

MENINGOCOCCAL INFECTION: INFECTION CONTROL MANAGEMENT - CHW POLICY®

DOCUMENT SUMMARY/KEY POINTS

Note: All staff should follow the information found in the NSW Health Policy Directive (GL2014_013)

[Infants and Children: Acute Management of Bacterial Meningitis: Clinical Practice Guideline](#)

Rapid assessment and treatment is essential for any potential case.

- Meningococcal infections are caused by *Neisseria meningitidis*.
- Transmission is either by direct contact or via contact, usually prolonged, with respiratory droplets from the nose and throat of colonised or infected people.
- Contact and Droplet precautions initially apply.
- A child with suspected or confirmed meningococcal meningitis/sepsis must be isolated in a single room on any ward, for 24 hours following commencement of appropriate antibiotic therapy which is known to be effective in clearing mucosal carriage (e.g. cefotaxime, ceftriaxone, rifampicin or ciprofloxacin).
- Staff performing and assisting in an intubation of a child with suspected meningococcal disease must wear mask, gloves and goggles.
- Immediate household contacts MUST be offered prophylactic antibiotics as soon as is practicable. If close contacts are attending The Children's Hospital at Westmead in the presence of the index case, it is the responsibility of the Treating Clinical Team caring for the index case to organise and/or administer this treatment in consultation with Public Health.
- Medication of contacts must be documented on the Medical Record form "[Meningococcal Prophylaxis Notification](#)" (M2P) for this information to be included in the children electronic medical records.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st March 2015	Review Period: 3 years
Team Leader:	Clinical Nurse Consultant	Area/Dept: Infection Control

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This Policy/Procedure may be varied, withdrawn or replaced at any time. Compliance with this Policy/Procedure is mandatory.

CHANGE SUMMARY

- Links and references updated.
- Added table 1.
- Minor wording changes throughout.

READ ACKNOWLEDGEMENT

- All medical and nursing staff working in clinical areas are to read and acknowledge this document.

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1 Introduction

Aetiology

Meningococcal infections are caused by the bacterium *Neisseria meningitidis*, a Gram negative diplococcus of which there are 13 known serogroups. Globally, serogroups A, B, C, W₁₃₅ and Y most commonly cause disease. There is no consistent relationship between serogroup or serotype/subtype and virulence. In New South Wales over half of all cases are caused by serogroup B, against which there is currently no vaccine available³.

Clinical Manifestations

Neisseria meningitidis may cause meningitis, septicaemia or a combination of the two. Less commonly it may cause other infections such as pneumonia, arthritis, peritonitis and conjunctivitis. The younger the patient, the more subtle the symptoms and signs and the higher the level of suspicion should be; ~ 90% of bacterial meningitis occurs at age < 5 years.

Septicaemia, with or without meningitis, can be severe and is often characterised by sudden onset of fever, myalgia, nausea and often vomiting and a distinctive non-blanching petechial rash. Delirium and coma may develop rapidly. The mortality rate is approximately 5 and 10% despite aggressive and appropriate therapy and approximately 1 in 10,000 (200 to 250) people in New South Wales are infected annually. Meningitis is usually characterised by intense headache, neck stiffness and photophobia.

N. meningitidis colonises the back of the throat in 5 - 25% of the population without causing illness. For this reason, positive throat swabs are of little value in diagnosing invasive meningococcal infection. Conversely, negative throat swabs are also not able to exclude the possibility of invasive meningococcal infection.

2 What are the causes of meningococcal infection?

Mode of Transmission

Transmission is either by direct contact or via contact, usually prolonged, with respiratory droplets from the nose and throat of colonised or infected people.

Incubation Period

The incubation period varies between 1 and 10 days but is generally between 3-4 days following exposure.

Risk of Acquisition

Susceptibility to meningococcal disease is generally low and decreases with age, with a high ratio of carriers to cases. Patients who are immunosuppressed, have an inherited disorder of phagocytosis associated with properdin deficiency or absence of the terminal components of complement as well as those with functional or anatomical asplenia, are at a higher risk of acquiring meningococcal infection.

3 Command and Control

Responsibility for implementation of this policy is the direct responsibility of appropriate clinical line managers caring for affected patients.

- The clinical line managers will consult with the Infection Control Team regarding appropriate patient placement and infection control procedures.
- *Neisseria meningitidis* infection is mandated as a reportable infection to Public Health Units. The responsibilities are:
 - The Treating Clinical Team must notify Public Health about any *potential* cases as soon as possible. The Consultant in charge of the patients' care is responsible for ensuring this is done.
 - Laboratory notification is also required once the diagnosis is confirmed.
- The Public Relations Officer on-call should be contacted about all potential cases of meningococcal disease. A Reportable Incident Brief (RIB) will be sent to NSW Department of Health on any potential media interests or problems. This is currently the responsibility of the Executive Assistant to the Chief Executive.
- The Microbiologist, or Infection Control Practitioner will notify the Director of Clinical Operations and Public Health of identification of any known meningococcus clusters. The Director of Clinical Operations will in turn notify the Chief Executive.
- A report on management of any new *Neisseria meningitidis* cluster will be made to the next Infection Control Committee meeting.
- Where there is a dispute between clinical line managers and infection control / microbiology or if there is no policy on a particular issue or the policy needs updating then there needs to be further discussion between clinical line managers, infection control, microbiology and the Director of Clinical Operations to develop a consensus agreement based on best evidence. If a dispute arises about policy it is to be referred to the Chief Executive for resolution.

4 Initial Presentation to the Emergency Department

The following information is based on the NSW Health Policy Directive (GL2014_013) [Infants and Children: Acute Management of Bacterial Meningitis: Clinical Practice Guideline](#)

Treatment

- The patient needs to be triaged according to clinical indicators. Once the disease is suspected, the patient should be prioritised for emergency care. For more information, refer to [Meningitis: Management in the Emergency Department Practice Guideline](#)
- Treatment stated on the CHW lanyard quick reference card "**Empiric Parenteral Antibiotics for Community-Acquired Infections**" (approved by CHW Drug Committee)

Antibiotic prophylaxis for close contacts

Antibiotic prophylaxis is essential for close contacts *as soon as possible* for both strongly suspected and proven Meningococcal disease. In general, close contacts are regarded as household contacts of the case, or others who have slept in the same room overnight. Brief (<8 hours) contact generally does not justify antibiotic prophylaxis, but people with these lower-risk contacts should be given information about the disease and encouraged to present early for assessment if they do become unwell.

5 Public Health Unit Requirements – CHW protocol

5.1 Mandatory Reporting

Meningococcal disease is to be notified by the Treating Clinical Team on behalf of the Chief Executive on clinical suspicion (ideally reporting by telephone within 1 hour of diagnosis) and by laboratories upon confirmation of the diagnosis (again ideally by telephone within 1 hour)

If in doubt as to the need to report a suspected case, discuss with the Public Health Unit.

Sydney West Public Health Contact numbers

Parramatta

02 9840 3603

Fax: 43591

It is the Public Health Unit's mandate to follow-up contacts of confirmed meningococcal disease, and assesses what advice or prophylaxis is needed on a case by case basis.

Immediate household contacts **MUST** be offered prophylactic antibiotics as soon as is practicable. If close contacts are attending The Children's Hospital at Westmead (CHW) in the presence of the index case, it is the responsibility of the Treating Clinical Team caring for the index case to organise and/or administer this treatment in consultation with Public Health.

5.2 Treating Close Contacts at CHW – PHU Standing Order

The Treating Clinical Team is to organise prescriptions for the close contacts attending CHW with the index case.

During normal working hours

(Monday - Friday 0830 -2000, Saturday, Sunday and Public Holidays 0830 to 1230)

The prescriber of Treating Clinical Team should use the "**Public Health Unit Standing Order**" form:

http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/public_health/meningococcal/WSLHN_standing_order.doc

- Fax a copy to Public Health (02 9840 3608/3591)
- Fax to CHW Pharmacy (fax 52709) for dispensing.
- The original sheet can be given to parents so that they can hand it over to Pharmacy when collecting the prophylactic medications.

Out of hours

There are two options – medications can be supplied via Emergency Department (ED) or through the Afterhours Nurse Manager (AHNM) (Page 6056 or Ext 52466)

Option 1

- The prescriber from the Treating Clinical Team is to use the "[Public Health Unit Standing Order](#)" form.
- Fax a copy to Public Health (02 9840 3608/3591)
- Doctor to take the completed form to Emergency Department and dispense pre pack from afterhours drug cupboard
- Pharmacy will collect the completed form when re-plenishing ED supply
- When ED pre-packs are exhausted, the AHNM have access to the Pharmacy after-hours cupboard to obtain more pre-packs.

Option 2

This option is recommended when the patient is not in ED.

- The prescriber from the Treating Clinical Team is to use the "[Public Health Unit Standing Order](#)" form.
- Fax a copy to Public Health (02 9840 3608/3591)
- Contact and hand the completed form to the AHNM who has access to the Pharmacy after-hours cupboard where pre-packs are also available.

Note:

- The on-call Pharmacist is always available via switch for advice.
- If there is a large burden of contacts to be treated, the on-call pharmacist can organise a call-back if necessary to facilitate this process. In the event that the on-call pharmacist is not contactable, the Deputy Director or Director of Pharmacy should be contacted via switch.

5.3 Provide information to the close contacts

Ensure that all contacts are given:

- Information about the **drug** they have been prescribed:
 - **Ciprofloxacin:**
http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/public_health/meningococcal/cipro.doc
 - **Rifampicin:**
http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/public_health/meningococcal/rifampicin.doc
 - **Ceftriaxone:**
http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/public_health/meningococcal/ceftrax.doc
 - **Meningococcal Factsheet:**
http://www.health.nsw.gov.au/Infectious/factsheets/Pages/Meningococcal_disease.aspx

5.4 Close Contact Documentation

Medication of contacts must be documented on the Medical Records form "[Meningococcal Prophylaxis Notification](#)" (M2P). This form will become part of the child's electronic medical record.

5.5 Mass administration of chemophrophylaxis – Standing Order

In the event where mass administration of chemophrophylaxis is required, refer to:

http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/public_health/meningococcal/WSLHN_standing_order.doc

6 Infection Control Measures

Contact and Droplet precautions are to be used by all staff entering the child's room until the completion of 24 hours of appropriate antibiotics.

6.1 All Health Care staff

- As for any other patient, hand hygiene must be performed before and after patient contact.
- Personal Protective Equipment (PPE) including gloves, surgical masks, eyewear and disposable gowns are to be worn when attending the patient until after 24 hours of antibiotic cover with cefotaxime, ceftriaxone, rifampicin or ciprofloxacin. Contact and Droplet precautions can cease after this time and standard precautions only are required
- Any instrumentation of airways requires that staff wear a surgical mask to protect against droplet infection; until the patient has had a sufficient and effective antimicrobial course and is not infectious.
- It is the responsibility of each staff member to ensure they are properly equipped with personal protective equipment and it is also the responsibility of the senior doctor in charge of the patient to ensure that staff comply.

6.2 Staff Exposure

Only medical personnel who are directly exposed to a case's nasopharyngeal secretions (i.e. intubating the case without a face mask, or performing mouth to mouth resuscitation) usually require clearance antibiotics. Other health care staff managing the patient should be given information about the disease and encouraged to present early for assessment if they do become unwell.

Routine immunisation of staff with current meningococcal vaccines is not recommended, as the risk of meningococcal disease in Australia is relatively low. Immunisation is however, recommended for Microbiology Laboratory staff who may be exposed to *N. meningitidis* during the course of their work.

6.3 Clearance Antibiotics

1) Ciprofloxacin

Ciprofloxacin is frequently utilised in non-pregnant adult contacts due to its oral administration, tolerability, and low probability of drug interactions.

Ciprofloxacin is contraindicated in pregnancy and in children less than 12 years of age. Ciprofloxacin is the preferred clearance antibiotic for women on the contraceptive pill

Allergic reactions, although very uncommon, have been reported in about one in one thousand people following single-dose ciprofloxacin.

See Table 1 for dosage regime.

2) Ceftriaxone

Ceftriaxone is the preferred clearance agent for pregnant women provided they are not allergic to cephalosporins. A single dose of intramuscular ceftriaxone is dissolved in 1% lignocaine to reduce pain at the injection site. Ceftriaxone should not be used in infants under 4 weeks old.

See Table 1 for dosage regime.

3) Rifampicin

Rifampicin was the traditional oral clearance antibiotic prior to the availability of Ciprofloxacin, but is more complex to prescribe and take. Rifampicin is contraindicated in pregnancy, and may also reduce the efficacy of the oral contraceptive pill. Rifampicin can cause orange staining of contact lenses as well as orange colouration of sweat, tears and urine. It has multiple drug interactions, in particular with anticonvulsants and warfarin.

Expert advice should be sought before prescribing for patients with underlying medical conditions or who are taking regular medications.

See Table 1 for dosage regime.

Table 1. Chemoprophylaxis for meningococcal contacts

Drug	Age	Dose	Frequency
Ciprofloxacin	Adult, child > 12 years	500mg orally	Single dose
Ceftriaxone (dissolved in 1% lignocaine)	Pregnant women, adults	250mg intramuscularly	Single dose
	Child > 4 weeks to 12 years	125mg intramuscularly	Single dose
Rifampicin	Adults	600mg orally	12 hourly for 2 days
	Child > 4 weeks	10mg/kg orally	12 hourly for 2 days
	Neonate <= 4 weeks	5mg/kg orally	12 hourly for 2 days

6.4 Advice for contacts who are not prescribed clearance antibiotics

Contacts, including family members and healthcare workers, who are assessed as being at insufficient risk to receive clearance antibiotics, or who decline clearance antibiotics, should be informed of their exposure. They should be educated about the possible symptoms and signs of meningococcal disease, and advised to present early for assessment if they do become ill.

7 Patients with Meningococcal Disease

Isolation and Placement

Any child with meningococcal infection (suspected or proven) should be nursed on the ward which is most appropriate for their medical needs, in a single room with the door closed.

Isolation with droplet precautions needs to be implemented immediately on presentation to the hospital. This should continue until 24 hours following commencement of appropriate antibiotic therapy which is known to be effective in clearing mucosal carriage (e.g. cefotaxime, ceftriaxone, rifampicin or ciprofloxacin).

Ongoing isolation requirements however, should be determined by the hospital infection control team and is based on the suspected or confirmed organism.

The child can then be de-isolated and treated with standard precautions

Emergency Department

- The child must be nursed using Contact and Droplet precautions.

Patient care equipment

- If equipment has to be used for other children it must be adequately cleaned by wiping over with 70% Isopropyl alcohol impregnated wipes.

Cleaning

- The child's room must as per cleaning policy.
- If the child is relocated, all equipment if possible should be moved with the child to the new location. Equipment should not be shared with other children where possible.
- Linen: No special handling of linen is required.

Family and Visitors

Visitors should be limited to immediate family only until the 24 hours of appropriate antibiotics have been administered. They should be encouraged to practice hand hygiene with alcohol based handrub or with antiseptic wash and water before entering and after leaving the child's room.

- Factsheet available for parents and carers:
<http://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/Meningococcal.pdf>

Eating Utensils

- There is no special handling or cleaning requirements for eating utensils.

Pathology Specimens

Pathology personnel must comply with Contact and Droplet Precautions when entering and leaving the room. Staff should seal specimen receptacles correctly, label specimen accurately and complete all relevant details on the request form.

Place specimen and pathology form into a plastic biohazard specimen bag for transport. After venepuncture or cannulation, the tourniquet is to be cleaned before use on any other patient or else left in room for the duration of patient stay and then cleaned or discarded.

8 Discharge of Patient from Hospital

As the child will usually have had well over 24 hours of appropriate antibiotic therapy there is rarely any need for quarantining on discharge.

The Public Health Unit will follow up on any close contacts.

9 References

1. American Academy of Paediatrics. Gastroenteritis. In: Peter G, ed. 2009 Red Book: Report of the Committee on Infectious Diseases. 28th ed. Elk Grove Village, IL: American Academy of Paediatrics; 2009.
2. CDNA Guidelines for the early clinical and public health management of meningococcal disease in Australia - **Revised Edition 2007** – available at
Australian Commission on Safety and Quality in Healthcare “Australian Guidelines for the Prevention and Control of Infection in Healthcare. Australian Government National Health and Medical Research Council 2010.
3. The Australian Immunisation Handbook 10th Edition, 2013, Commonwealth of Australia, Canberra
<http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>

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