

Haemolytic Uraemic Syndrome and Shigatoxigenic *E. Coli* Infections

Last updated: 1 July 2012

Public health priority:

High

PHU response time:

Respond to reported cases within 1 working day of notification

Enter confirmed cases on NCIMS within 1 working day

Case management:

Notify the Communicable Diseases Branch. Obtain stool and identify the serogroup

Determine and control likely source

Recommend that cases avoid preparing food for others, or caring for patients, children or the elderly for at least 48 hours after diarrhoea has ceased

Contact management:

Contacts should be advised to seek medical attention early if symptoms develop

Contacts with diarrhoea should be investigated for possible STEC infections and be excluded from food handling and care of patients, children or elderly until 48 hours after diarrhoea has ceased

1. Reason for surveillance

- To identify the source of the infection and to prevent further cases
- To monitor the epidemiology to inform the development of better prevention strategies.

2. Case definition

Shigatoxigenic/verotoxigenic Escherichia coli infections (STEC/VTEC)

A confirmed case requires laboratory definitive evidence only.

Laboratory evidence

- Isolation of shigatoxigenic/ verotoxigenic *e. Coli* from faeces, **or**
- Isolation of shiga toxin or vero toxin from a clinical isolate of *e. Coli*, **or**
- Identification of the gene associated with the production of shiga toxin or vero toxin in *e. Coli* by nucleic acid testing on isolate or raw bloody diarrhoea.

Haemolytic uraemic syndrome

A confirmed case requires clinical evidence only.

Clinical evidence

Acute microangiopathic anaemia on peripheral blood smear (schistocytes, burr cells or helmet cells), and at least one of the following:

- Acute renal impairment (haematuria, proteinuria or elevated creatinine level), **or**
- Thrombocytopaenia, particularly during the first seven days of illness.

3. Notification criteria and procedure

HUS is to be notified by:

- hospital CEOs on clinical diagnosis (ideal reporting by telephone on same day of diagnosis).

STEC infection is to be notified by:

- laboratories on microbiological or toxicological confirmation (ideal reporting by telephone on same day of diagnosis).

Only confirmed cases should be entered onto NCIMS. Where STEC is isolated in the context of HUS, it should be entered into NCIMS as both HUS and STEC. HUS is notifiable whether STEC is present or not.

4. The disease

Infectious agent

STEC, particularly serotypes O11, O157 and O26, can cause HUS. Occasionally other organisms such as *Shigella* can cause HUS. HUS may also occur without evidence of diarrhoeal disease.

Mode of transmission

STEC is transmitted by ingesting contaminated food, water, milk or particularly under-cooked or fermented meats and raw food which may have been contaminated by animal manure. Person to person transmission can also occur, particularly in families and child care centres. Outbreaks have been linked to contaminated swimming areas.

Timeline

The typical incubation period is 2 to 10 days, more commonly 3 to 4 days.

STECs are infectious for the duration of excretion of the organism, which is usually up to a week for adults but up to 3 weeks for children.

Clinical presentation

The usual clinical presentation following infection is diarrhoea (which ranges from mild to severe) which can be either bloody or non-bloody. In a small percentage of infections this can progress within days to microangiopathic haemolytic anaemia, thrombocytopaenia and renal failure. Children <5 years old are at greatest risk of developing HUS. A laboratory diagnosis of STEC may not always be made.

5 Managing single notifications

Response times

Investigation

Within one working day of notification of any case begin follow-up investigation and notify the Communicable Diseases Branch (CDB) of the case details.

Data entry

Enter confirmed cases on NCIMS within 1 working day of notification.

Within 1 working day of notification of the serogroup of the organism update NCIMS.

Response procedure

The response to a notification will normally be carried out in collaboration with the case's health carers. But regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness
- Confirm results of relevant pathology tests, or recommend the tests be done
- Find out if the case or relevant care-giver has been told what the diagnosis is before beginning the interview
- Seek the doctor's permission to contact the case or relevant care-giver

- Review case and contact management
- Investigate the possible source of infection.

Case management

Investigation and treatment

All cases of HUS should have stool samples collected and examined for evidence of STEC; suspicious *E. coli* isolates should be sent to ICPMR for serotyping and PCR. ICPMR are able to detect the following serotypes: O157, O26, O55, O111, O119 and O126. MDU are able to fully characterise the organism.

Rectal swabs should be collected if the patient is unable to provide a stool sample. Repeat rectal swabs (ideally three) on consecutive days will optimise the ability to detect an infectious organism. Testing should still be considered following the resolution of diarrheal symptoms as shedding may continue for some weeks.

Antibiotic therapy is not recommended for the treatment STEC infections.

Information should be sought from the case or relevant care-giver about foods ingested, in particular:

- Ingestion of raw or undercooked meat or meat products
- Ingestion of unpasteurised milk, milk products and fruit juices
- Ingestion of sprouts and salad vegetables
- Ingestion of untreated water
- Exposure to farm animals and manure
- Swimming
- Contact with other persons with diarrhoea.
- Because a single case of hus or stec is unusual and could represent a larger cluster, the phu should call laboratories and renal services in the area to ask them to report other possible cases.

Education

The case or relevant care-giver should be informed about the nature of the infection and the mode of transmission. Emphasise the importance of hygienic practices, particularly hand washing before eating and preparing food and after handling animals or animal manure and after going to the toilet.

Isolation and restriction

Strict isolation of cases is not necessary, provided good hygiene is observed. Cases who are food handlers or care for young children, the elderly or debilitated persons should be advised not to attend work until 48 hours after the resolution of symptoms. Children in childcare should not attend until 24 hours after diarrhoea has stopped.

Environmental evaluation

In a cluster, if the epidemiological investigation suggests that food may be the source of illness, contact the NSW Food Authority to assess and correct food handling procedures, and to arrange tracing, collection and testing of suspected foods.

Contact management

Identification of contacts

Contacts are defined as those people who may have eaten contaminated food or drink causally linked to a human case, or who were exposed to an infectious case in the same household, childcare or similar setting.

Investigation and treatment

Contacts with diarrhoea should be investigated for possible STEC infection, and be excluded from food handling and care of children or patients until at least 48 hours after diarrhoea has ceased. Contacts should be counselled about the importance of hygienic practices, particularly hand washing before eating and preparing food, after handling animal manure and after going to the toilet. Contacts should be advised to seek medical attention early if symptoms develop.

Managing special situations

Where a cluster is identified, it is important that a thorough epidemiological investigation be done without delay. Notify CDB immediately.