

# ENTERIC DISEASE

## Background

At the Surveillance Advisory Group workshop held in March 1999, it was agreed that all reported cases of enteric disease, whether via doctor notification, self-report or identification as part of an outbreak investigation, should be recorded on EpiSurv.

It is often useful to divide enteric diseases into functional categories:

**Notifiable enteric diseases** e.g. campylobacteriosis. These diseases generally have severe and prolonged symptoms and long incubation periods (usually 2-10+ days).

**Gastroenteritis/foodborne intoxications** e.g. Norovirus infection, staphylococcal food intoxication. These diseases may have very short incubation periods (2-24 hours) and durations. Viral gastroenteritis typically has a slightly longer incubation period (i.e. 24-48 hours). Most cases of gastroenteritis are self-reported or detected during outbreak investigations. Exceptions are those forms of poisonings with more severe symptoms, e.g. botulism and chemical poisonings, which are notifiable.

The term “food poisoning” has been avoided in this document. This term is used in a variety of ways to include both foodborne intoxications and foodborne infections, which can cause confusion.

A number of PHU staff have jointly developed and are now using a screening form (entitled **Screening Form – Gastroenteritis (unknown agent)**) to take initial details about reported gastroenteritis cases where the agent (microbiological or chemical) of the gastroenteritis is unknown at the time of reporting.

The form is designed to collect sufficient details to

a) decide whether an investigation can be carried out (sample(s) or other evidence is available for analysis)

and

b) enter initial details into EpiSurv (as “Gastroenteritis - unknown cause” with a status of “under investigation”) to generate an EpiSurv No. for laboratory testing of faecal and other samples.

If it is decided not to investigate the case the details will not usually be entered into EpiSurv.

If the case is investigated and found to meet the case definition for acute gastroenteritis or another notifiable disease it may be entered into EpiSurv (or updated if previously entered) as an individual case of a notifiable disease.

If the case is found to be part of an outbreak the individual EpiSurv record may be linked to an outbreak summary in EpiSurv.

## Disease name

Disease	Tick the name of the disease from the list, or if it is not included tick “Gastroenteritis/foodborne intoxication (specify cause)” and write the name of the organism or toxin in the space provided. If the organism or toxin has not been identified, tick “Gastroenteritis - unknown cause”.
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**NOTE:** There are separate case report forms for listeriosis, hepatitis A, toxic shellfish poisoning and VTEC/STEC infection.

## Basis of diagnosis

Most notified cases of enteric disease have already been laboratory confirmed when they are notified so the purpose of this section is to document the basis for diagnosis that has been used. Some additional cases that can be recorded in this section are:

1. contacts of notified cases, detected in the course of case investigations, which meet the case definition for a notifiable disease (often based on epidemiological criteria)
2. outbreak cases, detected in the course of investigating common source outbreaks
3. self-reported cases subsequently diagnosed with a notifiable disease, or found to be part of an outbreak, or the pathogen or toxin is laboratory confirmed.

### Clinical criteria

Fits clinical description

Tick "Yes" if the case fits the clinical description as follows:

**Gastroenteritis – unknown cause** an acute gastrointestinal illness with vomiting and/or diarrhoea (three or more loose stools per day) **and** no specific cause has been found.

**Gastroenteritis/foodborne intoxication** should be recorded using the name of the specific disease or toxin. Includes both foodborne and waterborne gastroenteritis.

***Bacillus cereus* food intoxication** Gastroenteritis where either vomiting or profuse watery diarrhoea dominate

**Botulism** Gastroenteritis with visual difficulty, dysphagia, symmetric weakness or paralysis

**Ciguatera fish poisoning** Gastroenteritis, possibly followed by neurologic symptoms

**Chemical food poisoning** Diverse symptoms depending on chemical in question

***Clostridium perfringens* food intoxication** Gastroenteritis with profuse watery diarrhoea

**Histamine (scombroid) poisoning** Tingling and burning sensation around mouth, facial flushing, sweating, nausea and vomiting, headache, palpitations, dizziness and rash

**Norovirus infection** Gastroenteritis usually lasting 12-60 hours

**Rotavirus infection** Gastroenteritis, often severe in infants or young children, with vomiting, fever and watery diarrhoea lasting 4-6 days

**Staphylococcal food intoxication** Gastroenteritis with sudden severe nausea and vomiting

***Vibrio parahaemolyticus* infection** Gastroenteritis with watery diarrhoea and abdominal cramps.

#### Notifiable enteric diseases:

**Campylobacteriosis** An illness of variable severity with symptoms of abdominal pain, fever and diarrhoea, often with bloody stools.

**Cholera** An illness of variable severity characterised by watery diarrhoea and vomiting, which can lead to profound dehydration.

	<p><b>Cryptosporidiosis</b> An acute illness with diarrhoea (may be profuse and watery) and abdominal pain. The infection may be asymptomatic.</p> <p><b>Giardiasis</b> An illness characterised by diarrhoea, abdominal cramps, bloating, flatulence, nausea, weight loss and malabsorption. The infection may be asymptomatic.</p> <p><b>Paratyphoid fever</b> Similar illness to typhoid fever but the clinical manifestations tend to be milder, of shorter duration and the case-fatality and the case-fatality rate is much lower. Often manifests as acute gastroenteritis.</p> <p><b>Salmonellosis</b> Salmonellosis presents as gastroenteritis, with abdominal pains, diarrhoea (occasionally bloody), fever, nausea and vomiting. Asymptomatic infections may occur.</p> <p><b>Shigellosis</b> Shigellosis presents as acute diarrhoea with fever, abdominal cramps, blood or mucus in the stools and a high secondary attack rate among contacts.</p> <p><b>Typhoid fever</b> Typically presents with insidious onset of fever, headache, malaise, anorexia, dry cough, relative bradycardia and hepatosplenomegaly (50 percent). Less commonly, there may be rose coloured spots on the trunk (Caucasians), abdominal pain, constipation, diarrhoea and cerebral dysfunction. If untreated may last for 3-4 weeks and be complicated by intestinal perforation or haemorrhage, death or relapse.</p> <p><b>Yersiniosis</b> In children under 5 years, <i>Yersinia enterocolitica</i> infection typically causes diarrhoea, vomiting, fever and occasionally abdominal pain. Older children and adults experience abdominal pain as the predominant symptom. Bacteraemia and sepsis may occur in immunocompromised individuals. <i>Y. pseudotuberculosis</i> is more likely to cause mesenteric adenitis and septicaemia than <i>Y. enterocolitica</i>.</p>
<p><b>Laboratory criteria</b></p> <p>Meets laboratory criteria</p> <p>Laboratory results</p>	<p>Indicate if the case meets the laboratory criteria. If not, tick the “No” box. If not known or unavailable then tick the “Unknown” box.</p> <p>Indicate whether the organism/toxin was isolated or detected. If the laboratory test results were positive tick the “Yes” option and specify the site from which the samples were taken (unless from linked food or water). If the laboratory test results were negative tick the “No” option. If the results of the laboratory test are not yet available, tick “Awaiting results”. If any of the laboratory tests were not carried out, tick “Not Done”.</p>
<p><b>Epidemiological criteria</b></p> <p>Contact with a confirmed case of the same disease</p> <p>Part of an identified common source outbreak</p>	<p>Indicate whether the case has had any contact with a laboratory confirmed case of the disease. If not known or unavailable then tick the “Unknown” box.</p> <p>Indicate whether the case was part of an identified common source outbreak. If not known or unavailable then tick the “Unknown” box.</p>

## Classification

Classification	<p><b>Gastroenteritis/foodborne intoxication:</b></p> <p>Under investigation - A case which has been notified but information is not yet available to classify it as probable or confirmed.</p> <p>Probable - A clinically compatible illness</p> <p>Confirmed - A clinically compatible illness that is laboratory confirmed, or A clinically compatible illness and common exposure associated with a laboratory confirmed case.</p> <p>Not a case – a case that has been investigated and subsequently found not to meet the case definition.</p> <p><b>Notifiable enteric disease:</b></p> <p>Under investigation – a case that has been notified, but information is not yet available to classify it as probable or confirmed.</p> <p>Probable – a clinically compatible illness that either is a contact of a confirmed case of the same disease or has had contact with the same common source i.e. is part of a common-source outbreak.</p> <p>Confirmed – a clinically compatible illness that is laboratory confirmed.</p> <p><b>Laboratory tests for diagnosis:</b></p> <p><b>Gastroenteritis/foodborne intoxication</b> should be recorded using name of specific disease or toxin. Generally the presence of the organism or toxin can be regarded as a positive result but the result may need to be interpreted in relation to symptoms, incubation times, food history etc:</p> <ul style="list-style-type: none"> <li>• <b><i>Bacillus cereus</i> food intoxication</b> Isolation of <math>\geq 10^3</math>/g <i>B. cereus</i> from a clinical specimen or <math>\geq 10^4</math> <i>B. cereus</i> from leftover food or detection of diarrhoeal toxin in a faecal sample</li> <li>• <b>Botulism</b> Detection of botulinum toxin in serum, faeces or leftover food</li> <li>• <b>Ciguatera fish poisoning</b> Demonstration of ciguatoxin in implicated fish</li> <li>• <b>Chemical food poisoning</b> Detection of implicated chemical in leftover food</li> <li>• <b><i>Clostridium perfringens</i> food intoxication</b> Detection of enterotoxin in faecal specimen or faecal spore count of <math>\geq 10^6</math>/gram or isolation of <math>\geq 10^5</math> <i>C. perfringens</i> in leftover food</li> <li>• <b>Histamine (scombroid) poisoning</b> Detection of histamine levels <math>\geq 50</math>mg/100g fish muscle</li> <li>• <b>Norovirus gastroenteritis</b> Detection of Norovirus in faecal or vomit specimen or leftover food</li> <li>• <b>Rotavirus gastroenteritis</b> Detection of rotavirus antigen in faecal specimen</li> </ul> <p><b>Other viral gastroenteritis</b> Detection of virus in faecal or blood specimen</p>
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- **Staphylococcal food intoxication**  
Detection of enterotoxin in faecal or vomit specimen or in leftover food or isolation of  $\geq 10^3$ /gram coagulase-positive *S. aureus* from faecal or vomit specimen or  $\geq 10^5$  from leftover food
- *Vibrio parahaemolyticus* infection Isolation of Kanagawa-positive or pathogenic serotype of *V. parahaemolyticus* from a faecal specimen or isolation of  $\geq 10^5$ /gram *V. parahaemolyticus* from leftover food.

**Notifiable enteric diseases:**

**Campylobacteriosis**

Isolation of *Campylobacter* spp. from a clinical specimen.

**Cholera**

Isolation of *Vibrio cholerae* serogroup O1 or O139 from a clinical specimen and confirmation that the organism is toxigenic (i.e. can produce cholera toxin)

**Cryptosporidiosis**

Detection of *Cryptosporidium parvum* oocysts in a faecal specimen.

**Giardiasis**

Detection of giardia cysts or trophozoites in a specimen from the human intestinal tract

OR

detection of giardia antigen in faeces.

**Paratyphoid fever**

Isolation of *Salmonella* Paratyphi from a clinical specimen.

**Salmonellosis**

Isolation of *Salmonella* species from any clinical specimen.

**Shigellosis**

Isolation of any *Shigella* spp. from a stool sample or rectal swab and confirmation of genus.

**Typhoid**

Isolation of *Salmonella* Typhi from a clinical specimen.

**Yersiniosis**

Isolation of *Yersinia enterocolitica* or *Y. pseudotuberculosis* from blood or faeces

OR

detection of circulating antigen by ELISA or agglutination test.

Not a case – a case that has been investigated, and subsequently found not to meet the case definition.

**Additional laboratory details**

Species/serotype/phage type/toxin

If known, specify the organism species or serotype or phage type or toxin depending on the disease being investigated.

	For cases of Paratyphoid fever, Salmonellosis, Shigellosis, Typhoid fever, and Yersiniosis, this field will be updated directly from laboratory results by ESR
ESR Updated	A flag to indicate that the laboratory results have been updated by ESR (closed to users)
Laboratory	The name of the laboratory from where the results originated (closed to users)
Date result updated	The date the result fields were updated (closed to users)
Sample Number	The laboratory sample number (closed to users)
Genome sequencing/genotyping	Indicate whether genome sequencing/genotyping was done and if it was, enter the laboratory where it was done as well as the date

### Associated food/water/environmental samples

Food/water/environmental samples	Indicate whether there were any food, water or environmental samples associated with the case. If yes specify type(s) and results by entering the sample type, sample number and result
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### Risk factors

These questions collect data about potential risk factors during the incubation period for the disease in question. The only mandatory subsections to be completed in the Risk Factor section are Overseas Travel and Source. The other questions in this section are designed to guide the investigator to obtain relevant information about each disease case and should be completed according to the protocols of the local PHS. The data may be analysed locally in order to identify a) common source outbreaks, and b) food premises or drinking water supplies which may be ongoing sources of disease. Some data may suggest only “suspect” causes for individual sporadic cases.

The following table gives the incubation periods to be used throughout the Risk Factor section:

<b>Organism/Disease</b>	<b>Usual Incubation Period (Range)</b>
Bacillus cereus (diarrhoea)	6 – 24 hours
Bacillus cereus (vomiting)	0.5 – hours
Campylobacteriosis	2 – 5 days (1 – 10 days)
Ciguatera fish poisoning	1 – 24 hours
<i>Clostridium botulinum</i>	12 – 36 hours
<i>Clostridium perfringens</i>	10 – 12 hours (6 – 24 hours)
Cryptosporidiosis	7 days (1 – 12 days)
<i>Entamoeba histolytica</i>	Days to months
Giardiasis	7 – 10 days (3 – 25 days or longer)
Norovirus	24 – 48 hours (10 – 72 hours)

Rotavirus	24 – 74 hours
<i>Salmonella</i> Paratyphi	1 – 10 days
<i>Salmonella</i>	12 – 36 hours (6 – 72 hours)
<i>Shigella</i>	1 – 3 days (12 hours – 1 week)
<i>Staphylococcus aureus</i>	2 – 4 hours (0.5 – 8 hours)
<i>Salmonella</i> Typhi	8 – 14 days (3 – over 60 days)
<i>Vibrio cholera</i> O1 or O139	2 – 3 days (2 hours – 5 days)
<i>Vibrio parahaemolyticus</i>	12 – 24 hours (4 – 30 hours)
<i>Yersinia</i>	3 – 7 days (<10 days)

### Food premises

Data from this question may be analysed locally to identify premises associated with a greater than expected number of cases. An elevated number of cases may indicate either a common source outbreak, or an ongoing pattern of “sporadic” cases. Food premises information and the relevant enteric data will be exported to FoodNet, so users will be required only to enter this information into EpiSurv.

**Did the case consume food from a food premises during the incubation period**      Indicate whether the case consumed food from a food premises (i.e. either ate at a food premises, or bought prepared food from a food premises and ate it elsewhere) during the incubation period of the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If “Yes” collect details of food premises, including the name and alias name if appropriate. The comments field may be used for details of foods eaten, if required. If not known or unavailable then tick the “Unknown” box.

**Foods eaten**      Specify the foods eaten at the premises.

Indicate the status of the premises in the investigation; suspected or confirmed or exonerated.

Record the address details of the food premises. Addresses should be as accurate as possible in the format specified to allow addresses to be geocoded.

Space is provided to record up to eight food premises, three in the front part of the form, and five at the end of the form.

### Raw milk

**Did the case consume raw (unpasteurised) milk or products made from raw milk during the incubation period**      Indicate whether the case consumed raw (unpasteurised) milk or products made from raw milk during the incubation period of the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If “Yes” collect details of the product consumed, including the type, brand and where the product was obtained from.

### Drinking water

Data from these questions may be analysed by public health services, along with the case's current and work addresses, to identify community water supplies associated with a higher than expected disease rate.

Current address	Specify the water supply code for the current home address of the case. Refer to the "Register of Community Drinking Water Supplies in New Zealand". If the water source code is unknown or the water supply is not coded then specify the water supply.
Work/school/pre-school	Specify the water supply code for the workplace or school/pre-school of the case. Refer to the "Register of Community Drinking Water Supplies in New Zealand". If the water source code is unknown or the water supply is not coded then specify the water supply.
Did the case consume water other than regular supply	Indicate whether the case consumed water other than their home or work/school/pre-school supply during the incubation period of the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" enter the water supply address and code details. Refer to the "Registry of Community Drinking Water Supplies in New Zealand". If not known or unavailable then tick the "Unknown" box.
Did case consume untreated surface water, bore water or rain water during the incubation period	Indicate whether the case consumed untreated surface water, bore water or rain water during the incubation period. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" specify the water source. If not known or unavailable then tick the "Unknown" box.

### Recreational water contact

Data from this question may be used by public health services to identify common source outbreaks related to recreational water use.

Did the case have recreational contact with water	<p>Indicate whether the case had recreational contact with water during the incubation period of the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" indicate the nature of contact (e.g. swimming in a pool, river, or the sea etc.).</p> <p>If the case had swum in a pool, specify the name of the implicated pool(s) and date(s) of exposure. The comments field may be used for details of the contact, if required. Record the address details of the pool(s). Addresses should be as accurate as possible in the format specified to allow addresses to be geocoded.</p> <p>If the case had contact with recreational waterway(s), specify the name of the waterway(s) and the date(s) of exposure. The comments field may be used for details of the contact, if required. Specify the X and Y coordinates, if known and indicate the position from which the coordinates were taken.</p> <p>Specify any other contact with recreational water, the date of exposure and the location.</p> <p>If not known or unavailable then tick the "Unknown" box.</p>
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### Human contact

Data will help public health services to distinguish secondary cases.

Attendance at school/pre-school/childcare	Indicate whether the case attends school, pre-school or childcare. If not known or unavailable then tick the "Unknown" box.
Did the case have contact with other symptomatic people during the incubation period	Indicate whether the case had contact with other symptomatic people during the incubation period for the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" specify the type of contact and give the names of the symptomatic people. If not known or unavailable then tick the "Unknown" box.
Did the case have contact with faecal matter or vomit	Indicate whether the case had contact with children in nappies, sewage etc. during the incubation period for the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" specify what they had contact with. If not known or unavailable then tick the "Unknown" box.

### Animal contact

Data may assist in identifying where animals are the source of sporadic disease and small clusters.

Did the case have contact with farm animals during the incubation period	Indicate whether the case had contact with farm animals during the incubation period for the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" specify the type of farm animals the case had contact with. If not known or unavailable then tick the "Unknown" box.
Did the case have contact with sick animals during the incubation period	Indicate whether the case had contact with sick animals during the incubation period for the disease. If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes" specify the type of sick animals and the illness. If not known or unavailable then tick the "Unknown" box.

### Overseas travel

Data may assist in identifying overseas common source outbreaks. Please complete this subsection fully for national surveillance purposes.

Was the case overseas during the incubation period	Indicate whether the case was overseas during the incubation period for the disease (refer to the earlier table for incubation periods, ENT-6). If the disease is unknown, ask about the ten days prior to the onset of symptoms. If "Yes", record the date of arrival in New Zealand. List the countries/regions visited (up to three) from the most recent to the least recent. Record date of entry and departure in each country/region.
Prior history of overseas travel	If the case has not been overseas during the incubation period for the disease, indicate whether any prior history of overseas travel might account for the infection. If "Yes", record details of this travel. If not known or unavailable then tick the "Unknown" box.

**Other risk factor**

This question allows public health services to add additional risk factors that they may wish to investigate in an ongoing manner. It also allows ESR to identify additional categories that can be added to the form in the future.

For shigellosis in males aged $\geq 15$ years, did the case have sexual contact with another male or males	For shigellosis in males aged $\geq 15$ years, indicate whether they had sexual contact with another male or males during the incubation period. Men who have sex with men (MSM) have been identified as a high risk group for faecal-oral transmission of <i>Shigella</i> , and they have an increased risk of an antimicrobial resistant <i>Shigella</i> infection. If not known or unavailable then tick the 'Unknown' box.
Other risk factor for disease	Specify any other risk factors under surveillance for the disease if they were present.

**Source**

This section summarises the results of the investigation. Data will contribute to local case management and to descriptive epidemiology. Please complete this subsection fully for national surveillance purposes.

Confirmed source	Indicate whether the source of illness was identified by epidemiological evidence or by laboratory evidence.
a) Epidemiological evidence	Indicate whether a source was confirmed by epidemiological evidence e.g. part of an identified common source outbreak (also record in outbreak section) or person to person contact with a known case.
b) Laboratory evidence	Indicate whether a source was confirmed by laboratory evidence, e.g. organism or toxin of same type identified in food or drink consumed by the case.
Specify confirmed source	If the source of the illness was confirmed, specify the source and how it was implicated. Tick all that apply and specify the details.
Probable source	If "No" confirmed source, then indicate whether a probable source was identified. If "Yes", tick all that apply and specify the details.

**Management**

This section is intended to assist public health services in case management and audit.

**Case management**

Case excluded from work, or school/pre-school/childcare	Indicate whether the case was excluded from work or school/pre-school/childcare until well. If the case does not attend work or school/pre-school/childcare tick the "NA" (not applicable) box. If the case does not work tick the "NA" box If not known or unavailable then tick the "Unknown" box.
Case fits high risk category	Indicate whether the case fits any of the specified high risk categories. If "Yes" indicate whether the case was excluded from work until microbiological clearance was achieved. If not known or unavailable then tick the "Unknown" box.

**Contact management**

No. of contacts identified	Indicate the number of contacts who were identified.
No. of contacts followed up	Indicate the number of contacts who were followed up according to national or local protocols for the disease.