CHOLERA

Based on the MoH Communicable Diseases Control Manual[1]

Associated Documents

Case Report Form:
Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Cholera\FormsStdLettersQuest\Case ReportFormEnteric_Mar2016.pdf

Fact Sheet:
https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/cholera/

The Illness[1,2]

Cholera is an acute gastroenteritis caused by *Vibrio cholerae*. In severe cases disease is characterised by a sudden onset of symptoms with profuse painless watery (rice water) stools, occasional vomiting, rapid dehydration, acidosis, and circulatory collapse. In untreated cases death may occur in a few hours and the case fatality rate may exceed 50%. Cholera is not endemic in New Zealand but occasional imported cases occur, mainly in travellers from Asia. There have been 11 cases notified since 2000.

Cholera is a quarantinable disease under the Health (Quarantine) Regulations 1983.

There are over 200 serogroups of *Vibrio cholerae* but only serogroups O1 or O139 that produce cholera toxin are associated with clinical cholera and have pandemic potential. Most non-O1/O139 strains do not secrete enterotoxin but can cause sporadic disease. Cholera can occur in epidemics or pandemics. Endemic cholera occurs in parts of Africa, Central Europe, and Asia. Cholera was a major cause of death in many countries in the past; epidemics are now less common, but cholera remains an important cause of death in some developing countries. Mild cases of diarrhoea are common especially among children. Clinical cholera in endemic areas is usually confined to the lower socio-economic groups.

Case Definition

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

Incubation: From a few hours to five days, usually 2-3 days.

Transmission: Infection of humans occurs by ingestion of contaminated food (for example, rice, seafood, fresh vegetables and fruit) or water (for example, rivers, ponds, lakes, well water and even municipal water). Direct person-to-person transmission is probably rare because a large inoculum is necessary to transmit disease. *V. cholerae* persists indefinitely in aquatic environments and may survive up to 14 days in some foods.

Communicability: Usually from the onset of symptoms until a few days after recovery but occasionally persists for several months or years. Individuals with asymptomatic infections may shed the organism in their faeces for 1-10 days post-infection, though the risk to others in this situation is unclear.

Prevention: Safe water, sanitary sewage disposal, safe food handling avoiding time-temperature abuse, thorough cooking and scrupulous personal hygiene including hand-washing after activities at risk of spreading the disease. Oral cholera vaccines have a limited place in certain situations.

Notification Procedure

- On suspicion immediately.
- The MOH to notify the Ministry of Health.
- Attending medical practitioners or laboratories must notify the local Medical Officer of Health immediately about cases of cholera. The Ministry of Health assesses cases of cholera, and if necessary reports them to the World Health Organization (WHO), in accordance with the

International Health Regulations (IHR) 2005. Although laboratories speciate, samples must be further typed at ESR for genes encoding heat-stable enterotoxin (NAG-ST), that is, NAG *V. cholerae*.

Immediate action: Contact ESR (Porirua ph 04 237 0149) for identification of serotype. If not serotype 01 or 0139, (ie. non-vibrio cholera (NVC)) then does not require further investigation because other serotypes are not particularly pathogenic and are not notifiable and if that is the result enter in EpiSurv as "Not a case".

- After hours notification - contact MOH and manage as a case until typing known.
- Advise TLA EHO of case by phone or fax (but to be investigated by C&PH).

Case Classification
All isolates of *Vibrio cholerae* are initially notifiable as suspected cholera until the strain has been determined. Unless the isolate is determined to be O1 or O139 **and** has the ability to produce cholera toxin, the case should be denotified.

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 a contact of a confirmed case of the same disease or has had contact with the same common source – that is, is part of a common-source outbreak.

Confirmed: A clinically compatible illness that is laboratory confirmed.

Not a case: A case that has been investigated and subsequently found not to meet the case definition. Note: Some strains of O1 and O139 do not possess the cholera toxin gene, and some strains of non-O1 non-O139 do possess the cholera toxin gene. Illness caused by these strains is **not** defined as 'cholera'[1]

Laboratory Testing

Laboratory confirmation requires isolation of *Vibrio cholerae* serogroup O1 or O139 from a clinical specimen **and** confirmation that the organism is toxigenic (can produce the cholera toxin). All specimens should be referred to ESR for serotyping and confirmation. (See 'Not a case' definition above).

Management of Case

Investigation

- Obtain a history of travel, consumption of untreated water and possible contacts.
  - For an imported case identify the country of exposure.
  - For an indigenous case initiate a thorough investigation to find the source.
- Ensure laboratory confirmation by stool culture or rectal swab and further typing has been attempted.
- Ensure the laboratory is aware of any overseas travel history so that selective media for cholera can be used.

Restriction

- In health care facilities, only standard precautions http://www.cdhb.health.nz/Hospitals-Services/Health-Professionals/CDHB-Policies/Infection-Prevention-Control-Manual/Pages/default.aspx are indicated in most cases. If the case is a diapered or incontinent child, apply contact precautions for the duration of illness.
- Refer Table 1 (following) for details of exclusion and clearance criteria. Exclude from work those in high-risk groups, such as food handlers and caregivers (of patients, children and the elderly), until symptom free for 48 hours. In exceptional circumstances, where workplace hygiene or sanitation is uncertain, obtain a clearance.

Table 1. Exclusion and clearance criteria for people at increased risk[3] of transmitting an infection to others*

Pathogen	Exclusion* and Clearance	Contacts
Vibrio cholerae O1 or O139	– Exclude until symptom free for 48 hours – 1,2,3,4: exclude until symptom free for 48 hours and two consecutive negative stools at least 48 hours apart.	Clinical surveillance of those who shared food and drink with case for 5 days from shared exposure.

* 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. In exceptional circumstances, eg, where workplace hygiene or sanitation is uncertain, a case may need to be excluded until they have submitted appropriate negative stool(s), taken at a suitable interval.

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.

There is no need to restrict travel within New Zealand (because of a concern regarding sewage treatment) once a case has been managed appropriately although the case should avoid faecal contamination of waterways. In emergency situations, when sewerage systems are disrupted, all cases should be discussed with an MOH, who may seek Ministry assistance to ensure cases are placed where safe sewage disposal can occur.

Treatment
Prompt fluid therapy with adequate volumes of electrolyte solution is usually all that is required for mild to moderate illness. Patients with severe dehydration require urgent intravenous fluid. Antimicrobial agents to which the strain is sensitive shorten the duration of diarrhoea and the duration of *Vibrio* excretion[4].

Counselling
- Advise the case and their caregivers of the nature of the infection and its mode of transmission.
- Educate about hand and food hygiene.
- A fact sheet is available: https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/cholera/

Management of Contacts

Identify contacts for investigation and counselling as appropriate.

Definition
Household members or those exposed to a possible common food or drink source during the 5 days before onset of symptoms.

Investigation
- Obtain stool vibrio culture from symptomatic contacts, especially if the infection was acquired in New Zealand.
- Inform the laboratory that cholera is suspected.

Restriction
- Nil if asymptomatic.
- If symptomatic, restrict as for case (while awaiting stool culture results).

Prophylaxis
In New Zealand, antimicrobial prophylaxis for contacts is not generally recommended because the rate of secondary spread is very low in Western countries. {However note the following comment from Control of Communicable Diseases Manual, Heymann, 19th edition. page 126. "*Chemoprophylaxis is rarely advisable – often by the time it can be delivered to contacts of an individual case the targeted individuals have either already acquired the infection or have little chance of acquiring it from the case in question. However chemoprophylaxis of institutionalised populations such as those in jail, which are rapidly accessible following the identification of an index case has been successfully accomplished. The same antibiotics can be used for treatment and prophylaxis with attention to the resistance patterns of the circulating strains."*}

Counselling
- Advise all contacts of the incubation period and typical symptoms of cholera, and to seek early medical attention if symptoms develop.
- A fact sheet is available: https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/cholera/
- Educate about hand and food hygiene.

Other Control Measures

Identification of source
- Check for other cases in the community. If the infection was acquired in New Zealand, undertake a thorough investigation to identify the source. This should include surveillance of contacts, stool testing of symptomatic contacts (see above) and assessment of possible food or water sources in association with the local territorial authority.
- If indicated, check water supply for microbiological contamination and compliance with the latest New Zealand drinking-water standards[5]
- Liaise with the local territorial authority staff to investigate potential water sources of infection.
- Liaise with the environmental health officer of the local territorial authority where food premises are thought to be involved.
- Liaise with the Ministry for Primary Industries if a contaminated commercial food source is thought to be involved.

Disinfection
Clean and disinfect surfaces and articles soiled with stool or vomit. For more details, see NZ Communicable Diseases Control Manual, Appendix 1: Disinfection: https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/

Health education
- In the event of a locally acquired case, consider a media release and direct communication with the population at risk and health professionals to encourage prompt reporting of symptoms.
- A fact sheet is available: https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/cholera/
- In communications with doctors, include recommendations regarding diagnosis, treatment and infection control.
- If a water supply is involved, liaise with the local territorial authority to inform the public.
- Advise on the need to boil water.

Reporting

Reporting

- Ensure complete case information is entered into EpiSurv.
- If an outbreak occurs, contact the Ministry of Health Communicable Diseases Team and outbreak liaison staff at ESR, and complete the Outbreak Report Form.
- Medical officers of health should also notify the Ministry of Health if even a single case of locally acquired cholera occurs. The IHR National Focal Point in the Ministry must use the IHR Decision Instrument for any event involving cholera, and then notify WHO if required. Cholera is an internationally quarantinable disease.
- If an outbreak, write report for Outbreak Report File: Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Cholera\Outbreaks
- File.

References and further information

1 Ministry of Health, Communicable Diseases Control Manual Cholera chapter December 2017 update: https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/cholera/

2 Heymann DL et al. Control of Communicable Diseases Manual (20th Edition). American Public Health Association, Washington, 2015

3Ministry of Health, Communicable Diseases Control Manual Appendix 2: Enteric Disease: https://www.tewhatuora.govt.nz/for-the-health-sector/health-sector-guidance/communicable-disease-control-manual/cholera/

4 Victorian department of Health, The Blue Book, Guidelines for the control of infectious diseases, Cholera. https://www2.health.vic.gov.au/public-health/infectious-diseases/disease-information-advice/cholera

5 Ministry of Health. 2008. Drinking-water Standards for New Zealand 2005 (Revised 2008). Wellington: Ministry of Health. https://www.health.govt.nz/system/files/documents/publications/drinking-water-standards-2008-jun14.pdf

Protocol review checklist	Responsibility	Date completed
Advise team of review (and planned timeframes).	PHS	At CD mtg
Create draft document in EDMS and start review workflow.	PHS	21/06/2018
Review Ministry advice, literature, other protocols and write draft update.	PHS	21/06/2018
Update Fact Sheet, if applicable.	PHS	21/06/2018
Send drafts to MOsH, CD team leader and HPO for feedback.	PHS	21/06/2018
Update drafts further as required.	PHS	05/07/2018
Send final drafts to Com Dis MOoH.	PHS	05/07/2018
Com Dis MOoH sign-off.	Com Dis MOH	26/08/2018
Send blue final drafts, with all changes accepted, to Clinical Director for approval.	PHS	27/08/2018
Clinical Director approval (in EDMS).	CD	10/09/2018
Confirm formatting of doc logo, header, footer, and ensure EDMS metadata is updated and correct for both protocol and Fact Sheet. Ensure website fact sheets are updated. Make a pdf of both protocol and fact sheet from EDMS word versions and save in CFS at Y:\CFS\Quality\Archive\Protection\IntranetPROTOCOLS. Upload to MS Teams on-call and surveillance websites.	QC	Format only V3, 16/08/2023
Update paper copies where appropriate.	QC/ HPO	Format only V3, 16/08/2023
Advise operational staff of update, summarising any substantial changes.	HPO	tba