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Meningococcal GP Guidelines

May 2008

Introduction

The purpose of these guidelines is to provide advice to medical practitioners about the early clinical and public health management of meningococcal disease. Information provided is a summary of the recommendations outlined in the Communicable Diseases Network Australia (CDNA) Meningococcal Guidelines 2007.

Meningococcal infection is caused by the Gram negative diplococcus *Neisseria meningitidis*.

About 8 of the 13 serogroups of *N. meningitidis* can cause disease, but serogroups A, B, and C are responsible for over 90% of invasive infections. Typically, serogroups A and C are associated with outbreaks or clusters of cases and serogroups B and C are associated with sporadic cases. Less common groups include W-135, and Y.

Number of Cases and Serogroups

In 2006, WA had 21 cases of meningococcal infection notified to the Department of Health. Of these, 19 were serogroup B (90%), 1 serogroup C (0.5%), 1 serogroup W135 (0.5%).

Incubation Period and Transmission

The incubation period for invasive meningococcal disease is usually 3-4 days (range 1 to 7 days).

Meningococcal bacteria are most readily transmitted by prolonged respiratory contact (e.g. living in the same household). There is little evidence to support that salivary transmission (e.g. sharing drink containers, food, cigarettes, smoking implements, wind instruments, etc) is a means of transmission so no longer considered significant.

Nasopharyngeal carriage of meningococci is common - about 10% of the population carry *N. meningitidis* bacteria not all of which are virulent strains at any given time. Nasopharyngeal carriage induces serogroup-specific immunity of variable duration.

In susceptible individuals, meningococcal infection may become invasive and cause a range of clinical syndromes, most commonly a combination of septicaemia and meningitis, septicaemia alone, or meningitis alone.

Meningococcal Meningitis

Meningococcal meningitis usually has a sudden onset and is typically characterised by fever, intense headache, stiff neck, nausea and vomiting, and altered consciousness. An associated late sign is a petechial rash, but this is not always present. A less distinctive maculopapular rash may also be observed in the early phase of the illness. It is important not to wait for a rash before diagnosing and treating suspected meningococcal disease.





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A recent study in children under 16 years of age has shown that leg pain, cold extremities, and abnormal skin colour are frequently seen in the first 12 hours of meningococcal disease (median onset 7-12 hours), whereas the classic features (haemorrhagic rash, meningism, and impaired consciousness) are relatively late signs (median onset 13-22 hours). As the early features of meningococcal disease are non-specific and may also be present with other bacterial and viral infections including self-limiting viral illnesses seen in primary care, doctors should be encouraged to schedule clinical review within 4-6 hours if early meningococcal disease cannot be excluded at the first assessment.

Infants may not develop signs of meningism. The most common symptoms and signs for infants include fever, tachypnoea, rash, vomiting, irritability, drowsiness, and pallor. However, not all these signs and symptoms may be present and clinical review of infants is especially important. A change in affect or alertness is one of the most important early signs in infants.

Meningococcal Septicaemia

Invasive meningococcal infection may result in septicaemia with or without meningitis. In septicaemic cases, the patient usually presents with an acute febrile illness, profound malaise, myalgia or arthralgia, nausea and vomiting, altered consciousness, and a maculopapular/petechial rash (50% of cases).

Meningococcal septicaemia is more often misdiagnosed than meningococcal meningitis at first presentation and has a high fatality rate.

Meningococcal Conjunctivitis

Primary meningococcal conjunctivitis may be associated with invasive disease and should be treated systemically. The public health management of meningococcal conjunctivitis is identical to that of invasive disease.

Meningococci isolated from other sites

Meningococci coincidentally isolated from other superficial sites (e.g. oropharyngeal, genital or anal swabs) are of no public health consequence, and do not require any public health response.

PRE-HOSPITAL EMPIRICAL THERAPY

As soon as invasive meningococcal infection is suspected, intravenous access should be attempted and, if possible, a blood culture specimen obtained prior to antibiotic administration and immediate transfer to hospital. If intravenous access cannot be obtained then intramuscular antibiotic injection is recommended. Pre-hospital antibiotic therapy can halve the case fatality rate.

The recommended antibiotics for immediate empirical therapy are either:





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1. Benzylpenicillin

- <1 year: 300 mg,
- 1-9 years: 600 mg,
- ≥10 years: 1200 mg IVI

For optimal benefit, benzylpenicillin should be given intravenously. However if general practitioners are unable to access the intravenous route, it is appropriate to administer benzylpenicillin by the intramuscular route.

2. Ceftriaxone (50 mg/kg to a maximum of 2 g) IM or IV.

Benzylpenicillin is available as a PBS Emergency (Doctor's Bag) Drug. Ceftriaxone is the preferred empirical therapy for patients with penicillin allergy or for patients in remote areas where further parenteral therapy may be delayed more than 6 hours.

In cases where penicillin allergy is suspected or known and ceftriaxone is unavailable, contact a microbiologist or medical specialist for information and advice.

Antibiotic Treatment of Cases

For those patients who were given Benzyl penicillin as the main course of treatment, an appropriate antibiotic should also be given to eliminate nasopharyngeal carriage of *N. meningitidis*. Ceftriaxone and ciprofloxacin are suitable for this purpose, but penicillin is not (page 14, 3, 10).

Vaccination of Cases

Confirmed cases of serogroup C disease including those who have been previously vaccinated with MenCCV or a polysaccharide meningococcal vaccine should be offered at the time of discharge, as immunisation with conjugate vaccines appears to induce better sustained immunity than natural infection.

NOTIFICATION

Every case of suspected invasive meningococcal disease should be notified urgently by telephone to the local Public Health Unit or to the Communicable Disease Control Directorate (metropolitan area - phone 9388 4999 or, after hours, 9328 0553). Do not wait for laboratory confirmation before notifying, to prevent time delays in following up contacts.

CONTACT MANAGEMENT

High Risk Contacts

(CHEMOPROPHYLAXIS RECOMMENDED)

Persons who have had close, prolonged contact with the patient within 7 days preceding the onset of disease in the patient, including:





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1. Household contacts, especially children.
2. Sexual and intimate kissing contacts.
3. Children and staff contacts who attended the same child care or playgroup session for more than 4 continuous hours.
4. Contacts who slept in the same household, including dormitory contacts.
5. Contacts who sat in seats adjacent to a case during long flight travel (> 8 hours).
6. Medical/HCW staff contacts who performed mouth-to-mouth resuscitation or where <1 meter from the case during endotracheal intubation/extubation.

Lower Risk Contacts

(CHEMOPROPHYLAXIS NOT RECOMMENDED)

1. Casual contacts – non-high risk contacts with no history of prolonged close exposure, e.g. school or work contacts, contacts who attended different child care or playgroup sessions to the case.
2. Indirect contacts – any contacts of a high risk contact, e.g. household or family contacts of a high risk contact.
3. Saliva contacts – non-high risk contacts are those who engaged in non-intimate kissing on the cheek or lips, shared drink containers, food, cigarettes, smoking implements, wind instruments, etc, with the case.
4. Medical staff contacts without direct exposure to patient's respiratory secretions (see 5. above).

Treatment of Index Case's Contacts

Chemoprophylaxis is not recommended if the last contact was more than 4 weeks ago. Ideally, antibiotics should be given as soon as possible (with 24 hours) after the diagnosis of the index case.

High risk contacts should receive chemoprophylaxis and instructions to seek immediate medical attention if signs or symptoms of invasive meningococcal infection appear.

Lower risk contacts should only receive instructions (Fact Sheet) to seek immediate medical attention if signs or symptoms of invasive meningococcal infection appear.

If there is uncertainty whether an individual is a high risk or lower risk contact, Public Health staff should be consulted.

Chemoprophylaxis is effective in eliminating carriage of *N. meningitidis*, but it may not prevent meningococcal infections that are already incubating. The primary aim of chemoprophylaxis is to eliminate meningococcal from any carrier who may be in the network of contacts close to each index case reduce the circulation of





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Chemoprophylaxis of Contacts

Either ceftriaxone, ciprofloxacin or rifampicin are suitable for this purpose, penicillin is not recommended.

Oral Rifampicin

The recommended schedule for rifampicin is 600 mg every 12 hours for 2 days for adults; 10 mg/kg/dose for children over one month of age every 12 hours for 2 days; and 5 mg/kg/dose for children aged less than one month every 12 hours for 2 days. This can be simplified as below in the table without losing effectiveness.

Aged	Dose	
0-2 months	1ml syrup* (20 mg)	} Twice daily for 2 days
3-11 months	2ml syrup* (40 mg)	
1-2 years	5ml syrup* (100mg)	
3-4 years	7.5 ml syrup (150 mg)	
5-6 years	10 ml syrup (200 mg)	
7-12 years	300mg capsule	} Twice daily for 2 days
> 12 years	500mg capsule	} Twice daily for 2 days

*Rifampicin syrup contains 100mg/5ml

Note: The Product Information recommends a once-daily four-day regimen of rifampicin for clearance antibiotics of meningococcal disease. The two-day regimen above is recommended by the Communicable Diseases Network Australia (CDNA) in accordance with the Cochrane review.

Rifampicin should not be given during pregnancy or to people with active liver disease and should be given with caution to people taking anticoagulants, anticonvulsants, or oral contraceptive medication.

Common side effects of rifampicin include headache, dizziness and gastrointestinal symptoms. It can cause orange colouration of urine, orange staining of contact lenses and, because it induces liver microsomal enzymes, it can reduce the efficacy of the oral contraceptive pill. Rifampicin can also reduce the efficacy of phenytoin, warfarin, corticosteroids, cyclosporine, dapsone, diltiazem, quinidine, sulfonylureas, theophylline, tricyclic antidepressants, verapamil, beta-blockers, and methadone.

Rifampicin is not available from most community pharmacies. Contact your local Public Health Unit or public hospital if you need rifampicin for meningococcal chemoprophylaxis.





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Intramuscular Ceftriaxone

Recommended dose is 250 mg/dose, or 125 mg: < 12 years, 250 mg: \geq 12 years IM.

Ceftriaxone should not be given to infants less than 4 weeks of age, but it is safe to administer during pregnancy.

Ceftriaxone should be diluted with 1% lignocaine without adrenaline to reduce pain at the injection site.

Oral Ciprofloxacin

A single dose of 500 mg: \geq 12 years.

Systemic allergic reactions may occur in up to 1 per 1,000 first doses. Contacts should be observed for 20 minutes after ingestion of tablets and adrenaline should be available to treat anaphylaxis.

Ciprofloxacin should not be given during pregnancy, but it is the preferred antibiotic for women on the contraceptive pill.

Ciprofloxacin is contraindicated in children less than 12 years of age.

Nasopharyngeal swabbing and culture is of no value in contact management.

Vaccination of contacts

Due to the prolonged risk of secondary cases in household settings, vaccination is indicated for unimmunised household and sexual contacts of cases of serogroup C disease.

For household contacts of confirmed cases of meningococcal disease, public health staff should confirm the meningococcal serogroup. If the case is serogroup C, all unvaccinated household contacts should be immunised with MenCCV. If the case is a non-B non-C serogroup, all household contacts should be immunised with 4vMenPPV (Page 43).

In addition, if a household contact of a confirmed case of any meningococcal serogroup is aged 12 months or over, and was born after 1 January 2002, ensure that he/she has received one dose of MenCCV. If unvaccinated, promote vaccination through the contact's usual immunisation provider (Page 43).

Public Health Response

On receipt of the notification of suspected or confirmed cases of meningococcal infection, Public Health Staff (PHS) will initiate follow up action as outlined in this document and the Communicable Disease Network Australia (CDNA) management of meningococcal disease guidelines 2007, see www.public.health.gov.au

