Meningococcal invasive disease

Te Mana Ora Protocol

This protocol is based on the Ministry of Health Communicable Disease Control Manual[1]

Te Mana Ora-specific content is in green.

Recently updated content is in blue.

- Protocol users should **document** their response to **action points,** marked throughout with this arrow.

Contents

1. Associated documents

Te Whatu Ora Waitaha Canterbury documents:

Māori Health policy

Tikanga policy

Interpreter procedure

Informed Consent policy

Te Mana Ora | Community and Public Health policies, forms, letters, questionnaires:

Privacy/Nohotapu policy

Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\FormsLtrs

Case report form:

Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\FormsLtrs\CaseReportFormCURRENTat220817.pdf

Standing orders for ceftriaxone, ciprofloxacin and rifampicin prophylaxis:

https://cdhbintranet.cdhb.health.nz/communitypublichealth/cphpoliciesandprocedures/Communicable%20Disease%20Protocols/Home.aspx

Vaccine information (Pharmaceutical Schedule):

https://schedule.pharmac.govt.nz/ScheduleOnline.php?code=A452501

Ministry online information:

https://www.health.govt.nz/your-health/conditions-and-treatments/diseases-and-illnesses/meningococcal-disease-including-meningitis

2. The Illness

Epidemiology in New Zealand

There are still a number of cases of invasive meningococcal disease in New Zealand each year and sometimes community outbreaks. Overall, rates are higher in New Zealand than in countries with national immunisation programmes, and Māori and Pacific communities are disproportionately affected. As with the epidemiology in other temperate climates, there tends to be a seasonal pattern, with more cases seen in winter and spring.

Despite rates dropping significantly between 2003 and 2014 following the immunisation response to the meningococcal B epidemic, rates started to gradually increase from 2015. This increase was initially driven by group B strains, with group W also becoming a main driver from 2017. During the COVID-19 pandemic rates have dropped to their lowest values since the eighties, however, this drop is unlikely to be maintained.

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

Te Mana Ora cases: last five years

Table 1: Te Mana Ora cases by district, last 5 years

	2017	2018	2019	2020	2021
Waitaha/Canterbury	11	10	11	6	7
South Canterbury		1			1
Te Tai o Poutini /West Coast	3			1	1
TOTAL	14	11	11	7	9

Table 2: Te Mana Ora cases by ethnicity, last 5 years

	2017	2018	2019	2020	2021
European	10	10	8	5	7
Māori	2	1	1	1	1
Pacific					1
Asian	1		2	1	
Other	1				
Unknown					
TOTAL	14	11	11	7	9

Clinical description

Meningococcal disease is a serious invasive disease with an acute onset. It may start as a mild flu-like illness but rapidly progress to fulminant septicaemia and death. Cases typically experience acute fever, malaise, nausea, myalgia, arthralgia and prostration. A rash occurs in about two-thirds of cases – this may range from ill -defined and macular, to petechial or purpuric. More severe infection leads to shock, disseminated intra-vascular coagulation (DIC), acrocyanosis and multi-organ failure.

Approximately 75 percent of cases with septicaemia have meningitis (typically causing headache, photophobia and neck stiffness). Infants present with less specific features.

Meningococcal pneumonia is regarded by Australia and CDC as one of the presentations of invasive meningococcal disease and prophylaxis should be offered to contacts accordingly. Neisseria meningitidis cultured from a throat swab or urogenital swab does not require prophylaxis.

Other locations of invasive disease with Neisseria meningitidis are possible though rare, such as orbital cellulitis, septic arthritis, and pericarditis.

Nasopharyngeal carriage of meningococci is relatively common, in roughly 15 percent of the population, and is generally more prevalent in young adults, people who are living in conditions of severe overcrowding, smokers and military recruits.

The events that cause meningococcal disease are poorly understood but include a combination of organism, host and environmental factors.

Incubation

2–10 days, commonly 3–4 days.

Transmission

Transmission is from person to person through **droplets or secretions from the upper respiratory tract**, from a carrier or case.

Communicability

The case is no longer considered infectious after completion of 24 hours of appropriate antibiotic therapy with rifampicin, cefotaxime/ceftriaxone or ciprofloxacin.

For the purpose of contact tracing, the time period used to define close contacts is from **7 days prior to case's illness onset** to the time the case has **completed 24 hours of the appropriate antibiotic** treatment.

Prevention

Funded vaccination is available as follows:

MenACWY-D (Menactra), MenC (NeisVac-C) and 4CMenB (Bexsero) for:

- patients pre- or post-splenectomy or with functional or anatomical asplenia
- patients with HIV, complement deficiency (acquired, including monoclonal antibody therapy against C5, or inherited)
- pre- or post-solid organ transplant
- HSCT (bone marrow transplant) patients
- patients prior to planned and following immunosuppression
- close contacts of meningococcal cases (any group)
- patients with prior meningococcal disease of any group.

MenACWY-D (Menactra) for:

- adolescents and young adults aged 13–25 years inclusive who will be living or are currently living in a boarding school hostel or university hall of residence, military barracks or prison.

Vaccination is recommended but not funded for:

- Laboratory workers handling bacterial cultures
- Health care professionals in very close contact with cases

3. Notification

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

4. Case classification

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 that is laboratory confirmed.

Not a case: A case that has been investigated and subsequently found not to meet the case definition.

Although not meeting the definition of a confirmed case, meningococcal infection of the **conjunctiva** is considered an indication for public health action because of the high immediate risk of invasive disease. Other sites may also require public health follow-up on a case-by-case basis, as determined by the local medical officer of health.

5. Laboratory testing

Laboratory definitive evidence for a confirmed case requires at least one of the following:

- isolation of Neisseria meningitidis bacteria or detection of Neisseria meningitidis nucleic acid from blood, cerebrospinal fluid (CSF) or other normally sterile site (for example, pericardial or synovial fluid)
- detection of gram-negative intracellular diplococci in blood or CSF or skin petechiae
- detection of meningococcal antigen (latex agglutination test) in CSF.

ESR's switch to whole genome sequencing for typing of Neisseria meningitidis culture isolates from 2 April 2024 will increase turnaround times for typing reports. Group and PorA results can be expected within ten working days of sample receipt at ESR. If more than one case occurs within the same organisation or community the medical officer of health may request urgent typing from ESR to guide potential outbreak management , and should discuss the request with ESR's Meningococcal Reference Laboratory and one of the ESR public health physicians.

6. Cultural and social context

Cultural, social, work and home environments affect any person's risk of contracting a communicable disease, the likely impact of that disease on them, and their likelihood of passing the infection on others. Keep these factors in mind at every point of your investigation and follow-up.

- Request an **interpreter** if needed
- **Consider** the potential impact of cultural, social, work or home factors on a person or family's ability or willingness to provide information and/or follow public health advice
- **Tailor your advice** to the situation
- **Seek advice yourself** if unsure. Talk to:
    - Te Mana Ora's Maori Relationships Manager or Pacific Relationships Manager or Communicable Diseases Manager for advice on community and primary care support people or agencies
    - Ngā Ratonga Hauora Māori for Maori patients at Christchurch Hospital or Christchurch Women's hospital
- If appropriate, and with the case and/or contact's permission, seek the **assistance** of family or other community members, community leaders, and/or support agencies if required

7. Management of case

Investigation

- **Action immediately** between 8am and 10pm, including weekends and holidays
- **Advise** the medical officer of health and keep them informed of the situation.
- Go to the hospital: complete Case Report Form from interview with case/parent and case notes including **vaccination** history, **antibiotic** treatement, and any recent **contact with a case**, and **identify close contacts** (refer to Management of contacts below).
- Ensure **laboratory confirmation** has been attempted, including strain identification (group and subtype).

Restriction

- **Droplet precautions** until 24 hours after the start of cefotaxime/ceftriaxone, rifampicin or ciprofloxacin. Close contacts do not require isolation even if they are taking prophylaxis.
- Exclude case from school or childcare centre until completed **2 days of rifampicin** unless treated with ceftriaxone or cefotaxime.

Treatment

Pre-hospital treatment

Parenteral antibiotics should be administered to all cases as soon as meningococcal disease is suspected before admission to hospital or in hospital if delays and assessment in hospital are likely to be more than 30 minutes.

Antibiotics given prior to transfer should be clearly noted on information accompanying the patient to hospital.

Table 1 Recommended antibiotics for suspected cases

Antibiotic	Children <30kg	Children >30kg & Adults (max dose)
Ceftriaxone[a] (first line treatment)	50 mg/kg when given by GP/primary care 100 mg/kg IV (or IM) up to 2g when given in ED	2 g IV (or IM)
Benzylpenicillin[b] (second choice)	50 mg/kg IV (or IM)	2.4 g IV (or IM)

[a] Patients allergic to penicillin who do not have a documented history of anaphylaxis to penicillin can be given ceftriaxone.

[b] Patients with a documented history of anaphylaxis to penicillin and who are suspected of suffering from meningococcal disease should be sent immediately to hospital without pre-admission antibiotics.

Eradication of carriage

It is important that the case receives an antibiotic that will eliminate throat carriage before discharge from hospital, usually rifampicin, ciprofloxacin or cefotaxime/ceftriaxone. Unless one of these has been used in the course of treatment, it should be prescribed for the index case before discharge.

Vaccines

The following vaccines are now available and funded for a person who has previously had meningococcal disease:

Quadrivalent meningococcal conjugate MenACWY-D: Menactra (Sanofi) (from 9 months of age; conjugate Men C vaccine for <9 months)

Meningococcal group B four-component recombinant 4CMenB: Bexsero (GSK)

People who have previously had any group (including group A, B, C, W or Y) meningococcal disease may be offered both meningococcal vaccines as appropriate for their age. For more details, refer to the Immunisation Handbook.

Counselling

- **Advise** the case and their caregivers of the nature of the infection and its mode of transmission.
- Provide mengingococcal disease and antibiotic **fact sheets.**
- **Advise** them to discuss vaccination with their general practitioner when they have recovered.

8. Management of contacts

Definition

Anyone who has had unprotected contact with upper respiratory tract or respiratory droplets from the case during the 7 days before onset of illness to 24 hours after onset of effective treatment.

Public health follow-up is most important for household contacts and contacts that have had similarly close exposure. Examples of such contacts are:

- those sleeping at least one night in the **same household, dormitory, military barrack, student hostel bunkroom** (not residents of nursing or residential homes who sleep in separate rooms) as the case or who have been in a seat adjacent to the case in a **plane, bus or train** for more than 8 hours
- **health care workers** who have had intensive unprotected contact (not wearing a mask) with a case during intubation, resuscitation or close examination of the oropharynx.
- exchange of **upper respiratory tract secretions**, including intimate kissing
- **other contacts** as determined by the medical officer of health on a case-by-case basis, such as children and staff attending an early childhood service.
- Te Mana Ora guidelines for **early childhood service** contacts are:

- Children and staff in the same room and group at a childcare facility for 4 hours or longer.
- Family day care where a group of children are cared for in a private home.
- However, all children and staff attending the same sessions as the case are not routinely given rifampicin unless there have been at least two cases (including the current case) in that centre in the past 4 weeks. Possible pre-school contacts of isolated cases are to be evaluated by their history of contact, as in other circumstances. Discuss with the supervisor to identify any close contacts as defined above. Provide a letter and pamphlets to parents of all children attending the same sessions as the case. Consider vaccination of all staff and children attending the centre if there have been 2 or more cases within 4 weeks.

Note: Unless one of these criteria is met, **low-level salivary** contact such as brief kissing on the cheek or mouth or sharing food or drink, utensils, cigarettes, bottles, communion cup, lip balm, wind instrument, or referee's whistle **does not require public health follow-up or treatment** (given evidence that it does not increase risk of transmission).

Post-mortem

If the case has been treated with an effective antibiotic for at least 24 hours before death, any contact risk is low. If the case has not been treated, then occupational contacts should follow routine infection control practices with additional droplet and contact precautions.

Kissing the body is not considered a risk. Body bags are not necessary, and transport to other countries for burial or cremation does not pose a risk. There is no restriction on embalming.

Symptomatic Contacts:

- The management of a contact who has any symptoms should be discussed immediately with the Medical Officer of Health.

Risk to contacts:

Household members and other close contacts are at greater risk of developing the disease, compared with the general population for some months after the index case. The attack rate for household contacts exposed to patients who have sporadic meningococcal disease has been estimated as four cases per 1,000 persons exposed, which is 500-800 times the risk of the general population. The rate of secondary disease is highest in the first few days after onset of disease in the primary case. Health care personnel are rarely at risk, even when caring for infected patients, except if intimate exposure to nasopharyngeal secretions occurs – eg, mouth to mouth resuscitation.

If the diagnosis is only 'on suspicion' as a precautionary measure without good clinical evidence, treat only household contacts.

Management of contacts

Hospital staff contacts

Hospital staff contacts are managed by each hospital:

- Christchurch: HealthPathways[1] provides guidance for hospital contacts. Prescription of antibiotic prophylaxis for staff is the responsibility of the ED or ICU consultant, in consultation with the on-call infectious diseases registrar or physician, and Occupational Health. The pathway includes contact details for the on-call Health Protection Officer (link) for advice or assistance if required.
- Timaru: The Emergency Department will distribute ciprofloxacin or rifampicin to their staff considered to be close contacts on the recommendation of the Infection Control Officer and will inform Te Mana Ora of the details of the contacts for our records.
- Greymouth: The Emergency Department will distribute ciprofloxacin or rifampicin to their staff considered to be close contacts on the recommendation of the HPO and will inform Te Mana Ora of the details of the contacts for our records.

[1] As of 14 December 2023 the HealthPathways wording is still being updated.

Community contacts

Te Mana Ora is responsible for arranging prophylaxis for all community contacts although the hospital may provide it to the immediate family.

- For each community contact, assess the **degree of contact.**
- For close contacts, **complete the individual contact form** (access via EDMS):
  https://prism.cdhb.health.nz/site/policies/_layouts/15/WopiFrame.aspx?sourcedoc=%7B1a5a6580-52d5-40e6-9d7c-5c7819a30e8e%7D&action=view
- Arrange **prophylaxis and advice**, including vaccination advice**,** as detailed below
- If the **case is in hospital and close contacts who are with them require ceftriaxone** discuss with ward staff and/or the Emergency Department whether they can provide this on the spot.
- Where a meningococcal case has been to a **Community Dental Service clinic** or a mobile dental clinic: In hours: call the CDS Contact Centre on 0800 846-983 or email commdental@cdhb.health.nz. After hours contact the Burwood Hospital Duty Manager through the hospital switchboard.
- If the case is a **Canterbury or Lincoln University student**, contact Student Health (Ilam: Dr Tearlach Maclean, 027 809 4493 or Lincoln: 325 3835.)
- If the case has been transported by **ambulance**, contact St John National Emergency Operations Centre on 0800 2622 6632 (staffed 24/7) to obtain contact details for the ambulance staff and FENZ staff involved with the case, and assess those staff and provide prophylaxis as for other community contacts.

Investigation

Nil. Routine throat or nasopharyngeal culture of contacts is not recommended because asymptomatic carriage is common. Prophylaxis is given on a history of close contact.

Restriction

Nil

Prophylaxis

Antibiotics

The purpose of antibiotic prophylaxis is to **eradicate nasopharyngeal colonisation** by meningococci and thus prevent transmission to other susceptible people. Prophylaxis **will not treat illness** that the person may be incubating, so it is essential that the contacts be advised to seek urgent medical attention if they become unwell.

Standing orders

Ciprofloxacin or Rifampicin may be given by Te Mana Ora nurses or HPOs under Standing Orders found here:

https://cdhbintranet.cdhb.health.nz/communitypublichealth/cphpoliciesandprocedures/Communicable%20Disease%20Protocols/Home.aspx

Standing Orders allow prompt administration of prescription medication while ensuring that the Nurse or HPO has legal cover under the Standing Order Regulations 2002. Nurses and HPOs who have undertaken training and an annual assessment on the Standing Orders, who have achieved the competency required, and who are on duty and working on behalf of Te Mana Ora may administer Ciprofloxacin and Rifampicin under the Standing Orders.

Ciprofloxacin and Rifampicin may only be administered as specified in this protocol. The Nurse or HPO completes the Standing Order which requires his/her signature and countersigning by an MOoH within 72 hours.

The following contacts may require a different medication and must be discussed with MO/ MOoH:

- Those with contraindications.
- Those who are pregnant.
- Those taking other medications.

Ciprofloxacin and Rifampicin are to be handed only to the following;

- A person who is a contact,
- A parent or caregiver of a contact,
- A person who will pass on the antibiotic to a contact if the HPO is able to speak with that contact before he/she takes the medication.

If a Nurse or HPO acts entirely within this Standing Order and procedure, then any consequence of their action is the responsibility of the MOoH and Te Mana Ora. The Nurse or HPO is accountable for their decision-making, for application of the Standing Order and procedure, and for clear documentation of actions taken.

Indications

Antibiotic prophylaxis should be given to close contacts as soon as possible (ideally within 24 hours) after the diagnosis of the index case. After 24 hours, chemoprophylaxis (and vaccine if appropriate) should still be considered for close contacts; however, there is little value in offering this more than 14 days after the diagnosis of illness (there is a low risk of further cases after this period).

Antibiotic choice

Antibiotic choice is summarised in Figure 1. For detailed safety information see Appendix 2: antibiotics safety information.

Ciprofloxacin

Ciprofloxacin is the preferred antibiotic for contacts 12 years of age and over[2].

Dose: 500 mg orally as a single dose for adults and children 12 years of age and over.

Cautions/warnings:

- Pregnancy – contraindicated, use alternative
- Breastfeeding - advise avoid, ciprofloxacin excreted in breastmilk
- Do not take milk, indigestion remedies, or medicines containing iron, calcium, or zinc 2 hours before or after you take this medicine
- Caution in patients with seizure history
- Contraindicated in patients with a history of tendon disorders

Rifampicin

Dose: Children under 1 month old: Rifampicin 5 mg/kg twice daily for 2 days. Children over 1 month old, and adults: Rifampicin 10 mg/kg (maximum 600 mg) twice daily for 2 days.

Rifampicin* dose table (provided by Pharmacology Dept, Christchurch Hospital):

CONTACT'S AGE	Rifampicin Dose Taken 12 hourly for two days	Total amount dispensed = dose x 4
Birth to less than 1 month	see below**	
1 month to less than 6 months	see below***	
6 months to less than 3 yrs	5 ml	= 20 ml
3 yrs to less than 4 yrs	7.5 ml	= 30 ml
4 yrs to less than 7 yrs	10 ml	= 40 ml
7 yrs to less than 11 yrs	15 ml or 300 mg cap	= 60 ml or four 300 mg caps
11 yrs to less than 14 yrs	300 mg cap plus 150 mg cap	= four 300 mg caps and four 150 mg caps
14 yrs and over	two 300 mg caps	= eight 300 mg caps

* Rifampicin 300 mg and 150 mg capsules and syrup 100mg/5ml.

The above table of dosages was produced by the Pharmocology Dept. Chch Hospital

** Infants under 1 month of age: 5mg/kg twice daily (one quarter the infants weight in kg expressed as mls, taken 12 hourly) for 2 days.

[2] Ciprofloxacin has been recommended in all age groups in international guidelines (Public Health England 2018, Communicable Diseases Network Australia, 2017, European Centre for Disease Prevention and Control, 2010), and is recommended as an option for meningococcal disease prophylaxis by the New Zealand Ministry of Health. However, ciprofloxacin is not approved by Medsafe in New Zealand for children under 12 for this purpose, so it cannot be administered by Te Mana Ora health protection staff under standing orders, and rifampicin remains our antibiotic of choice for this age group. If ciprofloxacin use is being considered for children under 12, consult Medsafe data sheet for appropriate use and dosages. Treatment in children should only be initiated after careful benefit/risk evaluation and prescribing health practitioners should ensure they are familiar with their responsibilities when prescribing a medicine for 'off-label' use.

*** Infants 1 month to less than 6 months of age: 10 mg/kg twice daily (i.e., half the infants weight in kg expressed as mls, taken 12 hourly) for 2 days.

If contacts are considerably under weight/over weight, the following is recommended:

Adults and children: 10 mg/kg (maximum 600mg/dose) twice daily (for children requiring syrup this is actually equal to half the child's weight in kg expressed as mls, taken 12 hourly) for 2 days.

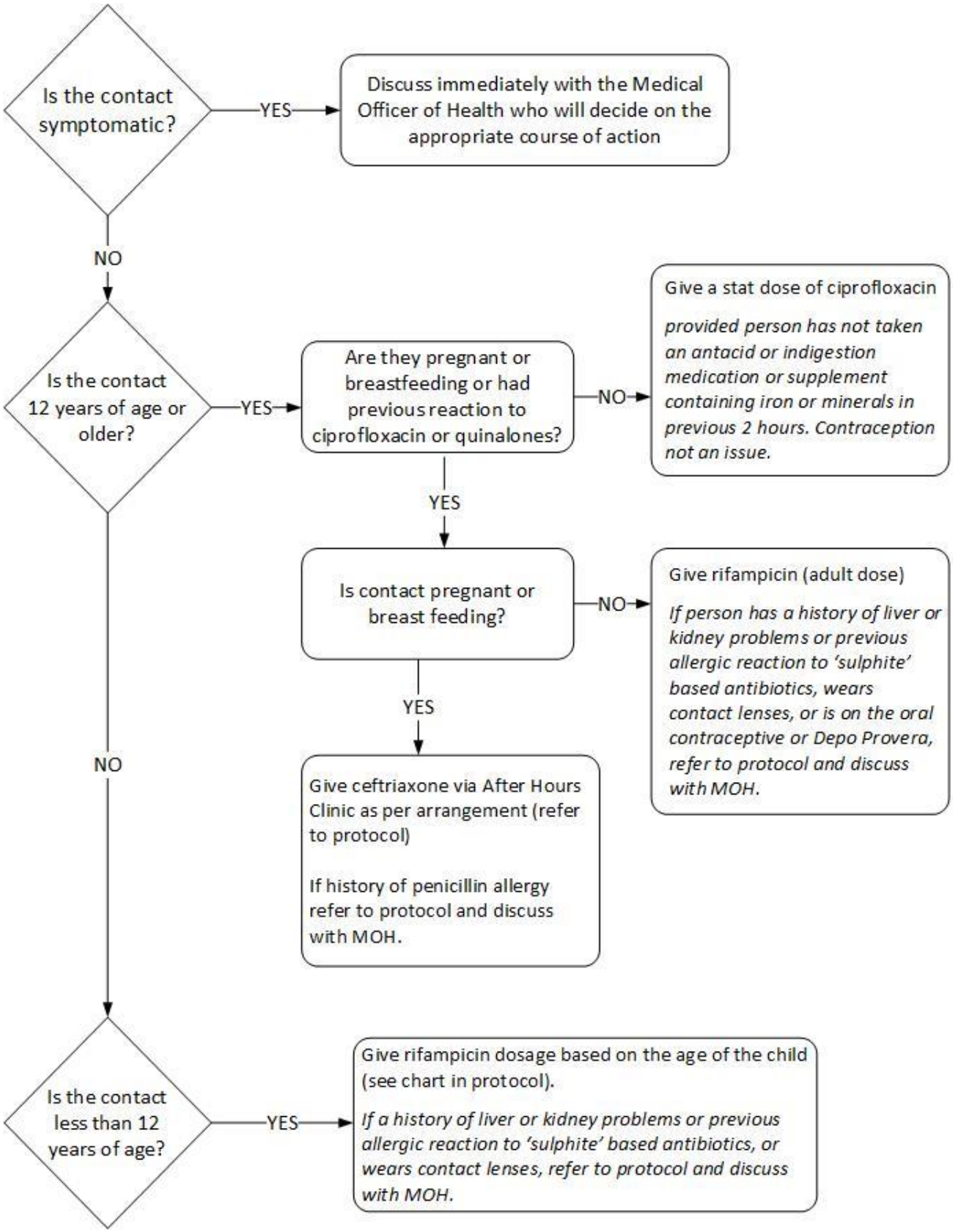
Cautions/warnings:

- Pregnancy – caution, fetal-embryo risk low but not recommended in final weeks of pregnancy due to low risk of post-natal haemorrhages.
- Breastfeeding – compatible, rifampicin is not excreted in breast milk in clinically significant amounts.
- Caution in patients with liver disease.
- Oral/depot injection contraception effectiveness reduced while taking rifampicin – additional cautions with barrier contraception advised for duration of treatment and 48 hours after completion.
- Do not wear soft contact lenses as they may be permanently discoloured.
- Best taken on an empty stomach, 1 hour before or 2 hours after a meal.

Ceftriaxone

125 mg for children under 12 years of age, and 250 mg for older children and adults, intramuscularly as a single dose. This is the preferred prophylaxis for women who are pregnant or breastfeeding. Do not use in infants under 4 weeks of age.

Figure 1 Guidelines for antibiotic prophylaxis of contacts of invasive meningococcal disease



Immunisation

The following vaccines are now available and funded for close contacts of cases.

- Quadrivalent meningococcal conjugate MenACWY-D: Menactra (Sanofi) (from 9 months)
- Meningococcal group B four-component recombinant 4CMenB: Bexsero (GSK)
- Meningococcal C conjugate vaccine (<9 months)

Close contacts of cases of any group (including group A, B, C, W or Y) meningococcal disease should be offered two meningococcal vaccines as appropriate for their age.

For the best protection against meningococcal infection, high levels of antibodies are required and predicted to wane below protective levels within 3 to 5 years. As a result, contacts who have received meningococcal vaccines in the past may be offered additional vaccine within the recommended guidelines in the Immunisation Handbook.

Discuss immunisation in the outbreak setting with the regional or national co-ordination team.

Revaccination

Revaccination may be appropriate for individuals with ongoing higher risk. See the Immunisation Handbook for more details.

Counselling

All contacts should be encouraged to **seek medical advice if symptoms develop**, especially fever and petechial rash.

9. Other control measures

Management of contacts when there are large groups involved

In instances where large groups of people have been exposed to a case, it is likely that contacts will have returned to a variety of health districts. Any follow-up needs to be coordinated by the appropriate medical officer of health to ensure that districts provide consistent advice and treatment.

Definitions

Outbreak: Two or more cases of disease associated in time, place or person.

Sporadic case: A single case in the absence of a previous known contact with another case.

Primary case: A case that occurs in the absence of previous known close contact with another case.

Co-primary case: A close contact who develops the disease within 24 hours of onset of illness in the primary case.

Secondary case: A close contact who develops the disease more than 24 hours after onset of illness in the primary case where the microbiological characteristics of the organism are the same.

Organisation outbreak: Two or more cases of the same strain (group and serotype) occurring within a 4-week **period at the same early childhood service, school, sports group, social group, nursing home, university, etc.**

Community outbreak: Three or more confirmed cases of the same strain (group and serotype) within a 3-month period and an age-specific incidence or specific community population incidence of approximately 10 per 100,000, where there is no other obvious link between the cases (this is not an absolute threshold). The numerator is defined by the number of unlinked cases (that is, they are not close contacts of each other and do not share a common affiliation). The denominator is defined as the population at risk that makes best sense in terms of population residence and movement, and therefore transmission of meningococcal bacteria.

The aim of the intervention in such settings is to eradicate carriage of the strain from a population at high risk. The medical officer of health determines necessary action in discussion with the Ministry of Health.

If urgent typing is required to help define an outbreak the medical officer of health may request this from ESR: see Laboratory testing.

Identification of source

Check for other cases in the community. Do not perform screening cultures because asymptomatic carriage is common.

Disinfection
Clean and disinfect surfaces and materials soiled with respiratory secretions.

Health education
Key messages include being aware of signs and symptoms, and the importance of early medical advice and treatment.

Ensure people are aware of the availability of and recommendations for meningococcal vaccines. See the Immunisation Handbook for more details.

10. Reporting

- Enter case details on **EpiSurv.**
- If a **cluster** of cases occurs, inform the Ministry of Health Communicable Diseases Team and outbreak liaison staff at ESR, and complete the Outbreak Report Form.
- **Document** your response to each **action point** (marked with this arrow) in this protocol

11. References and further information

1. Ministry of Health. *Communicable Disease Control Manual*. 2019. Ministry of Health: Wellington.

12. Appendix 1: accessing antibiotic supplies

Christchurch

Ciprofloxacin and rifampicin are kept in the 'meningitis case'. Case and supplies are kept in the HPO storeroom.

Referral to GP informing of chemoprophylaxis and possible vaccination:

https://prism.cdhb.health.nz/site/policies/_layouts/15/WopiFrame.aspx?sourcedoc=%7B1a5a6580-52d5-40e6-9d7c-5c7819a30e8e%7D&action=view

If supplies of antibiotics get low:

Further supplies are obtained from Christchurch Hospital Pharmacy by sending a request to them using the templates found here for ciprofloxacin and rifampicin, available in folder
Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\OrderingMedicationFromPharmacy

Timaru

(If there are any close contacts needing prophylaxis HPO to discuss with the Medical Officer of Health before dispensing.)

- Rifampicin and ciprofloxacin are obtained from the Timaru Hospital pharmacy.
- Office hours: the HPO contacts the pharmacy, and arranges to collect required supplies
- After hours: the HPO contacts the Duty Nurse Manager via Timaru Hospital switchboard 03 687 2100, and requests access to the Meningitis Prophylaxis Kit. This is located in the after hours cupboard on Level 3 of the main clinical block.
    - The kit should contain 4 bottles of rifampicin and 10 courses of ciprofloxacin
    - Before dispensing, HPO must put labels on boxes/bottles completed with the name of the patient, name of HPO and date
    - HPO dispenses rifampicin or ciprofloxacin to contacts, keeping a record of details: names, ages, addresses, dosage and GPs.
    - HPO to return unused rifampicin and ciprofloxacin to Pharmacy on the next working day, together with the details of contacts treated.
    - Pharmacy writes scripts for the rifampicin and ciprofloxacin dispensed, for the Medical Officer of Health to sign.
    - Pharmacy replenishes used stock.

Ashburton

The hospital pharmacy hold the Te Mana Ora supply. Contacts can collect ciprofloxacin, rifampicin, the antibiotic information pages and the meningococcal pamphlet from the hospital pharmacy and the letter to the GP, after a fax from the HPO.

Greymouth.

- HPO contacts Duty Nurse Manager at Te Nikau Grey Hospital on 03 769 7400 and provides details of consent forms, type of prophylaxis, and dosage for each contact.
- Duty Nurse Manager arranges antibiotics from hospital pharmacy (if necessary, contacting duty pharmacist).
- Duty Nurse Manager arranges for an appropriate community clinician (eg public health nurse, rural nurse specialist) to supply prophylaxis to contacts in the community (contacts who are with the case in the hospital may have this given at hospital).
- Duty Nurse Manager confirms distribution arrangements to on-call HPO
- Community clinician advises on-call HPO once prophylaxis is delivered to community contacts and returns signed consent forms.

13. Appendix 2: antibiotics safety information

The following summary of relevant safety information was provided by Te Whatu Ora Waitaha Canterbury pharmacy in September 2021.

For full safety information refer to the Medsafe data sheets.

Ciprofloxacin:
Cautions/warnings
- Pregnancy – contraindicated, use alternative - Breastfeeding - advise avoid, ciprofloxacin excreted in breastmilk - Do not take milk, indigestion remedies, or medicines containing iron, calcium, or zinc 2 hours before or after you take this medicine - Caution in patients with seizure history - Contraindicated in patients with a history of tendon disorders
Adverse effects
- Sharp, sudden pain in your tummy, chest or back - Pain or swelling in tendons or joints - Fainting, seizures - Numbness or tingling of the fingers or toes - Skin rash
Interactions
- Increases the plasma concentration of clozapine - Domperidone, amiodarone, antipsychotics, sildenafil, beta blockers, tricyclic antidepressants – increased risk of QT interval prolongation - NSAIDs – increased incidence of convulsions - Warfarin – unpredictable bleeding risk

Rifampicin
Cautions/warnings
- Pregnancy – caution, fetal-embryo risk low but not recommended in final weeks of pregnancy due to low risk of post-natal haemorrhages. - Breastfeeding – compatible, rifampicin is not excreted in breast milk in clinically significant amounts. - Caution in patients with liver disease. - Oral/depot injection contraception effectiveness reduced while taking rifampicin – additional cautions with barrier contraception advised for duration of treatment and 48 hours after completion. - Do not wear soft contact lenses as they may be permanently discoloured. - Best taken on an empty stomach, 1 hour before or 2 hours after a meal.
Adverse effects
- Symptoms of liver problems: yellow skin or eyes, itching, dark urine, pale stool, abdominal pain. - Unusual/unexpected bruising or bleeding - Skin rash - Nausea/stomach pain - Red/orange discolouration of body fluids (including eyes, tears, urine, sweat)
Interactions
- Hepatitis C antiviral drugs (e.g. daclatasvir, dolutegravir, Glecaprevir and pibrentasvir simeprevir, sofosbuvir, telaprevir) and rifampicin combination should be avoided. - Cephalosporin antibiotics – risk of coagulation disorder. - Reduced plasma concentration of; amlodipine, digoxin, calcium channel blockers - Reduced plasma concentration of; clozapine, haloperidol, paliperidone, SSRI antidepressants and valproate. - Reduced plasma concentration of methadone - withdrawal risk - Rivaroxaban, warfarin - reduced plasma concentration, increasing clotting risk - Statins – single dose rifampicin markedly increases statin exposure

14. Document Control

Protocol review task	Responsibility	Date completed + version no.
Advise team, quality, doc control & web coordinators of review (and planned timeframes).	Public Health Specialist (PHS)	V1, 16/05/2018
Open the protocol in EDMS Owner's view, ensure it is based on the current template, remove any blue font formatting (indicating new content for the previous version), and turn on "track changes".	PHS	V1, 16/05/2018
Review Ministry of Health (MoH) advice, literature, other protocols, and write draft update, marking new content in blue font.	PHS	V1, 16/05/2018
Update Fact Sheet as necessary (or source the URL link from MoH website).	PHS	V1, 16/05/2018
Start an EDMS review workflow of draft version to pre-set document members – MOsH, CD, Team Leader, and HPO for feedback. (Check members are correct before starting workflow.)	PHS	V1, 16/05/2018
Incorporate feedback and update draft(s) further as required.	PHS	V1, 16/05/2018
Start an EDMS approval/ publishing workflow of final version to Clinical Director (Authoriser).	Com Dis Medical Officer of Health (MOoH)	V1, 16/05/2018
Clinical Director approval recorded in EDMS.	Clinical Director (CD)	V1, 16/05/2018
Document Controller (QC) receives EDMS notification of CD approval – Complete **electronic** document control tasks, incl.: header; footer; EMDS document properties/metadata. Check Te Mana Ora policies and procedures site page links are valid, and add new links as required. Create .pdfs (for external links), and save to CFS folders: • Protocols – Y:\CFS\Quality\Archive\Protection\IntranetPROTOCOLS • Fact Sheets –Y:\CFS\Quality\Archive\Protection\FactSheets • Once a new or reviewed document has been approved, upload pdf version to: • Protocols – Surveillance (PHU server) website and Microsoft Teams on-call documentation group. • Fact Sheets – Te Mana Ora | CPH website or links are checked to MoH website	Quality Coordinator (QC)	V7, 2/04/2024
Update **paper** copies as required (on-call folder/ vehicle).	Health Protection Officer (HPO)	V7, 2/04/2024
Advise operational/ regional staff of update, summarising any substantial changes (text highlighted in blue font in document).	DC/QC or HPO or Team Leader	V7, 2/04/2024
Once process finalised, **move** any original draft documents saved in CFS locations to: Y:\CFS\Quality\Archive\Protection\ComDisProtocolsArchive	DC (+ QC)	V7, 2/04/2024
Minor update notes: updated broken links.	PHS	08/10/2019
Minor update notes: updated broken links.	PHS	14/11/2019
Minor update notes: updated broken links.	PHS	16/01/2020
Major update notes: V2, full review version 2.	PHS	V2, 26/07/2022
Minor update notes: V3, update broken links for associated documents in CFS that have changed. Updated process for obtaining antibiotics in Greymouth.	QC, PHS	V3, 23/11/2022
Minor update notes: V4, added advice re arranging for hospital staff to provide ceftriaxone injection for close contacts who are there with the case.	PHS	V4, 09/02/2023
Minor update notes: V5, added Pacific Relationships Manager into Cultural and Context section.	QC	V5, 16/02/2023
Minor update notes: V6, adjusted content re follow-up of hospital and ambulance contacts after discussion with ChCh Hospital and St John.	PHS	V6, 14/12/2023
Minor update notes: V7, change to meningococcal laboratory testing noted.	PHS	V7, 2/04/2024