MENINGOCOCCAL INVASIVE DISEASE

Based on the MoH Communicable Diseases Manual 2012[1]

Associated Documents

Case Report Form:
K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\FormsStdLettersQuest\MeningococcalCaseReportForm_Jul2013.pdf

Fact Sheet (pdf):
K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcalFactSheet.pdf

Meningococcal pamphlets (MoH):
K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcalHE2395MoH.pdf

K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcaDiagramsHE2417MoH.pdf

Link to: Communicable Disease Protocol and Standing Order intranet site page, includes:

- Rifampicin Standing Order
- Ciprofloxacin Standing Order

Rifampicin information:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\RifampicinMeningInfoVaccSheet.pdf

Ciprofloxacin information:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\CiproxinMeningInfoVaccSheet.pdf

CDHB Informed Consent Policy

The Illness[1,2]

An acute bacterial infection caused by *Neisseria meningitidis*, usually groups A, B, C, W135 and Y but at least 13 groups can be differentiated. Group A was responsible for an epidemic in Auckland in 1985/86 and B for a New Zealand-wide epidemic in 1991 to 2008.

Most common presentations are meningitis and/or septicaemia (meningococcaemia). Onset is usually sudden with fever, malaise, prostration and a variety of other possible symptoms, including nausea, vomiting and headache. Approximately two-thirds of cases have a rash, which may be petechial, purpuric or, less commonly, maculopapular and urticarial. Infection can also give rise to arthritis, myocarditis, pericarditis. Children aged less than five years are particularly at risk, but adults have a higher case fatality rate. Young infants may have non-specific symptoms. In fulminant cases, disseminated intravascular coagulation, shock, coma and death can occur within a few hours despite appropriate treatment.

- **Transmission:** Contact with respiratory secretions from nose or throat of infected person.
- **Infectious period**: From 7 days before onset of illness to 24 hours after commencement of appropriate antibiotic treatment. (see **Management of Contacts, Prophylaxis**)
- **Incubation period:** 2 to 10 days, commonly 3 to 4.
- **Prevention**: Antibiotic prophylaxis is the mainstay of prevention for contacts of sporadic cases but immunisation is recommended for at risk groups in New Zealand and travellers to countries with a high incidence.

Notification Procedure

- Should be notified without delay on suspicion.
- Laboratories should immediately report positive laboratory tests for invasive disease (meningitis or septicaemia) caused by Neisseria meningitidis.
- Advise the MOH.
- If clusters of cases occur MOH should notify the Ministry of Health.

Meningococcal conjunctivitis[1]
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 (refer to the Australian guidelines[3]).

Other sites may also require public health follow-up on a case-by-case basis, as determined by the local medical officer of health.

Meningococcal pneumonia
This is regarded by Australia[3] and CDC[4] as one of the presentations of invasive meningococcal disease and prophylaxis should be offered to contacts accordingly.

Cases not requiring prophylaxis: Neisseria meningitidis cultured from a throat swab or urogenital swab.

All cases including suspect cases, should be notified

Status
Under investigation - A case which has been notified but information is not yet available to classify it as probable or confirmed.
Probable - A clinically compatible illness (an acute illness with fever, nausea, vomiting and headache that may progress rapidly to shock and death. Petechial or purpuric rash is seen in about 50% of cases.)
Confirmed - A clinically compatible illness with any one of the following:
• isolation of Neisseria meningitidis from blood, CSF or other normally sterile site
OR
• detection of gram negative intracellular diplococci in blood, CSF or skin petechiae
OR
• detection of meningococcal antigen in CSF
OR
• a positive polymerase chain reaction (PCR).

Not a case - A case that has been investigated, and subsequently has been shown not to meet the case definition.

Laboratory Testing

Isolation of Neisseria meningitidis from blood, CSF or other normally sterile site
OR
• detection of gram negative intracellular diplococci in blood, CSF or skin petechiae
OR
• detection of meningococcal antigen in CSF
OR
• a positive polymerase chain reaction (PCR).

Management of Case

Antibiotic recommendations

Prior to transfer to hospital, practitioners should administer parenteral antibiotics to:

- all suspected cases of meningococcal disease in whom there is any haemorrhagic rash, and
- all other suspected cases in whom the delay to assessment in hospital is likely to be greater than 30 minutes.
- The recommended antibiotics are:

Benzyl penicillin	adults 1.2 g IV (or IM)
	children 25-50 mg/kg IV (or IM)
Amoxycillin	adults 1-2 g IV (or IM)
	Children 50-100 mg/kg IV (or IM)

- If the case is a Canterbury or Lincoln University student, contact Student Health (Ilam: Dr Joan Allardyce, 364 2402 or 027 227 2076 or Lincoln: 325 3835.)

Investigation

- **Immediate response required.**
- Advise the MOH and keep him/her informed of the situation (also see PROPHYLAXIS).
- Check if there has been contact with a known case recently.
- Coversheet file (notification form, Case Report Form, contacts list page, pathology report page and Notes page).
- Go to the hospital: complete Case Report Form from interview with case/parent and case notes including vaccination history and identify close contacts (refer to Management of Contacts below).
- If hospital staff are concerned they may be close contacts, they should discuss prophylaxis with their Infection Control officer.
- Check that laboratory confirmation has been attempted, including strain identification.

Restriction

- Respiratory isolation for 24 hours after the start of antibiotic treatment.
- Exclude case from school or childcare centre until completed 2 days of rifampicin unless treated with ceftriaxone. The effectiveness of cefotaxime for eradication is not known.

Treatment

- Early antibiotic treatment of suspect cases by GP with penicillin or amoxycillin (intramuscularly or intravenously) as above. In-hospital treatment should be with penicillin or a third generation cephalosporin. Unless a second or third generation cephalosporin used in treatment, rifampicin should be given before discharge to eradicate organism from nose and throat.

Counselling

- The case should be advised of the nature of the infection and its mode of transmission.
- The following information pamphlets/handouts are available:

  Fact Sheet (pdf):
  K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcalFactSheet.pdf

  Meningococcal pamphlets (MoH):
  K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcalHE2395MoH.pdf
  K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcaDiagramsHE2417MoH.pdf

Link to: Communicable Disease Protocol and Standing Order intranet site page, includes:

- Rifampicin Standing Order
- Ciprofloxacin Standing Order

Rifampicin information:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\RifampicinMeningInfoVaccSheet.pdf

Ciprofloxacin information:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\CiproxinMeningInfoVaccSheet.pdf

Management of Contacts

Definition
Close contact:
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:

1. 'Household' contacts, i.e., those living and or 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.
2. Early childhood service contacts:
    a. Children and staff attending an early childhood service as determined by the medical officer of health on a case-by-case basis (MoH[1]). For clarification of contacts at risk the guidelines of the Aug. 2017 C&PH protocol are included here also,
    b. Children and staff in the same room and group at a childcare facility for 4 hours or longer.
    c. Family Day Care where a group of children are cared for in a private home.
    d. 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.
3. Exchange of upper respiratory tract secretions including sexual or intimate kissing contacts (not kissing on cheek or mouth).
4. Passengers in adjacent seats in the same plane, bus, train or car for more than 8 hours.
5. Health care workers including ambulance staff who have had intensive unprotected contact (not wearing a mask) with a case during intubation, resuscitation or close examination of the oropharynx or the case coughed in their face.

    Consider dental therapists: if close contact a possibility, discuss the nature of the contact with the dentist or if child under 9 years discuss with School Dental Service. If a dental therapist involved anywhere in the C&PH region discuss with her/him initially and then Martin Lee 03 364 1984 at Oral Health as he manages the school Dental Services in **Canterbury**, **South Canterbury** and **West Coast**. If Martin Lee is unavailable contact the CDHB Infection Prevention & Control Service 03 378 6966 for advice.

NOT considered a contact = anyone exposed to the case's oral secretions such as by brief kissing on the cheek or mouth or sharing food/drink utensils, cigarettes, bottles, communion cup, lip balm, wind instrument, referee's whistle and those attending the same social function (evidence that it does not increase risk of transmission[1] - saliva inhibits growth of meningococci.[5])

Prophylaxis NOT indicated (unless already identified as close contacts) for:

- Students/pupils in same school/class/tutor group **but** provide a letter and information pamphlets to parents of all children in the same classes as the case. Consider including information in the school newsletter and possibly a talk to the relevant classes/school
- Work colleagues **but** consider providing a letter, information pamphlets and possibly a talk to the workplace
- Friends
- Food or drink sharing or similar low level of salivary contact
- Attending the same social function.

For a case of meningococcal conjunctivitis or meningococcal pneumonia or contacts not requiring prophylaxis see Notification Procedure (above).

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.
- Judgment is required in determining the extent of contact requiring prophylaxis but there is no need for prophylaxis unless a person satisfied any of the criteria 1-5 (see *Definition: Close contact*, above) or had many hours of close association with the case.

Use this form to collect details of contacts:
Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest\ProphylaxisWorkingSheet170208.doc

- Individual contact's details are documented on this form along with the necessary signatures. Forms found in this folder: Y:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest, and named:
  - for Canterbury: MeningitisIndividualContactFormCB.
  - for South Canterbury: MeningitisIndividualContactFormSC.
  - for West Coast : MeningitisIndividualContactFormWC.

Investigation

- Routine throat or nasopharyngeal swab is **not** recommended because asymptomatic carriage is common.
- A positive throat swab result does not assist management. Prophylaxis is given on a history of close contact.

Restriction

Nil.

PROPHYLAXIS

Refer to Figure 2. **Guidelines For Chemoprophylaxis Of Contacts Of Invasive Meningococcal Disease**

Standing Orders

Ciprofloxacin or Rifampicin may be given under Standing Orders found here:

Ciprofloxacin Standing Order

http://cdhbintranet/communitypublichealth/cphpoliciesandprocedures/Documents/Ciprofloxacin%20For%20Meningococcal%20Disease%20Standing%20Order%20129.aspx

Rifampicin Standing Order

https://prism.cdhb.health.nz/site/policies/_layouts/15/WopiFrame.aspx?sourcedoc={cc4ecd98-9a91-4709-8795-1033922f57b2}&action=view

- 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 CPH may administer Ciprofloxacin and Rifampicin under the Standing Orders.
- Ciprofloxacin and Rifampicin may only be administered as specified in this procedure.
- If a Nurse or HPO acts entirely within this Standing Order and procedure, then any consequence of his/her action is the responsibility of the MOH and CPH.
- The Nurse or HPO is accountable for his/her decision-making, for application of the Standing Order and procedure, and for clear documentation of actions taken.
- The Nurse or HPO completes the Standing Order which requires his/her signature and countersigning by an MoH within 72 hours.
- The following contacts may require a different medication and must be discussed with MO/ MOH:
  - Those with contraindications.
  - Those who are pregnant.
  - Those taking other medications.
- All contacts must be given verbal and written information about the medication, its side effects, contraindications, and interactions with other medicines.
- A fax should be sent to the contact's GP to advise them of the medication prescribed. This fax form is on the reverse of the Individual Contact Form.
- Supply of Ciprofloxacin or Rifampicin under Standing Orders must be documented by the Nurse or HPO on the Contacts Table (refer to location in Associated Documents section). Documentation must include:
  - Date
  - Name and date of birth of contact
  - Name of medicine
  - Dosage given
  - Reference to Standing Order
  - Signature of contact or caregiver
  - Issuer's Name, designation and signature

Keep the MOH informed. Discuss individual contacts with him/her if at all concerned about:
- any conditions a contact may have including allergies
- medication the contact was taking
- unsure whether or not a contact required prophylaxis, or what prophylaxis a contact should have
- if any other action was required.

Give within **24 hours** of notification if possible. Prophylaxis is not required if not given within **14** days of contact.
Ceftriaxone is the preferred antibiotic in pregnancy (see Alternatives to Ciprofloxacin and Rifampicin page 9).
Ciprofloxacin and Rifampicin are contraindicated in pregnancy.

Ciprofloxacin 500mg orally given as a single dose is the preferred antibiotic for contacts 12 years of age and over.

Indications
- aged 12 years and over
- it is the preferred antibiotic for women on the contraceptive pill or Depo Provera injection.

Contraindications
- children less than 12 years of age
- pregnancy
- breast feeding
- previous allergic response to ciprofloxacin ((Ciproxin) or other quinolones)

{**Note:** Ciprofloxacin does not interfere with hormonal contraception unless the person is taking an oral contraceptive and the antibiotic causes a stomach upset or diarrhoea. In this case the person should speak with their doctor for advice.}

Ciprofloxacin information sheet:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\CiproxinMeningInfoVaccSheet.pdf

Rifampicin
Indications - from birth to any age.

Contraindications - see following (and Rifampicin information sheet):
- LIVER PROBLEMS,
- a previous ALLERGIC REACTION to any medicine especially any containing 'sulphite' [rifampicin contains metabisulphite]
- PREGNANT or may be: [pregnancy is a contraindication to Rifampicin. Ceftriaxone (250 mg intramuscularly) should be given instead. [**Chch:** Arrange with Moorhouse Medical Centre (ph 365 7900). They have supplies and have agreed to administer this injection. A referral letter is in the folder of the meningitis medication case].
- CONTACT LENSES (may stain).
- If a contact is on a CONTRACEPTIVE pill or injection [Females on the oral contraceptive or Depo Provera are to be offered a packet of 12 condoms because of the reduced effectiveness of their hormonal contraception when taking rifampicin. {see Rifampicin Information handout for full details}
- Precaution
- Taking OTHER MEDICATION (including antacids) - Discuss with MOH.
- [A person already taking antibiotics is to take the 2 day course of rifampicin as well].

Rifampicin information sheet:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\RifampicinMeningInfoVaccSheet.pdf

Rifampicin doses next page

RIFAMPICIN* DOSES

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.

** 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.

All contacts need to be traced as soon as possible.

- Record the details of all contacts and the antibiotic given including the dose on the Meningitis Contacts sheet.
- Complete the form and forward to MOH for signature the next working day.
- If in South Canterbury forward to Timaru Hospital pharmacy.

Give contacts the ciprofloxacin or rifampicin information sheet (and meningococcal fact sheet or pamphlet) and ask them to read it. Ask if any of the contraindications apply, to ensure they are aware of the contraindications.

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.

Local Supplies and After Hours
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: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest\GP_Prophylaxis_MenVaccination_140724.doc

Letter to patient recommending vaccination when serogroup known: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest\RecommendationForVaccinationLetterTEMPLATE.doc

If supplies of antibiotics get low:

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

- 090121Fax_Header_Pharmacy _Template
- 131030Fax_RifampicinOrder Template

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 C&PH 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.

- Ciprofloxacin and Rifampicin are obtained from the Grey Hospital Pharmacy. The HPO contacts the pharmacy, requests access to ciprofloxacin or rifampicin, faxes a request (Fax 768 2699) and then calls to collect anticipated requirements.
- After hours, phone Grey Hospital and ask for the on-call pharmacist or pharmacy technician, fax the request and allow sufficient time for pharmacy on call staff to attend before collecting the medication.
- The HPO dispenses ciprofloaxacin or rifampicin after discussing each contact with the MOH.
- Unused ciprofloxacin and rifampicin is returned to the pharmacy, along with the completed Meningitis Contacts sheet.
- The pharmacy has provided preformatted individual scripts for completion and an MOH signature as soon as practicable. The scripts are kept in the on-call kit in the on-call vehicle.
- Protocols are kept in the on-call kit in on-call vehicle.

Practicalities of distributing rifampicin

C&PH is responsible for arranging prophylaxis for all contacts although the hospital may give it to the immediate family.

Hospital staff who are contacts

Chch: Infection Control Nurse will liaise with Infectious Diseases Specialist to organise prophylaxis where appropriate.

Timaru: The Emergency Dept. will distribute ciprofloxacin or rifampicin to their staff considered to be close contacts on the recommendation of the Infection Control Officer and will inform CPH of the details of the contacts for our records.

Greymouth: The Emergency Dept. will distribute ciprofloxacin or rifampicin to their staff considered to be close contacts on the recommendation of the HPO and will inform CPH of the details of the contacts for our records.

Refer to next page for Rifampicin interactions with other drugs

Alternative to Ciprofloxacin and Rifampicin (discuss each case with MOH)

- Ceftriaxone (make up 250 mg with 2 ml lignocaine as the diluent):
- Children less than 12 yrs receive 125mg intramuscularly.
- Older children and adults including pregnant women receive 250mg intramuscularly.

If the contact is pregnant and allergic to penicillin refer to:
K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\Procedures\Alternatives to Ciprofloxacin and Rifampicin.docx
and discuss with the MOH.

- If the contacts do not want any prophylactic medication or are reluctant about taking it, discuss the risk of contracting the disease with them
- Ceftriaxone does NOT interfere with either oral or injectable hormonal contraception.

Immunisation

- Discuss with the MOH/MO which vaccine is appropriate for each contact (Note: the lower and upper age limits are different for the two vaccines).
- If a contact accepts the offer to have a vaccination they should be provided with a referral letter to their GP: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\FormsStdLettersQuest\GP_Prophylaxis_MenVaccination_140724. doc
- The flow diagram of the agreement to provide this service with primary care is found on HealthPathways, and additionally here on the eDMS: http://cdhbintranet/communitypublichealth/cphpoliciesandprocedures/Protection%20Team/Home.aspx: General Practice Flowchart.
- If during office hours, initially contact the Immunisation Coordinator for the region who will liaise with the practice nurse vaccinator.

If case is of group A, C, W135 and Y disease:

- Vaccination is recommended and fully funded for unimmunised contacts (as defined above in Management of Contacts) of a case of group A, C, Y or W_{135} disease (see point 2 below for an organizational outbreak of group B disease).
- Vaccination is recommended, preferably within 1 week of diagnosis of the index case, but can be considered up to 4 weeks. Ideally the strain, or at least the group, should be determined first; therefore timely laboratory results are important. If there are delays in grouping or this is not possible, consider using a quadrivalent vaccine (if over 2 years of age).
- Conjugate vaccine is the preferred type of vaccine for contacts of meningococcal C disease (conjugate vaccine (MenCCV) is currently only available for group C in New Zealand), or if the contact is younger than 2 years old. Conjugate vaccine has been shown to reduce nasopharyngeal carriage.
- Polysaccharide quadrivalent vaccine (MCV4-D) is available against group A, C, W135 or Y disease, and can be given to contacts who are more than 2 years old.
- Current meningococcal vaccines have short-term efficacy, estimated to be around 3 to 5 years.
- Discuss immunisation in the outbreak setting with the Ministry of Health Communicable Diseases and Immunisation teams.

If the case has group B disease:

- Bexcero (4CmenB) is a new meningococcal disease vaccine which protects against group B meningococcus. Information about Bexcero is available on the IMAC website. As of November 2019, PHARMAC is considering a recommendation to fund Bexcero for close contacts of meningococcal B cases and people who had previously had meningococcal B disease. IMAC advise that although meningococcal vaccines do not work as post-exposure prophylaxis, they may reduce nasopharyngeal carriage and hence the subsequent risk of invasive disease in contacts. Although this advice is based on first principles rather than on evidence of effectiveness, IMAC suggest that it would be reasonable to advise contacts of cases that they can purchase the vaccine themselves on this basis if they wish to.
- Discuss with the Medical Officer of Health whether it would be appropriate to advise contacts that they can request Bexcero from their own general practice at their own expense.

Immunisation in Outbreak Setting

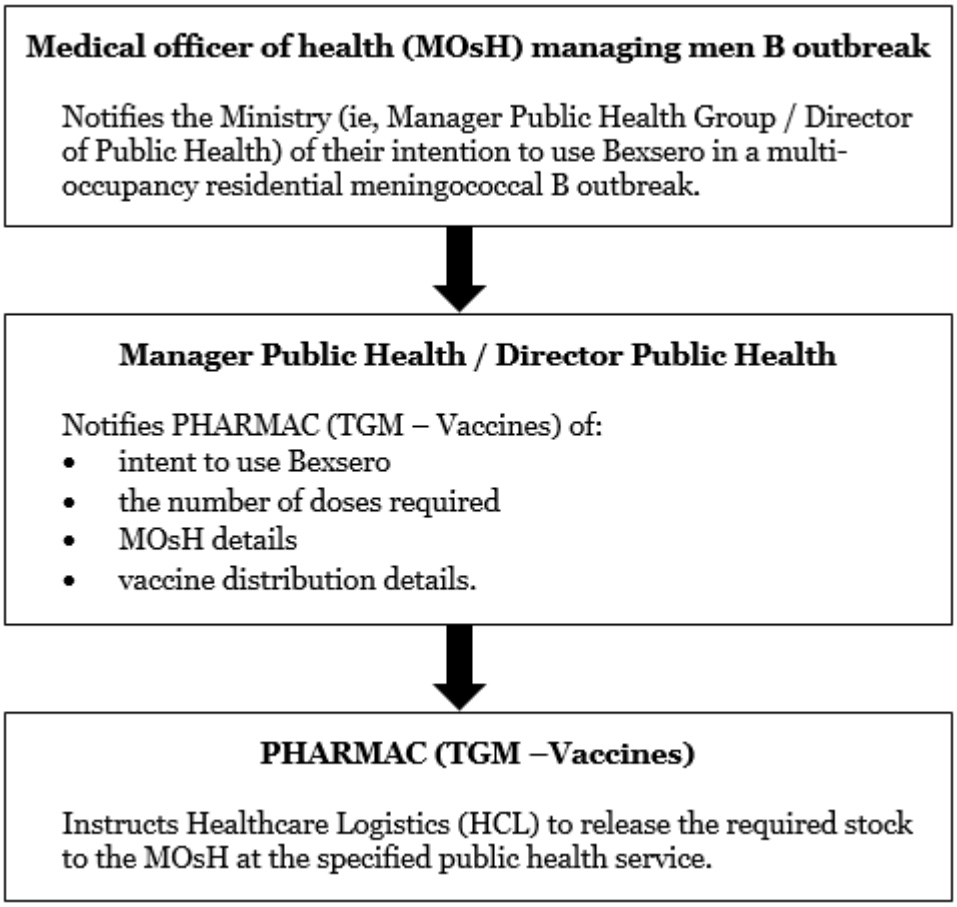
- Discuss immunisation in the **outbreak** setting with the Ministry of Health Communicable Diseases team (refer to next section, **Other Control Measures**, **Management of contacts when there are large groups involved, Definitions)**
- If case is group B **and** associated with a multi-occupancy residential meningococcal B outbreak (*ie. aAn organisation (or similar) 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,),*an emergency supply of meningococcal B vaccine (Bexsero) (4CMenB) is available and funded for use and will be supplied under section 29 of the Medicines Act 1981. See Figure 1. for the process for obtaining the vaccine.
- A small amount of vaccine (100 doses) will be stockpiled by Healthcare Logistics (HCL)
- The vaccine is suitable for children aged from two months and usually two doses are given.

For further details refer to the MoH letter April 2018:
K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\Correspondence\MoHMenBVaccineApr2018.pdf

See next page for Figure 1. ***Process for obtaining Group B vaccine for contacts associated with an Organisation (or similar) outbreak***

Management of Contacts *continued*

Figure 1. **Process for obtaining Group B vaccine for contacts associated with an Organisation (or similar) outbreak**[§]



[§] See next section for definitions

- Under this scenario, HCL will be responsible for the supplier requirements of section 29, and the MOsH will be the prescriber under Section 25 of the Medicines Act 1981.

A detailed schedule by age at commencement of vaccination course is provided in the Table following:

4CMenB vaccine schedule by age at commencement of vaccine course

Age at commencement of course	Number of doses required for primary immunisation	Recommended interval between primary doses	Recommended age for single booster dose
2-5 months	3 doses	8 weeks	12 months
6-11 months	2 doses	8 weeks	12 months and at least 8 weeks after previous dose
12 months to 10 years	2 doses	8 weeks	No booster required
From 11 years	2 doses	4weeks	No booster required

Management of Contacts *continued*

Revaccination

The MoH protocol states "Information on revaccination is limited, but it may be appropriate for individuals with ongoing higher risk." *Although the MoH advises referring to the Immunisation Handbook (2017) for more details, the word 'revaccination' is not identified in the online March 2018 updated version on a search, although there are numerous recommendations for 'booster' doses.*

Rifampicin Interactions with other drugs

Rifampicin is a potent inducer of hepatic enzymes including the CYP450 enzyme system. These enzymes are involved in the metabolism of a wide variety of medications including hormonal contraceptives. Co-administration of rifampicin with a drug metabolised by CYP450 enzymes is likely to increase the clearance (therefore lowering the plasma concentration and reducing the therapeutic efficacy) of the interacting drug.

Antivirals currently in use do not interfere with rifampicin

Antiviral	Hepatically metabolised by CYP450?	Interacts with rifampicin?	Recommendation
Aciclovir	No	No	OK to use
Adefovir dipivoxil	No	No	OK to use
Valaciclovir	No	No	OK to use
Valganciclovir	No	No	OK to use

Marie-Claire Pow, CDHB Drug Information 17 May 2013

Restriction

- Nil

Counselling

- Encourage immediate referral if symptoms develop especially if fever or petechial rash.
- Meningococcal pamphlets are available:

Fact Sheet:
K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcalFactSheet.pdf

Meningococcal pamphlets (MoH):
K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcalHE2395MoH.pdf
K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\MeningococcaDiagramsHE2417MoH.pdf

Rifampicin information:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\RifampicinMeningInfoVaccSheet.pdf

Ciprofloxacin information:
Y:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\CiproxinMeningInfoVaccSheet.pdf

Explain the side effects of rifampicin (handout) and ciprofloxacin (handout).
Chch: Meningococcal pamphlets, ciprofloxacin and rifampicin Information handouts are kept in the folder in the meningitis bag.

Other Control Measures

- Send letter and pamphlets to school for parents/guardians of children in same class(es) as cases and/or as basis for newsletter:
  K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest\LETTER_Preschool or School June 2015 TEMPLATE.doc
- Send letter and pamphlets to workplace Advise PHNs of relevant school, Student Health (University), Polytech etc.:
  K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest\LETTER_Workplace Aug 2012 TEMPLATE.doc
- Always inform the other surrounding medical practices by the next working day when the case is outside Christchurch or Timaru:
  K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\MeningococcalDisease\FormsStdLettersQuest\GPLetter_FYI case in area 120217.doc

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.

Identification of source

- In an outbreak ensure careful surveillance, early diagnosis and immediate treatment of suspected cases.

Disinfection

- Bacterial
- Toys at a preschool are to be washed in a hypochlorite (Janola) solution, ie. 1 part Janola to 9 parts water.

	Health Education • Advise the public to seek early help particularly with sick children. • Advice to doctors about the benefits of pre-hospital antibiotics and early diagnosis. • Consider media release. This may also be necessary to locate potential contacts in some circumstances.
Reporting	
	• Enter case details on EpiSurv. • If an outbreak/cluster report in EpiSurv. • If an outbreak, write report for Meningococcal Disease Outbreak Report File: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Meningococcal Disease\Outbreaks\.... • File.
References and further information	
	1. Ministry of Health, Communicable Disease Control Manual 2012. URL: https://www.health.govt.nz/publication/communicable-disease-control-manual Ministry of Health, Immunisation Handbook, 2011 2. Australian Government Department of Health, Invasive Meningococcal Disease, Special Situations, Meningococcal conjunctivitis. CDNA National Guidelines for Public Health Units. 13 May 2015. http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-IMD.htm#toc12 4. CDC Manual for the surveillance of vaccine-preventable diseases. Chapter 8, Meningococcal disease https://www.cdc.gov/vaccines/pubs/surv-manual/chpt08-mening.html 5. The NSW Health Department, Meningococcal disease control guidelines http://www.health.nsw.gov.au/Infectious/controlguideline/Pages/meningococcal-disease.aspx#7note

Figure 2. **GUIDELINES FOR CHEMOPROPHYLAXIS OF CONTACTS OF INVASIVE MENINGOCOCCAL DISEASE**