ENTERIC DISEASE

Background

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

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

Acute gastroenteritis e.g. norovirus infection, staphylococcal food intoxication. Acute gastroenteritis can be caused by toxins, chemicals or pathogens (viral, bacterial or parasitic). Gastroenteritis due to toxins or chemicals may have a very short incubation period (2-24 hours) and duration of symptoms. Viral gastroenteritis typically has a slightly longer incubation period (i.e. 24-48 hours), and bacterial gastroenteritis and parasites are associated with incubation periods of several days. Most cases of acute 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.

For acute gastroenteritis cases where the agent (microbiological or chemical) is unknown at the time of reporting, enter the details into EpiSurv as “Gastroenteritis - unknown cause”. If the case is investigated and found to meet the case definition for acute gastroenteritis or another notifiable disease it should be updated as an individual case of a notifiable disease.

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

Disease name

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

Basis of diagnosis

Clinical criteria

Fits clinical description	Select “Yes” if the case fits the clinical description as follows: **Acute gastroenteritis** an acute illness with vomiting and/or diarrhoea (three or more loose stools per day). Toxin-related illnesses may present with clinical features additional to and dominant to the gastrointestinal clinical features. These may include neurological (change in sensation, muscle weakness, difficulty swallowing), dermatological (itch and flushing), musculoskeletal (painful muscles and joints) and cardiovascular (hypotension and bradycardia) features. **Campylobacteriosis** An illness of variable severity with symptoms of abdominal pain, fever and diarrhoea, often with bloody stools. Less frequently, *Campylobacter* can present as an invasive disease.

	Cholera An illness of variable severity characterised by watery diarrhoea and vomiting, which can lead to profound dehydration. **Cryptosporidiosis** An acute illness with diarrhoea (may be profuse and watery) and abdominal pain. The infection may be asymptomatic but to meet the case definition the individual must have compatible symptoms. **Giardiasis** An illness characterised by diarrhoea, abdominal cramps, bloating, flatulence, nausea, weight loss and malabsorption. The infection may be asymptomatic. Given the remitting/relapsing and variable nature of symptoms, the individual does not need to have compatible symptoms at the time of presentation but must have had a clinically consistent illness in order to meet the case definition. **Paratyphoid fever** Similar illness to typhoid fever but the clinical manifestations tend to be milder, the duration is shorter, and the case-fatality rate is much lower. It often manifests as acute gastroenteritis. Note: *Salmonella* Paratyphi B var Java does not cause enteric fever and produces a less serious disease than other Typhi and Paratyphi variants. **Salmonellosis** Salmonellosis presents as gastroenteritis, with abdominal pains, diarrhoea (occasionally bloody), fever, nausea and vomiting. Asymptomatic infections may occur, and symptoms are not necessary to meet the case definition. **Shigellosis** Acute diarrhoea with fever, abdominal cramps, blood or mucus in the stools. **Typhoid fever** Typically presents with insidious onset of fever, headache, malaise, anorexia, dry cough, relative bradycardia and hepatosplenomegaly (50% of cases). Less commonly, there may be rose spots on the trunk (Caucasian cases), abdominal pain, constipation, diarrhoea and cerebral dysfunction. If untreated, the illness may last for 3-4 weeks and be complicated by intestinal perforation or haemorrhage, death or relapse. **Yersiniosis** In children under 5 years old, *Yersinia enterocolitica* infection typically causes diarrhoea, vomiting, fever and occasionally abdominal pain. In contrast, older children and adults experience abdominal pain as the predominant symptom. Bacteraemia and sepsis may occur in immunocompromised individuals. *Y. pseudotuberculosis* is more likely to cause mesenteric adenitis and septicaemia than *Y. enterocolitica*
Laboratory criteria	
Meets laboratory criteria	Indicate if the case meets the laboratory criteria. If not, select the “No” box. If not known or unavailable then select the “Unknown” box.
Laboratory results	Indicate whether the organism/toxin was isolated or detected. If the laboratory test results were positive select 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 select the “No” option. If the results of the laboratory test are not yet available, select “Awaiting results”. If any of the laboratory tests were not carried out, select “Not Done”.

Epidemiological criteria	
Contact with a confirmed case of the same disease	Indicate whether the case has had any contact with a laboratory confirmed case of the disease. If not known or unavailable then select the "Unknown" box.
Part of an identified common source outbreak	Indicate whether the case was part of an identified common source outbreak. If not known or unavailable then select the "Unknown" box.

Classification

Classification	**Acute gastroenteritis:** Under investigation - A case that has been notified but information is not yet available to classify it as probable or confirmed. Probable - A clinically compatible illness Confirmed - A clinically compatible illness accompanied by laboratory definitive evidence, OR a clinically compatible illness and a common exposure associated with a laboratory confirmed case. Not a case – a case that has been investigated and subsequently found not to meet the case definition. **Notifiable enteric disease:** Under investigation – a case that has been notified, but information is not yet available to classify it as probable or confirmed. 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. Confirmed – a clinically compatible illness accompanied by laboratory definitive evidence. Not a case – a case that has been investigated and subsequently found not to meet the case definition.
	Laboratory tests for diagnosis: **Acute gastroenteritis** Laboratory definitive evidence for a confirmed case requires isolation of the specific organism or detection of organism nucleic acid or detection of toxin. **Campylobacteriosis** Laboratory definitive evidence for a confirmed case requires identification of *Campylobacter* spp. from a clinical specimen by one of the following methods: • isolation (culture) • detection of Campylobacter nucleic acid **Cholera** Laboratory definitive evidence for a confirmed case requires 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 Laboratory definitive evidence for a confirmed case requires detection of *Cryptosporidium* spp oocysts in a faecal specimen by at least one of the following methods:

- *Cryptosporidium* antigen detection by either:
  - detection of direct fluorescence using monoclonal antibodies
  - detection of antigens using a rapid antigen test
  - enzyme immunoassay.
- detection of *Cryptosporidium* nucleic acid
- visualisation by direct microscopy detection of *Cryptosporidium* cysts.

Giardiasis Laboratory definitive evidence for a confirmed case requires at least one of the following from an appropriate gastrointestinal clinical specimen:

- *Giardia* antigen detection by either:
  - detection of direct fluorescence using monoclonal antibodies
  - detection of antigens using a rapid antigen test
  - enzyme immunoassay
- detection of giardia nucleic acid
- visualisation by direct microscopy detection of *Giardia* cysts or trophozoites.

Paratyphoid fever Laboratory definitive evidence for a confirmed case requires isolation of *Salmonella* Paratyphi from a clinical specimen. *Salmonella* Paratyphi B var Java infections should still be notified as *Salmonella* cases rather than cases of Paratyphi.

Salmonellosis Laboratory definitive evidence for a confirmed case requires identification of *Salmonella* species from a clinical specimen by one of the following methods:

- isolation (culture)
- detection of Salmonella nucleic acid.

Shigellosis Laboratory definitive evidence for a confirmed case requires isolation of any *Shigella* species from a stool sample or rectal swab and confirmation of genus by a reference laboratory.

Typhoid Laboratory definitive evidence for a confirmed case requires isolation of *Salmonella* Typhi from a clinical specimen.

Yersiniosis Laboratory definitive evidence for a confirmed case requires:

- isolation of *Yersinia enterocolitica* or *Y. pseudotuberculosis* from blood or faeces
- detection of *Yersinia* spp nucleic acid from faeces.

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.

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:

Organism/Disease	**Usual Incubation Period (Range)**
Bacillus cereus (diarrhoea)	8–16 hours
Bacillus cereus (vomiting)	0.5–6 hours
Campylobacteriosis	2–5 days (1–10 days)
Ciguatera fish poisoning	1–24 hours
Clostridium botulinum	12–36 hours
Clostridium perfringens	10–12 hours (6–24 hours)
Cryptosporidiosis	7 days (1–12 days)
Giardiasis	7–10 days (3–25 days or longer)

Norovirus	24–48 hours (10–72 hours)
Rotavirus	24–74 hours
Salmonella Paratyphi	1–10 days
Salmonella	12–36 hours (6–72 hours, can be longer)
Shigella	1–3 days (12 hours–1 week)
Staphylococcus aureus	2–4 hours (0.5–8 hours)
Salmonella Typhi	8–14 days (3–over 60 days)
Vibrio cholera O1 or O139	2–3 days (2 hours–5 days)
Vibrio parahaemolyticus	12–24 hours (4–96 hours)
Yersinia	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. A higher number of cases may indicate either a common source outbreak, or an ongoing pattern of "sporadic" cases.

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 10 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 select 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 select 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 select 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	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.). 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. 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. Specify any other contact with recreational water, the date of exposure and the location. If not known or unavailable then select the "Unknown" box.

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 select 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 select 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 select 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 select 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 select 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 select 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 ≥ 15 years, did the case have sexual contact with another male or males	For shigellosis in males aged ≥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 *Shigella*, and they have an increased risk of an antimicrobial resistant *Shigella* infection. If not known or unavailable then select the 'Unknown' box. If "Yes" indicate whether the cases visited and "sex on premises" venue or events and provide details of the venue/event and dates.
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. Select all that apply and specify the details.
Probable source	If the source was not confirmed, indicate whether a probable source was identified. If "Yes", specify the probable source, (select 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 select the “NA” (not applicable) box. If the case does not work select the “NA” box If not known or unavailable then select 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 select 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.