East of England Neonatal Antibiotic Policy

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For use in: Eastern Neonatal Units
Guidance specific to the care of neonatal patients

Used by: Medical Staff, Neonatal Nurse Practitioners, pharmacists, microbiologists and infection prevention and control teams.

Key Words: Signs & symptoms, high risk sepsis, central lines, bacteraemia, NICE early onset sepsis recommendations. Kaiser Permanente Sepsis Risk Calculator, Late onset sepsis, fungal prophylaxis

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Approved by:

Clinician Lead for East of England Neonatal ODN	**Date:** 21/02/2022 **Signed: Matthew James**

East of England Neonatal ODN

CONTENTS

The purpose of this policy is to standardise the antibiotic treatment used in treating suspected or confirmed sepsis. The policy includes indications for use, dosing arrangements and monitoring of therapeutic levels where applicable.

1. INTRODUCTION

1.1 This guideline sets out the regional agreement on antibiotic use for the management of suspected or confirmed neonatal sepsis. It has been developed in agreement with regional microbiologists, infection prevention and control nurses, neonatal nurses and a pharmacist. This has been developed as part of a regional approach to standardising the use of antimicrobial therapy in the neonatal population within the east of England.

1.2 This policy should be read in conjunction with the NICE documents
Neonatal infection: antibiotics for prevention and treatment. NICE guideline (NG195) published 20 April 2021

1.3 The guideline has been updated due to the introduction of implementation of the Kaiser Permanente Risk Calculator (KP-SRC) to be used in infants born at 34 weeks and above when assessing risk for early onset sepsis.

1.4 The guideline should be used in conjunction with the network guideline for using the KP-SRC.Web address for KP-SRC:
https://neonatalsepsiscalculator.kaiserpermanente.org/
The calculator is also available on the admissions page of Badgernet.

1.5 This guideline is designed to be used in conjunction with and not as a replacement for clinical assessment of the baby where decisions are made about the management of suspected and confirmed sepsis.

2. AUDIT STANDARDS

2.1 100% of babies should have a blood culture and CRP taken before starting antibiotics

2.2 100% of babies should have their CRP checked at 18-24 hours following commencement of antibiotic treatment

2.3 Where the Kaiser Permanente Sepsis Risk Calculator has been used

- The total number of babies being assessed using the calculator
- Number of babies correctly identified by the calculator who develop culture confirmed infection
- Number of babies incorrectly identified by the calculator who do not develop culture confirmed infection
- Number of babies missed by the calculator who develop culture confirmed neonatal infection

3. BACKGROUND

3.1 Mortality and morbidity from neonatal sepsis remain significant, with early recognition and treatment likely to improve outcomes. As symptoms and signs of sepsis can be subtle, empirical antibiotic treatment should be started in any neonate who is unwell and in some cases for infants with significant risk factors.
**Please see separate policy for management of MRSA colonisation.*
**This policy does not specifically address maternal Group B Streptococcus – see RCOG – Green-Top Guideline No.36 (13/09/2017) or local policy[1].*

4. INDICATIONS FOR STARTING ANTIBIOTICS

4.1 The opinion of an experienced neonatal nurse/midwife should be taken very seriously as should parental concerns about their own infants' condition.

4.2 Use tables 1 and 2 (NICE, 2021) to identify red flags (risk factors and clinical indicators that should prompt a high level of concern regarding early-onset neonatal infection).

4.3 Review the maternal and neonatal history and carry out a physical examination of the baby including an assessment of the vital signsi.e temperature, respiratory rate, heart rate, capillary refill time, level of consciousness and oxygen saturations if signs of respiratory distress.

4.4 Use the following framework based on risk factors and clinical indicators, including red flags (see tables 1 and 2), to direct antibiotic management decisions:

- In babies who are 34 weeks gestation or more, with any red flags, or with two or more amber risk factors or clinical indicators apply the KP-SRC to guide management.
- In babies who are less than 34 weeks gestation, with any red flags, or with two or more amber risk factors or clinical indicators, perform a septic screen and commence antibiotics.
- If antibiotics are recommended, these should be administered as soon as possible and always within one hour of the decision to treat.

4.5 In babies without red flags and only one amber risk factor or one amber clinical indicator, using clinical judgment, consider:

- whether it is safe to withhold antibiotics, and whether it is necessary to monitor the baby's vital signs and clinical condition – if monitoring is required continue it for at least 12 hours (at 0, 1 and 2 hours and then 2-hourly for 12 hours).

Table 1:

Risk factors for early-onset neonatal infection, including 'red flags'

Risk Factors	Red Flags
Suspected or confirmed infection in another baby in the case of a multiple pregnancy	**Yes**
Preterm birth following spontaneous labour (before 37 weeks' gestation)	
Confirmed rupture of membranes for more than 18 hours before a preterm birth	
Confirmed prelabour rupture of membranes at term for more than 24h hours before onset of labour	
Intrapartum fever higher than 38°C, if there is suspected or confirmed bacterial infection	
Confirmed or suspected chorioamnionitis	
Invasive GBS in previous baby or maternal GBS colonisation, bacteriuria or infection in current pregnancy	

Table 2: Clinical indicators of possible early-onset neonatal infection (observations and events in the baby), including 'red flags'

Clinical Signs	Red Flag
Apnoea	Yes
Seizures	Yes
Need for cardiopulmonary resuscitation	Yes
Need for mechanical ventilation	Yes
Signs of shock	Yes
Altered behaviour or responsiveness	
Altered muscle tone (eg floppiness)	
Feeding difficulties (eg feed refusal)	
Feed intolerance, including vomiting, gastric aspirates and abdominal distension	
Abnormal heart rate (bradycardia or tachycardia)	
Signs of respiratory distress	
Hypoxia (eg central cyanosis or reduced oxygen saturation level)	
Persistent pulmonary hypertension of newborns	
Jaundice within 24 hours of birth	
Signs of neonatal encephalopathy	
Temperature abnormality (less than 36°C or higher than 38°C) not environmental	

Unexplained excessive bleeding, thrombocytopenia, or abnormal coagulation	
Altered glucose homeostasis (hypoglycaemia or hyperglycaemia)	
Metabolic acidosis (BE ≥ -10 mmol/L)	

4.6 **Group B Streptococcus (GBS)**
The use of antibiotics for the asymptomatic infant of a GBS colonised mother remains controversial as up to 20% of pregnant women are GBS carriers[2]. However the incidence increases with other risk factors for early onset sepsis (when presenting with clinical disease):

- Previous infant with invasive GBS disease
- Preterm (<37 weeks gestation)
- Pyrexia in labour
- Rupture of membranes for > 18 hours if preterm or >24 hours if term
- No antibiotics or insufficient antibiotics given to mother[1]

5. INVESTIGATIONS PRIOR TO STARTING ANTIBIOTICS

5.1 Blood cultures and a CRP should *always* be taken before starting treatment.

5.2 Decision for treatment and management should not be based on CRP levels alone. In addition to interpretation of the CRP level, consider white cell count. A low WCC or absolute neutropenia could be significant, as well as the infants broader clinical picture.

5.3 Consider performing a lumbar puncture to obtain a cerebrospinal fluid (CSF) sample in a baby who did not have a lumbar puncture at presentation who is receiving antibiotics, if it is thought safe to do so and if the baby:

- there is a strong clinical suspicion of early-onset neonatal infection or
- has clinical symptoms or signs suggestive of meningitis
- has a positive blood culture (except Coagulase negative staphylococcus), or
- does not respond satisfactorily to antibiotic treatment.

5.4 It is recognised that there are other non-infectious causes of a rise in CRP, so babies with an isolated rise in CRP should be discussed with a senior paediatrician and the need to perform a lumbar puncture considered, taking into account the overall clinical picture. Decisions should be clearly documented in the baby's notes.

5.5 Other useful investigations include FBC and CXR. *In cases of suspected chorioamnionitis the placenta should be sent for histological* examination and culture.

5.6 Inability to obtain a CSF sample should not delay treatment. On occasion this may need to be delayed but most babies can tolerate a LP if supervised appropriately during the procedure.

5.7 **It is possible to send CSF for PCR diagnostics if antibiotics have already been given[10,11].**

5.8 Do not undertake a LP if platelets are <50 x 10^9/l or if the baby is coagulopathic. In these situations, consider correction prior to the procedure being undertaken.

6. CHOICE AND DURATION OF ANTIBIOTICS

6.1 Empirical antibiotic choice depends on the circumstances surrounding suspicion of infection

- For infants with early onset sepsis see recommended empirical antibiotic choice in section 11.1

The usual duration of antibiotic treatment for babies with a positive blood culture, and for those with a negative blood culture but in whom there has been strong suspicion of sepsis, should be 7 days.

6.2 Consider continuing antibiotic treatment for more than 7 days if:

- the baby has not yet fully recovered
- based on the pathogen identified on blood culture (seek expert microbiological advice if necessary).
- Group B Streptococcus 10 days
- E.Coli 14 days
- Listeria monocytogenes 10 days

For those where meningitis is suspected but the pathogen is unknown treat with amoxicillin and cefotaxime.
Gram negative meningitis may be treated with cefotaxime alone normally for 21 days in total and generally in combination with gentamicin 5mg/kg 36 hourly for the initial 5 days.
Group B Streptococcus meningitis should be treated with benzylpenicillin 50mg/kg bd for at least 14 days and gentamicin 5mg/kg 36 hourly for 5 days.

6.3 If continuing antibiotics for longer than 36 hours despite negative blood cultures, review the baby at least once every 24 hours. On each occasion, using clinical judgment, consider whether it is appropriate to stop antibiotic treatment, taking account of:

- the level of initial clinical suspicion of infection
- the baby's clinical progress and current condition, and
- the levels and trends of C-reactive protein concentration.

6.4 Antibiotics should usually be stopped at 36 hours if cultures are negative and if the baby's clinical condition is reassuring with no clinical indicators of possible infection, and the levels and trends of C-reactive protein concentration are reassuring.

6.5 However, if there was a significant CRP rise or the baby was particularly unwell, a minimum 5-7 days empirical antibiotic course should be prescribed.

6.6 Confirmed cases of neonatal meningitis should be discussed with the local *microbiologist.* Check viral PCR on CSF if no bacterial growth.

6.7 Repeating the LP prior to stopping antibiotics is generally not recommended, however this is at the discretion of the attending consultant

6.8 Good practice will include an indication for the antibiotic and a review date for the prescription, on the prescription chart.

7 LATE ONSET NEONATAL SEPSIS

7.1 In those where sepsis is suspected beyond 72 hours of age, FBC, blood cultures, CRP should always be taken prior to starting antibiotics.

7.2 LP should be considered where there is strong clinical suspicion of neonatal infection or there are clinical symptoms or signs suggesting meningitis. Do not undertake a LP if platelets are less than 50x109/l or if the baby is coagulopathic. In these situations, consider correction prior to the procedure being undertaken.
If an infant is too unstable to tolerate an LP, do not delay in giving antibiotics. An LP may be performed up to 1 week after starting antibiotics, however a negative PCR or low cell count should be interpreted with caution particularly if performed after the first 72 hours after commencing antibiotics.

7.3 If there are respiratory or abdominal concerns, X-rays should also be performed.

7.4 Do not routinely perform urine microscopy and culture as part of investigations of late-onset neonatal infection for babies on the neonatal unit

8. REMOVAL OF CENTRAL LINES

8.1 Removal of central lines should be considered in any septic infant who fails to improve.

8.2 Central lines should ideally be removed in the presence of culture positive sepsis in particular staph aureus, gram negative or fungal sepsis.

8.3 If the baby has suspected or proven coagulase negative staphylococcus in the presence of a long line, vancomycin or Teicoplanin should be administered via the long line and may remain in situ.

8.4 Repeated bacteraemia relating to line sepsis, despite adequate therapeutic levels of vancomycin, should result in the removal of the central line.

8.5 Surgical or long-term intensive care babies may become colonised with **resistant organisms.** When treating sepsis in these babies consider administering antibiotics which cover their resistant organism. The choice of antibiotic for use as second line antibiotic may depend on local sensitivity pattern particularly during confirmed outbreaks.

8.6 Where the central line has been removed for any of the above reasons, the tip should be sent for MC&S.

8.7 In cases of fungal sepsis where a long line is in situ, treat for 2 weeks with anti fungal and discuss with local microbiologist. Ideally the line should be removed.

9. THERAPEUTIC DRUG MONITORING

Gentamicin:

9.1 Check the trough levels prior to the second and the fifth dose. Once levels have been taken and if renal function is assessed as being satisfactory, give the dose of gentamicin.

9.2 If there are any concerns about renal function, withhold the dose of gentamicin until the level has been reported and is <2mg/Litre (up to the first three doses) and <1mg/Litre (if more than three doses are given). If there are serious concerns about renal function, consider the use of cefotaxime.

9.3 The third dose of Gentamicin should not be given unless a normal gentamicin level has been received and is documented.

9.4 For extended dosing interval regimens normal levels are <2mg/Litre (pre dose trough) for courses that last for up to 3 doses and <1mg/L for courses of more than 3 doses. If levels are higher than this increase the intervals between doses as indicated on the gentamicin prescription chart and protocol.

9.5 Generally levels should be checked every third dose unless more frequent monitoring is indicated.

9.6 If a trough level result is reported as being >2mg/L (for courses up to 3 doses) OR >1mg/L for courses of more than 3 doses, these babies will require urea and electrolytes testing. All babies receiving gentamicin will require hearing screening. Those with high levels will require an additional screen at 8 months.

Vancomycin:

9.7 Vancomycin levels for intermittent regime should be measured just prior to the 3rd dose and every 5th dose

thereafter aiming for trough levels between 10-20 mg/L. If a central line in in situ, consider prescribing a continuous vancomycin infusion. Even if the line is removed, a continuous infusion may still be prescribed to be administered via the peripheral line. This is at the discretion of the attending Consultant. Montoring of levels as per the local continuous vancomycin guideline.

10. UNIT SPECIFIC SENSITIVITIES

10.1

Individual units may make amendments to the standard antimicrobial recommendations in this guideline, based on any local microbiology susceptibility information *or population health* and in discussion with their local microbiology department.

Individual units may have specific resistant organisms. Units should review their individual sensitivities on a 6 monthly basis in conjunction with their microbiology and infection control teams and provide a risk management plan to tackle such issues.

11. PARENT INFORMATION

11.1 If considering antibiotic treatment because of clinical concerns about possible early-onset neonatal infection, discussions with parents should include:

- the rationale for the treatment
- the risks and benefits in the individual circumstances
- the observations and investigations that may be needed to guide clinical
- management (for example, when to stop treatment)
- the preferred antibiotic regimen and likely duration of treatment
- the impact, if any, on where the woman or her baby will be cared for
- potential long-term effects of the baby's illness and likely patterns of recovery
- Provide reassurance if no problems are anticipated
- Provide the parent information leaflet to all those where the KP-SRC has been used to assess risk of infection.

11.2 When a baby who has had a group B streptococcal infection is discharged from hospital:

- advise the woman that if she becomes pregnant again:
- there will be an increased risk of early-onset neonatal infection
- she should inform her maternity care team that a previous baby has had a
- group B streptococcal infection
- antibiotics in labour will be recommended

- inform the woman's GP in writing that there is a risk of:
- recurrence of group B streptococcal infection in the baby, and
- group B streptococcal infection in babies in future pregnancies.

11.3 If a woman has had group B streptococcal colonisation in the pregnancy but without infection in the baby, inform her that if she becomes pregnant again, this will not affect the management of the birth in the next pregnancy (NICE, 2021).

12. ANTIBIOTIC SCHEDULE

12.1 **Early onset sepsis – up to 72 hours of age**

Indication	Drug, dose and route	Dose interval	Notes
Early onset	**BENZYLPENICILLIN 25mg/kg IV** **BENZYLPENICILLIN 50mg/kg IV** ****If meningitis is suspected****	**12 hourly up to 7days** **Or 8 hourly if very unwell** **8 hourly 7-28 days** **6 hourly from 1 month**	• Usually started at birth. • Use intravenous Benzylpenicillin with gentamicin as the first-choice antibiotic regimen for empirical treatment of suspected infection unless microbiological surveillance data reveal local bacterial resistance patterns indicating a different antibiotic. • Higher dose of Benzylpenicillin (50mg/kg) is recommended for babies who have meningitis to achieve bactericidal concentration in the CSF • If the baby appears very ill consider shortening the dose interval to every 8 hours • If there is microbiological evidence of gram negative bacterial sepsis, add another antibiotic such as cefotaxime. If gram negative infection is confirmed, stop benzylpenicillin • Care is needed with prescribing times and trough levels (see appendix 1 & 2) • Consider monitoring one hour ('peak') concentration in neonates with poor response to treatment, with oedema, with Gram-negative infection, or with birth-weight greater than 4.5 kg (consider increasing dose if 'peak' concentration less than 8 mg/litre in severe sepsis).
	+ GENTAMICIN 5mg/kg IV *See later guidance on drug monitoring	**Up to 7 days 5mg/kg every 36 hours** **≥7days 5mg/kg every 24 hours (BNF-C)**	

Suspected CSF involvement	**AMOXICILLIN 100MG/KG** **and**	**12 hourly up to 7 days** **8 hourly 7-28 days**	• Decision to be made by a senior clinician, especially if blood stained CSF. • If meningitis is suspected but the causative pathogen is unknown, treat with intravenous amoxicillin and cefotaxime. If meningitis is caused by Gram negative infection, stop amoxicillin and treat with cefotxime alone • If GpB Strep is confirmed in CSF then antibiotics should be changed to Benzylpenicillin, giving a dose of 50mg/kg and gentamicin 5mg/kg. Treatment using Benzylpenicillin should be continued for 14 days. Gentamicin to be given for 5 days. • Cephalosporins increase the proportion of infants with sterile CSF after 48-72 hrs of treatment for meningitis, but have not been shown to reduce morbidity or mortality compared to penicillin and an aminoglycoside. If Listeria is in blood culture or CSF, treat with amoxicillin and gentamicin.
	CEFOTAXIME 25mg/kg IV BUT 50mg/kg in severe infection	**12 hourly up to 7days** **8 hourly 7-20 days** **6 hourly 21-28 days**	
E-Coli infections **If no improvement after 48 hours.**	**CEFOTAXIME 25mg/kg IV BUT 50mg/kg in severe infection**	**12 hourly up to 7days** **8 hourly 7-20 days** **6 hourly 21-28 days**	

12. 2 **Late onset sepsis: after 72 hours with no central access**

<table>
<tr><th>Indication</th><th>Drug, dose and route.</th><th>Dose interval</th><th>Notes</th></tr>
<tr><td rowspan="3">late onset

after 72 hours with no central access</td><td>FLUCLOXACILLIN 50mg/kg IV</td><td>Up to 7 days 12 hourly

7-20 days 8 hourly

21- 28 days 6 hourly</td><td rowspan="2">• Consider an LP. Where the condition of the baby does not allow for this, LP should be undertaken as soon as possible if indicated.

• Inability to gain a sample should not delay treatment)

• Intrapartum antibiotic treatment of mother will not prevent late onset GBS in the infant. Where late onset GBS is suspected, add Benzylpenicillin to this regimen.

• Early onset meningitis is likely to have associated bacteraemia, but later onset may have no positive cultures outside CSF.

• Flucloxacillin & Gentamicin are the best choice for suspected late sepsis in the absence of endemic MRSA colonisation and when CSF is normal[6] (Some units may use a different antibiotic choice for late onset sepsis as agreed with the local microbiology department on the basis of local antibiotic resistance.

• Define the patient’s suspected condition.</td></tr>
<tr><td>+ GENTAMICIN 5mg/kg IV</td><td>up to 7 days 5mg/kg every 36 hours

≥7 days 5mg/kg every 24 hours</td></tr>
<tr><td colspan="2">If any signs of CSF involvement consider Cefotaxime and Gentamicin</td><td></td></tr>
</table>

12.3, Late onset sepsis WITH a central line or with a known MRSA infection

Indication	Drug, dose and route	Dose interval	Notes
Late onset **With a central line or a known MRSA infection**	**VANCOMYCIN** **15mg/kg IV** **(consider continuous infusion – see local protocol)** **OR** **TEICOPLANIN** **16mg/kg loading dose then** **8mg/kg 24 hours later** **IV**	**Up to 29weeks every 24 hours** **29-35 weeks every 12 hours** **≥35 weeks every 8 hours (BNF-C)** **24 hourly**	• The use of broad spectrum Cephalosporins should be limited as far as possible, aiming to reduce the incidence of MRSA and of invasive fungal sepsis. • As coagulase negative sepsis generally has a low mortality and morbidity, it may be justifiable to reserve Vancomycin for cases known to be Flucloxacillin/Penicillin resistant[7]. • Continuous infusion of vancomycin is preferable if there is a central line in situ • MRSA bacteraemia in preterm infants is associated with an indwelling IV line in 80% cases, and almost always with previous antibiotic exposure[8,9]. • If Pseudomonas isolated change Cefotaxime to Ceftazidime (severe infection dose) • **If concerns about renal toxicity use Cefotaxime**
	+ Gentamicin **5mg/kg** **IV** OR **CEFOTAXIME** **25mg/kg IV** **BUT** **50mg/kg in severe infection**	**Up to 7 days 5mg/kg every 36 hours** **≥7 days 5mg/kg every 24 hours (BNF-C)** **12 hourly up to 7days** **8 hourly 7-20 days** **6 hourly 21-28 days**	

12.4 Late onset with respiratory disease

Indication	Drug, dose and route	Dose interval	Notes
Late onset **Late onset with respiratory disease** **OR** **Suspected Herpes Simplex at any time.** **OR** **Any sepsis not responding to treatment at any time.**	**ACICLOVIR 20mg/kg IV**	**8 hourly for 21 days**	• Neonatal Herpes Simplex is a rare severe infection which should be treated promptly • Consider adding aciclovir for any sepsis not responding to treatment. • See EOE guideline of management of babies born to mothers who have or may have Herpes Simplex Virus infection

12.5 Suspected abdominal pathology at any stage

<table>
<tr>
<td>Suspected abdominal pathology at any stage</td>
<td colspan="2">METRONIDAZOLE
<u>Up to 26 weeks corrected gestational age.</u>
15mg/kg as a single dose followed after 24 hours by 7.5mg/kg daily

<u>26-34 weeks corrected gestational age</u>
15mg/kg as a single loading dose followed after 12hours by 7.5mg/kg every 12 hours

<u>Neonate ≥ 34 weeks corrected gestational age</u>
15mg/kg as a single dose followed after 8 hours by 7.5mg/kg every 8 hours.</td>
<td rowspan="2">• Increase the dosing interval of Metronidazole in hepatic but not renal failure

• Babies with suspected or confirmed Necrotising Enterocolitis should be treated with Metronidazole and Gentamicin <u>plus:</u>

Penicillin

<u>OR</u>

Vancomycin

If coagulase negative staphs are being covered, where there is possible line associated sepsis or where there is Penicillin allergy.</td>
</tr>
<tr>
<td>Necrotising Enterocolitis</td>
<td>+ GENTAMICIN 5mg/kg IV</td>
<td>Up to 7 days 5mg/kg every 36 hours

≥7 days 5mg/kg every 24 hours (BNF-C)</td>
</tr>
</table>

	+ BENZYLPENICILLIN 25mg/kg IV **OR** **VANCOMYCIN 15mg/kg IV**	**12 hourly up to 7days** **8 hourly 7 – 28 days** **6 hourly from 1 month** **Up to 29weeks every 24 hours** **29-35 weeks every 12 hours** **≥35 weeks every 8 hours (BNF-C)**	

21.6 Fungal prophylaxis

Prophylactic antifungal **(Consider with use of Cefotaxime and Vancomycin)**	**Nystatin suspension.** **Prophylactic dose 25,000 units (0.25mls)** **Treatment dose is 100,000u (1ml)** **ORALLY**	**6 hourly**	• If giving Fluconazole stop Nystatin • Prophylactic use of systemic Fluconazole reduces the incidence of invasive fungal infections in VLBW infants but further trials are needed to assess the affect on mortality, neurodevelopment and emergence of antifungal resistance. • There is a lower risk of developing fungal resistance with nystatin compared to fluconazole so this should be first line. • Prophylactic use of nystatin should given in the following babies: Babies treated with antibiotics for suspected late-onset neonatal bacterial infection if they have a birthweight of up to 1500g or were born less than 30 weeks. • Prophylactic use of nystatin should be considered in the following babies: • Babies weighing less than 1500g and/or less than 28 weeks gestation • Preterm or ELBW babies with central lines in situ

12.7 Infants admitted from the community: Meningitis (bacterial) and meningococcal septicaemia in under 16s

CEFOTAXIME	**50mg/kg**	**12 hourly up to 7days** **8 hourly 7-20 days** **6 hourly 21-28 days**	Please refer to NICE guidance CG102 Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management for further information.
PLUS if suspected CNS involvement add **AMOXICILLIN**	**100MG/KG**	**12 hourly up to 7 days** **8 hourly 7-28 days**	

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Published 2015

NAME OF YOUR UNIT TO GO IN HERE

East of England Neonatal ODN NHS

Hospital Number:
Surname:
First Names:
Date of birth:
NHS no: ___ / ___ / ____
Use Hospital identification label

PRESCRIPTION SHEET FOR I.V GENTAMICIN ONLY – (Staple to main Drug Chart)

DOSING AND MONITORING OF IV GENTAMICIN

Dose and frequency: 5mg/kg/dose up to 7 days after birth– ONE dose every 36 hours
≥7 days after birth – ONE dose every 24 hours

Monitoring: Trough level pre 2nd dose (and give 2nd dose if renal function satisfactory) and pre-5th dose unless more frequent monitoring is indicated. Generally, levels should be checked every 3rd dose.

Expected trough level: For courses **UP TO 3 doses** Level < 2mg/l For courses **OF 3 doses** or more level <1mg/L.

Dose adjustments if levels >2mg/L(up to 3 doses) <1mg/L (more than 3 doses):
If on 24 hourly dosing extend interval to 36 hourly (level and hold before next dose – must be <2mg/L (if less than 3 doses) <1mg/L (if 3 or more) before next dose given
If on 36 hourly dosing extend interval to 48 hourly (level and hold before next dose – must be <2mg/L (if less than 3 doses) <1mg/L (if 3 or more) before next dose given

Weight …….. **Corrected gestational age at start of treatment** …….. **weeks**

Date	Time to be given	Drug	I.V Dose	IV route i.e. PVL or LL	Frequency of administration	Signature of Prescriber	Printed Name of Prescriber	Write **'LEVEL and GIVE'** or **'LEVEL and HOLD'**.	Initial when level taken	Result of level	Double checking prompt used *	Given by			Pharm
												Initials	Date	Time	
		Gentamicin	mg												
		Gentamicin	mg					Level and _____							
		Gentamicin	mg												
		Gentamicin	mg												
		Gentamicin	mg												
		Gentamicin	mg												

*Lead checker to sign uppermost section of box

Name of your hospital here

East of England Neonatal ODN

Reasons for non-compliance with double checking prompt

Nursing staff to detail reasons for non-conformance with NPSA double checking prompt below.

Shaded columns to be entered by auditor only.

Date	Time	Details of non-conformance with double checking prompt	Signature	Measurement Extranet	
				Date entered	Signature
--/--/--	--:--				
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Name of your unit in here

East of England Neonatal ODN

PRESCRIPTION SHEET FOR I.V VANCOMYCIN ONLY

(Staple to main Drug Chart)

DOSING AND MONITORING OF IV VANCOMYCIN

Dose 15mg/kg/dose

Frequency of administration: up to 29 weeks every 24 hours
29-35 weeks every 12 hours
≥35 weeks every 8 hours

Monitoring:

Take trough level pre-3rd dose and pre-8th dose unless more frequent monitoring is indicated. Generally, levels should be checked every 5th dose

Expected trough level: 10-20mg/l

Addressograph

VANCOMYCIN ONLY

Weight .....

Date	Time to be given	Drug	I.V Dose	IV Route i.e. PVL or LL	Frequency of administration	Signature of Doctor	Write **'LEVEL and GIVE'** or **'LEVEL and HOLD'**.*	Sign when level taken	Result of level	Given by		Pharm
										Initials	Time	
		Vancomycin	mg									
		Vancomycin	mg									
		Vancomycin	mg									
		Vancomycin	mg									
		Vancomycin	mg									
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		Vancomycin	mg									
		Vancomycin	mg									

***LEVEL and GIVE** indicates that a level is to be taken, and that the next prescribed dose may be given without waiting for the result.
LEVEL and HOLD indicates that a level is to be taken, and no further doses are to be given until the result is obtained.

Exceptional Circumstances Form

Form to be completed in the **exceptional** circumstances that the Trust is not able to follow ODN approved guidelines.

Details of person completing the form:	
Title:	Organisation:
First name:	Email contact address:
Surname:	Telephone contact number:
Title of document to be excepted from:	
Rationale why Trust is unable to adhere to the document:	
Signature of speciality Clinical Lead: Date:	Signature of Trust Nursing / Medical Director: Date:
Hard Copy Received by ODN (date and sign):	Date acknowledgement receipt sent out:

Please email form to: add-tr.eoeneonatalodn@nhs.net requesting receipt.
Send hard signed copy to: Kelly Hart

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