PROTOCOL FOR HOSPITAL STAFF FOR THE CONTROL OF MENINGOCOCCAL MENINGITIS/SEPTICAEMIA AND OTHER FORMS OF MENINGITIS IN HOSPITAL

This guidance does not override the individual responsibility of health professionals to make appropriate decisions according to the circumstances of the individual patient in consultation with the patient and / or carer. Healthcare professionals must be prepared to justify any deviation from this guidance.

INTRODUCTION

This protocol is designed to give guidance on minimising the risk of spread of meningococcal and other forms of meningitis and meningococcal septicaemia. It covers the identification of those at a significantly increased risk and the process by which advice and prophylactic antibiotics will be issued.

THIS POLICY IS FOR USE BY ALL STAFF GROUPS

Lead Clinician

Dr Claire Constantine	Consultant Microbiologist
Ratified by Trust Infection Prevention & Control Committee on:	20th August 2012
Extension approved on:	November 2017
Review Date:	30th October 2019

This is the most current version of the document and should be used until a revised version is available

Key amendments to this Document:

Date	Amendment	By:
Aug 10	Update of Health Protection Unit contact details and minor typographical alterations, clarification of prophylaxis arrangements, removal of reference to Kidderminster Hospital Pharmacy emergency drug cupboard.	C Constantine
August 2012	Insertion of section on epidemiology of disease: section 1 Insertion on section on objective of policy: section 2 Re-numbering of sections Revision of preferred antibiotic for prophylaxis in all ages to ciprofloxacin: section 4.3 Insertion of section on vaccination of index case: section 4.4 Insertion of examples of drug information leaflets: Appendix A	C Constantine
September 2015	Document extended until December 2015 with approval from Lindsey Webb	Lindsey Webb
Feb 2016	Document extended for 12 months as per TMC paper approved on 22nd July 2015	TMC
Nov 2016	Further extension as per TMC paper approved on 22nd July 2015	TMC
November	Document extended whilst under review	TLG

2017		
January 2018	Change wording of 'expiry date' on front page to the sentence added in at the request of the Coroner	
March 2018	Document extended for 3 months as approved by TLG	TLG
June 2018	Document extended for 3 months as approved by TLG	TLG
October 2018	Document extended until end of November	Heather Gentry
April 2019	Document extended for 6 months whilst review process takes place	TIPCC

BACKGROUND

1.1 Epidemiology of meningococcal carriage and disease

Neisseria meningitidis is a normal inhabitant of the human nasopharynx and is transmitted from person to person by droplets or secretions from the upper respiratory tract.

Meningococci are classified according to characteristics of the polysaccharide capsule into serogroup, of outer membrane proteins into serotype and serosubtype, and of chromosomal DNA into genotype. Carriage of meningococci (all strains included) is relatively common.

In the UK, annual rates of invasive disease usually vary between two and six per 100,000, with case-fatality rates of about 10%. Prior to the use of mass vaccination, most cases were caused by serogroup B or C strains. Disease usually presents as septicaemia, meningitis or both. 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 seen in the winter months. Apart from age, risk factors include passive smoking, preceding influenza A infection and overcrowding.

1.2 Risk to household contacts

About 97% of cases are sporadic. Although the risk to contacts is low, the highest documented absolute and relative risk is to people who live in the same household as a case of meningococcal disease. The risk is highest in the first seven days after a case and falls rapidly during the following weeks. If prophylaxis is not given, the absolute risk to an individual in the same household one to 30 days after an index case is about one in 300.

The highest risk of illness in untreated households is observed in the first 48 hours after onset of disease in the index case.

1.3 Incidence of meningococcal disease

The incidence of disease has declined slightly in recent years, with an average annual incidence of 2.05/100,000 population between 2006/7-2009/10; 88% of these cases were due to serogroup B infections. Cases of serogroup C disease are currently very rare with only 13 cases confirmed in 2008/09 and 17 cases in 2009/10.

2. OBJECTIVE OF GUIDELINES

The objective of these guidelines is to present the rationale and recommendations for the control of meningococcal disease in the UK in one comprehensive document. Guidance is offered on pre-admission management to reduce mortality rate, investigation of suspected cases, case definitions, public health action after a single case and management of clusters. These recommendations now form the definitive UK guidance on public health management of meningococcal disease.

3. NOTES FOR MEDICAL, NURSING AND OTHER PARAMEDIC STAFF

3.1 Transmission

Meningococcal infection is transmitted by direct contact, via droplets and discharges from the throat of infected persons. Such exposure may result in infection but will rarely cause illness. Usually infection is asymptomatic. However, it can be very serious and therefore the following precautions should be observed.

3.2 Isolation of Patients

Isolation is only required for the first 48 hours after the start of appropriate antibiotic treatment.

- The patient should be nursed in a single room. Adult patients at Worcestershire Royal Hospital should ideally be placed in a single room on the Infectious Diseases ward.
- Fluid shield masks (FFP1) should be worn by anyone who comes into close face to face contact with the patient if the patient is likely to cough or splutter into the face of the attendant, eg during suctioning.
- Plastic aprons and gloves should be available and used when direct contact with infective material is likely. Hands must be washed after contact with the patient or potentially contaminated articles and before taking care of another patient.
- A “STOP Isolation Precautions” poster should be placed on the door of the room

3.3 Specific Measures to Protect Staff

Meningococci are not readily transmitted from person-to-person. It is only staff who have inhaled respiratory secretions from a patient through direct close contact who are at a slightly increased risk of acquiring the bacterium.

A short course of antibiotic prophylaxis (ciprofloxacin or rifampicin) may be recommended for staff exposed to the following risks:

- Direct unprotected mouth to mouth resuscitation
- Where a patient has coughed or spluttered into the face of an unmasked attendant during a procedure involving close exposure such as intubation or suctioning around the time of admission.

Staff who require antibiotic prophylaxis can continue to work as normal.

Drug prophylaxis is unnecessary for lesser degrees of contact such as ordinary nursing, general attendance and portering. No drug is completely without risk, and therefore should not be given without good reason. Staff are more likely to acquire meningococci from carriers in the general population than from a patient.

If in doubt contact either Occupational Health or a Consultant Microbiologist.

Staff Prophylaxis
Chemoprophylaxis 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 during acute illness until completed 24 hours of systemic antibiotics. 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 mechanical protection. In practice this implies a clear perception of facial contact with droplets/secretions and is unlikely to occur unless using suction during airway management, inserting an airway, intubating, or if the patient coughs in your face.

Ciprofloxacin 500 mg as a single dose or rifampicin 600 mg orally twice daily for 2 days are recommended for prophylaxis.

Exposure of the eyes to respiratory droplets is not considered an indication for prophylaxis. Such exposure may however 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.

Routine vaccination of healthcare workers with meningococcal conjugate vaccines is not recommended for two reasons. First, at the time of exposure, the serogroup of the infecting strain is not usually known, so previous vaccination would not obviate the need for chemoprophylaxis. Second, most cases are caused by serogroups other than A, C, Y and W135 and would, therefore, not be prevented by the quadrivalent conjugate vaccine.

The above recommendations also apply to contacts of cases in healthcare workers (including dentists), and to contacts of cases on a hospital ward where the diagnosis is initially unsuspected and not treated with systemic antibiotics. Chemoprophylaxis is not usually indicated for patient or staff contacts of such cases. A hospital ward is not equivalent to a household setting.

However, the threshold for giving prophylaxis is lower for immunocompromised contacts who may be at increased risk of invasive disease. Individual risk assessment will be undertaken.

4. NOTES FOR MEDICAL STAFF

These notes should be read in conjunction with the notes given in Section **3.3** which deal with isolation of a patient and specific measures to protect staff.

4.1 General Information

If a meningococcal infection is a possibility in a patient, the clinician should inform by telephone:

Consultant in Communicable Disease Control
West Midlands Health Protection Unit
Elgar House
Green Street
KIDDERMINSTER
DY10 1JL

Tel: (01562) 756300 Fax: (01562) 756302

Out of hours contact the "On-call Public Health Doctor" via Ambulance Control
Tel: (01886) 834244

The CCDC will make appropriate arrangements to trace significant close contacts in the community and provide them with appropriate advice. If there is doubt about the diagnosis, the clinician, microbiologist and CCDC should discuss the situation to assess the risks in the community. The CCDC will make the final decision on who should receive prophylaxis. If the patient is thought more likely to have meningococcal disease than any other diagnosis (a "probable" case), then the CCDC will take action to ensure that significant contacts are dealt with. The hospital clinician is often the most appropriate person to prescribe antibiotic prophylaxis for the immediate family / household contacts who are likely to be on the ward particularly as rifampicin is not readily available in community pharmacies. A supply of hospital only outpatient prescriptions will be kept in the emergency drug cupboards at ALX & WRH marked for 'meningitis contacts only', which can be used for household contacts.

Cefotaxime or ceftriaxone are recognized as drugs of choice for the treatment of meningococcal infection. However, cefotaxime may not eradicate the organism from the nasopharynx. As an additional measure, to prevent re-infection of other members of the patient's household it is advisable that the patient is given a dose of ciprofloxacin (unless contraindicated) before discharge from hospital and preferably before moving out of isolation. The dose is the same as for prophylaxis (see next page). It should be given as soon as the patient is able to take antibiotics orally.

4.2 Dealing with Contacts

The following points are important in dealing with contacts:

Antibiotic prophylaxis is generally only indicated for household contacts (persons staying in the same house overnight in last week) and persons who have had intimate contact with a case, (eg close kissing).

- They must be educated about the early symptoms of meningococcal disease and warned that they should not hesitate or delay in seeking medical advice should symptoms develop.
- They should be warned that the antibiotics prescribed for prophylaxis are not treatment for the disease and are not 100% effective at eradicating meningococci from the pharynx.

They may be reassured that the occurrence of secondary cases is uncommon. Nevertheless they should be vigilant for symptoms.

4.3 Prophylactic Antibiotics

These are prescribed in conjunction with advice to be vigilant for symptoms and should be given without undue delay.

4.3.1 Choice of Antibiotic

- ***Ciprofloxacin*** is recommended for use in all age groups and in pregnancy.
  Rifampicin has been the drug of choice for meningococcal chemoprophylaxis because it is licensed for chemoprophylaxis. However, rifampicin has several disadvantages. The advantages of ciprofloxacin over rifampicin are that it is given as a single dose and does not interact with oral contraceptives. It is contraindicated in cases of known ciprofloxacin hypersensitivity. Ciprofloxacin is usually not recommended in children due to induced arthropathy in juvenile animals. However in studies, the risk of arthropathy due to ciprofloxacin was very low, arthralgia was transient and most were coincidental.

- ***Rifampicin*** and ceftriaxone are alternative choices if ciprofloxacin is contraindicated in a contact. Advice should be sought from the CCDC, Consultant Microbiologist or Consultant in Infectious Diseases.

  For out of hours dispensing:
  Pre-packs of tablets and equipment for dispensing syrup are available from:

  Alexandra Hospital – Pharmacy emergency drug cupboard
  Worcestershire Royal Hospital – Pharmacy emergency drug cupboard
  Riverbank Paediatric Unit

4.3.1.1 *Ciprofloxacin*

Ciprofloxacin

Dosage: Adults and children over 12 years 500 mg stat
Children aged 5–12 years 250 mg stat
Children under 5yrs 30mg/kg up to maximum of 125 mg stat
*Ciprofloxacin suspension contains 250mg/5ml

Cautions and contraindications
Rare side effects include angio-neurotic oedema and anaphylaxis. Administration of the dose should therefore be observed, (see BNF Appendix 1 for full list). It can also interact with other drugs but a single dose is unlikely to have a significant effect. It has an unpredictable effect on epilepsy but may be preferable to rifampicin if the patient is on treatment with phenytoin (see notes below).

4.3.1.2 *Rifampicin*

Rifampicin

Dosage:

Age	Dosage	Dose frequency	Number of days
Adults and children >12 years	600 mg	bd	2
Children over 1 year of age	10 mg / kg	bd	2
Children under 1 year of age	5 mg / kg	bd	2

Rifampicin – Approximate doses in children based on average weight for age are:

0 - 2 months	20 mg (1 ml syrup*)	Twice daily for 2 days
3 - 11 months	40 mg (2 ml syrup*)	
1 - 5 years	150 mg (7.5 ml syrup*)	
6 - 12 years	300 mg (capsule of 15 ml syrup*)	

* Rifampicin syrup contains 100 mg / 5 ml

Cautions and contraindications
Rifampicin is contraindicated in the presence of jaundice or known hypersensitivity to rifampicin. Interactions with other drugs, such as anticoagulants, phenytoin, and hormonal contraceptives should be considered. Side effects should be explained including staining of urine and contact lenses. Written information for patients should be supplied with the prescription (Appendix). This is the responsibility of the prescriber. See BNF Appendix 1 / data sheet for full list.

4.4 Vaccination of the index case

The CCDC will decide on the appropriate vaccination of contacts of a case. This will normally be delivered through the GP.

Vaccination of Index case

- MenC conjugate vaccine should be offered according to the recommended national schedule to any unimmunised index cases under the age of 25 years (whatever the serogroup).
- Cases of confirmed serogroup C disease who have previously been immunised with MenC conjugate (or polysaccharide) vaccines should be offered a booster dose of MenC conjugate vaccine around the time of discharge from hospital.
- Index cases who are in the risk-group for meningococcal disease (eg asplenia, complement deficiency) and have not been immunised (or are incompletely immunised for age) with the quadrivalent MenACWY conjugate vaccine should complete the recommended immunisation course (2 doses one month apart if aged <1 year; 1 dose after first birthday), while those who received the quadrivalent MenACWY conjugate vaccine more than 12 months previously should receive an extra dose of the quadrivalent MenACWY conjugate vaccine.

4.5 Certificates of Notification of Infectious Disease or Food Poisoning

In addition to the action requested above, cases of meningitis or meningococcal septicaemia should be “notified” by completing a Certificate of Notification of Infectious Disease, and forwarding it to the CCDC. This is a statutory requirement under the Health Protection (Notification) Regulations 2010. Numbers of notifications are collated both locally and nationally. The accuracy and value of these statistics depends on the proper notification of cases. Notification certificates are available to print off the Infection Control page of the Trust Intranet.

4.6 Other Forms of Meningitis

4.6.1 Bacterial

Other forms of meningitis (pneumococcal, haemophilus, coliform) do not require isolation as there is no evidence of person-to-person spread in a healthcare setting. A quiet single room may be preferable for patients with photophobia. Although rare since the introduction of Hib vaccination, H influenzae meningitis, still occasionally occurs. Advice should be obtained from the CCDC about prophylaxis for household contacts (which differs from meningococcal disease).

4.6.2 Viral

Excretion precautions should be used for cases of viral meningitis for the length of the acute illness. A single room is preferred.

5. AUDIT AND OUTCOME MEASURES

The HPU will monitor the epidemiology of the disease in the community.

6. REFERENCES

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Drossou-Agakidou V, Roilides E, Papakyriakidou-Koliouska P, Agakidis C, Nikolaides N, Sarafidis K, et al. Use of ciprofloxacin in neonatal sepsis: lack of adverse effects up to one year. Pediatr Infect Dis J. 2004 Apr;23(4):346–9.

Yee CL, Duffy C, Gerbino PG, Stryker S, Noel GJ. Tendon or joint disorders in children after treatment with fluoroquinolones or azithromycin. Pediatr Infect Dis J. 2002 Jun;21(6):525–9.

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Appendix A
Examples of drug information leaflets

Rifampicin

The antibiotic you will be given is called Rifampicin. It comes as either tablets or syrup and is suitable for people of all ages. The meningococcal germs that cause meningitis and septicaemia can be carried in the nose and throat, this antibiotic will kill them.

Rifampicin must be taken twice a day for two days (morning & evening), the instructions will be clearly written on the box or bottle. ***It is important that you take a two-day course. It is taken by mouth and should be taken one hour before a meal to obtain the best effect.*** You may have extra medicine left, which should be disposed of safely.

Rifampicin is an antibiotic that is frequently used to treat lots of different conditions. It is recommended in national guidelines for close contacts of someone with meningococcal disease.

The **side effects** of Rifampicin may include:

• Orange/reddish staining of urine, saliva and tears. ***This is normal – so do not be alarmed. Rifampicin may permanently stain some contact lenses so you should not wear contact lenses whilst on treatment or for the following week.***

• Tummy upset, diarrhoea and nausea.

• Skin flushing and itching, with or without a rash.

• Very rarely, jaundice (yellowing of the skin or whites of the eyes).

Rifampicin may reduce the effect of several medicines including:

- blood thinning medication (anticoagulants)

- diabetic medication

- some types of epilepsy medication (anticonvulsants)

Rifampicin can interact with oral contraceptives. If you are taking an oral contraceptive pill, you should use an additional method of birth control (such as condoms) as well as your oral contraceptive pill during treatment with Rifampicin and for at least 4 weeks after finishing the treatment.

Please tell the public health doctor or nurse if you:

• ***take any medication***
• ***are allergic to Rifampicin***

as you may need an alternative medicine

Ciprofloxacin

The antibiotic you will be given is called Ciprofloxacin. The meningococcal germs that cause meningitis and septicaemia can be carried in the nose and throat. This antibiotic will kill them.

It comes in tablet or liquid form. You will receive either one or two tablets of Ciprofloxacin or one dose of a liquid. Tablets are taken by mouth as a one-off dose with a glass of water. It is important to drink plenty of fluids for the rest of the day after taking this antibiotic.

Do not take the tablet or medicine if you have taken antacid/indigestion medicines or preparations containing iron or mineral supplements within the last four hours. Please see the doctor or nurse if this is the case.

You should also avoid drinking alcohol with this medication as it may make you drowsy, affecting your ability to drive or operate machinery.

Ciprofloxacin is an antibiotic that is frequently used to treat lots of different conditions. It is recommended in national guidelines for close contacts of someone with meningococcal disease.

The **side effects** of Ciprofloxacin may include:

• Tummy ache, diarrhoea and nausea

• Tiredness and headaches

• Rash and itching

• **Facial swelling** - very rarely breathing difficulties may occur with the facial swelling. **You should seek medical attention urgently if this occurs.**

• Pain and inflammation around the joints

Ciprofloxacin does **not** interfere with the contraceptive pill.

Please tell the public health doctor or nurse if you are:

• ***allergic to ciprofloxacin***

• ***have a history of epilepsy or G6PD deficiency***

so that they can arrange an alternative medicine

If you are unclear or would like further information, please contact .....

Appendix B

CONTRIBUTION LIST

Key individuals involved in developing the document

Name	Designation
Dr Chris Catchpole	Consultant Microbiologist, Worcestershire Royal Hospital
Dr Claire Constantine	Consultant Microbiologist, Worcestershire Royal Hospital
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Dr Jane Stockley	Consultant Microbiologist, Worcestershire Royal Hospital
Dr Mark Roberts	Consultant in Infectious Diseases

Circulated to the following individuals for comments

Name	Designation
	All members of Trust Infection Prevention & Control Committee

Circulated to the following CDs / Heads of department for comments from their directorates / departments

Name	Directorate / Department

Circulated to the chair of the following committees / groups for comments

Name	Committee / Group

Supporting Document 1 – Checklist for review and approval of key documents
This checklist is designed to be completed whilst a key document is being developed / reviewed.

A completed checklist will need to be returned with the document before it can be published on the intranet.

For documents that are being reviewed and reissued without change, this checklist will still need to be completed, to ensure that the document is in the correct format, has any new documentation included.

1	Type of document	Protocol
2	Title of document	PROTOCOL FOR HOSPITAL STAFF FOR THE CONTROL OF MENINGOCOCCAL MENINGITIS/ SEPTICAEMIA AND OTHER FORMS OF MENINGITIS IN HOSPITAL
3	Is this a new document?	Yes ☐ No ☒ If no, what is the reference number WAHT-INF-001
4	For existing documents, have you included and completed the key amendments box?	Yes ☒ No ☐
5	Owning department	Infection Control
6	Clinical lead/s	Dr Claire Constantine
7	Pharmacist name (required if medication is involved)	Rachel Baker
8	Has all mandatory content been included (see relevant document template)	Yes ☒ No ☐
9	If this is a new document have properly completed Equality Impact and Financial Assessments been included?	Yes ☐ No ☐N/A
10	Please describe the consultation that has been carried out for this document	Members of TIPCC, pharmacist
11	Please state how you want the title of this document to appear on the intranet, for search purposes and which specialty this document relates to.	As above under Infection Control
Once the document has been developed and is ready for approval, send to the Clinical Governance Department, along with this partially completed checklist, for them to check format, mandatory content etc. Once checked, the document and checklist will be submitted to relevant committee for approval.		

Implementation

Briefly describe the steps that will be taken to ensure that this key document is implemented

Action	Person responsible	Timescale
Uploaded onto the intranet	Risk	

Plan for dissemination

Disseminated to	Date
E-mail to paediatricians to draw attention to change in recommended prophylaxis	Once policy is on intranet

1	**Step 1 To be completed by Clinical Governance Department** Is the document in the correct format? Has all mandatory content been included? Date form returned 12/09/2012	 Yes ☒ No ☐ Yes ☒ No ☐
2	Name of the approving body (person or committee/s)	Trust Infection Prevention and Control Committee
	Step 2 To be completed by Committee Chair/ Accountable Director	
3	Approved by (Name of Chair/ Accountable Director):	Helen Blanchard
4	Approval date	20/08/2012

Please return an electronic version of the approved document and completed checklist to the Clinical Governance Department, and ensure that a copy of the committee minutes is also provided.

Office use only	Reference Number	Date form received	Date document published	Version No.
	WAHT-INF-001	12/09/2012	12/09/2012	4