# SHIGELLOSIS

## NSW Control Guideline for Public Health Units

**Revision history**

| Version | Date | Revised by | Changes | Approval |
|---|---|---|---|---|
| 1.0 | 01/04/2010 | - | - | - |
| 2.1 | 24/08/2018 | Communicable Disease Branch | Updated to include:<br>• new national surveillance case definitions<br>• follow-up protocol for probable cases<br>• information on considerations for antibiotic treatment for high risk patients<br>• appropriate contact management | |

**Response summary**

**Public health priority**
**High** if a cluster or a high priority case (food handler, healthcare worker, childcare worker, child in childcare or MSM). Routine for all other cases.

**PHU response time**
Respond to the report of a cluster of cases on day of notification, and for all other cases within 3 working days. Enter confirmed and probable cases on NCIMS within 3 working days.

**Case management**
In a cluster, attempt to identify and control the likely source.
Cases in high risk occupations (food handlers, health care workers, child care workers) should not attend work until 48 hours have elapsed after symptoms resolve.

**Contact management**
Contacts with symptoms should be investigated for infection 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 and to prevent further cases
- To monitor the epidemiology to inform the development of better prevention strategies.

# 2 Case definition

Both **confirmed cases** and **probable cases** should be notified.

## Confirmed case

A confirmed case requires

1. laboratory definitive evidence
   OR
2. laboratory suggestive evidence AND epidemiological evidence.

*Laboratory definitive evidence*
Isolation of *Shigella* species.

*Laboratory suggestive evidence*
Detection of *Shigella*[*] by nucleic acid testing

*Epidemiological evidence*
An epidemiological link is established when there is:
1. Contact with a confirmed case involving a plausible mode of transmission
   OR
2. An epidemiologically plausible food or other environmental exposure in common with one or more culture-positive cases.

### Probable case
A probable case requires **Laboratory suggestive evidence**

[*]The ipaH gene is the target of all current nucleic acid tests for *Shigella*. However the ipaH gene is common to *Shigella* species and enteroinvasive *Escherichia coli* (EIEC) and thus is not considered laboratory definitive evidence for *Shigella*.

A **cluster** can be defined as **three** or more people linked **epidemiologically**, related in time and place.

## 3 Notification criteria and procedure
*Shigella* infection is to be notified by:
- Laboratories on detection and/or isolation of *Shigella* (ideal reporting by electronic data transfer, phone or routine mail).

Confirmed and probable cases should be entered onto the Notifiable Conditions Information Management System (NCIMS).

## 4 The disease

### Infectious agent
There are 4 serogroups of *Shigella: S. dysenteriae* (Group A), *S. flexneri* (Group B), *S. boydii* (Group C) and *S. sonnei* (Group D). Serogroups A, B and C are further divided into over 30 serotypes.

### Mode of transmission
*Shigella* infection is transmitted by the faecal oral route. The infectious dose may be very low (10-100 organisms). Failing to wash hands adequately after contact with faeces is a main contributor to transmission. Outbreaks of infection can occur among men who have sex with men. Outbreaks also occur in conditions of crowding and childcare centres. Secondary attack rates in household contacts can be high (40%). Ingestion of contaminated water and improperly handled foods may be a source of infection. Flies may be involved in the transfer of the organism to food.

### Timeline
The typical incubation period is 1 to 3 days but may be as long as 7 days.

Shigellosis is infectious while the organism is present in stools, which may be up to four weeks. Asymptomatic carriers can transmit the infection and although rare, a carrier state can continue for months.

### Clinical presentation

*Shigella* infection is characterised by a sudden onset of diarrhoea (containing mucus and/or blood), fever, headache, abdominal pain, nausea and sometimes vomiting. Complications include toxic megacolon, reactive arthritis and rarely, haemolytic uraemic syndrome.

## 5 Case investigation

### Response time

*Investigation*

On same day of notification of a cluster of cases or within 3 days for single cases, begin follow-up investigation. Notify the Communicable Diseases Branch of clusters.

*Data entry*

Within 3 working days of notification enter confirmed and probable cases on NCIMS.
Within 1 working day of notification of the serogroup of the organism, update NCIMS.

### Response procedure

Follow the flow chart in Appendix A. 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 the following actions have been completed:

#### Probable cases

- Confirm results of relevant pathology tests
- Follow up culture results on PCR+ tests
- Determine whether the case is in high-risk group for further transmission to contacts (see 'case management: isolation and restriction' below) and if so:
    - Recommend appropriate exclusion from work or other settings until 48hrs after symptoms resolution to prevent further spread.
    - Investigate with the doctor whether full antimicrobial sensitivities have been requested from primary laboratory, including azithromycin, and document on NCIMS. If not initially ordered, ask the doctor to request full antibiotic sensitivities including azithromycin (see further guidance of antibiotic sensitivity requests under 'Case management: treatment').
    - If the doctor has not contacted the case (and/or is unable to), commence follow-up with the case.
    - If the case has worked while infectious, notify the Communicable Diseases Branch.
- Determine Aboriginality if not known. See 'Special situations: A case in a person who identifies as Aboriginal'.
- Seek the doctor's permission to contact the case or relevant care-giver. Find out if the case or relevant care-giver has been told what the diagnosis is prior to contact.

#### Confirmed cases

- Confirm results of relevant pathology tests
- Ensure *Shigella* isolate is sent to ICPMR for serotyping
- Seek the doctor's permission to contact the case or relevant care-giver. Find out if the case or relevant care-giver has been told what the diagnosis is prior to contact.
- Review case and contact management
- Determine whether the case is in high-risk group for further transmission to contacts (see 'case management: isolation and restriction') and if so:

    - Recommend appropriate exclusion from work or other settings until 48hrs after symptoms resolution to prevent further spread.
    - Obtain full antimicrobial sensitivities from primary laboratory and document on NCIMS.
    - If necessary, discuss the sensitivity results with the treating doctor.
    - Ensure efforts have been made to trace contacts of those with multi-drug resistant shigellosis to advise them of their exposure, educate about shigellosis and to seek medical advice if symptomatic.
    - If the case has worked while infectious, notify the Communicable Diseases Branch.
- Determine Aboriginality if not known. See 'Special situations: A case in a person who identifies as Aboriginal'.
- Determine the likely source of infection (including overseas travel and for males, homosexual contact, anal play or attendance at sex on premises venues).
- For confirmed cases with no overseas travel, no MSM contact or no known contact with another person with a similar illness, collect a three day food history.
- Provide advice on personal hygiene to reduce the likelihood of transmission in households.

## Case management

If the data indicate that the case is part of a cluster and beyond a single Local Health District, investigate in collaboration with the Communicable Diseases Branch.

### *Treatment*

**Refer to Therapeutic Guidelines: Antibiotic.** Although antibiotic therapy may not be necessary to relieve the symptoms of mild shigellosis, it is recommended in all cases (probable and confirmed) in NSW for public health reasons as a very low inoculum causes infection. Antibiotics may shorten the duration and severity of illness. (Note: This differs slightly from advice in Therapeutic Guidelines: Antibiotic, which does not recommend antibiotics for all cases).

Multi-drug resistance is increasingly common and therapy may have to be modified according to the results of culture and susceptibility tests. Antibiotic sensitivity testing is conducted by the primary diagnostic laboratory, and usually available at the same time as the culture result. Full sensitivities must be requested by the doctor to ensure they receive a report for all antibiotics (as opposed to a shortened "doctors report" with some sensitivities suppressed).

Not all laboratories perform azithromycin susceptibility testing; if required, this can be done at the NSW Health Pathology Enteric Reference Laboratory (ICPMR, Westmead). If the doctor has requested azithromycin susceptibility and this is not available at the primary laboratory, this can be done when the specimen is forwarded to ICPMR for subtyping.

### *Education*

Confirmed and probable cases or relevant caregivers should be informed about the nature of the infection and the mode of transmission. Emphasise the importance of hand washing in food handling, after going to the toilet and after sexual activity.

### *Isolation and restriction*

- Confirmed and probable cases who are **in a high risk group** for further transmission should be excluded from work (or other settings if appropriate) until 48hrs after symptom resolution. If high risk cases have worked while infectious, contact the Communicable Diseases Branch.

  The high risk group for further transmission of shigellosis includes:
    - People who work as a food handler or in some capacity serving/preparing food
    - People working in a childcare setting or residential aged care setting
    - Healthcare and residential care workers with direct contact with patients

- Children less than five years of age who attend childcare.
  NB: Children in child care should be excluded until diarrhoea has ceased for 48 hours. It is not necessary for them to be excluded if they do not have diarrhoea but have a positive stool sample.
- Men who have sex with men. Any person who engages in anal play is also at higher risk.

- Cases who are **not** in the high risk group should not attend work while diarrhoea is present.
- Institutional cases should be cohorted (separated from non-infected residents and cared for with dedicated staff with dedicated hand washing facilities) if possible.

# 6 Control of environment

## Food service facility

Where a common food source of infection is suspected on epidemiological grounds in more than one confirmed or probable case, contact the NSW Food Authority to assess and correct food handling procedures and arrange tracing and collection and testing of suspected source foods. Where drinking water is the suspected source, contact the NSW Health Water Unit.

## Sex on premises venue

Where a common sex on premises venue has been identified in more than one confirmed or probable case within a two week period, investigate in collaboration with the Communicable Disease Branch and ACON (formerly Aids Council of NSW).

# 7 Contact management

## Identification of contacts

Contact tracing is required to provide advice and to reduce the risk of further transmission among those people who were close contacts of the case during the case's infectious period.

Particular efforts should be made to trace contacts of those with multi-drug resistant strains to advise them of their exposure, educate about shigellosis, educate about multi-drug resistant infections, and to seek medical advice if symptomatic. This may be done in coordination with the treating doctor.

## Contact definition

The following is a general list of persons considered to be contacts if exposed to infectious cases:

- immediate family, household members and sexual partners, including people who stayed and shared their primary bathroom facilities with the case
- persons who consumed food not subjected to further cooking that was prepared by the case
- If the case is a food handler, other food handlers in the same establishment
- if the case is in nappies, persons who provided direct care to the case
- If the case attends child care or preschool, other children and adults in the same classroom or care group.

## Education

- Cases should be encouraged to inform their contacts about the risk, provide them with a Fact Sheet and recommend to get tested if they develop symptoms.

## Exclusion of symptomatic contacts

Contacts that experience symptoms consistent with shigellosis (see 'the disease: clinical presentation') should be encouraged to seek medical advice and testing for diagnostic purposes.

- Symptomatic contacts **not** in a high risk group should be advised about exclusion while diarrhoea is present.
- Symptomatic contacts **in a high risk group** should be excluded while awaiting microbial results, with further management in accordance with those results (otherwise until at least 48 hours after symptom resolution).

# 8 Special situations

### A case in a person who identifies as Aboriginal

Within Aboriginal communities, shigellosis can be an important issue. Sustained shigellosis outbreaks in remote aboriginal communities have been reported in the Northern Territory, South Australia and Western Australia.

Depending on the area and local community a single notification could prompt discussion with local Aboriginal Health Workers. In conjunction with local health services and Aboriginal health staff, conduct a risk assessment in regard to the likelihood of ongoing infection in the community and consider enhanced surveillance for early case detection and prevention messages for the community.

# 9 Appendices

Appendix A – Shigella testing flowchart