SHIGELLOSIS PROTOCOL

Based on the MoH Communicable Diseases Control Manual 2012-December 2017 Update[1]

Associated Documents

Case Report Form:
Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Shigellosis\FormsStdLettersQuest\CaseReportForm_Enteric_Dec2017.pdf

Fact sheet:

Manatū Hauora | Ministry of Health
https://www.health.govt.nz/our-work/diseases-and-conditions/communicable-disease-control-manual/shigellosis

The Illness[2,3]

Shigella species are a common cause of bacterial diarrhoea (and dysentery) worldwide, especially in developing countries. They cause an estimated 1 million deaths and 165 million cases annually. *Shigella* organisms can survive transit through the stomach since they are less susceptible to acid than other bacteria and for this reason, as few as 10 - 100 organisms can cause disease. Humans are the only natural reservoir for disease. There are four species: *S. sonnei, S. flexneri S. dysenteriae* and *S. boydii*. In developing countries, both faecal-oral spread and contamination of common food and water supplies are important mechanisms of transmission. In developed countries *Shigella* may result in institutional and food borne outbreaks and amongst men who have sex with men.

Infection with *Shigella* species (particularly *S. dysenteriae*) may be associated with the following extra-gastrointestinal complications:

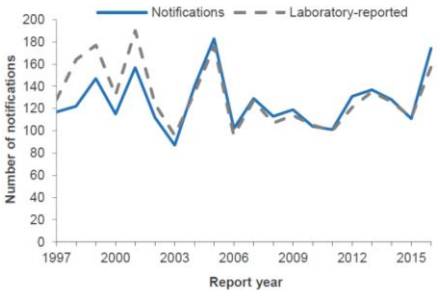
- bacteraemia
- haemolytic uremic syndrome (mortality rate of greater than 50%)
- metabolic disturbances
- convulsions
- encephalopathy (up to 40% of children hospitalised with shigellosis)
- reactive arthritis.

Epidemiology in New Zealand[1,4]

Outbreaks of shigellosis in New Zealand are often caused by person-to-person transmission. Many cases of shigellosis are the result of overseas travel, but occasional outbreaks occur.

Shigella comprises 4 species or serogroups: group A (*S. dysenteriae*), group B (*S. flexneri*), group C (*S. boydii*) and group D (*S. sonnei*). *S. dysenteriae* type 1 can spread in epidemics and is associated with serious disease and complications; *S. flexneri* can cause reactive arthritis. By contrast, *S. sonnei* is generally associated with mild illness.

NZ shigellosis notifications and laboratory reported cases year by year, 1997-2016



In 2016, 174 cases of shigellosis were notified compared with 111 in 2015. The 2016 notification rate (3.7 per 100,000) was a significant increase from the 2015 rate (2.4 per 100,000). The graph shows total cases by year between 1997 and 2016.

2016 data

- Age groups: 1–4 years, 60-49 years
- Regions: Waitemata, Counties Manukau and Auckland DHBs, had the highest rates.
- Ethnicity: Pacific peoples
- Hospitalisation: 30%
- Risk factors: Travelling overseas (61%) (India, Samoa and Tonga).
- Commonest species: *S. sonnei* (55%) and *S. flexneri* (41%).
- Two outbreaks (13 cases) were reported in 2016.

Drug-resistant Shigella

Extensively drug-resistant (XDR) and multidrug resistant (MDR) Shigella have emerged in Aotearoa New Zealand in recent years. XDR Shigella strains are resistant to all commonly recommended empiric and alternative antibiotics including ampicillin, ceftriaxone, azithromycin, cotrimoxazole and ciprofloxacin, resulting in significantly limited treatment options for infected individuals with severe illness. MDR Shigella strains are resistant to any three of ceftriaxone, azithromycin, cotrimoxazole and ciprofloxacin.

From late 2023, XDR Shigella sonnei was associated with an outbreak, with ongoing local transmission, primarily among gay, bisexual, and other men who have sex with men (MSM). The outbreak was genomically linked to an ongoing international cluster, predominantly affecting MSM with cases in Europe, the United Kingdom, and United States.

Of note, detections of MDR and XDR shigellosis cases outside of this cluster are ongoing, including cases of both Shilgella sonnei and S. flexneri.

More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website.

Information on foodborne illness is available on the Ministry for Primary Industries website.

Further information on enteric diseases is also available Appendix 2: Enteric disease – Health New Zealand | Te Whatu Ora

CASE DEFINITION

Clinical description

Acute diarrhoea with fever, abdominal cramps, blood or mucus in the stools.

Reservoir

Humans.

Incubation period: 12 hours to 1 week; usually 1–3 days.

Mode of transmission: Direct or indirect faecal-oral transmission. Food or water may become contaminated. *Shigella* is highly infectious. The infective dose can be as low as 10–100 organisms.

Faecal-oral transmission may also occur through any type of sexual activity that involves contact with faeces (even if faeces is not visible). This includes direct sexual contact (e.g. anal sex, fisting, fingering, rimming, oral sex) or indirect sexual contact (handling contaminated objects such as a condom or sex toy).

Period of communicability: Up to 4 weeks after infection. Asymptomatic carriage may also occur. In rare instances, faecal shedding can persist for months. Appropriate antimicrobial treatment reduces the duration of carriage to a few days.

Prevention: Prevention of shigellosis is achieved by the following:

- access to safe drinking water, chlorination of unreliable water sources, strict hand washing (especially by food handlers) and refrigeration of food and proper cooking,
- implementation of public health policies and procedures for notified individuals and outbreaks,
- implementation of infection control principles in health care and high-risk settings,

Antibiotic prophylaxis is restricted to certain individuals at risk of severe disease. There is currently no effective vaccine against *Shigella*.[5]

Notification Procedure

Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

Public health services should inform the Protection Clinical team of any new extensively drug-resistant (XDR) *Shigella* cases for awareness by email to protection.clinical@tewhatuora.govt.nz. No individual identifiable information should be included.

See the Communicable Disease Manual's Appendix 5: Escalation pathways for more

information.

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 is either epidemiologically linked to a confirmed case or has had contact with the same common source as a confirmed case that 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 Testing

Laboratory definitive evidence for a confirmed case requires isolation of any *Shigella* spp. from a stool sample or rectal swab and confirmation of genus by a reference laboratory. While nucleic acid testing may be used for screening, a positive nucleic acid test does not meet the criteria for laboratory confirmation. The PCR target for *Shigella* detects the ipaH gene which is found in both *Shigella* and enteroinvasive *Escherichia coli*. Therefore, positive specimens require culture for confirmation as *Shigella*.

All isolates should be referred to the Enteric Reference Laboratory at ESR for further characterisation.

Management of Case

Initial notification

The initial laboratory notification of possible shigellosis now arrives as a report of a positive result to a faecal bacteria PCR screen, indicating that shigella AND/OR enteroinvasive E coli (EIEC) has been detected. Following this initial positive PCR result the laboratory will proceed to culture the specimen to determine whether shigella is present. Until the culture result is available public health action is guided by risk factor information; see the flow chart in Appendix 4.

Multi-drug resistant shigella is increasingly common. If culture results indicates multi-drug resistance the treating doctor should be advised, and may need to modify therapy. Ensure efforts are made to trace all contacts of multi-drug resistant cases to advise them of their exposure, educate about shigellosis, and to seek medical advice if asymptomatic. Exclusion and clearance criteria remain the same.

Investigation

Obtain a history of travel, a food history and history of water exposure, as well as a list of possible contacts.

Confirmed cases of shigellosis in males aged 16 or over[1] should be asked if they had any sexual contact with another male/other males during the incubation period. If sexual contact is reported, to assist with outbreak control, any history of visiting sex on site venues, or attending other events where people meet for sex during the incubation period should also be checked and reported in the case report form, including information on names, dates and events.

Sexual transmission of shigellosis may occur through sexual activity involving contact with faeces, including indirect contact through objects (e.g. condoms, sex toys). This should be investigated where applicable, but sexual transmission should not be assumed in every case of shigellosis, including MDR or XDR shigellosis cases.

[1] Internationally, almost all cases of MDR or XDR shigellosis have occurred in gay, bisexual and other men who have sex with men (GBMSM), which informs this approach. However, it is important to recognise that some people at high risk will not identify as men, including nonbinary and transgender people who have a penis, and people of other genders who have sex with GBMSM. Public health services should consider asking questions about sexual history in people who they suspect may be at higher risk who do not identify as men. Identifying these people may be challenging but the outlined approach and recommended questions are still appropriate in these groups.

- Administer questionnaire by telephone and post out letter and disease information within 4 hours. *{Note: The letter accompanying the disease information mentions that if the case is a child, both the letter and disease information are to accompany the child if he/she stays in another household, until a clearance is given.}* If notified outside of office hours, contact the MOH.
- Ensure laboratory confirmation by stool or rectal swab culture has been attempted.
- Investigate and obtain a more detailed history if there is an outbreak and ensure symptomatic persons are tested for *Shigella*.
- Liaise with the environmental health officer of the local territorial authority where a food premise is thought to be involved.
- Liaise with the Ministry for Primary Industries if a contaminated commercial food source is thought to be involved.

Outbreak

If an outbreak is suspected, contact the MOH and refer to;

- ◊ Te Mana Ora Outbreak Response Procedure https://cdhbintranet.cdhb.health.nz/communitypublichealth/cphpoliciesandprocedures/SitePages/CD_Outbreaks.aspx
- ◊ Organise faecal screening (through ESR) of symptomatic persons involved in the event or associated with the facility. These persons are to be managed as cases until results are known.

Restriction and Clearance

- In a health care facility, only standard precautions are indicated in most cases:
- if the case is in nappies or incontinent, apply contact precautions for the duration of illness. For further details, refer to the exclusion and clearance criteria in Table 1 and for more details, Appendix 2 in this protocol.
- Where sexual transmission is suspected (e.g. confirmed case with sexual partners during the case's infectious period and not linked to food or water common source outbreak), the case should be advised not to have any form of sexual contact until 2 weeks after diarrhoea has resolved.

Table 1.[6] Exclusion and clearance criteria for people at increased risk of transmitting an infection to others*

Pathogen	Exclusion	Clearance	Contacts
S. Sonnei	*S.Sonnei* - until symptom free for 48 hours	None required	No action
S.Boydii, Dysenteriae, and *Flexneri*	*S.Boydii, Dysenteriae,* and *Flexneri* cases in groups 1,2,3,4 require clearance	1, 2, 3, 4 (below) Exclude until symptom free for 48 hours and two consecutive negative stools at least 48 hours apart and at least 48 hours after completing any antibiotic course	1, 2, 3, 4 (below) Exclude until one negative faecal specimen has been provided
XDR Shigella cases	*Exclusion and clearance requirements for XDR Shigella cases are the same as for fully sensitive cases*		

* **Cases of most enteric disease should be considered infectious and should remain off work /school /preschool until 48 hours after symptoms have ceased**. Certain individuals pose a greater risk of spreading infection and additional restriction/exclusion criteria may apply.

NOTE: The Health (Infectious and Notifiable Diseases) Regulations 2016 do not contain any exclusionary powers for people at increased risk of transmitting an infection to others (groups 1-4 following). Instead, the medical officers of health can resort to broader powers in Part 3A of the

Health Act 1956, which include directions to cases and contacts to remain at home until no longer infectious.

1. people whose work involves preparing or serving unwrapped food to be served raw or not subject to further heating (including visitors or contractors who could potentially affect food safety)
2. staff, inpatients and residents of health care, residential care, social care or early childhood facilities whose activities increase risk of transferring infection via the faecal-oral route
3. children under the age of 5 attending early childhood services/groups
4. other adults or children at higher risk of spreading the infection due to illness or disability.

- If personal hygiene habits and hand washing facilities a concern, discuss with MOH.
- For further details, refer to Appendix 2 of this protocol and reference 6.

Treatment

- Fluid and electrolyte therapy.
- Antibiotic treatment to be guided by sensitivities.[3] Although shigellosis can cause haemolytic uremic syndrome in some children, it is not due to the antibiotic treatment (unlike VTEC).[5]

Counselling

- Advise the case and their caregivers of the nature of the infection and its mode of transmission. If case is a child, ask if he/she stays in any household other than that given at the time of notification and if so, ensure advice accompanies the child when he/she moves. Educate about hygiene especially hand hygiene.
- All cases should be advised to avoid spas, swimming, spa pools/ hot tubs and sharing towels as well as preparing food for other people until a week after symptoms stop.
- For both men and women, abstinence from sexual activity until 2 weeks after diarrhoea has resolved is recommended—this particularly applies to oral-anal contact.

Additional follow up and advice for all shigellosis cases where sexual transmission is suspected:

- Ensure efforts are made to trace all sexual contacts of the case to advise them of their exposure, educate about shigellosis, and to seek medical advice if symptomatic. This could be done by providing the case with the Shigellosis in MSM information sheet and Burnett Foundation resources and encouraging them to share these with their sexual contacts, or through standard contact tracing processes.
- Advise the case not to have any form of sexual contact until 2 weeks after diarrhoea has resolved.
- People with sexually acquired shigellosis may have other sexual health needs that would benefit from review at a sexual health service. Encourage the case to attend their local sexual health service or GP for a sexual health screen (if not recently done).

Additional follow up for multi or extensively drug-resistant shigellosis cases.

- Follow up with the case 3 weeks after symptom onset to confirm resolution of symptoms. If symptoms persist, recommend that case consults with their GP for consideration of further testing or management.
- A NPHS Northern Region fact sheet is available.

Management of Contacts

Definition of a Contact

All those with close (for example, household) contact with a case during their illness or during the subsequent period of communicability or who have been exposed to the same contaminated food or water in a common-source outbreak or who have had sexual contact with a case during their illness or subsequent period of communicability.

Investigation

Identify contacts for investigation, possible restriction (and clearance) and counselling as appropriate. Contacts with symptoms, even mild, should be investigated as cases.

Restriction and Clearance

- Nil if asymptomatic and not in a high-risk group.
- Symptomatic high-risk contacts are to be treated as a case and must remain off work/school/preschool etc. while awaiting culture results of faecal specimens.
- For exclusion and clearance criteria for contacts from an early childhood centre see Tables 1-3.

Table 2‡ Exclusion and clearance criteria of an asymptomatic high-risk contact (the child/adult attends an early childcare centre) of a household case

Contact	Action	Specimen result	Action
Adult	Screen	Positive	As per type - Table 1
		Negative	No further restriction
Child <5 years	Exclude + screen	Positive	As per type - Table 1
		Negative	No further restriction

Table 3‡ Exclusion and clearance criteria of an asymptomatic early childcare centre contact of an early childcare centre case

Contact	Action	Specimen result	Action
Adult	Screen	Positive	As per type - Table 1
		Negative	No further restriction
Child <5 years	Screen[Ω]	Positive	As per type - Table 1
		Negative	No further restriction

‡ For further details of the arguments for the above amendments see reference 7.

Ω In this situation the risk of transmission is essentially reduced by the exclusion of the case and any symptomatic contacts, and exclusion of asymptomatic contacts may affect a significant proportion of attendees unnecessarily. Furthermore, not excluding asymptomatic children may be beneficial in that it is likely to reduce their attendance at other ECCs while potentially infectious.

Prophylaxis

Usually nil. Antibiotic prophylaxis is restricted to certain individuals at risk of severe disease.[5]

Counselling

- Advise all contacts of the incubation period and typical symptoms of shigellosis and to seek medical attention promptly if symptoms develop.
- If sexual transmission is suspected ensure efforts are made to trace all contacts of cases to advise them of their exposure, educate about shigellosis, and to seek medical advice if symptomatic. This can be done by providing the contact with the Shigellosis in MSM information sheet and Burnett Foundation resources (for MSM), or by encouraging the case to share these with their sexual contacts.
- A NPHS Northern Region fact sheet is available.
- If symptomatic, contact is to consult GP and have a faecal test. Manage as a case until the result is known.

Other Control Measures

Identification of source

- Check for other cases in the community.
- Investigate potential food or water sources of infection only if there is a cluster of cases or an apparent epidemiological link.
- If indicated, check the water supply for microbiological contamination and compliance with the latest New Zealand drinking-water standards (Ministry of Health 2008).[8]
- Where sexual transmission is suspected, investigation should establish if any sex on site premises are reported to assist with outbreak control.

Disinfection

Clean and disinfect surfaces and articles soiled with faecal material. For more details, see Appendix 1 in this protocol and reference 9.

Health education

- In an outbreak, consider a media release and direct communication with local parents, early childhood services, schools and health professionals to encourage prompt reporting of symptoms.
- In communications with doctors, include recommendations regarding diagnosis, treatment and infection control.
- In early childhood services or other institutional situation, ensure satisfactory facilities and practices regarding hand cleaning, nappy changing, toilet use and toilet training, preparation and handling of food, and cleaning of sleeping areas, toys and other surfaces.
- Educate the public about safe food preparation (see Appendix 3 in this protocol and reference 10).

Reporting

- All gay, bisexual, and other men who have sex with men (MSM) with possible sexually acquired shigellosis, and their sexual contacts should be provided with the following resources: *Shigella* Infection Among Gay, Bisexual, and Other Men who Have Sex With Men (CDC) and Shigella (Burnett Foundation).
- Where sex on site premises have been identified, guidance to these premises, and to sex workers includes encouraging minimising faecal-oral exposures during sexual activity by use of barriers during sex, washing genitals and anal area before and after sex, and washing sex toys after use.
- Ensure complete case information is entered into EpiSurv.
- If a cluster of cases occurs, contact the Protection Clinical Team for awareness by email to protection.clinical@tewhatuora.govt.nz and outbreak liaison staff at ESR, and complete the Outbreak Report Form.
- If an outbreak, write report for Outbreak Report File: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Shigellosis\Outbreaks\
- File.

Appendix 1

Extract from the MoH Communicable Disease Control Manual 2012 - December 2017: Appendix1: Disinfection[9]

Disinfection and cleaning the environment

Diseases that are notifiable have public health implications. Therefore, decontamination of the environment is recommended when cross-infection from the source is possible. Disinfection is also indicated for contamination with y resistant bacteria.

Concurrent disinfection is the application of disinfection measures as soon as possible after the discharge of infectious material from the body of an infected person, or after articles have been soiled with such infectious discharges.

Personal protective equipment (PPE) must be used during environmental disinfection to prevent self-contamination.

Procedures
Disposable items: Any items that can be disposed of should be categorised as in NZS 4304:2002 New Zealand Waste Standard and disposed of.

Solid surfaces and/or equipment (including children's toys): Before disinfection, solid surfaces and/or equipment should be cleaned with detergent and dried. Before disinfection chemicals are applied, it should be established that they are fit for purpose a clear process on how to use them and manufacturer's recommendations are followed.

Source: Ministry of Health. 2009. *Guidelines for the Management of Norovirus Outbreaks in Hospitals and Elderly Care Institutions*. Wellington: Ministry of Health.

Appendix 2

Extract from the MoH Communicable Disease Control Manual 2012 - December 2017 Appendix 2: Enteric Disease [6]

Exclusion/Restriction
Cases of most enteric disease should be considered infectious and should remain off work/school until 48 hours after symptoms have ceased. Certain individuals pose a greater risk of spreading infection and additional restriction/exclusion criteria may apply. Microbiological clearance may be required for individuals infected with/exposed to certain pathogens.
The key criteria are:

- the decision to exclude any worker is based on individual risk assessment. As a general rule, any worker with symptoms of gastrointestinal infection (diarrhoea and/or vomiting) should remain off work until clinical recovery and stools have returned to normal (where the causative pathogen has not been identified). Where the pathogen has been identified, specific criteria are summarised in Table 2.4
- the overriding prerequisite for fitness to return to work is strict adherence to personal hygiene, whether symptomatic or not.

The circumstances of each case, carrier or contact should be considered and factors such as their type of employment, availability of toilet and hand washing facilities at work, school or institution and standards of personal hygiene taken into account. For example, a carrier may be relocated temporarily to a role that does not pose an infectious risk.

Pathogen specific exclusion criteria for people at increased risk of transmitting an infection to others
Pathogen specific exclusion (restricting criteria for people from work, school or an early childhood service and for subsequent clearance are summarised in Table 2.4. Additional information is also included in the table for the following groups:

1. people whose work involves preparing or serving unwrapped food to be served raw or not subject to further heating (including visitors or contractors who could potentially affect food safety)

2. staff, inpatients and residents of health care, residential care, social care or early childhood facilities whose activities increase risk of transferring infection via the faecal-oral route

3. children under the age of 5 attending early childhood services/groups

4. other adults or children at higher risk of spreading the infection due to illness or disability.

The Health (Infectious and Notifiable Diseases) Regulations 2016 do not contain any exclusionary powers or incubation periods for infectious children, or for high risk occupational groups such as people who work with children or food handlers. Instead, the medical officers of health can resort to broader powers in Part 3A of the Health Act 1956, which include directions to cases and contacts to remain at home until no longer infectious. This Manual contains the recommended exclusion periods for specific diseases (Refer: Table 2.4). There is guidance published about the 2016 regulations and Part 3A of the Health Act in www.health.govt.nz/our-work/diseases-and-conditions/notifiable-diseases/summary-infectious-disease-management-under-health-act-1956

	The legislation is principles based. In this context this means that medical officer of health must weigh protection of public health (the paramount consideration) with the following principles: trying voluntary means first if likely to be effective, choosing a proportionate, and the least restrictive measure required in the circumstances, fully informing the case or contact of the steps to be taken and clinical implications, treating them with dignity and respect for their bodily integrity and taking account of their special circumstances and vulnerabilities, and applying the measures no longer than is necessary (sections 92A to 92H). Under Part 3A a medical officer of health can direct a case or a contact to stay home (section 92I(4)(b) or 92J(4)(b)). This is when the officer believes on reasonable grounds that the case or contact poses a public health risk (as defined in the s2 Act). The direction must specify duration. Alternatively, in the context of attendance at an educational institution, if the officer believes the infection risk is unlikely to be effectively managed by directing the case or contact, he or she can approach the head and direct them to direct the case or contact to remain at home. In serious cases, the medical officer of health can also direct the head to close the institution or part of it (s 92L). Medical officers of health have no powers to direct closure of premises or places where people congregate, other than educational institutions. If a medical officer of health needs to manage a public health risk by excluding infectious people from certain occupations, public pools, campsites, concerts and other public environments, he or she can use directions to the individuals concerned – to stay away from a certain place, or not to associate with certain people. The Ministry for Primary Industries has powers to close commercial food premises. In contrast, medical officer of health powers focusses on the risk the person poses. Note that while there are provisions that apply to early childhood service workers, there are no provisions for health care workers – instead, advice should be provided to employers in terms of the Health and Safety at Work Act 2015. Employers may decide to implement more stringent exclusion/restriction criteria in response to their own or their customers' requirements.

Appendix 3

Extract from the MoH Communicable Disease Control Manual 2012 - December 2017 Appendix 3: Patient Information[10]

Health education resources
Pamphlets, posters and other resources available from the Ministry of Health at www.healthed.govt.nz.

Food safety practices
The Ministry for Primary Industries
The Ministry for Primary Industries (MPI) leads New Zealand's food system, ensuring the food we produce is safe and protecting the health and wellbeing of consumers. MPI is responsible for legislation covering food for sale on the New Zealand market, primary processing of animal products and official assurances related to the export of animal and plant products and the controls surrounding registration and use of agricultural compounds and veterinary medicines. MPI is the New Zealand competent authority for imports and exports of food and food-related products.
MPI contact information: www.mpi.govt.nz/contact-us

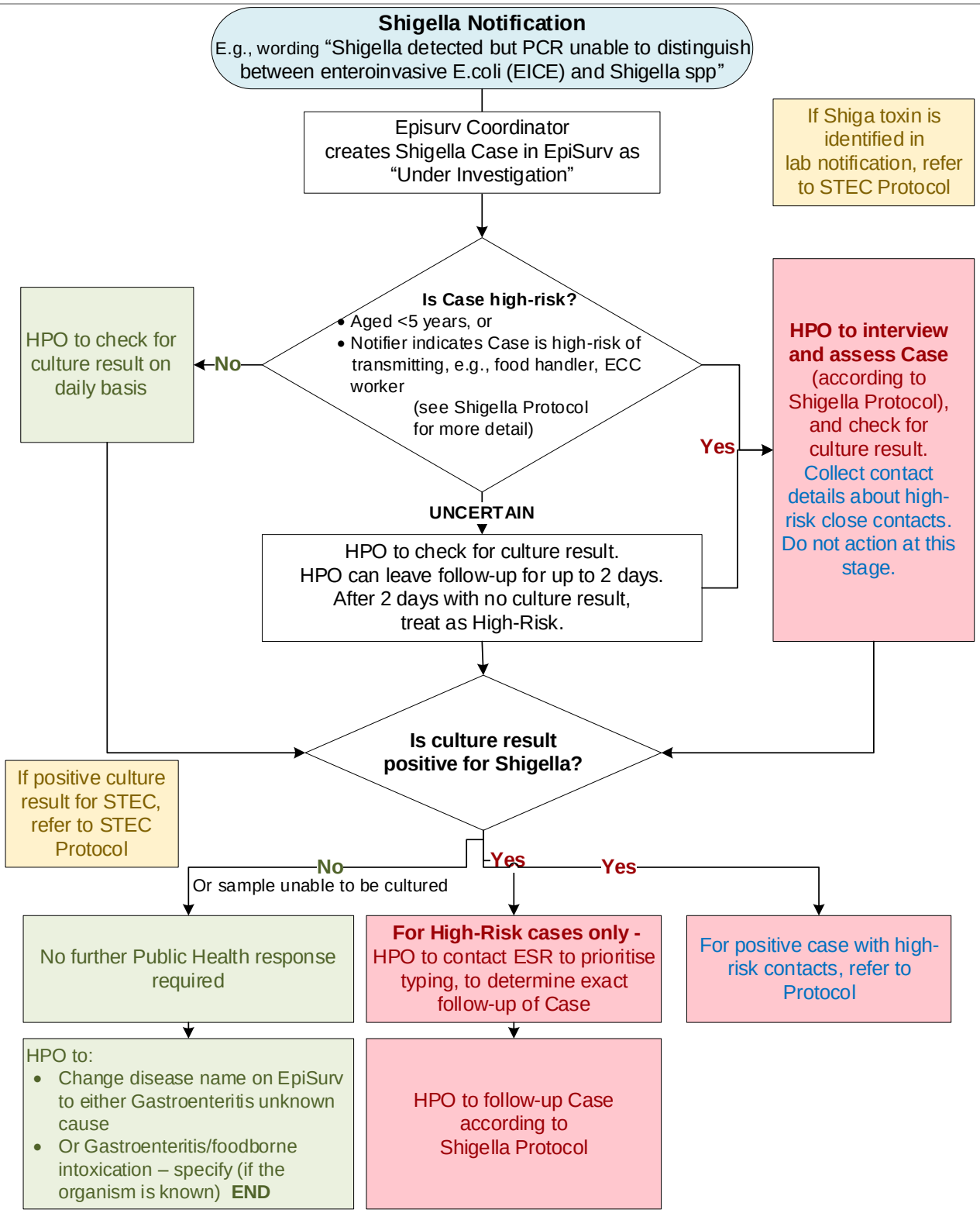
Food safety practices in preparing and cooking a hangi: He whakatairanga i nga ahuatanga mahi mo te tunu hangi:
www.mpi.govt.nz/food-safety/community-food/marae-food-safety

Safe food preparation – key messages
Educate the public about safe food preparation.

- Avoid working with food when you:
  - are unwell especially with a gastro infection
  - have open skin sores, boils or abscesses.
- Clean your hands thoroughly after using the toilet or changing nappies or other incontinent products for others and before and after preparing food.
- Wash raw vegetables and fruits thoroughly before juicing them or eating them fresh.
- Cook meat thoroughly before eating.
- Cook eggs and egg products properly. Avoid eating raw, incompletely cooked eggs or using dirty or cracked eggs.
- Keep hot food hot between cooking and eating it.
- Wash hands, utensils and chopping boards in hot, soapy water after handling uncooked food.
- Keep raw meat, poultry and fish separate from and below other foodstuffs so that any raw meat juice does not contaminate other foods stuffs especially ready-to-eat foods.
- Cover all stored food.
- Cover and put uneaten, cooked food in the refrigerator within 1 hour of cooking.
- Defrost food by placing it on the lower shelves of a refrigerator (if raw meat place on bottom shelf to avoid raw meat juice contaminating other foods) or use a microwave oven according to defrosting instructions. Avoid defrosting food at room temperature.
- Thoroughly reheat (until internally steaming or piping hot, at least 70ºC) leftover or ready-to-eat foods before eating.
- Strictly follow use-by and best-before dates on refrigerated foods.

Find out more about how to prepare and store food safely and when you need to take extra care with some types of food at www.mpi.govt.nz/food-safety/food-safety-for-consumers.

Appendix 4: Process for following up Shigella / EICE Laboratory Notifications



Key points

- Incubation period for Shigella is 1-3 days (range 12hrs to 1 week).
- Faecal shedding may occur for 2-3 weeks after symptoms have ceased.
- Asymptomatic carriage may last from weeks to months.
- To confirm a case has Shigella requires the isolation of any Shigella species from a stool sample or rectal swab and confirmation of genus by a reference laboratory. While PCR nucleic acid testing may be used for screening, a positive nucleic acid test alone does not meet the criteria for confirmed case status in EpiSurv.

References and further information

1. NZ Communicable Diseases Control Manual 2012-December 2017 Update, Shigellosis: https://www.health.govt.nz/system/files/documents/publications/cd-manual-shigellosis-dec17.pdf
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4. ESR, Notifiable Diseases In New Zealand Annual Report 2016 https://surv.esr.cri.nz/PDF_surveillance/AnnualRpt/AnnualSurv/2016/2016AnnualNDReportFinal.pdf
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6. MoH Communicable Disease Control Manual Appendix2: Enteric Disease. http://www.health.govt.nz/system/files/documents/publications/cd-manual-appendix-2-_dec17.pdf
7. C&PH document, A Proposed Amendment To The C&PH Shigellosis Protocol June 2017 K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Shigellosis\ProtocolAmendmentProposal_June 2017\Shigellosis protocol_Proposed amendment Jun 2017.docx
8. Ministry of Health. 2008. Drinking-water Standards for New Zealand 2005 (Revised 2008) http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008-0
9. MoH Communicable Disease Control Manual Appendix 1: Disinfection http://www.health.govt.nz/system/files/documents/publications/cd-manual-appendix-1-dec17.pdf
10. MoH Communicable Disease Control Manual Appendix 3: Patient Information http://www.health.govt.nz/system/files/documents/publications/cd-manual-appendix-3-dec17.pdf

Document Control

Protocol review task	Responsibility	Date completed
Minor update v4: addition of flow chart and commentary to guide initial response to PCR results	PHS	V4, 11/12/2023
Minor update v5: extra point added to Appendix 4. Flow chart under Key Points - *"If laboratory analysis does not grow shigella culture this does not necessarily mean that* ***the person does not have shigella, only that it could not be isolated".***	HPO	V5, 18/01/2024
Minor update v6: two additions to Appendix 4. Flow chart under Key Points - Further guidance on managing high-risk contacts.	HPO	V6, 04/03/2024
Minor update v7: additional advice on multi-drug resistance, based on NSW Health guidelines.	PHS	V7, 10/04/2024
Minor update v8: update to reflect CD Manual December 2024 updates re MDR shigellosis and February 2025 updates re sexual history questions that are gender-inclusive and culturally sensitive.	PHS	V8, 28/03/2025