample are detailed in Appendix 4.
- The following should be recorded when collecting environmental samples:
 - description of the area swabbed,
 - date and time the sample was collected,
 - the reasons for obtaining the sample for analysis, and
 - details of whether the area was cleaned and sanitised before the environmental (swab) sample was obtained (preferably before and after cleaning and sanitising).
- Clearly identify each sample with an indelible marker.

Environmental (swab) sample transport

- Environmental (swab) samples must be transported within secondary and outer packaging as outlined in *Food sample packages* (detailed above).
- Transport the environmental samples to PathWest (QEI Medical Centre, Hospital Avenue, Nedlands) with a suitable refrigerant (loose ice is not to be used) capable of maintaining a temperature of <math><5^{\circ}\text{C}</math> (but not frozen), within 24 hours.
- Complete the PathWest Laboratory Swab Sample Submission form in full (available in Appendix 5). The arrival temperatures of the environmental sample will be recorded by the laboratory.

Faecal specimen sampling

Although intrusive and often objectionable, faecal samples from ill cases are essential in isolating and confirming the outbreak causative food-borne disease pathogen. Confirmation of the pathogen will enable appropriate prophylaxis and treatment by a doctor and provide information for direct corrective action by authorised officers. In circumstances where ill cases have not sought medical attention and subsequent faecal specimen sampling through their doctor, the ill case(s) should be asked to submit a faecal specimen to assist in the investigation. If

ill cases are identified through the epidemiological investigation, authorised officers may be asked by the Food Unit to provide the cases with faecal collection kits.

Authorised officers can also suggest the cases provide a faecal specimen when a food poisoning complaint is made directly to the local government. As mentioned in Section 3, illness associated with many food poisoning complaints may be the result of person to person transmission and may not warrant faecal specimen testing. However faecal specimen testing should be suggested if the complaint involves two or more ill cases and the ill cases have not shared any meals in common prior to the implicated meal.

Local government should keep a number of faecal specimen sampling kits for use during an investigation. Specimen sampling kits must be arranged by the local government and provided immediately to the ill case as any delay in obtaining the faecal specimen may result in a negative detection of a food-borne disease pathogen. The contents of a faecal specimen sampling kit are outlined in Appendix 1.

Determining when to request the collection of faecal specimens

When determining whether to obtain faecal specimens, consider the following:

- Specimens should only be collected from ill case(s) who are symptomatic;
- Specimens should be collected before the ill case(s) takes any anti-microbial medication;
- In some circumstances, such as when an infected food handler is the suspected source of the infection, faecal specimens from food handlers may be requested.

Faecal specimen collection

- The faecal specimen sampling instructions are outlined in Appendix 4.

Specimen collection PathWest form

- A PathWest Specimen Collection Form must accompany **all** faecal sample specimens.
- The authorised officer needs to contact OzFoodNet on (08) 9222 2352 or (08) 9222 2042 to organise a PathWest Specimen Collection Form. A new form is required for each investigation and should be destroyed at the end of the investigation. Do not keep signed specimen collection forms for use in future investigations.
- The form will either be faxed or emailed to the authorised officer.
- The authorised officer needs to inform the ill case that their full name, date of birth, address details and Medicare number must be completed on the form. The ill case must also sign the Medicare section of the form to ensure they are bulk billed for the service.

- Results of any faecal sample specimens will be sent directly from PathWest to OzFoodNet, who will then convey the results to the authorised officer and/or the ill case(s).

Faecal specimen sample transport

Specimens may be submitted to a local PathWest Collection Centre by either the authorised officer or the ill case. A list of PathWest Collection Centres is detailed in Appendix 6. Specimens should be transported in a durable insulated container with a suitable refrigerant capable of maintaining a temperature of between 2-8°C. Specimens should not be frozen. Any faecal specimens transported must be packaged in accordance with *AS 4834 – 2007 Packaging for surface transport of biological material that may cause disease in humans, animals and plants*.

Chain of Custody

Chain of custody is the documented process linking the transfer of food, water and food handler faecal samples between the sampler and their arrival at PathWest. A chain of custody form demonstrates that samples have been properly transported, received, processed, stored and documented. Several transfers may take place during this process, for example, from the sampler to the courier, and the courier to the laboratory. A template Chain of Custody Form is provided in the *Suspected Food-borne Disease Incident(s) Outbreak Assessment Form* (Appendix 2)

Approved laboratories

As the Food Unit has an arrangement with PathWest, all samples requiring microbiological analysis need be submitted to PathWest where no cost for the analysis will be incurred by the local government (provided that all appropriate forms are accompanying the samples).

PathWest is an approved laboratory under Division 3 of the Food Act. Divisions 1 and 2 of Part 7 of the Food Act provide the legal framework for the taking and analysis of samples. For the purposes of legal proceedings under the Food Act, it is essential that the analysis of the food samples is carried out by an analyst and laboratory that are approved by the CEO of the Department of Health (as required by the Food Act).

A complete list of approved laboratories can be found on the Department of Health website https://ww2.health.wa.gov.au/Articles/J_M/Laboratories-and-analysts-under-the-Food-Act

Section 7: Communication with external stakeholders

This section outlines the key principles to be followed when communicating information to external stakeholders during an outbreak investigation. External stakeholders are defined as those involved during an outbreak investigation, excluding government agencies. External stakeholders primarily consist of food business operators/owners and individuals affected by the food-borne disease.

Communication with external stakeholders should be truthful, accurate, relevant and a useful exchange of information. When providing information to an external stakeholder a degree of caution must be undertaken to ensure confidentiality is not breached or cause allegations of defamation. Local governments are encouraged to obtain further legal advice on confidentiality and defamation criteria.

Feedback to the Food Unit

Local government are strongly encouraged to communicate the findings of the onsite investigation to the Food Unit in a timely manner.

Feedback to the food business

Local government is the responsible agency for the investigation of food businesses or food products sold within their district. Local government is therefore responsible for providing feedback to the food business on the outbreak and investigation findings. It is crucial for all food safety issues identified through the environmental health investigation to be discussed with the food business and rectified immediately to prevent the likelihood of the outbreak reoccurring. The discussions had with the food business should be recorded including any commitments or changes made by the food business to rectify the food safety concerns. On conclusion of a food-borne disease outbreak, the implicated food businesses should be well informed of the outbreak, the outcomes of the investigation and of any corrective actions required of the food business. A summary of outcomes from the epidemiological investigation can also be provided to local government.

Any enforcement action undertaken should be based on the information obtained during the local government's environmental health investigation and be in accordance with the local government's compliance and enforcement policy.

Feedback to ill cases

Authorised officers are encouraged to respond to ill cases who have directly reported their illness to local government. However, the quantity of information that is provided to the ill cases on the environmental health investigation findings is at the discretion of the local government. Information provided to the ill cases must be factual, objective and only reflect the information obtained by the authorised officer during the investigation. The information must not divulge any information that could be construed as defamatory to a food business or a person associated with the investigation. It is also recommended that information on the food-borne disease is included in a written response to the ill case. Food-borne disease fact sheets should also be disseminated to the ill cases. The fact sheets are available through the Department of Health website, via https://ww2.health.wa.gov.au/Articles/F_I/Food-Act-2008-WA-fact-sheets

Local governments should seek legal advice if they have any concerns regarding responding to ill cases.

Local government must consider their own communication and risk management policies, as well as the duty of confidence that applies to the information collected by the authorised officers using their powers designated to them under the Food Act.

Ill cases that have been contacted by the OzFoodNet during the epidemiological investigation may, if requested, be provided with a letter summarising the findings of the epidemiological investigation including any evidence that specific food(s) were associated with illness. Where the outbreak involves a large group or event, OzFoodNet will provide a summary letter to the event organiser.

In addition, authorised officers are encouraged to provide general advice to affected ill cases on minimising the risk of food-borne disease, such as advice on personal hygiene, appropriate handling and processing of food.

Media

The media may wish to publish or report outbreaks investigated by local government, the Food Unit and OzFoodNet. The media may be notified of such outbreaks either officially through the Food Unit, OzFoodNet or local government media releases or unofficially through members of the public. In either circumstance it is important for local government to contact the Food Unit before releasing any outbreak information to the media, to ensure any investigatory work undertaken by the Food Unit and OzFoodNet is accurately reflected in the media correspondence. The Food Unit will also contact the local government responsible for the environmental health outbreak investigation prior to releasing any information to the media or the public.

Section 8: Contact Details of Relevant Stakeholders

Department of Health - Food Unit

Phone: (08) 9222 2000

E-mail: foodsafety@health.wa.gov.au

Hours of contact: 8am - 5pm Monday to Friday

After hours contact: (08) 9328 0553

Web address: ww2.health.wa.gov.au/Articles/F_I/Food-regulation-in-WA

Department of Health - OzFoodNet

Phone: (08) 9222 2352 or (08) 9222 2042

E-mail: OzfoodnetWA@health.wa.gov.au

Hours of contact: 9am - 5pm Monday to Friday

After hours contact: (08) 9328 0553

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Senior Scientist in Charge

Environmental Microbiology Unit

T: +61 (0)8 6457 2167

F: +61 (0)8 6457 7139

E: sandra.sjollema@health.wa.gov.au

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Medical Scientist in Charge

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Tuyen Lam

Senior Medical Scientist

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Senior Medical Scientist

Waters Examination Laboratory

Environmental Microbiology Unit

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F: +61 (0)8 9381 7139

E: Ingrid.iaschi@health.wa.gov.au

Department of Health - Public Health Units

Metropolitan Communicable Disease Control (MCDC)

Phone: 9222 8588 or 1300 MCDCWA (1300 62 32 92)

Regional population/public health units (PHUs) – WA Country Health Service (WACHS)

Goldfields PHU (Kalgoorlie) - 9080 8200

Great Southern PHU (Albany) – 9842 7500

Kimberley PHU (Broome) – 9194 1630

Midwest PHU (Geraldton) – 9956 1985

Pilbara PHU (South Hedland) – 9174 1660

South West PHU (Bunbury) – 9781 2359

Wheatbelt PHU (Northam) – 9690 1720

For after-hours emergency assistance contact the Duty Officer: (08) 9328 0553

Appendix 1: Food-borne Disease Outbreak Investigation Kit

Contents

Faecal sampling

- PathWest Specimen Collection Form (signed from a doctor). Contact OzFoodNet on (08) 9222 2352 or (08) 9222 2042 to organise a PathWest Specimen Collection Form.
- Faecal sampling instructions for patients (available in Appendix 4)
- Brown cap containers (obtained from PathWest Collection Centres: Appendix 6)
- Sterile disposable spatula, specimen containers
- Biohazard plastic bags (obtained from PathWest Collection Centres – a list of PathWest Collection Centres - Appendix 6)
- Disposable gloves
- Waste disposal bag

Food sampling

- Sterile 500mL plastic wide-mouth containers with screw lid (primary receptacle)
- Pack of plastic bags (secondary packing)
- PathWest Food Hygiene Laboratory Request Form – Foods
- Labels
- Disposable gloves

Environmental swabbing

- Sterile swabs (for *Salmonella spp.*, Total Viable Count, *Escherichia coli*, *Listeria monocytogenes* and *Campylobacter*)
- PathWest Food Hygiene Laboratory Request Form – Foods (Appendix 5)
- 100cm² sterile template square
- Disposable gloves

Miscellaneous

- Pens, notepads, marker pens
- Contact details for PathWest, Food Unit and OzFoodNet
- Suspected food-borne disease incident(s) onsite assessment form (available through ww2.health.wa.gov.au/-/media/Files/Corporate/general-documents/food/Word/Suspected-Food-borne-Disease-Incident-Outbreak-Assessment-Form.doc or Appendix 2)
- Hair nets
- Clipboard
- Esky (outer packaging) with ice bricks
- Alcohol wipes

Appendix 2: Suspected Food-borne Disease Incident(s) Outbreak Assessment Form

Is available through the t website, or by clicking on the link: [Suspected Food Borne Disease Incident\(s\) Outbreak Assessment Form](#)

It is recommended that you read the explanatory notes prior to completing the form. This form is not a food safety assessment form, but rather a form to capture and identify evidence of **past** or present activities that may have contributed/are contributing to the suspected food-borne disease incident(s).

1. Outbreak details

Pathogen/Toxin _____ Outbreak number _____
Date incident reported _____ Date form completed _____

2. Investigating enforcement agency details

Enforcement Agency _____ Investigating officer _____
Investigating Officer Phone _____ Fax _____
Mobile _____ Email _____

3. Suspected or known premises

Name of food business _____ Date of registration _____
Address _____
Food business contact _____ Job Position _____
Risk rating of food business: High Medium Low Food Safety Plan: Required (under Standard 3.2.1 the Code) N/A

Site visit by Investigating Officer

Date(s) _____ Time(s) _____
Name of Investigating Officer(s) attending _____

Outline in the below box the food business' food safety compliance history:

4. Food safety assessment

The food safety assessment should also take into consideration the likely condition of the premises at the time of the outbreak.

Water supply is: mains tank bore other (specify)

If other than mains water supply, attach details of supply and any treatment conducted.

Are all food processes undertaken reflected in the food business' details maintained by the enforcement agency? Yes No

Health and Hygiene of Food Handlers

Does the food business have evidence of compliance with Standard 3.2.2 clause 13 of the Code (food handling)? Yes No

Does the food business have evidence of compliance with Standard 3.2.2 clause 14 of the Code (health of food handlers)? Yes No

If no to either of the above questions, provide details below.

Any staff illnesses similar to the notified food borne disease should be detailed below (*i.e. number of staff affected, names, date of onset, days not at work etc*)

Guideline for the Environmental Health Investigation of a Food-borne Disease Outbreak

Does the food business have evidence of compliance with Standard 3.2.2 clause 15 of the Code (hygiene of food handlers)? Yes No

Cleaning, sanitising and maintenance

Does the food business have evidence of compliance with Standard 3.2.2 clause 19 of the Code (cleanliness)? Yes No

Additional information

Are food safety records available, and if so, are they complete and accurate Yes No

Were any other food safety assessment deficiencies (not already mentioned) identified during the food safety assessment? Yes No

Summarise identified deficiencies below. Deficiencies include issues with temperature control, cross-contamination, cleaning and sanitising, personal hygiene, staff illness, FSP (if required) not on site, inadequate records etc.

5. Food history details

Is a list of the food sold by the business available? (i.e. menu) Yes No

If a menu is available, attach copy to form. Ensure all foods potentially served including any specials not on the regular menu, pre/post-dinner nibbles are listed.

6. General food processing details

Does the food business have evidence of compliance with Standard 3.2.2 clause 7 (food processing)? Yes No NA
This includes cook/chill and cook/freeze. If no, outline areas of concern below.

In the investigating officer's opinion, is there a food product or ingredient that presents a likely risk? Yes No NA

If yes, provide details of the food products and/or ingredients. Describe the food processes involved using the product/ingredient in the template provided on page 6.

(Investigating Officer is to obtain samples of any high risk foods identified during the investigation)

7. Food processing details of the 'implicated foods' or the 'high risk foods' identified

If the outbreak food source is unknown, in the Investigating Officer's opinion, is there a food product or ingredient that presents a likely risk?

Detail the ingredient or components of the implicated food product(s) (including brand or batch):

Guideline for the Environmental Health Investigation of a Food-borne Disease Outbreak

Describe the food processes involved in the preparation of 'implicated food' or 'high risk food' highlighting any factors that may have contributed to the contamination, including undercooking, cross contamination, shelf life and food storage temperatures. A food processing template is available on page 6.

Detail how many servings of the implicated food is sold daily: _____

Is the implicated food sold to other food businesses or provided for catering? If yes, provide details: Yes No

8. Food/water samples

Were food/water samples or swabs collected and sent to PathWest? Yes (complete page 4) No

If yes, specify the name of the Investigating Officer who collected food samples/swabs and complete the Food and Environmental Sampling Record Sheet and Chain of Custody form on the following page _____

9. Additional comments

Have any other food safety issues not detailed in this form been identified? Yes No
If yes, provide details:

e.g. Patron reported illness

Detail any actions undertaken by the food business to prevent the ongoing occurrence of the outbreak known or suspected to be linked to this business:

10. Findings

Do you reasonably believe that the identified areas/issues of non-compliance (listed in the above form) pose a food safety risk that could have contributed to the consumption of unsafe food? Yes No

Investigating Officer _____ Signature _____ Date _____

Investigating Officer _____ Signature _____ Date _____

Food and Environmental sampling record sheet and Chain of Custody

Please photocopy this table if more samples were collected. All samples are to be submitted to PathWest with the appropriate PathWest Laboratory Submission Forms, noting the food investigations code **F/003**.

Collected from (e.g. from case's home, from food business etc.): _____

Sample ID	Date of sample collection	Time of sample collection	Sample type (food, water, swab)	Purpose for obtaining sample	Description of item sampled	What are the ingredients of the product sampled	What are the brands/sources of the high risk ingredients	Where collected and temperature	Date and time batch was made	What is this product found in	Sampler name	Sampler signature
LD1/01	08/02/2012	11:30am	Food	Confirm possible temperature abuse of PHF	Mayonnaise "Homemade Mayonnaise" – 1L batch made"	Egg Olive oil Lemon Juice Salt Mixed herbs	Joe's Southern Eggs Greenie Herbs	Front display cabinet (10 °C)	01/02/2012 at 8am	Chicken Burger Egg and Salad Roll Dip for chips	Mary Brown	<i>MBrown</i>
Relinquished by:			Date:	Time:	Temperature:	Received by:			Date:	Time:	Temperature:	
Relinquished by:			Date:	Time:	Temperature:	Received by:			Date:	Time:	Temperature:	
Relinquished by:			Date:	Time:	Temperature:	Received by:			Date:	Time:	Temperature:	

Suspected food-borne disease incident(s) onsite assessment form – explanatory notes

These explanatory notes have been developed to assist Investigating Officer(s) in the collection of information needed to thoroughly investigate an incident. Note that not all questions are listed in the below explanatory notes as some questions do not require further explanation.

Section 3. Suspected or known premises

- *Are all food processes undertaken reflected in the food business approval?*

This question aims to determine if the food business is preparing food as detailed to the enforcement agency when notifying/registering the food business. For example, did the business originally intend to only sell low risk products (when registering) and are now preparing medium to high risk foods? Food preparation must also be suitable for the design of the food premises.

Section 4. Food Safety Assessment

- *Water supply*

If the water supply is anything other than mains water, attach additional details of the supply, and include details of any treatment of the water (e.g. how treated, what chemicals used, where treated, how often, when last treated and how is the water quality verified (i.e. testing records).

Health and hygiene of food handlers

This may be based on past history or issues identified during the site visit.

- *Is there evidence of compliance with Standard 3.2.2 clause 13 of the Code (food handling)?*

The above questions aim to establish if there are any issues relating to food handling practices which may result in illness. Food handlers are required to take all reasonable measures not to compromise the safety and suitability of food.

- *Is there evidence that food handlers are complying with Standard 3.2.2 clause 14 of the Code (health of food handlers)?*

Any details of food handlers that have reported illness to the food business must be recorded to establish if there is a link between the ill food handlers and food borne disease outbreak.

- *Is there evidence of compliance with Standard 3.2.2 clause 15 of the Code (hygiene of food handlers)?*

The Investigating Officer should be satisfied that personal hygiene practices of food handlers are at a level that minimises the contamination of food.

- *Is there evidence of compliance with Standard 3.2.2 clause 19 of the Code (cleanliness)?*

The above question aims to establish if the premises, fixtures, equipment and vehicles that are used to transport food are maintained at an acceptable level of cleanliness.

Food safety assessment

- *Were any deficiencies identified during the food safety assessment?*

The Investigating Officer should undertake a food safety assessment of the premises to identify any food safety deficiencies that may have contributed to the outbreak. These should not include structural items that do not impact on food safety. For example, a missing or non operational wash hand basin is considered a food safety issue as this demonstrates that food handlers are not able to maintain good personal hygiene. The Investigating Officer should record any deficiencies that could not be verified by the food business owner/operator.

Section 5. Food history details

- *Is a list of the food sold by the business available?*

A food business may be able to generate a list of all meals sold a week before the first person became ill. If this is not available, a menu from

the restaurant (including any specials that may not appear on the regular menu pre/post-dinner nibbles and drinks supplied) or a list of foods served at a function, event or party should be obtained. This should also include food that a group may have brought to a function e.g. cake/sweets. In addition to this, a booking list of the persons whom consumed meals at the food business at the time of the alleged outbreak may be of assistance.

Section 6. General food processing details

- *Is there sufficient evidence to demonstrate compliance with Standard 3.2.2 clause 7 (food processing)?*

The Investigating Officer should be satisfied that only safe and suitable food is produced, food is protected from contamination, if necessary, pathogens that may be present in the food are reduced to safe levels and that the time that food remains at temperatures that permit the growth of pathogenic micro-organisms is minimised.

- *In the Investigating Officers' opinion, is there a food product or ingredient that presents a likely risk?*

In some instances the implicated food causing an incident may not already be known. This question aims to identify a food product or ingredient that could have caused the incident(s). The Investigating Officer should ask the person preparing the food for the complete details of the food processes involved. This includes storage, preparation, display and when the food was served. This information should be verified by reviewing any food safety documentation. Information can be recorded on the template provided on page 6.

Section 7. General food processing details

- *Detail the ingredient or components of the implicated food product(s) (including brand or batch).*
- *Describe the food processes involved in the preparation of implicated food highlighting any factors that may have contributed to the contamination, including undercooking, cross contamination, shelf life and food storage temperatures. A food processing template is available on the next page.*

If an implicated food is known at the time of the onsite assessment, it is important to capture as much information as possible, including the processes used, batch and brand details. This information can be utilised to determine the cause of the food borne disease and also assist in the traceability of a product/ingredient.

Section 8. Food/water samples

- *Were food/water samples or swabs collected and sent to PathWest?*

The investigating Officer is encouraged to obtain multiple samples and swabs in order to investigate the food-borne disease incident(s). All water/food samples or swabs should be recorded on the Food/water Sampling Record Sheet (above).

Section 10. Findings

- *Do you reasonably believe that the identified areas/issues of non-compliance (listed in the above form) pose a food safety risk that could have contributed to the consumption of unsafe food?*

This question guides the Department of Health in their outbreak investigations to determine if further investigation is required or, if the food business investigated by the Investigating Officer(s) is linked to this/these food-borne disease incident(s).

Food process template

The below template provides a guide on the type of processing information that is to be collected of the implicated food or high risk product identified. It is important to obtain as much detail as possible.

Note: Include brand names, batch numbers and/or use by dates where appropriate.

Name of high risk or implement food: _____

PROCESS STEP	DATE AND TIME
Receival of goods at food business	
Storage of ingredients	
Processing - preparation	
Processing – cooling/heating (<i>time temperature relationship</i>)	
Storage after processing	
Processing - reheating	
Packaging	
Display	
Transport	

Appendix 3: Fact Sheet – Cleaning and Sanitising for Food Businesses

Why keep a food business premises clean?

Food business premises must be kept in a 'clean and sanitary' condition to:

- prevent the spread of disease by removing attractions for cockroaches, insects, rats and other pests, and
- eliminate the presence of food-borne disease pathogens on surfaces and equipment.

A clean food premises demonstrates that a food business is serious about producing high quality, safe food and complying with the WA legislative requirements (*Australian New Zealand Food Standards Code*). Customers are more likely to return to clean, well maintained premises.

Keeping premises clean and sanitary

As required by clause 19 and 20 of Standard 3.2.2 of the *Australia New Zealand Food Standards Code*:

Clause 19 - Cleanliness

(1) *A food business must maintain food premises to a standard of cleanliness where there is no accumulation of –*

- (a) *garbage, except in garbage containers;*
- (b) *recycled matter, except in containers;*
- (c) *food waste;*
- (d) *dirt;*
- (e) *grease; or*
- (f) *other visible matter.*

(2) *A food business must maintain all fixtures, fittings and equipment, having regard to its use, and those parts of vehicles that are used to transport food, and other items provided by the business to purchasers to transport food, to a standard of cleanliness where there is no accumulation of –*

- (a) *food waste;*
- (b) *dirt;*
- (c) *grease; or*
- (d) *other visible matter.*

Clause 20 - Cleaning and sanitising of specific equipment

(1) *A food business must ensure the following equipment is in a clean and sanitary condition in the circumstances set out below –*

- (a) *eating and drinking utensils - immediately before each use; and*

- (b) *the food contact surfaces of equipment - whenever food that will come into contact with the surface is likely to be contaminated.*

(2) *In subclause (1), a 'clean and sanitary condition' means, in relation to a surface or utensil, the condition of a surface or utensil where it –*

- (a) *is clean; and*
(b) *has had applied to it heat or chemicals, heat and chemicals, or other processes, so that the number of microorganisms on the surface or utensil has been reduced to a level that –*
- (i) *does not compromise the safety of the food with which it may come into contact; and*
(ii) *does not permit the transmission of infectious disease.*

Effective cleaning

All items that come into contact with food must be effectively cleaned and sanitised. This is a four step process that removes food waste, dirt, grease and kills food-borne disease pathogens.

Step 1: Preparation

- Remove loose dirt and food particles.
- Rinse with warm (potable) water.

Step 2: Cleaning

- Wash with hot water (60°C) and detergent.
- Rinse with clean (potable) water.

Step 3: Sanitising (bacteria killing stage)

- Treat with very hot clean (potable) water (75°C) for at least two minutes; or
- Apply sanitiser as directed on the label.

Step 4: Air Drying

- Leave benches, counters and equipment to air dry. The most hygienic way to dry equipment is in a draining rack.

Detergents remove dirt and grease

Sanitisers kill pathogens (i.e.bacteria)

Both are needed for effective cleaning

Detergents

Detergents are chemicals that remove dirt and grease. **Detergents do not kill pathogens (i.e. bacteria).**

Sanitisers

Sanitisers (also called disinfectants) are substances capable of destroying micro-organisms including food poisoning and other disease-causing bacteria. Used properly they can reduce surface contamination by bacteria to a safe level. It is important to read directions on sanitisers carefully.

- Some sanitisers are toxic and must be rinsed off e.g. QACs (quaternary ammonium compounds), chlorine release agents (hypochlorites) and iodophors (iodine based compounds).
- Some sanitisers are food-safe and do not require rinsing off e.g. chlorine dioxide.
- They all work best at the correct dilution. If they are too 'weak' they do not work effectively; if too 'strong' you are wasting your money.
- They need time to work. The 'contact time' varies and may be seconds or minutes depending on the job and the chemical.
- Sanitising solution can be made up as needed and put into labelled 'trigger bottles' for spraying bench tops, fridge door handles, etc.
- Soaking in hot water (75°C or hotter) for 2 minutes or over can be an effective sanitising method.
- Check the dilution, contact time, safety precautions, shelf life and storage of all chemicals before use.

For effective use of a sanitiser, follow the manufacturer's instructions provided on the label.

Cost effective cleaning

Cleaning takes time and costs money. Well designed and organised food business premises can reduce the time required for thorough cleaning.

- All items must be stored off the floor. Allowing a clearance from the floor gives plenty of room for cleaning beneath shelving and equipment.
- Undertake regular maintenance, e.g. filling holes and replacing damaged tiles.
- Keep only what you need at the food business premises. Minimise stock holdings. Why clean and store things you do not use?
- Implement a display cleaning schedule so all staff know their cleaning responsibilities.
- Implement and maintain a regular pest control program.
- Keep wood out of the kitchen. Wood absorbs moisture, provides a breeding ground for food-borne disease pathogens and cannot be easily cleaned and sanitised.
- Wipe down with paper towels. Dish cloths (tea towels) can spread bacteria.
- If hosing down, use a high volume **low pressure** hose. High pressure hoses splash dirt onto surfaces and create aerosols that may contain and spread pathogens.

For further information on cleaning and sanitising, visit the Food Standards Australia New Zealand Safe Food Australia:

www.foodstandards.gov.au/foodsafety/standards/Pages/Cleaning-and-sanitising.aspx or contact your Local Government Environmental Health section.

Appendix 4: Sampling Techniques

All samples are to be submitted to:

PathWest Laboratories

QEI Medical Centre

Level 2, J Block

Hospital Avenue

Nedlands WA 6009

Environmental sample

The following procedure sets out the methods for sampling swabs from food processing surfaces and equipment. This method can be utilised to test defined areas of processing equipment for hygiene testing.

The product consists of a blue plastic shaft swab with rayon bud with a labelled tube. The plastic shaft is blue for visibility. The tube contains 10mL of Neutralising Rinse Solution. The solution will neutralise traces of disinfectants or sanitisers which may be present on the surface being tested. The swab shaft is connected to a blue plastic fluted cap. The swab is supplied complete with a labelled plastic tube for storage prior to use and subsequent transport of sample. Surface swabs are routinely tested for Total Viable Counts (TVC) at 25°C although counts of other organisms such as yeast and moulds or coliforms and *Escherichia coli* etc can also be performed. Presence or absence of *Salmonella* spp., *Listeria* spp. or *Listeria monocytogenes* can also be determined. Separate swabs are required for Total Viable Counts/ *Escherichia coli* counts, presence of *Listeria* spp. (or *Listeria monocytogenes*) and the presence of *Salmonella* spp. Separate swabs are required for each pathogen i.e. One for *Listeria* and another separate one for *Salmonella*.

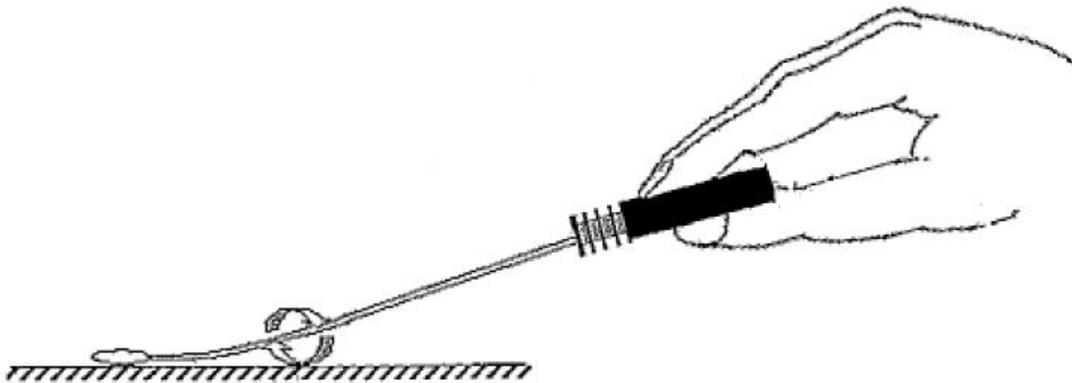
Equipment and materials

Supplied by the laboratory to sample collectors:

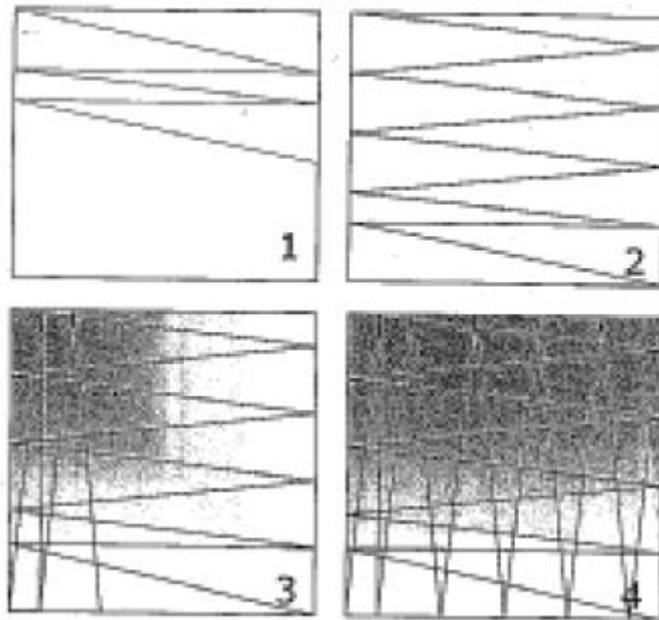
- PathWest Food Hygiene Laboratory Request Form – Swabs (available in Appendix 5)
- Disposable gloves
- Sterile package containing a Transtube with 10mL of Neutralising buffer and a sterile swab stick (one swab for Total Viable Counts/ *Escherichia coli* count, another for *Listeria* spp. and another for *Salmonella* spp. if all these tests are required)
- 100cm² sampling template (if required)

Procedure

- 1.) Fill in a Food Hygiene Laboratory Request Form – Swab (available in Appendix 5) with all the relevant required details.
- 2.) Label the Transtube with site, time, date, operator and test i.e. one swab can be used for Total Viable Count/ *Escherichia coli* count/ Coagulase Positive *Staphylococcus* count/Yeast and Mould count: a separate swab is required for the presence of *Listeria* spp. (or *Listeria monocytogenes*) and another swab for the presence of *Salmonella* spp.
- 3.) Wearing sterile gloves aseptically open the sterile swab container and using the blue cap as a handle, remove the swab from the sterile kit.
- 4.) Open the Transtube container and moisten the tip of the swab and press out excess solution against the interior wall of the container with a rotating motion.



- 5.) Hold the swab handle to make a 30°-angle contact with the surface.
- 6.) Rub the swab head slowly and thoroughly over the area within the sterile template of 100cm² four times, reversing direction between strokes and rotating the swab tip.



- 7.) Place the swab head into the tube in the Neutralising buffer solution and push the cap in firmly up to the swab handle to ensure no leakage during transport.
- 8.) When sampling utensils such as knives and ladles, moisten the swab with the neutralising solution and run the swab slowly and firmly three times over the significant surfaces of the utensil, reversing the direction each time. Return the swab to the tube as described above.
- 9.) Transport the swabs in the tubes in an esky with a frozen ice brick to arrive at the laboratory within 24 hours of sampling.

4 References

Roberts D., Hooper W., Greenwood M. (ed). 1995. Practical Food Microbiology – Methods for the examination of food for micro-organisms of public health significance. PHLS. London.

Vanderzant C, Splittstoesser D.F. (ed). 1992 Compendium of Methods for the Microbiological Examination of Foods. APHA Washington.

Biotrace Foss Pacific. Swabbing Instructions.

NRS Transwab. Neutralising Rinse Swab for environmental monitoring and surface sampling. MW & E. (Medical Wire & Equipment)

Water

Water sampling technique can also be accessed from:

ww2.health.wa.gov.au/-/media/Files/Corporate/general-documents/water/Drinking-water/Standard_drinking_water_sampling_technique_-_microbiological.pdf

To determine the microbiological quality of drinking water it must be sampled and tested in accordance with:

- The *Australian Drinking Water Guidelines 2004* as published by the National Health and Medical Research Council.
- The Guidelines for the Microbiological Assessment of Drinking Water.
www.health.wa.gov.au
- This water sampling technique document.

General rules of sampling

Take extreme care to avoid contaminating the sample container and the water sample.

Do Not:

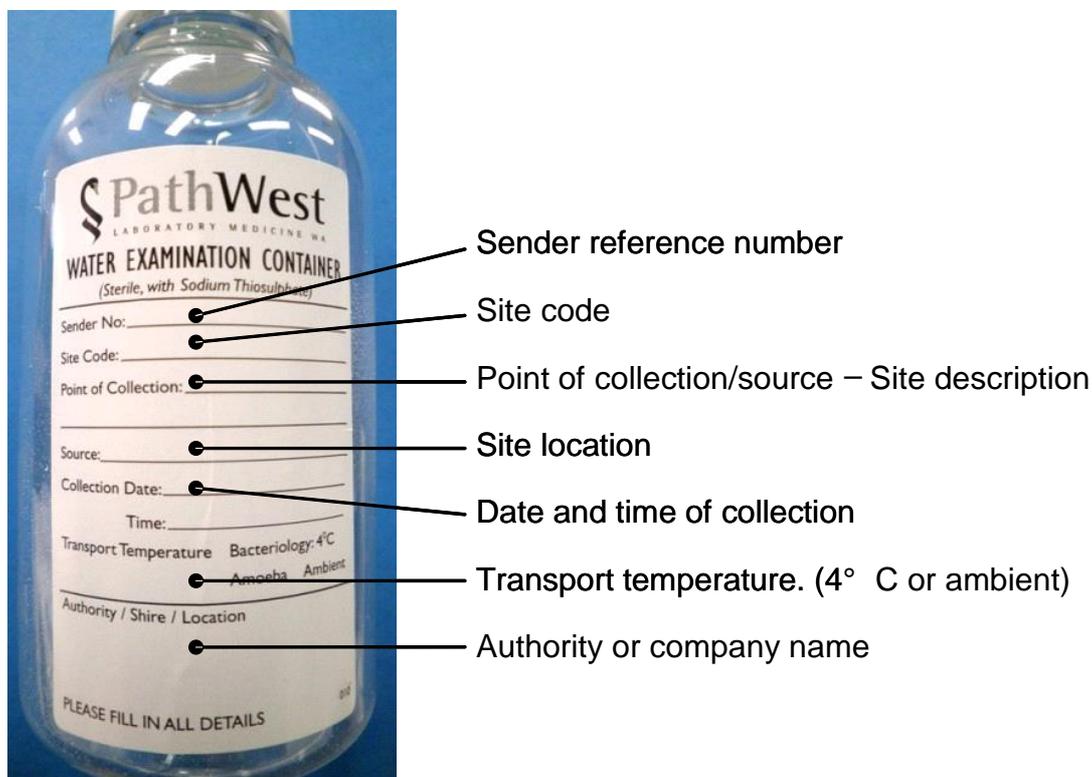
- touch the inside of the bottle
- rinse the bottle
- put caps on the ground while sampling
- transport drinking water samples with other water samples, (e.g.: sewage or environmental samples)
- sampling from taps that permit water to flow over their outer surfaces.

Always:

- label the bottle before sampling
- take bacteriological water samples first
- discard the sample and take another in a fresh bottle if there is any reason to suspect that contamination has occurred during sampling
- only remove bottle from plastic bag to complete label details or when it's time to sample.

Sample bottle labelling

The following information should be provided on all sample bottles:



Microbiological water sample collection – technique

Tap samples

1. Turn the tap full on and allow the water to run to waste for 2 minutes. This flushes the interior of the nozzle and discharges stagnant water from the pipe.
2. Turn off the tap and sterilise the spout by heating it with a blow lamp, gas torch or by igniting a piece of cotton wool soaked methylated spirits until any water in the tap boils.
3. Cool the tap by allowing the water to run to waste for a few seconds.
4. Adjust the tap to deliver a gentle stream of water.
5. Clearly label the bottle. (See sample bottle labelling for further details)
6. Hold the bottle in one hand. Remove the screw cap with the other. Hold the cap open side down and keep it close to the bottle.
7. Fill the bottle to within 5mm from the top by holding it under the tap taking care to avoid splashing.
8. Carefully replace the cap.

9. Place the bottle into a biohazard bag and seal.

Dip samples

1. Clearly label the bottle. (See sample bottle labelling for further details)
2. Hold the bottle in one hand near the base; remove the screw cap with the other.
3. Collect the sample from approximately 300mm below the water surface. Take care to avoid any surface film entering the bottle by plunging it, neck downwards as it enters the water.
4. Turn the bottle until the neck points slightly upwards while moving it in the direction of the mouth during filling. Create an artificial current by pushing the bottle horizontally forwards and away from the hand. Care should be taken to ensure that the bottle fills before the forward motion is completed. This prevents contamination from the samplers hand from entering the bottle.
5. After filling tip enough of the sample from the bottle to leave an air space of about 5mm.
6. Carefully replace the cap.
7. Place the bottle into a biohazard bag and seal.

Sample transportation - temperature

Bacteriological

Bacteriological samples should be collected into pre-chilled bottles and be transported in a chilled, not frozen, state between 1°C and 4°C. Freezer blocks should be used, not loose ice.

Amoeba

Water samples for amoebae testing should be transported in a non-chilled insulated container at ambient temperature.

Sample transportation - time

Samples should arrive in the laboratory no later than 24 hours after collection. Whenever possible, samples should arrive at the laboratory on the day of collection, preferably before 2pm.

Submitting samples

All sample bottles and accompanying PathWest (Water) sample request forms (available in Appendix 5) should be completed in full with the following information:

- company name
- company address

- sample collection date
- site code
- site description
- time of sample collection
- treatment

Faecal specimen

Faecal specimen kit

- PathWest Specimen Collection Form (signed from a doctor). Contact OzFoodNet on (08) 9388 4811 or (08) 9388 4872 to organise a PathWest Specimen Collection Form.
- Faecal sampling instructions for ill case(s) (see below)
- Brown cap containers (obtained from PathWest Collection Centres)
- Biohazard plastic bags (obtained from PathWest Collection Centres – a list of PathWest Collection Centres is detailed in Appendix 5)
- Disposable gloves
- Waste disposal bag

Faecal specimen sample collection

- 1.) Fill in the details on the sample container, submission and PathWest Specimen Collection Form.
- 2.) Wash hands thoroughly.
- 3.) Put on disposable gloves.
- 4.) Place a clean receptacle in the toilet bowl (an ice cream container will suffice).
- 5.) Pass faeces as usual into the receptacle.
- 6.) Using the scoop on the lid of the brown cap specimen container, collect some faeces and place into sample container. If the sample is liquid or diarrhoeal then carefully pour the contents into the sample container. Do not overfill the container.
- 7.) Securely reseal the lid on the sample container and place in double pouch specimen carry bag, noting and following the instructions on the pouch.
- 8.) Place used spatula, disposable gloves and any other contaminated material in waste disposal bag. Remove the gloves last, before securing the waste disposal bag.
- 9.) Wash hands thoroughly.

Ensure that all areas of the form are completed (this includes patient's name, age, address details and phone number etc). Do not attempt to fill out the doctors details - this must be completed by a doctor or a Department of Health - Communicable Disease Control Directorate public health doctor. Any unsigned forms are referred to the OzFoodNet.

Samples collected from the ill cases are to be sent to PathWest Collection Centre (see Appendix 6 for locations and opening times).

Appendix 5: PathWest Sample Submission Forms

Food



Food Hygiene Laboratory

Ground Floor, K Block Tel: (08) 9346 2165
 Hospital Ave, Nedlands Fax: (08) 9381 7139
 Locked Bag 2009, ABN 13 993 250 709
 Nedlands WA 6909

FOOD HYGIENE LABORATORY REQUEST FORM - FOODS		F	NATA <small>TECHNICAL COMPETENCE</small> Accreditation No. 2858
Company Name		Sender's Comments (Additional space provided on back)	Purpose of Investigation <input type="checkbox"/> Food Complaint <input type="checkbox"/> Food Poisoning <input type="checkbox"/> Routine Monitoring Other _____
Address			
Date collected		Additional Report - if required please write name and fax number or email address below. _____ _____	Survey Code
Order No.	Signed		NATA Accredited Report Required (please tick)..... <input type="checkbox"/>

Laboratory Number (LAB USE ONLY)	Sender's Number	Food Type (include lot numbers)	Brand	Use by Date	Date of Manufacture	Temp (°C)
Date and Time Received	By	Temperature	Report Type Authorised By Date	Faxed / Emailed		

Guideline for the Environmental Health Investigation of a Food-borne Disease Outbreak

Water



Water Examination Laboratory
 Ground Floor, K Block Tel: (08) 9346 2583
 Hospital Ave, Nedlands Fax: (08) 9381 7139
 Locked Bag 2009, ABN 13 993 250 709
 Nedlands WA 6909

**WATER EXAMINATION LABORATORY
REQUEST FORM**


Accreditation No. 2858

Company Name		Sender's Comments	<input type="checkbox"/> Drinking Water (source to Consumer) <input type="checkbox"/> Treated Recreational Water (Pools, Spas, Hydros) <input type="checkbox"/> Natural Water <input type="checkbox"/> Sewage / Wastewater <input type="checkbox"/> Drain (Leach / Surface / Stormwater) <input type="checkbox"/> Industrial Process Water <input type="checkbox"/> Irrigation Effluent <input type="checkbox"/> Airconditioning / Cooling Towers <input type="checkbox"/> Other (specify in Senders Comments)
Address			
Date sampled		Additional Report - If required please write name and fax number or email address below. _____ _____	Please specify test required if NOT routine.
Order No.			
Sampled by			
Signed			

LABORATORY USE ONLY	SAMPLE DETAILS				TREATMENT				SAMPLE SUBMITTED <i>(please tick)</i>		LABORATORY USE ONLY	
Laboratory Number	Site Code	Description	Time Sampled	Type (Cl, Br, etc.)	ppm	Temp (°C)	pH	Bacteria (chilled)	Amoebae (ambient)	Bacteria set up by / Date:	Amoebae set up by / Date:	
Samples Received By			Sample Condition On Receipt		Laboratory Comments				Report Type Authorised By Date		Faxed / Emailed	
Receival Date												

Guideline for the Environmental Health Investigation of a Food-borne Disease Outbreak

Environmental sample (swab)



Food Hygiene Laboratory
 Ground Floor, K Block Tel: (08) 9346 2165
 Hospital Ave, Nedlands Fax: (08) 9381 7139
 Locked Bag 2009, ABN 13 993 250 709
 Nedlands WA 6909

**FOOD HYGIENE LABORATORY
 REQUEST FORM - SWABS**

REGULATED BY
 TECHNICAL
 COMPETENCE
 Accreditation No. 2858

Company Name	
Address	
Date collected	Sampled by
Order No.	Signed

Sender's Comments _____ _____	Testing Required <input type="checkbox"/> Total Count <input type="checkbox"/> Listeria <input type="checkbox"/> E Coli <input type="checkbox"/> Salmonella Other _____
Additional Report - If required please write name and fax number or email address below. _____ _____	
Survey Code	
NATA Accredited Report Required (please tick) <input type="checkbox"/>	

Laboratory Number (LAB USE ONLY)	Sender's No.	Site Description	Area Swabbed (cm ²)

Laboratory Number (LAB USE ONLY)	Sender's No.	Site Description	Area Swabbed (cm ²)

Date and Time Received	By	Temperature
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Report Type Authorised By Date	Faxed / Emailed
--------------------------------------	-----------------

Appendix 6: PathWest Collection Centres

PATHWEST COLLECTION CENTRES			
METROPOLITAN			
SUBURB	Address	Opening Hours	Telephone
Armadale	Armadale Hospital 3056 Albany Highway	Mon - Fri 8.00am - 5.00pm Sat 8.00am - 11.00am	(08) 9391 2030
Belmont	Unit 7, 226 Fulham Street Cloverdale	Mon - Fri 8.00am - 1.00pm 2.00pm - 5.00pm Sat 8.30am - 12noon	(08) 9479 5108
Bentley	Bentley Hospital Mills Street (Block B)	Mon - Fri 8.00am - 4.30pm Sat 9.00am - 10.00am	(08) 9334 3720
East Fremantle	Kaleeya Hospital Staton Rd (cnr Wolsley Rd)	Mon - Fri 8.00am - 4.00pm	(08) 9319 0300
Fremantle	Fremantle Hospital (B Block, level 4) Alma Street	Mon - Fri 7.30am - 5.00pm	(08) 9431 2215
Helena Valley	160 Scott Street	Mon - Fri 8.00am - 1.00pm 2.00pm - 4.30pm	(08) 9255 3768
Innaloo	Impact Physiotherapy 4 Odin Rd (cnr Scarborough Beach Rd)	Mon - Fri 8.00am - 1.00pm 1.30pm - 5.00pm Sat 9.00am - 11.30am	(08) 9244 9080
Jandakot	Jandakot Medical Centre Unit 2, 5 Berrigan Drive South Lake	Mon - Fri 8.30am - 12noon 12.30pm - 4.30pm	(08) 9417 9078
Joondalup	Unit 17/14 Reid Promenade	Mon - Fri 7.30am - 12.30pm 1.00pm - 4.30pm Sat 8.30am - 12noon	(08) 9301 5452
Kalamunda	Kalamunda Hospital Elizabeth Street	Mon - Fri 8.30am - 4.45pm Sat 8.00am - 11.00am	(08) 9257 8193
Maylands	Unit 11, 168 Guildford Rd	Mon - Fri 8.00am - 1.00pm	(08) 9471 9358
Mirrabooka	29 Yirrigan Drive	Mon - Fri 8.30am - 1.00pm 1.30pm - 5.00pm Sat 8.30am - 11.30am	(08) 9344 8063
Nedlands	Sir Charles Gairdner Hospital "E" Block Out-Patients	Mon - Thu 8.00am - 3.45pm Fri 8.00 - 12noon	(08) 9346 3280
Nedlands	PathWest Reception QEII MC Hospital Avenue "J" Block	Mon - Fri 7.00am - 6.00pm Sat 8.00am - 12noon	(08) 9346 3000
Osborne Park	Osborne Park Hospital Osborne Place, Stirling	Mon - Fri 7.00am - 4.30pm Sat 9.00am - 11.00am	(08) 9244 2326
Perth	Royal Perth Hospital Level 2 North Block	Mon - Fri 7.30am - 5.00pm	(08) 9224 1170
Perth	Royal Perth Hospital Goderich Street Clinic	Mon - Fri 7.30am - 5.00pm	(08) 6477 5012
Rockingham	Rockingham Kwinana Hospital Elanora Drive, Coolesongup	Mon - Fri 7.30am - 5.00pm Sat 8.30am - 11.00am	(08) 9528 4355
Shenton Park	Royal Perth Rehabilitation Hospital Level 1, Q Block	Mon - Fri 8.00am - 4.30pm	(08) 9382 7300
Subiaco	4/400 Barker Road	Mon - Fri 9.00am - 12.30pm 1.30pm - 5.00pm	(08) 9381 6420
Swan Districts	Swan Districts Hospital Eveline Road, Middle Swan	Mon - Fri 8.00am - 5.00pm Sat 8.30am - 11.00am	(08) 9347 5332
Victoria Park	325 Albany Highway Cnr King George Street	Mon - Fri 8.00am - 1.00pm 2.00pm - 4.30pm Sat 9.00am - 12noon	(08) 9355 5949

Waikiki	Coastal Private Specialist Centre Willmott Drive	Mon - Fri 8.30am - 4.30pm	(08) 9550 0293
Wembley	Unit 17/178 Cambridge St Wembley	Mon - Fri 8.00am - 1.00pm 2.00pm - 4.30pm	(08) 9388 3653
COUNTRY			
TOWN	Address	Mon - Fri	Telephone
Albany	Albany Regional Hospital Hardie Road	Mon - Fri 7.30am - 5.00pm Sat 8.30am - 11.00am	(08) 9892 2240
Boddington	Boddington Medical Centre 65 Hotham Ave	Mon - Fri 8.00am - 10.00am	(08) 9883 4500
Boyup Brook	Boyup Brook District Hospital Knapp Street	Mon, Wed, Fri 8.30am - 10.00am	(08) 9765 1000
Bridgetown	Bridgetown District Hospital Peninsula Road	Mon - Fri 8.00am - 11.25am	(08) 9782 1222
Brookton	Brookton Medical Centre Whittington Street	Wed 9.45am - 10.15am Fri 8.45am - 9.30am	(08) 9881 0481
Broome	Broome District Hospital Robinson Street	Mon - Fri 8.00am - 4.30pm Sat 9.00am - 11.00am	(08) 9194 2286
Broome	Unit 1, 10 Frederick Street Chinatown Collection Centre	Mon - Fri 8.00am - 1.00pm 2.15pm - 4.30pm Sat 8.00am - 11.00am	(08) 9192 7467
Bunbury	South West Health Campus Bussell Highway	Mon - Fri 8.00am - 4.45pm Sat 8.00am - 9.00am	(08) 9722 1280
Busselton	Busselton Hospital Mill Road	Mon - Fri 8.00am - 5.00pm Sat 9.00am - 11.00am	(08) 9754 0648
Busselton	Duchess Medical Centre Unit 1, 69 Duchess Street	Mon - Fri 8.45am - 5.00pm	(08) 9754 0648
Carnarvon	Carnarvon Regional Hospital Cleaver Street	Mon - Fri 8.00am - 4.30pm Sat 9.00am - 11.00am	(08) 9941 0431
Carnarvon	Carnarvon Medical Centre 52 Robinson Street	Mon - Fri 7.30am - 9.30am	(08) 9941 1169
Collie	Collie District Hospital Deakin Street	Mon - Fri 7.30am - 4.30pm Sat 9.00am - 10.00am	(08) 9734 1132
Denmark	Unit 3 78 Strickland Street	Mon - Fri 8.00am - 4.00pm Sat 8.00am - 11.00am	(08) 9848 2711
Derby	Derby Regional Hospital Clarendon Street	Mon - Fri 8.00am - 4.30pm	(08) 9193 3371
Donnybrook	Donnybrook District Hospital Bentley Street	By appointment only	(08) 9722 1280
Esperance	Esperance District Hospital Hicks Street	Mon - Fri 7.30am - 4.30pm Sat 9.00am - 11.00am	(08) 9071 0839
Esperance	Unit A, Balmoral Square 53 The Esplanade	Mon - Fri 8.00am - 12.30pm 1.30pm - 4.00pm	(08) 9071 2960
Exmouth	Exmouth District Hospital Lyons Street	Mon - Fri 8.00am - 10.00am	(08) 9949 3640
Geraldton	Geraldton Regional Hospital Shenton Street	Mon - Fri 7.30am - 5.00pm Sat 9.00am - 11.00am	(08) 9956 2254
Geraldton	Shop 3, 87-89 Durlacher Street	Mon - Thu 7.30am - 12.30pm 1.30pm - 4.00pm	(08) 9965 2633

TOWN	Address	Mon - Fri	Telephone
Harvey	Harvey District Hospital 45 Hayward Street	Mon - Fri 9.45am - 10.15am	(08) 9792 1004
Kalgoorlie	Kalgoorlie Regional Hospital Piccadilly Street	Mon - Fri 8.00am - 5.00pm Sat 9.00am - 11.00am	(08) 9080 5825
Kalgoorlie	Unit 6, 20 Maritana Street	Mon - Fri 7.30am - 4.00pm	(08) 9091 7165
Karratha	Nickol Bay Hospital Millstream Road, Nickol Bay	Mon - Fri 8.00am - 4.30pm	(08) 9143 2338
Katanning	Katanning District Hospital Clive Street	Mon - Fri 8.00am - 4.30pm	(08) 9821 6334
Katanning	St Luke's Family Practice Elizabeth Street	Mon - Fri 8.30am - 3.00pm	(08) 9821 2155
Kununurra	Kununurra District Hospital 96 Coolibah Drive	Mon - Fri 8.00am - 4.30pm	(08) 9166 4245
Mandurah	5/2A Peel St	Mon - Fri 8.00am - 4.30pm Sat 8.30am - 11.00am	(08) 9582 7988
Mandurah	Shop 2, Miami Village Old Coast Road	Mon - Fri 7.30am - 12.30pm 1.30pm - 4.00pm Sat 8.00am - 11.30am	(08) 9534 6040
Manjimup	Warren District Hospital Hospital Avenue	Mon - Fri 8.00am - 4.30pm Sat 9.00am - 10.30am	(08) 9777 0444
Margaret River	Margaret River Hospital Farrelly Street	Mon - Fri 8.00am - 5.00pm	(08) 9757 0405
Meekatharra	Meekatharra District Hospital Savage Street	Mon - Thu 8.00am - 4.00pm Fri 8.00 - 2.00pm Sat 9.00am - 10.30am	(08) 9981 0611
Merredin	Merredin District Hospital Kitchener Rd	Mon - Fri 8.30am - 5.00pm	(08) 9041 1532
Mount Barker	Plantagenet District Hospital Langton Road	Mon - Fri 8.30am - 11.30am	(08) 9892 1222
Nannup	Nannup District Hospital Carey Street	Tue & Thu 9.00am - 11.00am	(08) 9756 3800
Narrogin	Narrogin Regional Hospital Williams Road	Mon - Fri 8.00am - 5.00pm Sat 9.00am - 10.00am	(08) 9881 0481
Narrogin	Earl Street Surgery 92 Earl Street	Mon - Fri 8.30am - 5.00pm	(08) 9881 6713
Newman	Newman District Hospital Mindarra Drive	Mon - Fri 8.30am - 12noon 1.00pm - 3.00pm	(08) 9175 2943
Norseman	Norseman District Hospital Talbot Road	Thu 8.00am - 12noon	(08) 9039 1100
Northam	Northam Regional Hospital Robinson Street	Mon - Fri 7.30am - 4.30pm	(08) 9690 1657
Northam	Grey Street Surgery 16 Grey Street	Mon - Fri 9.00am - 1.00pm 2.00pm - 4.00pm	(08) 9622 3151
Northcliffe	Wheatley Coast Road	Wed 8.00am - 9.30am	(08) 9776 7080
Paraburdoo	Paraburdoo Hospital Rocklea Road	Mon - Fri 9.00am - 12noon	(08) 9189 6780
Pemberton	Pemberton District Hospital Hospital Road	Mon - Fri 8.30am - 10.00am	(08) 9776 4000
Pingelly	Pingelly District Hospital Stratford Street	Mon 9.30am - 10.30am Wed 9.30am - 11.00am Fri 8.30am - 10.00am	(08) 9887 2222
Pinjarra	Murray Districts Hospital McKay Street	Mon - Fri 9.00am - 10.00am	(08) 9531 7277
Port Hedland	Hedland Health Campus 2-34 Colebatch Way South Hedland	Mon - Fri 8.30am - 4.30pm	(08) 9174 1000
Tom Price	Tom Price District Hospital Mine Road	Mon - Fri 8.00am - 12noon	(08) 9159 5204
Wagin	Wagin District Hospital	Mon - Fri 9.00am - 10.00am By appointment only	(08) 9861 1033
Walpole	Silver Chain	Thursday only	(08) 9848 2711

Collection centre details may be subject to change. Details current as of 04/2012. Please visit www.pathwest.com.au for up to date listings.

This document can be made available in alternative formats on request for a person with disability.

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