



Health Protection Agency-North East

Policy for the Management of Meningococcal Infection

Contents

1. Scope
2. Meningococcal Infection
 - 2.1. Identification
 - 2.2. Transmission
 - 2.3. Incubation
 - 2.4. Carriage
 - 2.5. Invasive disease
 - 2.6. Incidence
3. Reporting, Statutory Notification and Case Definitions
4. Management of a Sporadic Case
 - 4.1. General Practitioners
 - 4.1.1. Pre-admission penicillin
 - 4.1.2. Chemoprophylaxis
 - 4.1.3. Immunisation
 - 4.2. Hospital Clinicians
 - 4.2.1. Reporting a Case to the Health Protection Unit
 - 4.2.2. Chemoprophylaxis
 - 4.2.3. Diagnostic tests
 - 4.3. Hospital Laboratory
 - 4.4. Health Protection Unit
 - 4.4.1. Contact tracing
 - 4.4.2. Chemoprophylaxis
 - 4.4.3. Action outside normal working hours (on call)
 - 4.4.4. University Students
 - 4.4.5. Immunisation
 - 4.4.6. Dissemination of Information
 - 4.4.7. Surveillance and Audit
 - 4.4.8. Management of cases resident outside of North East
5. Definition of a Contact
 - 5.1. Rationale
 - 5.2. Close contacts who require prophylaxis
 - 5.3. Contacts that do not require prophylaxis
 - 5.4. Transient close contacts
 - 5.5. Dispersal settings
 - 5.6. Contacts within a health care setting
 - 5.6.1. Patients within the same hospital ward
 - 5.6.2. Health care workers
6. Chemoprophylaxis
 - 6.1. Timing of chemoprophylaxis
 - 6.2. Choice of chemoprophylaxis
 - 6.3. Pregnancy and breastfeeding
 - 6.4. Epilepsy

7. Immunisation
 - 7.1. Rationale
 - 7.2. Cases and close contacts requiring vaccine
 - 7.3. Pregnancy and breastfeeding
8. Management of Clusters/Outbreaks
 - 8.1. Rationale
 - 8.2. Definitions
 - 8.3. Risk Assessment
 - 8.4. Outbreak Control Team
 - 8.5. Health Protection Actions
9. Press/ Media
10. References

Appendices:

- Appendix 1 Duties of key personnel
- Appendix 2 Information sheet for parent/ patient
- Appendix 3 Rifampicin Information Sheet (Patients)
- Appendix 4 Rifampicin Information Sheet (GP)
- Appendix 5 Ciprofloxacin Information Sheet
- Appendix 6 Ceftriaxone Information Sheet
- Appendix 7 School letter
- Appendix 8 Nursery letter
- Appendix 9 University letter
- Appendix 10 Meningococcal investigation form
- Appendix 11 GP letter for case
- Appendix 12 GP letter (for contacts with prophylaxis arranged by hospital/OOH)
- Appendix 13 GP letter (requesting prophylaxis for contacts)
- Appendix 14 Area GP/NHS Direct letter for case in nursery/school
- Appendix 15 Contact details for universities
- Appendix 16 Distribution list

1. Scope

This policy describes the health protection management of cases of meningococcal meningitis, septicaemia, septic arthritis and conjunctivitis in North East residents. It applies to sporadic cases, clusters and outbreaks. This policy describes the response of the North East Health Protection Unit (HPU) and the responsibilities of each of the organisations involved in the management of meningococcal infection. The policy is based on national guidance ².

This policy applies to all medical practitioners, hospital units, laboratories and public health departments in:

Gateshead Primary Care Trust
Newcastle Primary Care Trust
Northumberland Care Trust
North Tyneside Primary Care Trust
South Tyneside Primary Care Trust
Sunderland Teaching Primary Care Trust
County Durham Primary Care Trust
Darlington Primary Care Trust
Hartlepool Primary Care Trust
Stockton on Tees Teaching Primary Care Trust
Middlesbrough Primary Care Trust
Redcar and Cleveland Primary Care Trust

2. Meningococcal Infection

2.1 Identification

There are many viruses and bacteria which can cause meningitis, but the most commonly reported cause is *Neisseria meningitidis* ("meningococcus"). This bacterium is a Gram negative diplococcus. It is a normal inhabitant of the human nasopharynx and is transmitted by droplets or secretions from the upper respiratory tract. There is no reservoir other than humans and the organism dies quickly outside the host. Meningococci are classified according to characteristics of the polysaccharide capsule into serogroups, by outer membrane proteins into serotypes and sub serotypes and by DNA into genotype. Only a small proportion of the meningococcal serotypes carried are responsible for majority of cases of invasive disease.

2.2 Transmission

Transmission is from person to person by droplets and secretions from the upper respiratory tract. Transmission from fomites is not considered significant as saliva inhibits the growth of meningococcus.

2.3 Incubation period

2-10 days, more commonly 3-5 days

2.4 Carriage

Carriage rates vary from 2% in children under 5 years to a peak of 25% in 15 to 19 year olds. Increased rates of meningococcal carriage have been seen in smokers, military recruits and overcrowded households. The mean duration of carriage in settings where prevalence is stable is estimated to be 21 months. Systemic immunity usually develops within 14 days of acquiring meningococci. Established meningococcal carriers do not usually develop invasive disease. Carriage of *Neisseria lactamica* is believed to offer

protection against invasive meningococcal disease and is highest in young children. Consequently, prophylactic antibiotics should only be used after careful consideration.

2.5 Invasive disease

Rarely, acquisition of meningococci can progress to invasive disease before such immunity develops, usually within 3 to 5 days of acquisition. The risk of developing invasive disease following acquisition depends on host factors, environmental factors and the serotype acquired.

The three common clinical syndromes of meningococcal disease are:

- meningitis alone
- septicaemia alone
- A combination of meningitis and septicaemia.

2.6 Incidence

The incidence of invasive meningococcal disease varies in England and Wales but is around 7 cases per 100,000 population per year. Age-specific attack rates are highest in infancy and decline during childhood with a secondary rise in teenagers and young adults. The highest incidence is in winter. Risk factors for meningococcal disease are age, passive smoking, influenza A infection and overcrowding. The case fatality rate is approximately 10%. Septicaemia without meningitis has the highest case fatality of 20% or more, whereas in meningitis alone the fatality rate is around 5%.

3. Reporting, Statutory Notification and Case Definitions

Acute meningitis and meningococcal septicaemia are notifiable infectious diseases (NOIDs). Medical practitioners have a statutory duty under the Public Health (Control of Diseases) Act 1984 to notify the proper officer (within the local authority) if they “have reasonable grounds for suspecting that a patient [they are]...attending...has a notifiable disease”.

The HPU should be informed of cases by telephone to initiate prompt health protection actions. Definition of cases which require Health Protection action and those who do not are listed below:

Case definitions

Confirmed case

A clinical diagnosis of meningitis, septicaemia or other invasive disease (such as *orbital cellulitis, septic arthritis) **AND** at least one of the following:

- *Neisseria meningitidis* isolated from a normally sterile site
- Gram negative diplococci in a normally sterile site
- Meningococcal DNA in a normally sterile site
- Meningococcal antigen in blood, CSF or urine

*Although meningococcal infection of the conjunctiva does not meet the definition of a confirmed case, it is considered an indication for public health action because of the high immediate risk of invasive disease.

Probable Case

Clinical diagnosis of meningitis or septicaemia or other invasive disease where the physician in consultation with the microbiologist, considers that meningococcal infection is the **most likely diagnosis**.

Possible case

A clinical diagnosis of meningitis or septicaemia where the physician, in consultation with the microbiologist, considers that diagnoses other than meningococcal disease are at least as likely. This category includes cases who may be treated with antibiotics but whose probable diagnosis is viral illness.

NB Microbiological test results (e.g. rising antibody levels/PCR) may change the case category from “possible” to “confirmed”, in which case the Health Protection Unit should be informed.

Isolation of *N.meningitidis* from non-sterile sites

Isolation of *N.meningitidis* from sputum, nasopharynx or the genital tract is not an indication for public health action, unless there is also evidence of invasive meningococcal disease. Asymptomatic carriage of meningococci of the respiratory and genital tract is common.

4. Management of a Sporadic Case

4.1 General Practitioners

4.1.1 Pre-admission penicillin and urgent referral to hospital

Suspected cases should be given parenteral benzyl penicillin, either intravenously or by intramuscular injection before being transferred urgently to hospital. Pre-admission administration of penicillin can prevent case fatality and reduce morbidity and is recommended for suspected cases of septicaemia or meningitis particularly in association with petechial or purpuric rash.

The pre-admission dose of IV/IM benzyl penicillin for suspected meningococcal infection is:

Adults (and children 10 years and over)	1200mg (2 mega units)
Children 1-9 years	600mg (1 mega unit)
Children under 1 year	300mg ($\frac{1}{2}$ mega unit)

This recommendation is based on:

- the rapid clinical deterioration that can occur in meningococcal disease
- the established effectiveness of treatment with penicillin
- no evidence of harm

NB The only contraindication is a history of immediate allergic reactions after previous penicillin administration.

Most people with ‘penicillin allergy’ do not have true sensitivity. Anaphylactic reactions are rare occurring in 1 in 7000 to 1 in 25000 patients treated. If there is a history of immediate allergic reactions (e.g. difficulty in breathing, collapse, generalised itchy rash) after previous penicillin administration anaphylaxis is more likely.

Where benzylpenicillin is contraindicated, chloramphenicol (if available) may be given by injection (1g for adults, 25mg/kg for children under 12 years).

4.1.2 Chemoprophylaxis

The Health Protection Unit will identify those contacts who need chemoprophylaxis

The HPU will liaise with the reporting clinician regarding the option of immediate household contacts of a probable or confirmed case being prescribed chemoprophylaxis by the admitting hospital. Where this is not possible, the HPU will advise the relevant GP or out of hours provider to prescribe chemoprophylaxis. The HPU will identify non-household contacts and advise their GP or out of hours provider to prescribe chemoprophylaxis (see section 6)

4.1.3 Immunisation of close contacts and cases

If the index case is confirmed as having a vaccine preventable strain up to four weeks after onset of illness close contacts who received chemoprophylaxis should be offered an appropriate vaccine (if not previously immunised). The HPU will ask the contacts' GP to arrange vaccination (see section 7).

Any case of meningococcal disease provides an opportunity to check the vaccination status of the index case and their close contacts and to ensure that they are fully immunised according to the UK schedule. MenC vaccination may be indicated for index cases (see section 7).

4.2 Hospital Clinicians

4.2.1 Reporting a case to the Health Protection Unit

All confirmed or probable cases of meningococcal disease should be referred to the Health Protection Unit by telephone as soon as possible.

(i) During normal **office hours (Monday to Friday 9am-5pm)** cases who live in, or who are admitted to hospitals in Northumberland, Newcastle, North Tyneside, South Tyneside, Gateshead, Sunderland, Teesside, County Durham or Darlington should be discussed with the North East HPU on 0191 202 3888.

(ii) **Outside normal office hours** probable and confirmed cases should be referred by the clinician to the first on-call for health protection on 0191 414 4844. The HPU staff will respond to identify contacts requiring chemoprophylaxis, and following an individual case risk assessment ensure that all appropriate health protection interventions are undertaken.

4.2.2 Chemoprophylaxis of close household contacts

The Health Protection Unit will identify those contacts who need chemoprophylaxis. Household contacts, both adults and children, should be prescribed chemoprophylaxis as soon as possible following discussion with staff from HPU. The HPU will liaise with the reporting clinician regarding the option of immediate household contacts being prescribed chemoprophylaxis by the admitting hospital.

Where possible all contacts should receive chemoprophylaxis within 24 hours of admission of the index case.

See section 5 for definition of contacts

See section 6 for details of chemoprophylaxis

Prior to discharge, the **index case** should receive chemoprophylaxis to eradicate carriage unless treated with ceftriaxone.

4.2.3 Diagnostic tests

Clinical management of cases is the responsibility of the clinician in charge. However, identification and further characterisation of meningococci provides important information to assist the public health response to cases and clusters. The following clinical specimens should be obtained where possible.

Acute - taken as soon after admission as possible and despite pre-admission penicillin

1. Blood for culture
2. EDTA or other unclotted blood for PCR
3. Clotted blood or serum for acute serology (at least 0.5 ml) (and 2 -6 weeks later)
4. CSF for microscopy, culture and PCR (if lumbar puncture performed)
5. Aspirate from other sterile sites suspected of being infected (eg joints) for microscopy, culture and PCR
6. Nasopharyngeal (throat) swab for culture,
7. Faeces and throat swab for virology to check for alternative diagnoses where appropriate.

Convalescent – taken between two weeks and six weeks after onset

- Clotted blood for serology (at least 0.5 ml). Submitted with acute specimen.

4.3 Hospital Laboratory

In addition to providing diagnostic and treatment advice to the clinician, the Consultant Microbiologist should:

- ensure that all appropriate laboratory tests are undertaken where possible to identify meningococci
- inform the HPU of probable and confirmed laboratory results indicating invasive meningococcal disease
- inform HPU of changes in laboratory results confirming or negating *N. meningitidis*
- send positive meningococcal isolates or PCR samples for meningococcal serogrouping and further typing as soon as possible
- inform HPU of serogroup/typing results

4.4 Health Protection Unit

4.4.1 Contact tracing

The HPU will interview either the index case, or the closest relative/friend to carry out a risk assessment and identify those contacts that require information and chemoprophylaxis. Contact tracing would usually be undertaken by telephone. However, if a risk assessment based on the clinical condition or personal circumstances of the case or key informant identifies a specific need, HPU staff may visit the case or key informant. For definitions of contacts see section 5.

4.4.2 Chemoprophylaxis

The HPU will identify the immediate household contacts of a probable or confirmed case and arrange prescription of chemoprophylaxis by the admitting hospital. The HPU will identify non-household contacts and inform their GP or other primary care provider to prescribe chemoprophylaxis.

4.4.3 Action outside normal working hours (on call)

Outside normal working hours HPU on call staff will receive reports of suspected cases of meningococcal disease, complete a risk assessment and undertake contact tracing, arrange chemoprophylaxis for close contacts and complete the case record form. Other actions will generally be deferred until the next working day. HPU on call staff will assess each case on an individual basis and depending on the time and day of referral may defer

some actions (such as arrangement of chemoprophylaxis for non-household contacts) until the next day if this is more appropriate. As a general rule it is expected that chemoprophylaxis will be arranged for household contacts at the time of referral and for other close contacts within 24 hours of referral.

4.4.4 University Students

Cases of meningococcal infection in university students may present particular problems due to living arrangements and lifestyles. Potential challenges include:

- Identifying and obtaining full details of close contacts (particularly if the case is too unwell to interview)
- Establishing communication with contacts
- Large numbers of close contacts
- Ensuring communication of appropriate public health information to other students
- Managing contacts who may be elsewhere in the country, particularly when students have dispersed at end of term. (See section 5.5)

There are 6 universities within the HPA North East Region:

Durham University

Durham University (Queen's Campus at Stockton)

Newcastle University

Northumbria University

Teesside University

University of Sunderland

Each institution has a written policy for the management of meningococcal infection, copies of which are held by the HPU. HPU staff will inform the relevant university student services department of case(s) of suspected meningococcal infection in students in order that appropriate information can be disseminated. University staff are available on a 24hour rota and will assist HPU staff in identifying and contacting close contacts. A pre-prepared letter for university contacts is included in Appendix 9 and contact details for University staff are included in Appendix 14.

4.4.5 Immunisation

If the index case is subsequently confirmed as having had infection with a vaccine preventable serogroup the HPU will arrange for those contacts who received chemoprophylaxis to receive the appropriate meningococcal vaccine via their GP. Vaccine should only be offered if it is less than 4 weeks from the onset of illness in the case.

4.4.6 Dissemination of information

Due to the small but real risk of further cases linked to the index case the HPU will disseminate information to allay fears and to assist in the early diagnosis and treatment of any secondary cases.

Information dissemination:

All Cases:

- **Verbal information to close contacts advising them of the increased risk that they could develop meningococcal disease and to seek medical care urgently if they become unwell**
- Meningitis information leaflets to close contacts where possible (Appendix 2).
- Standard letters faxed to GP of case and any contacts offered chemoprophylaxis (Appendix 11-13).

- A telephone call followed up by a standard letter by fax or email (Appendix 6-8) to nursery, school, or further education facility attended by the case. This letter may be amended for distribution to a place of work if this is considered necessary to alleviate anxiety.
- Telephone call to school nurse or health visitor
- Other professional colleagues, in or out of region, as necessary by fax or email
- HPA NE Communications team if any letters distributed other than standard letters to GPs

Death or cluster

- DPH informed by email on the same day (or next working day if out of hours)
- Letter to GPs in the immediate area where the case resides and NHS Direct (by email)
- Email to meningitis charity help lines (if necessary)
- HPA NE Communications team and patch leads (by email)

4.4.7 Surveillance and Audit

Public Health Protection with regards to meningococcal disease extends beyond contact tracing and controlling the immediate risk to contacts. It is essential that the HPU Meningococcal Disease Investigation Form is completed thoroughly in order to enable the efficient management of the contacts and support effective epidemiological surveillance. Analysis and audit of data gathered over a period of time enables the HPU to assess the way in which health protection measures are implemented.

4.4.8 Management of cases resident outside of North East

The North East Health Protection Unit will undertake contact tracing for out of area residents who are admitted to hospital in the North East and arrange chemoprophylaxis for any close contacts temporarily resident in the North East. The North East HPU will inform the HPU where the case is permanently resident. If close contacts are identified who are currently resident outside of the North East, North East HPU staff will liaise with the appropriate HPU in order that appropriate action is taken.

5. Definition of a Contact

HPU staff undertake a risk assessment to identify those close contacts which require chemoprophylaxis in order to reduce the risk of secondary cases.

5.1 Rationale

Although the risk of a secondary case occurring is low, household contacts are at the highest risk of acquiring infection **within the first 48 hours after onset of disease** in the index case. If prophylaxis is not given the risk to a household contact in the first thirty days is about 1 in 300. The source of infection in these further cases is likely to be from the same or another carrier in the close contact group. The aim of chemoprophylaxis is therefore to **eradicate carriage** in the close contacts at highest risk of infection through:

- eradication of carriage amongst established carriers who pose a risk to others
- eradication of carriage in those who have newly acquired the invasive strain and may be at-risk themselves

The following are the general principles for decision making:

5.2 Close contacts who require prophylaxis (applies to contact in **the seven days prior to onset** of the case's symptoms):

- Household contacts i.e. those living and/or sleeping in the same household, same room overnight, dormitory, students sharing a kitchen

- Intimate kissing contacts e.g. boyfriend/ girlfriend
- Those exposed to large particle droplets/secretions from the respiratory tract of the case around the time of admission i.e. *health care workers giving mouth-to-mouth resuscitation or exposed during intubation
- Household contacts only of meningococcal conjunctivitis

* The hospital infection control doctor will decide whether hospital staff should be given chemoprophylaxis.

5.3 Contacts that do not require prophylaxis:

- Staff and children attending the same class/crèche/nursery/school as index case
- Work colleagues or friends of index case
- Residents in nursing and residential homes
- Cheek or mouth kissing (other than intimate boy/girlfriend)
- Sharing of food or drinks
- Attending the same social function
- Travelling in the next seat of car/bus/plane
- Post-mortem contacts

5.4 Transient close contact

People who have had transient close contact with a case should be offered antibiotic prophylaxis **only** if they have been ***directly exposed to large particle droplets/secretions from the respiratory tract of a case around the time of admission to hospital.*** This type of exposure will only occur among people who have been physically close to the case and who have a clear perception of facial contact with droplets / secretions, for example after the case has coughed in their face.

5.5 Dispersal settings

In settings where close contacts have been identified and where contact has now finished e.g. those sleeping in the same room on holiday or at university, attempts should still be made to arrange prophylaxis within seven days of dispersal if feasible.

Vaccine prophylaxis should also be offered to the identified close contacts if the index case is confirmed as being due to a vaccine-preventable serogroup.

5.6 Contacts within a health care setting

5.6.1 Patients within the same hospital ward

The hospital ward is not regarded as equivalent to a household setting and chemoprophylaxis is generally not indicated for patients within the same ward or bay, irrespective of whether the index case received antibiotics on admission.

In certain circumstances chemoprophylaxis may be considered for immunocompromised contacts who may be at increased risk of invasive disease. Risk assessment by the hospital infection control team is advised.

5.6.2 Health care workers

Antibiotic prophylaxis is recommended **only** for those whose mouth or nose is directly exposed to large particle droplets / secretions from the respiratory tract of a probable or confirmed case of meningococcal disease at around the time of admission to hospital. This type of exposure will only occur among staff who are working close to the face of the case without wearing a mask or other protective equipment. In practice this implies a clear perception of facial contact with droplets / secretions and is unlikely to occur unless

undertaking airway management or coughed in the face. General medical or nursing care of cases is not an indication for prophylaxis.

Healthcare workers in contact with cases of meningococcal disease are at an increased, but very low risk of meningococcal disease in the 10 days following exposure to the case (relative risk 25, absolute risk 0.8 per 100,000). Those most at risk are those most heavily exposed to nasopharyngeal secretions of the case at around the time of admission to hospital. After the index case has had antibiotic treatment for 24 hours, meningococcal throat carriage in the index case will be undetectable. Healthcare workers should consider taking measures to reduce the possibility of exposure of their face or eyes to large particle droplets (e.g. by wearing masks for difficult intubations, using closed suction etc.).

Exposure of the eyes to respiratory droplets is not considered an indication for prophylaxis. Such exposure may carry a low risk of meningococcal conjunctivitis and subsequent invasive disease. Staff should be counselled about this risk and advised to seek early treatment if conjunctivitis should develop within 10 days of exposure.

The responsibility for identifying healthcare workers that require antibiotics and arranging chemoprophylaxis lies with the Hospital Infection Control Team and Occupational Health. Ambulance staff with concerns should contact their Occupational Health department for advice.

6. Chemoprophylaxis

6.1 Timing of Chemoprophylaxis

Where possible all contacts should receive chemoprophylaxis within 24 hours of admission of the index case. Contacts outside the local area will be contacted as soon as possible. If a delayed report of a case is received, close contacts should be offered chemoprophylaxis up to four weeks after the onset of illness.

6.2 Choice of chemoprophylaxis

Rifampicin, ciprofloxacin and ceftriaxone are all recommended as chemoprophylaxis to prevent secondary cases of meningococcal disease.

Rifampicin is the only licensed drug for this purpose and therefore remains the drug of choice. Ciprofloxacin is recommended when large numbers of contacts (aged 2 years or above) require prophylaxis e.g. mass chemoprophylaxis in a school².

Rifampicin: recommended for all age groups

Dosage twice daily for 2 days	
Adults and children over 12 years	600 mg
Children 1-12 years	10 mg/kg
Infants under 12 months	5 mg/kg

Suitable doses in children based on average weight for age:

7-12 years	300mg (as capsule)
5-6 years	200mg (*10 ml)
3-4 years	150mg (*7.5 ml)
1-2 years	100mg (*5 ml)
3-11 months	40 mg (*2 ml)
0-2 months	20 mg (*1 ml)
	*Rifampicin syrup contains 100 mg / 5ml

If further cases occur among identified close contacts within 4 weeks of receiving rifampicin prophylaxis, then ciprofloxacin or an alternative should be used for repeated prophylaxis.

Ciprofloxacin: recommended as alternative chemoprophylaxis for adults and children aged 2 years and above. It should only be prescribed for children and growing adolescents when the benefit outweighs the risk.

Single dose	
Adults and children over 12 years	500 mg
Children 5-12 years	250 mg
Children 2-4 years	125 mg

6.3 Pregnancy and breastfeeding

Chemoprophylaxis should be recommended to pregnant and breastfeeding women. Rifampicin or ceftriaxone (250 mg IM injection reconstituted with 2 ml 1% lignocaine) can be used in pregnancy or for breastfeeding mothers. Ciprofloxacin is not recommended².

6.4 Epilepsy

Rifampicin and ciprofloxacin should be used with caution in patients with epilepsy but chemoprophylaxis should not be withheld if indicated². Rifampicin can reduce phenytoin levels⁷ and ciprofloxacin can trigger seizures or reduce the seizure threshold⁸.

7. Immunisation

7.1 Rationale

Close contacts of meningococcal infection have an increased risk of developing the disease in subsequent months despite taking chemoprophylaxis. Immunisation is therefore recommended when a vaccine preventable serogroup is identified.

7.2 Cases and close contacts requiring vaccine

Index cases under the age of 25 years who are unimmunised should be offered Meningitis C vaccine, irrespective of the serogroup of their infection. Recurrent group C infection is rare, but this ensures that cases are given equivalent protection to those within their age cohort.²

Cases with confirmed serogroup C infection who have previously been immunised with meningitis C vaccine should be offered a MenC vaccine on discharge from hospital.^{2,5} Such cases may represent vaccine failure and should be discussed with the HPU.²

Index cases with Group A, W135 or Y infection are not recommended to have convalescent immunisation because natural infection is likely to offer greater protection than immunisation with polysaccharide vaccines.²

Close contacts of cases of vaccine preventable *N.meningitidis* serogroups (A,C,Y or W135) should be offered an appropriate vaccine once the serogroup has been confirmed and up to 4 weeks after the onset of illness in the index case. This includes isolates obtained from a sterile site or nasopharyngeal swab. Vaccine should be offered to those who received chemoprophylaxis.^{2,5} Appropriate vaccines are quadrivalent ACW135Y conjugate vaccine for serogroups A, W135, Y and MenC conjugate vaccine for serogroup C infection.

All close contacts of confirmed serogroup C infection should be offered MenC vaccination if previously unimmunised. Partially immunised close contacts should complete the course of vaccination. A booster dose of MenC vaccine should be offered if the course was completed more than one year ago.^{2, 5}

Close contacts of confirmed serogroup A, W135 or Y infection who are over two months of age should be offered appropriate vaccine². A single dose of quadrivalent ACW135Y conjugate (Menveo®) vaccine is recommended by the Department of Health for these contacts, although use in those under 11 years of age is “off label”⁵. Conjugate (Menveo®) vaccine is recommended in preference to polysaccharide (ACWYVax) vaccine as available evidence indicates it will provide better and longer lasting protection⁵. Children under the age of 12 months should receive a second dose after a 1 month interval⁵.

Summary of Vaccine Recommendations

Infection Group	Recommended Vaccine
Group A	<p>Close contacts Quadrivalent ACW35Y conjugate (Menveo®) vaccine should be offered to all close contacts over 2 months of age. Children under the age of 12 months should receive a 2nd dose after a 1 month interval.</p> <p>Cases - No vaccine</p>
Group C	<p>Close contacts MenC vaccine unless previously immunised with this vaccine. Complete course if partially immunized. Booster if more than 1 year since completing course. Children under the age of 1 year should receive a 2nd dose after a minimum interval of 1 month.</p> <p>Cases - MenC if unimmunised and case is less than 25 years of age. MenC if previously immunized <u>and</u> discuss with HPU.</p>
Groups W135 or Y	<p>Close contacts Vaccination with quadrivalent (ACW135Y) conjugate vaccine to contacts over 2 months of age. Children under the age of 12 months should receive a 2nd dose after a 1 month interval.</p> <p>Cases - No vaccine</p>

NB: There is no vaccine available against group B disease.

7.3 Pregnancy and breastfeeding

Meningococcal vaccines may be given to pregnant or breastfeeding women if immunisation is clinically indicated.

8. Management of Clusters/Outbreaks

8.1 Rationale

Clusters of meningococcal disease provoke widespread public anxiety. The speed and efficiency with which clusters are identified and managed can prevent further cases and decrease anxiety.

8.2 Definition of a cluster

Suspected clusters can occur in a variety of settings and the ease with which it will be possible to define an at-risk group will vary. Clusters are most likely to fall into two settings:

Institutional cluster: Two or more cases of meningococcal disease occurring in the same pre-school group, school, higher educational institution within a four week period.

Community cluster: There is no single definition of a community cluster, as public health decisions will depend on:

- The nature of the cluster e.g. serotypes of meningococcus involved, location of cases.
- The boundaries of the perceived group at risk (often defined by age and geography).

8.3 Risk Assessment

- In assessing the response required, the following areas will be considered:
- Links between cases e.g. same class/course/community
- Confirmation status i.e. level of clinical suspicion or laboratory confirmed
- Serogroup, serotype and subtype i.e. whether Group B, C or other
- Temporal considerations i.e. duration between dates of onsets, attendance Defining a group at-risk i.e. logical administrative/geographical boundaries

8.4 Outbreak Control Team

An Outbreak Control Team will be convened for a suspected cluster of meningococcal disease.

Issues addressed by the team are requirements in terms of:

Immediate actions

- Further investigations/information
- Intervention and manpower required
- Communications-dissemination of information to health professionals/the public/media
- Help-line advice
- Continued surveillance and evaluation

8.5 Health Protection Actions

Risk assessment and decisions on health protection actions will be based on an assessment of the setting, identifying a group at risk, case definitions, epidemiology and details of the infecting meningococci.

When the cases are:	Health Protection Action
Possible cases	No action will be taken (exception: University of Durham, STOCKTON campus)
Probable cases	Action will depend on the likelihood of the cases being caused by the same serogroup.
Confirmed cases	Action will be taken if the cases are caused by the same serogroup.
One confirmed and one probable case	Action will depend on the likelihood of the probable case being the same serogroup as the confirmed case.

The main options for intervention are:

- **No treatment** but provision of written information about the cluster with advice on signs and symptoms of the disease and the need for vigilance. In addition, help-line telephone numbers will be provided.
- **Provision of antibiotics** to a defined group, with help-line support.
- **Provision of antibiotics and vaccine** to a defined group, with help-line support.

9. Press/ Media

Any reactive media enquiries regarding cases, clusters or outbreaks should be referred to the Primary Care Trust communications officer and HPA NE Regional Communications Manager. The Health Protection Unit will only provide information to inform the public about the level of risk. No identifying information about the case will be given.

10. References

1. Control of Meningococcal Disease: Guidance for Consultants in Communicable Disease Control (1995) Communicable Disease Report 5 (13) R189-R195
2. Health Protection Agency Meningococcus Forum (2006) Guidance for the Public Health Management of Meningococcal Disease in the UK, Health Protection Agency
3. Preventing Secondary Meningococcal Disease in Health Care Workers: Recommendations of a working Group of the PHLS Meningococcus Forum (2001) Communicable Disease and Public Health 4 (2) pp 102-105
4. Pre Admission benzyl penicillin for Suspected Meningococcal disease: other antibiotics not needed in the GP bag (2001). Communicable Disease Report weekly 11(7)
5. Department of Health (2006) Chapter 22 'Meningococcal' in *Immunisation Against Infectious Diseases – 'The Green Book'* TSO, London
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_079917 [Accessed 26/07/2010]
6. Glaxo Smith Kline UK (2008) Summary of Product Characteristics (SPC) ACWY Vax Vaccine 23/06/2008 <http://emc.medicines.org.uk> [Accessed 08/04/2009]
7. Baxter K (Ed) (2009) *Stockley's Drug Interactions* London: Pharmaceutical Press, Electronic version. [Accessed 03/04/2009]
8. Bayer PLC (2008) Summary of Product Characteristics (SPC) Ciproxin Tablets 500mg 17/11/2008 <http://emc.medicines.org.uk> [Accessed 03/04/2009]
9. Novartis Vaccines (2010) Summary of Product Characteristics (SPC) Menveo Group A, C, W135 and Y conjugate vaccine March 2010 <http://emc.medicines.org.uk> [Accessed 03/08/2010]

APPENDIX 1: DUTIES OF KEY PERSONNEL

Summary of actions

Admitting GP	<ul style="list-style-type: none"> • Give pre-admission IM/IV penicillin to suspected cases of meningococcal infection • Arrange immediate admission
Admitting Clinician	<ul style="list-style-type: none"> • Take recommended range of diagnostic tests • Inform HPU of the case by telephone at earliest opportunity • Decide which case definition the case fits following clinical assessment • Provide prophylaxis for immediate household contacts following advice from / discussion with staff from Health Protection Unit (HPU). • Give pre-discharge prophylaxis to index case if indicated
Microbiologist	<ul style="list-style-type: none"> • Inform HPU by telephone of suspected cases and isolates indicating meningococcal infection and group when known. • Ensure appropriate samples are obtained from the case.
Health Protection Unit	<ul style="list-style-type: none"> • Identify close contacts who require information and antibiotics by discussion with the case or key informant (over the telephone or by a visit if required) <p style="text-align: center;">HPU staff will undertake public health action for cases who are residents in their patch. Other cases will be passed to the relevant HPU</p> <ul style="list-style-type: none"> • Advise clinician re prescribing of chemoprophylaxis for immediate household contacts • Arrange prophylaxis via GPs or out of hours service for contacts other than household • Arrange immunisation of contacts, if indicated, via GPs • Share information as appropriate • Declare an outbreak when appropriate • Deal with press/ media enquiries in conjunction with appropriate communications officer (HPA-NE or Primary Care Trust) • Maintain surveillance of meningococcal disease

Health Protection Unit Staff (and staff on call for HPU)

1. Discuss the case with the reporting physician and agree the appropriate case definition (“possible”, “probable”, or “confirmed”). The opinion of a senior physician (registrar or consultant) responsible for the case should be sought if there is doubt about the case definition.
2. Determine which Health Protection Unit is responsible for contact tracing (i.e. where the case lives), and pass the details over to the Health Protection Nurse/Practitioner or Public Health Practitioner for that team.
3. North East residents may be admitted from their usual residence to hospitals outside the North East boundary (e.g. Scotland or Yorkshire). In this case the appropriate North East Health Protection Team is responsible for contact tracing.
4. If a North East resident is admitted to hospital whilst on holiday elsewhere within the United Kingdom, the local Health Protection Unit of the area where they are admitted to hospital would usually undertake contact tracing. Similarly, the North East Health Protection Unit will undertake contact tracing for out of area residents who become unwell while holidaying in the North East.
5. Ensure that every case is entered onto HPZone according to HPA NE SOPs. A pro-forma is included in the event that HPZone is unavailable (Appendix 10).
6. Discuss with case or key informant to identify close contacts.
7. Contact tracing is usually be undertaken by telephone. However, if a risk assessment based on the clinical condition or personal circumstances of the case or key informant identifies a specific need, HPU staff may visit the case or key informant.
8. Discuss with close contacts (and give written advice as appropriate):
 - a) That they are at an increased, but low, risk of meningococcal disease.
 - b) The signs and symptoms of meningococcal disease.
 - c) The importance of seeking healthcare urgently if signs and symptoms develop.
 - d) That antibiotics are recommended but are not 100% effective.
 - e) The contraindications to the antibiotics.
 - f) The side effects of the antibiotics
 - g) Arrangements for provision of antibiotics
9. Advise professional colleagues about providing appropriate antibiotic prophylaxis. For household contacts this should be done by giving the ward doctor/senior nursing staff a list of the details of those who require prophylaxis. For other contacts liaise with the GP or out-of-hours service.
10. For close contacts living outside the North East Health Protection Unit area, North East HPU staff will liaise with the appropriate HPU in order that appropriate action is taken.
11. Remind clinicians to provide antibiotic prophylaxis to index case unless treated with ceftriaxone.
12. Outside normal working hours HPU on call staff will receive reports of suspected cases of meningococcal disease, undertake contact tracing and complete a risk assessment, arrange chemoprophylaxis for close contacts and complete the case record form. Other actions will generally be deferred until the next working day. HPU on call staff will assess each case on an individual basis and depending on the time and day of referral may defer some actions (such as arrangement of chemoprophylaxis for non-household contacts) until the next day if this is more appropriate. As a general rule it is expected that chemoprophylaxis will be arranged for household contacts at the time of referral and for other close contacts within 24 hours of referral.
13. Inform appropriate professional colleagues about cases and what action has been taken: e.g. general practitioners, health visitors, school nurses.
14. Identify and manage clusters of meningococcal disease in liaison with others.
15. Ensure information is disseminated to the public, when appropriate, following a case of meningococcal disease in order to allay anxieties and respond to individual queries from patients who are concerned they may require antibiotics.

16. Inform the HPA North East Communications Manager whenever a letter is being sent out by a nursery, school or college on the advice of the Health Protection Unit.
17. Enter information about cases onto EpiNorth 3 (as described in the SOP) to contribute to regional enhanced surveillance.
18. Provide advice to the head teacher or manager when a case occurs in a child attending an institution.
19. Keep the relevant Primary Care Trust Director of Public Health informed about cases or clusters that are likely to require extra resources or generate media interest.
20. Respond to media enquiries and issue a press statement or call a press conference where appropriate. The HPA North East Communications Manager should always be involved.
21. Arrange for the prescribing and dispensing of antibiotics for institutional and community clusters in liaison with the PCT.
22. Request that PCTs liaise with community pharmacists if it is expected that general practitioners will prescribe significant amounts of antibiotics as prophylaxis.
23. Facilitate implementation of this policy.
24. Inform the local Education Departments when required.
25. Inform the relevant Environmental Health Department as appropriate.

General Practitioners and Out of Hours Providers

1. Carry doses of penicillin for i.v. or i.m. administration to suspected cases of meningococcal disease.
2. Administer antibiotics and arrange for immediate admission to hospital if a patient is suspected to be suffering from meningococcal disease.
3. Prescribe antibiotics to identified close contacts on the advice of Health Protection Unit staff or the on-call public health practitioner.
4. Provide patients with meningitis information leaflets and antibiotic advice leaflets if provided by HPU.
5. Discuss any self-reporting close contacts with Health Protection Unit staff or the on-call public health practitioner.
6. Provide vaccination to appropriate contacts on the advice of Health Protection Unit staff.

Accident and Emergency Departments

1. Administer antibiotics to patients who are suspected to be suffering from meningococcal disease before transfer to an in-patient ward. If it is possible to take blood for culture prior to giving antibiotics this is helpful in confirming the diagnosis.
2. Discuss any self-reporting contacts with Health Protection Unit staff or the on-call public health practitioner.

Hospital Consultant/Admitting Doctor

1. Clinical management of patients suspected of having meningococcal disease.
2. Take appropriate samples to confirm the diagnosis in patients suspected of having meningococcal disease (see section 4.2.3).
3. Inform the Health Protection Unit or out of hours the on-call Public Health Practitioner (by telephone via the hospital switchboard) about the admission of a suspected case of meningococcal disease as soon as is practicable.
4. Agree a case definition (“possible”, “probable”, or “confirmed”) with Health Protection Unit staff or the on-call public health practitioner. Liaise with consultant microbiologist regarding case definition, differential diagnosis and laboratory specimens.
5. Prescribe prophylaxis for household contacts on the advice of Health Protection Unit staff or the on-call public health practitioner.
6. Complete the notification of infectious disease form for probable or confirmed cases of meningococcal disease and send it to the Proper Officer for the local authority.

7. Ensure the index case receives antibiotic prophylaxis before leaving hospital unless they have been treated with ceftriaxone.

Consultant Microbiologist

1. Support the clinician in making the differential diagnosis and therefore contribute to the decision about which case definition the patient fits.
2. Ensure appropriate samples are obtained from the case to confirm the diagnosis and, if possible, allow grouping and typing.
3. Advise clinicians on appropriate antibiotic therapy.
4. Ensure that preliminary microbiological findings in relation to a suspected case are reported to Health Protection Unit staff.
5. Contact Health Protection Unit staff when there is microbiological confirmation of a case.
6. Ensure samples are sent to the Meningococcal Reference Unit (MRU) for serogrouping and further typing.
7. Inform Health Protection Unit staff of the results of MRU serogrouping and typing at the earliest opportunity.

Hospital Infection Control Team

1. Ensure that appropriate infection control measures are being taken when a suspected case of meningococcal disease is admitted to hospital.
2. Support parents, relatives and friends of cases by providing information, advice and leaflets etc.
3. Liaise with Health Protection Unit staff where further information is required.
4. Work with the occupational health department to ensure that any healthcare worker contacts requiring antibiotic prophylaxis are identified and receive antibiotics.
5. Perform an assessment of the risk to other patients if a case is admitted to hospital but not identified and treated with systemic antibiotics at an early stage.

Hospital Pharmacists

1. Make arrangements for antibiotics to be dispensed for contacts as required, both during and outside normal working hours, along with written advice to patients about the treatment dispensed.
2. Work with Health Protection Unit staff to supply antibiotics and / or vaccine as soon as possible in the event of a mass chemoprophylaxis/vaccination campaign.

The Primary Care Trust (PCT)

1. The Director of Public Health or other senior public health specialist should attend any outbreak control team meetings relating to meningococcal disease.
2. When commissioning services, the PCT should ensure that health protection roles are included – e.g. hospitals prescribing antibiotics for household contacts, GPs prescribing antibiotics and giving vaccines to non-household contacts, availability of community nursing and medical staff to support mass chemoprophylaxis/vaccination programmes in the event of an outbreak of meningococcal disease.
3. The PCT should work with the HPA in media and public communications.

Education Department

1. Liaise with the Health Protection Unit to ensure consistent communication about cases or clusters of meningococcal disease and to liaise with their press officer.
2. Advise and support head teachers with operational matters.

Occupational Health

1. Advise staff who have had contact with meningococcal disease. Prophylaxis should only be given to close contacts of cases that are probable or laboratory-confirmed, and after liaising with the hospital infection control team.

Appendix 2: Information sheet for Parent/Patient

Use Meningitis Research Foundation Leaflet
“Am I at Risk? Meningitis and Septicaemia.

<http://www.meningitis.org/assets/x/52208>

Appendix 3: Rifampicin Information Sheet (patients)

RIFAMPICIN information for patients

The germs that cause meningococcal meningitis and septicaemia (blood poisoning) can be carried in the nose and throat. Some special antibiotics will kill these germs and are offered to close contacts of individuals who have become unwell with meningococcal meningitis or blood poisoning.

The antibiotic you will be given is called **Rifampicin**. It comes as either syrup or capsules to be swallowed and is suitable for people of all ages.

Rifampicin must be taken twice a day for two days (morning and evening) and the instructions will be on the bottle or box. **It is important that you take all of the two-day course.** Rifampicin is a well-known antibiotic, which is used to treat many different conditions. It is recommended in national and local guidelines for close contacts of someone with meningococcal meningitis or blood poisoning.

The side effects of Rifampicin may include:

- Orange/red staining of body fluids including urine, sputum and tears. (***This can permanently stain soft contact lenses and towelling nappies***)
- Tummy upset, diarrhoea and feeling sick
- Flushing and/or itching of the skin, with or without a rash
- Very rarely, jaundice (yellowing of the skin and the whites of the eyes)

If any of the following apply to you please tell the doctor or nurse and they can discuss with you whether it is safe for you to take Rifampicin or if you should have a different antibiotic:

- You are **allergic** to Rifampicin
- You are jaundiced
- You have **fits or epilepsy** or are taking medication for epilepsy or fits (anticonvulsants)
- You are on blood-thinning medication (anticoagulants)
- You have porphyria

If you vomit within 2 hours of taking your rifampicin, please contact your doctor for advice.

If you are taking the combined oral contraceptive pill (“the Pill”) or the progesterone only pill (the “mini pill”) or have a contraceptive implant (Implanon) you should take extra contraceptive precautions (e.g. condoms) for the time that you are taking Rifampicin and for 4 weeks after you have finished taking Rifampicin. It is important that if you have only 7 days of pills (or less) left in the current packet, **do not** have your usual 7 day break between packs, but instead start to take the new packet immediately after finishing the last one. You may or may not have a bleed that month. If you have any concerns about this matter you should discuss them with your family doctor or with staff at a family planning clinic.

You should seek medical advice immediately if you are concerned that you may be developing the symptoms of meningococcal meningitis or blood poisoning.

Appendix 4: Rifampicin Information Sheet (GP)

RIFAMPICIN ADVICE FOR GENERAL PRACTITIONERS

Close contacts of a case of meningococcal disease (meningitis or septicaemia) are at an increased risk of developing meningococcal disease themselves, however this absolute risk is low. The risk of contacts becoming ill is highest in the first seven days after their contact with an index case and falls rapidly during the following weeks.

Antibiotic prophylaxis can reduce the risk of invasive disease by eradicating carriage of meningococci in the close contacts at highest risk. It may act by eradicating carriage from established carriers of the invasive serotype who pose a risk of infection to others and/or by eradicating carriage in those who have newly acquired the invasive serotype and who may themselves be at risk of developing invasive disease.

When a case of meningococcal disease is identified, the staff at the Health Protection Unit will identify close contacts that need to be offered antibiotics to decrease the risk of meningococcal disease. You may be contacted by Health Protection Unit staff and asked to prescribe antibiotics for your patients if they are identified as close contacts. The antibiotic of choice is usually **rifampicin** which can be taken by people of all ages and should be taken twice a day for two days.

The side effects of rifampicin may include:

- Orange/red staining of body fluids including urine, sputum and tears (***this can permanently stain soft contact lenses and towelling nappies***)
- Anorexia, nausea, vomiting, diarrhoea
- Headache, drowsiness
- Skin flushing, urticaria, with or without a rash
- Rarely, changes to liver function or jaundice
- Interference with oral contraceptive pills (combined and progesterone-only pills) and the contraceptive implant (Implanon). Patients taking contraceptive pills should be advised to take extra contraceptive precautions (e.g. condoms) for the time that they start taking rifampicin and for 4 weeks after they have finished taking rifampicin. If they have only 7 days of pills (or less) left in the current packet, advise them **not to** have their usual 7 day break between packs, but instead start to take the new packet immediately after finishing the last one.
- Interference with some medication taken for epilepsy
- Interference with some anticoagulants

Please note the contraindications to Rifampicin below, which will require an alternative antibiotic:

- Allergies to rifampicin (absolute contraindication)
- Severe liver or renal impairment or
- porphyria

Antibiotic prophylaxis is not 100% effective and your patient should be advised to seek medical attention immediately if they develop symptoms of meningococcal disease.



Appendix 5: Ciprofloxacin Information Sheet

CIPROFLOXACIN Information for patients

What is Ciprofloxacin?

Ciprofloxacin is an antibiotic sometimes used to treat close contacts of meningococcal disease. Meningococcal bacteria can be carried in the nose and throat of around 10-20% of the general population, usually with no ill effect. However, for reasons not completely understood, in a small minority of people the bacteria enters the blood stream resulting in meningitis, septicaemia or both. Ciprofloxacin is used to destroy the bacteria in the nose and throat. Usually the person with the disease and their close contacts are given ciprofloxacin.

Who should receive Ciprofloxacin?

Those who live in the same household, or those who have had contact equivalent to that of living in the same household, with the affected person in the week prior to the person becoming unwell.

Will Ciprofloxacin eliminate all risk of developing Meningococcal Disease?

No. It **will** reduce the risk by destroying the bacteria in the nose and throat. It **will not** prevent a person developing the disease if it has already entered the blood stream. Also, it **will not** protect a person from exposure to the bacteria in the future. For these reasons it is important that close contacts remain **extra vigilant** for the symptoms of meningococcal disease especially for the next seven days but for as long as four weeks.

How do I take the Ciprofloxacin?

As a one-off dose of either one or two tablets. It is important to drink plenty of fluid for the rest of the day after having ciprofloxacin.

Ciprofloxacin should not be taken by anyone who has previously had a reaction to ciprofloxacin or pregnant and breastfeeding women.

Does Ciprofloxacin have any side effects?

No drug treatment is completely free from side effects. Some people may experience:

- Tummy ache, diarrhoea and nausea
- Tiredness
- Facial swelling
- Rarely, breathing difficulties are associated with the facial swelling – **seek urgent medical attention if this occurs**

IF YOU BELIEVE YOURSELF OR A MEMBER OF YOUR FAMILY MAY HAVE MENINGOCOCCAL DISEASE YOU SHOULD SEEK MEDICAL ADVICE IMMEDIATELY.

Appendix 6: Information Sheet for Ceftriaxone

CEFTRIAZONE Information for patients

What is Ceftriaxone?

Ceftriaxone is an antibiotic sometimes used to treat close contacts of meningococcal disease. (Meningococcal bacteria can be carried in the nose and throat of around 10-20% of the general population, usually with no ill effect. However, for reasons not completely understood, in a small minority of people the bacteria enters the blood stream resulting in meningitis, septicaemia or both. Ceftriaxone is used to destroy the bacteria in the nose and throat.

Who should receive Ceftriaxone?

Those pregnant contacts who live in the same household, or those who have had contact equivalent to that of living in the same household, with the affected person in the week prior to the person becoming unwell.

Will Ceftriaxone eliminate all risk of developing Meningococcal Disease?

No. It **will** reduce the risk by destroying the bacteria in the nose and throat. It **will not** prevent a person developing the disease if it has already entered the blood stream. Also, it **will not** protect a person from exposure to the bacteria in the future. For these reasons it is important that close contacts remain **extra vigilant** for the symptoms of meningococcal disease especially for the next seven days but for as long as four weeks.

How is Ceftriaxone given?

Ceftriaxone is given as a single injection into the bottom or thigh.

Does Ceftriaxone have any side effects?

No drug treatment is entirely free of side effects therefore you should be aware of the following. However it is highly unlikely that the injection of a single dose of the antibiotic will result in any side effects in most people:

- Pain or discomfort may be experienced at the injection site immediately afterwards but this is usually mild and does not last for long.
- Occasionally abdominal discomfort, diarrhoea, feeling sick, facial swelling, skin rashes and itching may occur following ceftriaxone. Please contact your doctor if side effects are severe or other symptoms develop.
- Rarely encountered side effects include headache and dizziness, shivering, fever, the passing of blood in the urine, wheeziness and shortness of breath

Do not have ceftriaxone if you have previously had an allergic reaction to ceftriaxone or any other penicillin antibiotic. If you are unsure about this ask your doctor.

IF YOU BELIEVE YOURSELF OR A MEMBER OF YOUR FAMILY MAY HAVE MENINGOCOCCAL DISEASE YOU SHOULD SEEK MEDICAL ADVICE IMMEDIATELY.

Appendix 7: School letter



MENINGITIS INFORMATION FOR SCHOOL CONTACTS

A pupil at your child's school has been admitted to hospital with suspected meningitis or blood poisoning due to the meningococcal germ. This letter is to give you some information about the disease. There is no reason to make any change in the school routine and no reason for children to be kept at home.

How the disease spreads

The disease is not very infectious and it very rarely spreads from child to child within a school. The germ which causes the illness lives naturally in the back of the throat and spreads between people in droplets from the mouth and nose. Many people carry the germ in their throats without becoming unwell.

Preventing the spread of meningitis/blood poisoning

We try to stop the disease spreading by giving antibiotics to the very close family contacts of the patient with the illness. That usually means that only people who live in the same house as the sick child need treatment. School contacts are only very rarely at a higher risk and therefore do not normally need antibiotics or investigation. The people who need antibiotics have already been identified and given them.

Symptoms of meningococcal meningitis/blood poisoning

Although the risk of another case in the school is very small, it is sensible to be aware of the signs and symptoms:

- | | |
|---------------------------|-------------------------|
| • High Temperature | Bruising Rash |
| • Vomiting | Rapid Breathing |
| • Severe Headache | Cold hands and feet |
| • Stiff Neck | Joint or muscle pain |
| • Dislike of bright light | Drowsiness or confusion |

Not all of these signs may show at once, but someone with this illness will become very ill. The illness may progress over one or two days, but it can develop very rapidly, sometimes in a matter of hours.

The early signs can be similar to a bad 'flu', but BE WATCHFUL and use your instincts. IF SOMEONE BECOMES ILL WITH SOME OF THESE SIGNS OR SYMPTOMS, CONTACT THE DOCTOR URGENTLY and ask for advice.

Further information

24-hour helplines

Meningitis Trust	0800 028 1828
Meningitis Research Foundation	0808 800 3344
NHS Direct	0845 46 47

Websites

Meningitis Trust (www.meningitis-trust.org)
Meningitis Research Foundation (www.meningitis.org)

Appendix 8: Nursery letter



MENINGITIS INFORMATION FOR NURSERY CONTACTS

A child who attends your child's nursery has been admitted to hospital with suspected meningitis or blood poisoning due to the meningococcal germ. This letter is to give you some information about the disease. There is no reason to make any change in the nursery routine and no reason for children to be kept at home.

How the disease spreads

The disease is not very infectious and it very rarely spreads from child to child within a nursery. The germ which causes the illness lives naturally in the back of the throat and spreads between people in droplets from the mouth and nose. Many people carry the germ in their throats without becoming unwell.

Preventing the spread of meningitis/blood poisoning

We try to stop the disease spreading by giving antibiotics to the very close family contacts of the patient with the illness. That usually means that only people who live in the same house as the sick child need treatment. Nursery contacts are only very rarely at a higher risk and therefore do not normally need antibiotics or investigation. The people who need antibiotics have already been identified and given them.

Symptoms of meningococcal meningitis/blood poisoning

Although the risk of another case in the nursery is very small, it is sensible to be aware of the signs and symptoms:

- High Temperature
- Vomiting
- Severe Headache
- Stiff Neck
- Dislike of bright light
- Bruising Rash
- Rapid Breathing
- Cold hands and feet
- Joint or muscle pain
- Drowsiness or confusion

Not all of these signs may show at once, but someone with this illness will become very ill. The illness may progress over one or two days, but it can develop very rapidly, sometimes in a matter of hours.

The early signs can be similar to a bad 'flu', but BE WATCHFUL and use your instincts. IF SOMEONE BECOMES ILL WITH SOME OF THESE SIGNS OR SYMPTOMS, CONTACT THE DOCTOR URGENTLY and ask for advice.

Further information

24-hour helplines

Meningitis Trust	0800 028 1828
Meningitis Research Foundation	0808 800 3344
NHS Direct	0845 46 47

Websites

Meningitis Trust (www.meningitis-trust.org)
Meningitis Research Foundation (www.meningitis.org)

Appendix 9: University letter



MENINGITIS INFORMATION FOR UNIVERSITY CONTACTS

A student at your university or college has been admitted to hospital with suspected meningitis or blood poisoning due to the meningococcal germ. This letter is to give you some information about the disease.

How the disease spreads

The disease is not very infectious and it very rarely spreads from student to student within a university or college. The germ which causes the illness lives naturally in the back of the throat and spreads between people in droplets from the mouth and nose. Many people carry the germ in their throats without becoming unwell.

Preventing the spread of meningitis/blood poisoning

Antibiotics are given to the very close household contacts of the patient with the illness. That usually means that only people who live in the same house as the sick individual need treatment. University and college friends are only very rarely at a higher risk and therefore do not normally need antibiotics or investigation. The people who need antibiotics have already been identified and given them.

Symptoms of meningococcal meningitis/blood poisoning

Although the risk of another case in the university or college is very small, it is sensible to be aware of the signs and symptoms:

- High Temperature
- Vomiting
- Severe Headache
- Stiff Neck
- Dislike of bright light
- Bruising Rash
- Rapid Breathing
- Cold hands and feet
- Joint or muscle pain
- Drowsiness or confusion

Not all of these signs may show at once, but someone with this illness will become very ill. The illness may progress over one or two days, but it can develop very rapidly, sometimes in a matter of hours.

The early signs can be similar to a bad 'flu', but BE WATCHFUL and use your instincts. IF SOMEONE BECOMES ILL WITH SOME OF THESE SIGNS OR SYMPTOMS, CONTACT THE DOCTOR URGENTLY and ask for advice.

Further information

24-hour helplines

Meningitis Trust	0800 028 1828
Meningitis Research Foundation	0808 800 3344
NHS Direct	0845 46 47

Websites

Meningitis Trust (www.meningitis-trust.org)
Meningitis Research Foundation (www.meningitis.org)

Appendix 10: Meningococcal Investigation Form

North East Health Protection Unit



Meningococcal Disease Investigation Form

Case details:

Name: Date of birth & age:

Address: Sex: M/F NHS number.....
 Local Authority:

Postcode: Telephone:

Occupation/school:

General Practitioner: Tel:

Date of Admission: **Time:**

Hospital: Ward:

Consultant :

Vaccine status: Has the case had Conjugate C Vaccine? YES/NO Date(s).....
 Has the case had Polysaccharide A/C Vaccine? YES/NO Date:

Health Protection Action:

Date HPU Informed: Time :

Name of Person Informing HPU.:

Name of HPU Practitioner Receiving Information (PLEASE PRINT):.....

Date of Health Protection action: Time :

Method of contact tracing: Telephone/Visit

Diagnosis:

Category : Meningitis Meningitis & Septicaemia
 (please tick one box only) Septicaemia Other (please specify)

Initial Diagnostic Status for Meningococcal Disease: Confirmed Probable Possible

Final case definition:

Case Type: Sporadic Cluster **Final outcome:** Survived/died

Mode of Admission: GP A&E OoH

Was meningitis or septicaemia suspected by GP if GP admission? YES / NO

Was pre-admission penicillin given to the case by GP? YES / NO

If NO, please give reason (if known) :

Clinical details:

Date of onset of symptoms:

Clinical spectrum of disease :
(please tick all that apply)

Haemorrhagic Rash	<input type="checkbox"/>	Other Rash	<input type="checkbox"/>
Fever	<input type="checkbox"/>	Headache	<input type="checkbox"/>
Neck Stiffness	<input type="checkbox"/>	Drowsiness	<input type="checkbox"/>
Clinical Shock	<input type="checkbox"/>	Photophobia	<input type="checkbox"/>
Vomiting	<input type="checkbox"/>	Convulsions	<input type="checkbox"/>
Lethargy	<input type="checkbox"/>	Distress	<input type="checkbox"/>

Other clinical information/history:

Investigations:
RECORD DATE TAKEN AND RESULT (WHEN KNOWN)

	Microscopy (Gram -ve Diplococci seen?)	Culture (Neisseria meningitidis?)	PCR (+ve/-ve? Group?)	Serology (meningococcal antibodies?)	Direct antigen (+ve/-ve?)
Blood					
CSF					
Other (specify)					

Reference Laboratory Results? (Record specimen, group, type, subtype)
.....

Other information:

Contact Tracing:

Does the case attend:

- a pre-school group? YES / NO
- school? YES / NO
- college? YES / NO
- higher education establishment? YES / NO

When was the case last there? Date:

Name and address of establishment:

If student in Higher Education:

- Type of residence: (please tick one box)
- Halls (self-catering)
 - Halls (catered)
 - Flat
 - House
 - Other (specify)

Year of study:

Name of Course(s) attended:

Contact history of case over previous 7 days from onset of illness:

Date	Activity
Day 1 (onset of symptoms)	
Day 2	
Day 3	
Day 4	
Day 5	
Day 6	
Day 7	

Cases linked to previous cases in the past 4 weeks? YES/NO

If yes, nature of link:

.....

.....

Reminders:

Hospital advised to give Rifampicin pre-discharge? (if not on appropriate antibiotics i.e. Ceftriaxone.) YES/NO

If the case was visited in hospital, were recommendations documented in hospital case notes? YES/NO

Has GP been informed of case diagnosis? YES/NO

Has/have GP(s) of close contacts been informed that prophylaxis has been given? YES/NO
Has a letter been sent? YES/NO

Has/have GP(s) of close contacts been requested to prescribe prophylaxis? YES/NO
Has a letter been sent? YES/NO

Has the nursery/school/college/higher education establishment been contacted? YES/NO
Has a letter been sent? YES/NO

Has the HPA NE Communications Manager been contacted (if applicable)? YES/NO

Does anyone else need to be contacted? (E.g. Health Visitor, School Nurse Manager, other GPs, Head Teacher, Education Department, Press Office of Education Department, etc.) YES/NO

Please LIST:

.....

Additional Information:

.....
.....
.....
.....
.....
.....
.....



Appendix 11: GP letter – case

To

Date

Dear

Re: Your patient Name :
Address :
Date of Birth:

The above named patient, whom I believe to be registered with your practice, has been admitted to hospital with suspected meningococcal disease. Their close/household contacts have been identified and have been given prophylaxis, an advice sheet on Rifampicin and a meningococcal information leaflet advising them of signs and symptoms of meningococcal infection.

Name
Designation



Appendix 12: GP letter – contact (Prophylaxis by hospital/OOH)

To:

Date

Dear

Re: Your patient **Name :**
 Address :
 Date of Birth :

The above named patient whom I believe to be registered with your practice has been identified as a close contact of a case of meningococcal disease and has been prescribed Rifampicin by according to the following protocol:

Age of contact	Dose of rifampicin
0-2 months	20mg twice daily for two days
3 – 11 months	40mg twice daily for two days
1 – 2 years	100mg twice daily for two days
3 – 4 years	150mg twice daily for two days
5 – 6 years	200mg twice daily for two days
6 – 12 years	300mg twice daily for two days
Adults and children > 12 years	600mg twice daily for two days

Your patient (or his/her parent or guardian) has been made aware of the side effects of rifampicin and the signs and symptoms of meningococcal disease.

Please contact me if you have any queries

Yours sincerely

Name
Designation

Appendix 13: GP letter – contact (prophylaxis by GP)

To:

Date

Dear

Re: Your patient Name :
Address :
Date of Birth :

The above named patient whom I believe to be registered with your practice has been identified as a close contact of a case of meningococcal disease.

Your surgery was advised today that your patient should receive chemoprophylaxis according to the following protocol:

Age of contact	Dose of rifampicin
0-2 months	20mg twice daily for two days
3 – 11 months	40mg twice daily for two days
1 – 2 years	100mg twice daily for two days
3 – 4 years	150mg twice daily for two days
5 – 6 years	200mg twice daily for two days
6 – 12 years	300mg twice daily for two days
Adults and children > 12 years	600mg twice daily for two days

Your patient may find the enclosed Rifampicin advice sheet helpful and should be made aware of the early signs and symptoms of meningococcal disease. Meningitis and meningococcal advice leaflets are available from the National Meningitis Trust (www.meningitis-trust.org Tel 0800 028 1828) and Meningitis Research Foundation (www.meningitis.org Tel 0808 800 3344).

With many thanks in anticipation of your co-operation in prescribing the necessary chemoprophylaxis for your patient. Please contact me if you have any queries

Yours sincerely

Name
Designation



Appendix 14: Area GP/NHS Direct letter

To:

Date

Dear Colleague

Re:

A student from the above nursery/school/college has been admitted to hospital and is being treated for suspected meningococcal disease.

All close contacts of the case have been identified and where appropriate, have received chemoprophylaxis. Contacts at the nursery/school/college are not considered to have increased risk of disease, therefore no special antibiotics or vaccines are required for anyone simply because of this contact.

Parents who have children attending the nursery/school/college have been informed by letter of the signs and symptoms of meningococcal disease.

We believe this to be an isolated case, however, staff from the Health Protection Unit will continue to monitor the situation and should further action be necessary we will inform you as soon as possible.

I hope this information is useful. Please do not hesitate to contact this Unit if we can be of further assistance. General information about meningococcal disease is available from the sources listed below.

Meningitis Trust (www.meningitis-trust.org)	0800 028 1828
Meningitis Research Foundation (www.meningitis.org)	0808 800 3344
NHS Direct	0845 46 47
Health Protection Agency website (www.hpa.org.uk)	

Yours sincerely

Name
Designation

Appendix 15: Contact Details for Universities

University	Office Hours	Out of Hours
Durham University	College Principal 0191 334 2000 (switchboard)	College Officer (via security) 0191 334 2222
Durham University Queen's Campus at Stockton	Operations Director (or College Principal) 0191 334 2000 (switchboard)	Meningitis Action Team (via security) 0191 334 0080
Newcastle University	Head of Student Wellbeing (Rosemarie Jennis) 0191 2225870 or Public Relations Manager (Melanie Reed) 0191 2225791	Student Wellbeing (via security) 0191 222 6817
Northumbria University	Director of Student Services (Shelagh Groves) 0191 227 4207	Student Services (via Security) 0191 2273999
Teesside University	Director of Student Services (via security) 01642 342 086	Accommodation Officer or Director of Student Services (via security) 01642 342 086
University of Sunderland	Head of Health and Wellbeing (Joanne Turns) 0191 515 2933 or 515 2938	Head of Health and Wellbeing or Health Advisor (via security) 0191 515 2028

Appendix 16: Distribution List

HPA NE clinical staff

HPA NE 1st on call rota

HPA NE communications staff

HPA NE extranet

HPA Laboratory

PCT Directors of Public Health

Medical Directors of Hospital Trusts for onward cascade to

- Director of Prevention and Control
- Infection Control Doctors
- Relevant Clinical Directors

THE NEWCASTLE UPON TYNE HOSPITALS NHS FOUNDATION TRUST
IMPACT ASSESSMENT – SCREENING FORM A

This form must be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

Policy Title:	Policy for the Management of Meningococcal Infection	Policy Author:	Health Protection Agency-North East
		Yes/No?	You must provide evidence to support your response:
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability – learning difficulties, physical disability, sensory impairment and mental health problems.	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?	NA	
4(a).	Is the impact of the policy/guidance likely to be negative? (If “yes”, please answer sections 4(b) to 4(d)).	No	
4(b).	If so can the impact be avoided?		
4(c).	What alternatives are there to achieving the policy/guidance without the impact?		
4(d)	Can we reduce the impact by taking different action?		

Comments:	Action Plan due (or Not Applicable): Not Applicable
------------------	--

Name and Designation of Person responsible for completion of this form: S Morgan Nurse Consultant Infection Prevention and Control..

Date: September 2010

Names & Designations of those involved in the impact assessment screening process: S Morgan Nurse Consultant Infection Prevention and Control; Janet Gibson Nurse Consultant Health Protection Agency-North East

(If any reader of this procedural document identifies a potential discriminatory impact that has not been identified on this form, please refer to the Policy Author identified above, together with any suggestions for the actions required to avoid/reduce this impact.)

For advice on answering the above questions please contact Helen Lamont, Deputy Director Nursing & Patient Services, or, Christine Holland, Senior HR Manager. On completion this form must be forwarded electronically to Steven Stoker, Clinical Effectiveness Manager, (Ext. 24963) steven.stoker@nuth.nhs.uk together with the procedural document. If you have identified a potential discriminatory impact of this procedural document, please ensure that you arrange for a full consultation, with relevant stakeholders, to complete a Full Impact Assessment (Form B) and to develop an Action Plan to avoid/reduce this impact; both Form B and the Action Plan should also be sent electronically to Steven Stoker within six weeks of the completion of this form.