EAST CHESHIRE NHS TRUST

PAEDIATRIC ANTIBIOTIC POLICY FOR CHILDREN 1 MONTH – 18 YEARS

Version	2.3
Date approved	V 2.3 June 2019
Date approved	V 2.2 June 2018
Date approved	V 2.1 June 2017
	V 2 June 2016
	Updated to 1.1 July 2014
	V 1.0 Feb 2014
Date to be reviewed	April 2020
To be reviewed by	Antimicrobial Stewardship Group and Medicines Management Group

Policy :	Paediatric Antibiotic Policy for Children aged 1 month to 18 years
Executive Summary:	This policy provides guidance to all staff in East Cheshire NHS Trust prescribing antibiotics for children aged 1 month to 18 years to ensure prudent prescribing of antibiotics.
Supersedes:	Version 2.0
Description of Amendment(s):	See Appendix 2
This policy will impact on: All health professionals involved in prescribing and administering antibiotics to children aged 1 month to 18 years	
Financial Implications:	

Policy Area:	Paediatric Antibiotic Policy	**Document Reference:**	
Version Number:	2.2	**Effective Date:**	June 2018
Issued By:	Medicines Management Group	**Review Date:**	April 2020
Author: **(Full Job title)**	Sally Stubington (Antibiotic Pharmacist) Dr Rajesh Rajendran (Consultant Microbiologist)	**Impact Assessment Date:**	21 June 2016

APPROVAL RECORD

Version 2.0	**Committees / Group**	**Date**
Consultation:	All Paediatric Consultants Paediatric Pharmacist Microbiologists at Leighton, Thameside, Stepping Hill	By email May 2016 May 2016 May 2016
Approval Committee	Antimicrobial Stewardship Group	18 May 2016
Ratified by Committee:	Medicines Management Group	14 June 2016
Version 2.1	Replacement of piperacillin/tazobactam due to supply issues	
Consultation:	Advised paediatric Consultants by email	11 May 2017
Approval Committee:	Antimicrobial Stewardship Group	17 May 2017
Ratified by Committee:(due to lack of stock implemented May 2017 as agreed by Kashif Haque, deputy chair MMG)	Medicines Management Group	13 June 2017
Version 2.2	Review date extended to June 2019 as waiting for completion of regional guidelines	June 2018
Approval Committee	Antimicrobial Stewardship Group	16 May 2018
Ratified by Committee	Medicines Management Group	12 June 2018
Version 2.3	Review date extended to December 2019	June 2019
Approval Committee	Antimicrobial Stewardship Group	15 May 2019
Ratified by Committee	Medicines Management Group	11 June 2019

INDEX

INDEX 3
PAEDIATRIC ANTIBIOTIC POLICY FOR CHILDREN 1 MONTH-18 YEARS 4
IMPLEMENTATION OF THE POLICY 4
ANTIMICROBIAL STEWARDSHIP 5
ANTIBIOTIC ALLERGY 6
Penicillin Hypersensitivity 6
POLICY FOR GOOD ANTIBIOTIC PRESCRIBING PRACTICE 7
GUIDANCE FOR INTRAVENOUS TO ORAL 'SWITCH' 10
PROTECTED ANTIBIOTICS IN PAEDIATRICS 11
ANTIBIOTIC TREATMENT GUIDELINES FOR CHILDREN 1 MONTH TO 18 YEARS 12
Feverish Illness in children 12
Gastrointestinal Infections 13
Respiratory Tract Infections 14
CNS Infections 20
Meningococcal Meningitis Prophylaxis 22
Urinary Tract Infections 23
Bone and Joint Infections 24
Skin and Soft Tissue Infections 25
Ophthalmic Infections 27
Dental Infections 27
Surgical Prophylaxis 28
APPENDIX 1 AMINOGLYCOSIDE DOSING AND MONITORING GUIDELINES 29
APPENDIX 2 Amendments to Paediatric Antibiotic Policy for Version 2 31
APPENDIX 3 Equality Analysis (Impact assessment) 33

EAST CHESHIRE NHS TRUST

PAEDIATRIC ANTIBIOTIC POLICY FOR CHILDREN 1 MONTH-18 YEARS

IMPLEMENTATION OF THE POLICY

All staff managing paediatric patients should refer to this Trust Paediatric Antibiotic Policy and prescribe according to these recommendations and restrictions.

This policy will be monitored by the consultant microbiologist and the pharmacy. It will be reviewed every 2 years by the Antimicrobial Stewardship Group and the Medicines Management Committee.

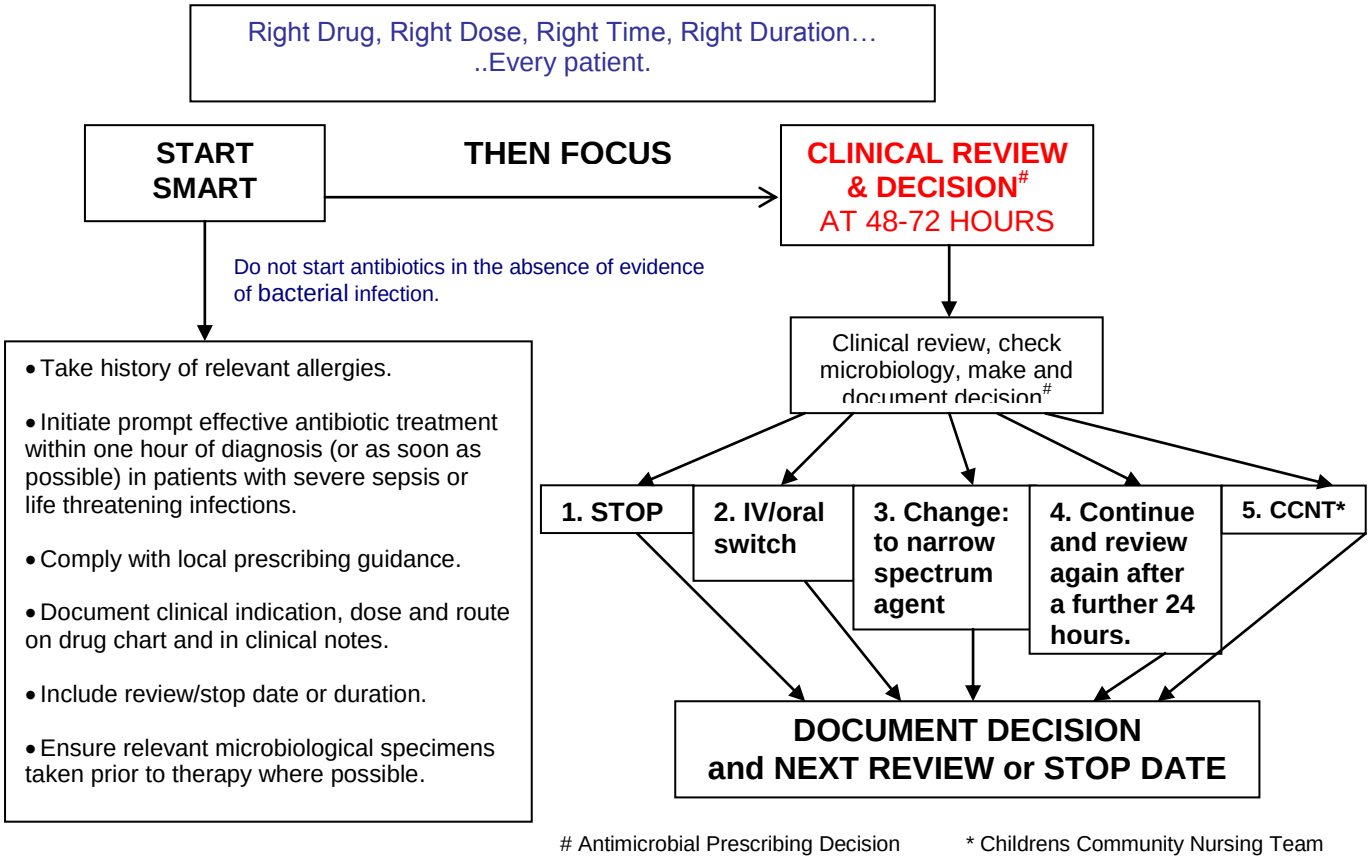
Divisional Clinical Governance Groups should ensure, in co-operation with the antibiotic pharmacists and the consultant microbiologist, that audits of antibiotic use in their division are conducted and discussed regularly.

Compliance of the policy will be audited by regular antibiotic ward rounds and a point prevalence audit every 12 months..

ANTIMICROBIAL STEWARDSHIP

An Antimicrobial Stewardship Programme is a key component in the reduction of healthcare associated infections and contributes to slowing the development of antimicrobial resistance. A Start Smart – then Focus approach is recommended for all antibiotic prescriptions[1].

Department of Health
Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI)



Antimicrobial Prescribing Decision * Childrens Community Nursing Team

Reference:
1. Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection, Department of Health. Antimicrobial Stewardship:
Start Smart then Focus. Antimicrobial Stewardship Toolkit for English Hospitals March 2015

ANTIBIOTIC ALLERGY

The allergy status of the patient should always be checked before prescribing antibiotics. If a patient is allergic to an antibiotic (or any other medication), the nature of the allergy, the name of the drug causing the reaction, and the date should be documented clearly in the section on the front of the drug chart along with the signature of the prescriber or other health professional.

Pharmacists and nurses must check whether a patient has any allergies before dispensing or administering an antibiotic (or any other drug).

Antibiotics (or any other drug) must not be dispensed or administered to a patient if the patient is noted to be allergic to that particular antibiotic, the prescriber should be contacted immediately.

Penicillin Hypersensitivity

Allergic reactions to penicillins occur in 1-10% of exposed individuals. Anaphylactic reactions occur in fewer than 0.05% of treated patients. Patients with a history of atopic allergy (eg asthma, eczema, hay fever) are at a higher risk of anaphylactic reactions to penicillins. About 0.5-6.5% of patients allergic to penicillins will also be allergic to cephalosporins.

Type 1 – Immediate hypersensitivity
Patients with a history of anaphylaxis, urticaria or rash immediately after penicillin administration are at risk of an immediate hypersensitivity reaction to a penicillin; these patients should not be given a penicillin, cephalosporin or carbapenem.

If a penicillin or another beta-lactam antibiotic is essential then discuss with microbiologist.

Minor rash
For patients with a history of a minor rash i.e. a non-confluent, non-pruritic rash restricted to a small area of the body, or a rash that occurs more than 72 hours after penicillin administration; these patients can be given a cephalosporin or carbapenem.

Penicillins can be used for a serious infection with caution and under supervision.

Beta-Lactams Stocked:

PENICILLINS		CEPHALOSPORINS		CARBAPENEMS
Amoxicillin	Pivmecillinam	Cefalexin	Ceftriaxone	Meropenem
Flucloxacillin	Benzylpenicillin	Cefaclor	Cefotaxime	Ertapenem
Co-Amoxiclav	Piperacillin/Tazobactam	Cefuroxime	Ceftazidime	
Phenoxymethylpenicillin (Penicillin V)			Ceftaroline	

POLICY FOR GOOD ANTIBIOTIC PRESCRIBING PRACTICE

General Principles

- Antibiotics do not merely treat infections but affect the microbial environment within and beyond the patient. They must be used appropriately and with care. Antibiotic resistance is a threat to the effective treatment of infections. To lower the risk of developing antibiotic resistance, antibiotics which are likely to be bactericidal to the pathogen at the site of infection should be chosen. They should be used in adequate doses and for an adequate duration. However to prevent unnecessary use, antibiotics must be prescribed for the shortest duration likely to be effective.
- For all infections document clearly in the medical notes the specific diagnosis and the indicators for making the diagnosis (↑ WCC, ↑temp >38°C, evidence of inflammation, fluid collection, ↑CRP etc).
- Review all sensitivity results daily and always change to the sensitive antibiotic with the narrowest spectrum.
- The Consultant Microbiologist can be contacted on the Microbiology Clinical Advice Line: **01625 66-3644** (Mon – Fri 9am – 5pm). Outside these hours contact via hospital switchboard.
- If a senior clinician has a good reason to prescribe a non-restricted antibiotic outside the policy then this should be very clearly documented in the medical notes and the prescription endorsed with the indication and “see notes”.
- Review all sensitivity results daily and always change to the sensitive antibiotic with the narrowest spectrum.
- For surgical prophylaxis use a single dose of antibiotic wherever appropriate. Where prophylaxis is to be continued for longer than 24 hours, document the reasons clearly in the notes. If at surgery there is evidence of infection then document the details of antibiotic required, route and review date or duration. Do not confuse prophylaxis and treatment.
- Refer to the BNF for Children for dosing guidance unless specified in the policy.

Indication

- **The indication for all antibiotics should be documented on the drug chart by the prescriber**.
- For all infections the specific diagnosis should be documented clearly in the medical notes and the indicators for making the diagnosis (↑ WCC, ↑temp >38°C, evidence of inflammation, fluid collection, ↑CRP etc).
- **For all restricted antibiotics used outside the indications in the policy the prescriber should discuss the choice of antibiotic with the microbiologist and write the indication and "Discussed with microbiologist" on the drug chart**. This allows the consultant microbiologist to check any microbiology reports and monitor resistance issues carefully. The full advice, time and name of consultant microbiologist should be recorded in the notes. Pharmacy will not dispense restricted antibiotics without first confirming the indication and if it is outside policy that the consultant microbiologist has been involved in the decision

Stat Doses

- To prevent delay in the initiation of antibiotic treatment **the first dose should be written as a STAT dose on the front of the prescription chart,** stating the time to be given. Ensure the nurse is informed so that administration is actioned. The subsequent dose(s) can be scheduled to continue at the next drug round or that dose crossed if the interval is due soon. Mark the required box for commencement of regular administration.

Duration

- All antibiotic prescriptions must be for a defined duration only. The prescriber may need to review the patient and extend the duration of treatment if clinically necessary, but again for a defined period only. When discussing choice of antibiotics with the microbiologist confirm and document the recommended duration.
- IV antibiotics should be reviewed after 48 to 72 hours hours (earlier if appropriate), unless prescribed for a high risk or deep seated infection requiring longer IV treatment.
- **A review or stop date should always be indicated on the drug chart by the prescriber for all antibiotics.**
- For all completed antibiotic courses where the patient has received the specified course length of antibiotics but the doctor has not crossed it off the chart there is a risk that further doses could be given;, the pharmacist will cross off the antibiotic, sign, date and endorse the card “course completed”.

Missed Doses

- **Antibiotic doses should not be missed unless unavoidable**. Missed doses are everyone’s responsibility and should be investigated and the treatment route or dose reviewed as necessary to ensure administration and compliance.

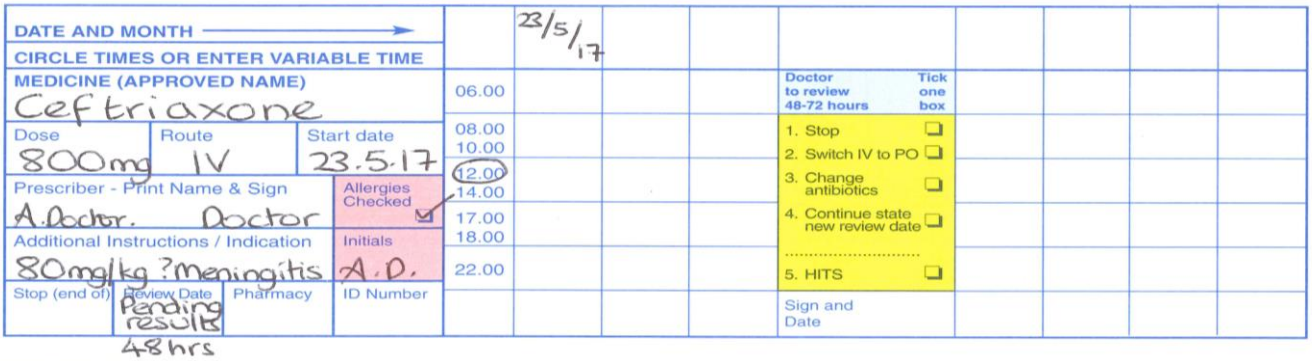
Key Performance Indicators

- Documentation of indication and stop or review dates on the prescription, compliance with the Antibiotic Policy and ensuring there are no missed doses all have key performance indicators attached and are audited regularly.

Role of the prescriber:

- When prescribing an antibiotic, the prescriber should write on the drug chart the indication for each antibiotic. This should be as specific as is known at the time e.g. "sepsis,? cause", and should be updated as more information is available. If, for confidentiality reasons, it is not appropriate to write the indication on the drug chart, then add "see notes" to the drug chart and document the indication clearly in the medical notes.

- Always state either a stop date (if known) or review date (48hours is usually a reasonable initial duration), see below.



- Ensure the indication is clearly documented in the medical notes together with the intended duration of therapy and any other information on plans e.g. awaiting sensitivities or step-up / step-down decisions.

- For all restricted antibiotics used outside the indications in the policy the prescriber should discuss the choice of antibiotic with the microbiologist and write the indication and "Discussed with microbiologist" on the drug chart.

- For all antibiotics write the first dose as a STAT dose on the front of the prescription chart stating the time to be given so that treatment is started promptly. Ensure the nurse is informed so that administration is actioned. The subsequent dose(s) can be scheduled to continue at the next drug round or that dose crossed if interval is due soon. Mark the required box for commencement of regular administration.

- For all prescriptions for antibiotics where a definite number of doses is known, indicate the number of days of treatment in the stop date box of the drug chart and also block off the remaining section after the correct number of days in the administration section of the chart.

- Reviewing antibiotics:

  For most IV antibiotics and for some conditions treated orally, a review date will be required. Write the review date in the designated space and where appropriate write “Review” next to the box. Most IV antibiotics should be reviewed after 48 hours with a view to changing to oral therapy, unless prescribed for a condition requiring an extended IV course. Avoid putting the review date at weekends unless clinically indicated.

  If it is appropriate to switch to oral, or change the treatment, cross off and complete a new prescription, stating the indication and stop date and block off the remaining days on the administration section.

  Antibiotics should be reviewed and stopped earlier than the documented date, if clinically indicated.

Role of the Nurse:

- Request the doctor to write the indication and stop/review date on the drug chart for all antibiotic prescriptions.

- Query all prescriptions beyond the review date **but, whilst awaiting review, continue to administer the antibiotic.**

- If the patient has missed any antibiotic doses ask the doctor to review the patient and chart and treatment, and add a new review date / stop date if appropriate.

Role of the Pharmacist:

- Ensure that for all antibiotic prescriptions the indication and review or stop date is clearly documented on the drug chart. Pharmacists may endorse these on the chart after reference to the notes or discussion with a doctor.

- Ensure the administration section of the drug chart is annotated correctly. Pharmacists may add this annotation providing a stop date or review date has been confirmed by the doctor.

- Take part in scheduled point prevalence audits (twice yearly) to review the documentation of the indication and stop/review dates on the drug charts and the prescribing of antibiotics in accordance with the Trust Antibiotics Policy.

GUIDANCE FOR INTRAVENOUS TO ORAL 'SWITCH'

Introduction
IV to oral switch therapy is the prompt conversion of IV antibiotic therapy to oral antibiotic therapy. In many cases patients may be considered candidates for switching from IV to oral therapy once the patient has shown clinical improvement and is medically stable.

Advantages of prompt switch to oral therapy include:
- Reduction in likelihood of hospital acquired bacteraemia and infected/phlebitic IV lines
- Patient is more likely to receive antibiotics at the correct time
- Improve patient's comfort and mobility and allow the possibility of earlier hospital discharge
- Saves both medical and nursing time
- Potential to reduce treatment costs significantly

Considerations for early switch to oral therapy [1,2]: **COMH** (review at 24 to 48 hours)

C	**C**linical improvement observed
O	**O**ral route not compromised (e.g. vomiting, NBM, severe diarrhoea, swallowing disorder, unconscious). For NG/PEG feeding consult your pharmacist. Suitable oral antibiotic option available.
M	**M**arkers show a trend towards normal Temperature >36^0C and <38^0C (preferably normal for at least 24 hours) BP stable, RR and HR normal for age White cell count where available showing a trend towards normal; absence of such should not impede switch if all other criteria met.
H	**H**igh risk infections/ deep-seated infections (Prior to switch **see box below**[1]) Senior clinician or microbiologist has specifically advised a longer IV duration such that they are classified as high risk.

High-risk infections: certain infections may appear to respond promptly but warrant prolonged IV therapy to optimise response and minimise risk of relapse. Discuss with Microbiology before switching patients with a high risk/ deep-seated infection to oral therapy	
For deep-seated infections an initial two weeks of IV therapy may be needed, examples include: • Liver abscess • Osteomyelitis • Septic arthritis • Empyema • Cavitating pneumonia	High risk infections need prolonged IV therapy, such as: • Staphylococcus aureus bacteraemia • Severe or necrotising soft tissue infections • Severe infections during chemotherapy-related neutropenia • Infected implants/prosthetics • Meningitis • Intracranial abscesses • Mediastinitis • Endocarditis • Exacerbation of cystic fibrosis • Inadequately drained abscesses and empyema • Intra-abdominal sepsis *

Consult local antibiotic guidelines for choice of oral therapy or contact microbiology for further advice.

Reference: Sevinc F et al. 'Early switch from intravenous to oral antibiotics: Guidelines and Implementation in a large teaching hospital.' JAC 1999; 43: 601-666
Authorship: The NW Antibiotic Pharmacists Network Advisory Group * Added by East Cheshire Medicines Management Group Dec 04.

PROTECTED ANTIBIOTICS IN PAEDIATRICS

Certain antibiotics are restricted in their use and availability. For empiric therapy, use only in circumstances stated below or discuss with the Consultant Microbiologist (ext 3644) before prescribing. Endorse the prescription with the indication and where the microbiologist has been contacted always add "discussed with microbiologist". Where reported sensitivities are to a restricted antibiotic then prescribe the antibiotic and endorse the chart "as per sensitivities". In addition, document all this clearly in the medical notes, with the name of the microbiologist.

Antibacterial drug classification	Antibacterial drug	Comment
Beta-lactam antibiotics	Meropenem Ertapenem Piperacillin / Tazobactam	
Aminoglycosides	Tobramycin injection Tobramycin nebules	For paediatric patients with cystic fibrosis only
Macrolides	Azithromycin syrup and capsules	Can be used for paediatrics third line where compliance is an issue
Quinolones	Ciprofloxacin tablets, suspension and infusion Levofloxacin tablets and injection	For CF patients
Other antibiotics	Chloramphenicol injection Colistin injection for nebulised use Co-trimoxazole Fosfomycin inj Daptomycin Inj Linezolid injection, tablets and suspension	For use in penicillin allergic patients only in CNS infections For CF patients only For use in feverish illness in children for children > 3 months in penicillin allergy (IV), in intra-abdominal sepsis and post-operative intra-abdominal infections in penicillin allergy (PO), For use in CNS infections in penicillin allergic patients

ANTIBIOTIC TREATMENT GUIDELINES FOR CHILDREN 1 MONTH TO 18 YEARS

Antibiotics should be selected to cover the most likely pathogens in a given situation. Ideally, bacteriological evidence of infection and antibiotic sensitivities should be taken into account. If these are not available when antibiotic therapy must be started, the following guidelines may be helpful. Remember they are only guidelines, and you must consider the individual presentation, the patient's age and concurrent pathologies as well as the patient's history of antibiotic use and allergy. If there is a good clinical reason to prescribe an alternative antibiotic not recommended in the guidelines document this clearly in the notes.
Always take samples before starting antibiotics, but in serious infections administration of antibiotics should NOT be delayed whilst undertaking or waiting for results of investigations.
For serious infections ensure patients receive a dose as soon as possible.

These guidelines are for children aged 1 month to 18 years
See current BNF for Children for correct dosages.

Feverish Illness in children

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Feverish Illness in children[1]			Give parenteral antibiotics to: - infants younger than 1 month with fever - all infants aged 1-3 months with fever who appear unwell - infants aged 1-3 months with WBC < 5 or > 15 x 10^9/L - Amoxicillin added to cover for Listeria
Children < 3 months	IV Cefotaxime + IV Amoxicillin		
Children > 3 months	IV Ceftriaxone	If history of immediate hypersensitivity to penicillin or cephalosporin IV Co-trimoxazole	Give immediate parenteral antibiotics to children with fever if they are: - shocked - unrousable /showing signs of meningococcal disease

References

1. NICE CG 160 Feverish illness in children: Assessment and initial management in children younger than 5 years. May 2013

Gastrointestinal Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Diarrhoea and Vomiting Likely to be viral Adenovirus Enterovirus Rotavirus Noravirus (SRSV – small round structured virus)	Antibiotics are not indicated		**Likely viral** Faecal adenovirus can cause nasal symptoms as well as diarrhoea Send faecal specimen **No need unless septicaemic, blood/mucus in stool or immunocompromised**
Campylobacter / Salmonella / Shigella enteritis	Must be based on culture results Usually self-limiting		Treat Campylobacter symptomatically, only consider antibiotics if immunocompromised or severe disease.
E coli 0157	**Conservative management : antibiotic therapy is not recommended**		
Cryptosporodium	Self–limiting, treatment not recommended		If symptoms are repetitive or persistent contact consultant microbiologist for advice
Intra-abdominal sepsis and post-operative intra-abdominal infections (eg gangrenous appendix) coliforms enterococcus anaerobes	IV Amoxicillin + IV Metronidazole Oral step down PO Co-amoxiclav	IV Vancomycin + IV Aztreonam + IV Metronidazole Oral step down PO co-trimoxazole + Metronidazole	
	Total Duration 5 days		
Wounds at gastrostomy sites Staphylococci Streptococci	PO Flucloxacillin	PO Clindamycin	
Perianal abscess Staphylococci Group A strep Anaerobes	IV Co-amoxiclav Post drainage up to 2 weeks	IV Clindamycin Post drainage up to 2 weeks	Switch to oral at clinical discretion. Aim for minimum of 5 days IV

Respiratory Tract Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Acute Otitis Media [1] [2] [3] Usually viral *S. pneumoniae,* *H. influenzae,* *M. catarrhalis.*	**Non- severe:** PO Amoxicillin **Severe:** IV Cefuroxime or IV Co-amoxiclav or high dose IV Amoxicillin	**Non- severe:** PO Erythromycin or PO Clarithromycin **Severe:** IV Ceftriaxone or IV Clarithromycin	Most uncomplicated cases resolve without antibiotics. Manage pain and fever. Antibiotics indicated if: - <6 months of age - Bilateral and <2years of age - Unilateral with ottorhoea - Evidence of mastoiditis - Severe or no improvement after 48-72 hours - At risk of complications (e.g. immunosuppression, CF)
	Duration Non-severe and >5years: 5 days Severe or < 5years: 10 days		
Mastoiditis Staph. aureus S. pneumoniae H. influenzae	IV Co-amoxiclav **Severe:** IV Ceftriaxone **Duration:** As clinically deemed appropriate (will also depend on whether there is a mastoid abscess)	IV Clindamycin and IV Aztreonam	Switch to narrow spectrum agent based on cultures
Acute Sinusitis [4] Likely viral. *S. pneumoniae,* *H. influenzae,* *M. catarrhalis*	**Non- severe:** PO Co-amoxiclav **Severe:** High dose IV Amoxicillin or IV Ceftriaxone	**Non- severe:** PO Erythromycin or PO Clarithromycin **Severe:** IV Clarithromycin	Likely viral and do not require antibiotics. Consider antibiotics if: - Persistent or worsening symptoms (e.g. purulent nasal discharge, daytime cough, fever) for >7-10days - Severe - High risk for complications (e.g. immunosuppression, CF)
	Duration: Non-severe: 7days Severe: 10-14 days		

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Tonsillitis [1 5 6] Usually viral *Group A beta-haemolytic Strep*	**Non- severe:** PO Phenoxymethypenicillin (Penicillin V) **Severe:** IV Benzylpenicllin **Duration** Non- severe: 10 days Severe: 10 days	**Non- severe:** PO Erythromycin or PO Clarithromycin **Severe:** IV Clindamycin	Most sore throats are viral. Consider antibiotic treatment if 3 out of 4 Centor criteria: 1) Tonsillar exudate 2) Tender anterior cervical lymph nodes 3) history of fever 4) absence of cough Or If features of systemic upset, peritonsillar cellulitis or abscess, at increased risk from acute infection (e.g. immunocompromised, CF) or history of valvular heart disease. SEND THROAT SWAB Do not use amoxicillin or co-amoxiclav in case patient has infectious mononucleosis as causes rash.
Peritonsillar/ Retropharyngeal abscess Anaerobes Group A strep *S. aureus* +/- coliforms	**Initially treat with IV antibiotics** IV Co-amoxiclav then PO	**Initially treat with IV antibiotics** IV Clindamycin initially then PO	Drainage is essential part of treatment. Send pus for MC&S.
	Duration: depends on clinical outcome and culture sensitivities		

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Acute Epiglottitis *H. influenzae*	**Initally treat with IV antibiotics** IV Ceftriaxone	**Initally treat with IV antibiotics** IV Aztreonam	***Secure airway first and call anaesthetist*** ***Avoid upsetting child.***
	Duration: 10-14 days		
Pertussis	**Non-severe:** PO Clarithromycin or PO Erythromycin **Severe:** IV Clarithromycin		Ensure vaccination history obtained Inform PHE and obtain further guidance on vaccination
	Duration: 7 days		
Tracheitis with secondary bacterial infection Mainly caused by respiratory viruses.	High dose IV Amoxicillin	IV Clarithromycin	Ensure airway secure and avoid upsetting child. If not responding to initial treatment after 72hours send sputum for MC&S and start antibiotics.
	Duration: 5-7 days		
Cervical lymphadenitis Mixed bacteria, including anaerobes. Can be caused by mycobacterial species.	**Initally treat with IV antibiotics** IV Co-amoxiclav then PO (if child well PO initially)	**Initally treat with IV antibiotics** IV Clarithromycin then PO Erythromycin or PO Clarithromycin (if child well PO initially)	For chronic cases discuss with consultant microbiologist whether to send serology tests. Consider atypical mycobacterial/ TB infection. Consider referral to ENT
	Duration: 7-10 days		

<table>
<tr><th>Infection</th><th>Antibiotic Therapy</th><th>Penicillin Allergy</th><th>Comments</th></tr>
<tr><td rowspan="2">Bronchiolitis with secondary bacterial infection

Viral, RSV.</td><td>Non-severe:
PO Amoxicillin

Severe:
IV Cefotaxime</td><td>Non- severe:
PO Erythromycin or PO Clarithromycin

Severe:
IV Clindamycin</td><td rowspan="3">Do not routinely prescribe antibiotics but consider if <6 weeks old or temp >39C

If <6 months of age treat as severe (see next page).

Difficult to distinguish viral from bacterial pneumonia, therefore if there is a clear clinical diagnosis of pneumonia treat with antibiotics

If <2years presenting with mild symptoms of lower respiratory tract infection, pneumonia unlikely, so antibiotics unlikely to be needed especially if had pneumococcal vaccine.. Review if persists.

Consider obtaining blood cultures in suspected pneumonia.

Mycoplasma suggested by:
- Age >5 years
- Subacute onset
- Prominent cough
- +/- headache
- +/- sore throat</td></tr>
<tr><td colspan="2">Duration:
5-7 days</td></tr>
<tr><td>Uncomplicated Community Acquired Pneumonia [7 8]

RSV, respiratory viruses, Strep pnemoniae. H. influenza, S. aureus

In school age also atypicals (M. pneumonia, Chlamydia)</td><td>≤ 5 years:
PO Amoxicillin. Add macrolide if no response.

5-18 years:
PO Amoxicillin + PO Erythromycin or POClarithromycin if Mycoplasma or other atypicals likely or if no response

If S.aureus suspected (e.g. bullae on CXR) add Flucloxacillin or Clindamycin

In pneumonia associated with influenza use Co-amoxiclav</td><td>≤ 5 years:
PO Erythromycin or PO Clarithromycin

5-18 years:
PO Erythromycin or PO Clarithromycin</td></tr>
<tr><td colspan="2">Duration:
7-10 days
14 days for S. aureus
2-3 weeks for mycoplasma, chlamydia</td></tr>
</table>

<table>
<tr><th>Infection</th><th>Antibiotic Therapy</th><th>Penicillin Allergy</th><th>Comments</th></tr>
<tr><td rowspan="2">Severe CAP [7] [8]

RSV, respiratory viruses, Strep pnemoniae. H. influenza, S. aureus

In school age also atypicals (M. pneumonia, Chlamydia)</td><td>IV Cefotaxime + IV Clarithromycin

If S.aureus suspected (e.g. bullae on CXR) add Flucloxacillin or Clindamycin (stop Clarithromycin)</td><td>IV Clarithromycin + IV Vancomycin

If S.aureus suspected (e.g. bullae on CXR) add Clindamycin (stop Clarithromycin)</td><td rowspan="2">Obtain blood cultures and send sputum for MC&S if able to obtain.

If child remains unwell or feverish after 48hrs treatment re-evaluate:

- Is the patient having appropriate treatment at adequate dose?
- Is there a lung complication such as a collection of pleural fluid with development of an empyema or evidence of a lung abscess?
- Is the patient not responding because of a complication such as immunosuppression or co-existent disease such as CF?</td></tr>
<tr><td colspan="2">Duration:
2-3 weeks</td></tr>
<tr><td rowspan="2">Hospital acquired pneumonia [9]

RSV, respiratory viruses, Strep pnemoniae. H. influenza, S. aureus

In school age also atypicals (M. pneumonia, Chlamydia)

Tendency towards more resistant organisms such as Enterobacteriaceae and Pseudomonas aeruginosa.</td><td>IV Ceftazidime

Consider adding IV Gentamicin for severe Pseudomonas infection.</td><td>IV Vancomycin + IV Aztreonam</td><td rowspan="2">Treat as Community Acquired Pneumonia if onset <5 days after admission to hospital and no recent history of antibiotic treatment.

Consider treating those with chronic illness such as severe neuro disability or frequent hospital admissions as HAP.</td></tr>
<tr><td colspan="2">Duration:
7-10 days
2 weeks for S. aureus/MRSA
2-3 weeks for Pseudomonas</td></tr>
</table>

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Empyema [8] [10] S. *aureus*, S. *pneumoniae*, H. *influenzae,* S. *pyogens* +/- coliforms, +/- anaerobes	**Acute, community acquired usually parapneumonic:** IV Amoxicillin + IV Clindamycin **Sub-acute/ chronic, or Hospital acquired:** If < 3months IV Cefotaxime If > 3months: IV Ceftriaxone	**Acute, community acquired usually parapneumonic:** IV Aztreonam + IV Clindamycin **Sub-acute/ chronic, or Hospital acquired:** IV Aztreonam + IV Clindamycin	Advise US chest. Consider discussion with Respiratory physician in immunocompromised, hospital acquired or TB suspected. Send sample of pleural fluid for MC&S (+/- PCR and AAFB if TB suspected) and biochemistry. Send blood cultures and sputum. Consider need for chest drain especially if effusion enlarging or respiratory compromise. Reduces duration of illness/ length of hospital stay compared to abx use alone. Broader cover required if hospital acquired or secondary to trauma, surgery or aspiration.
	If MRSA is suspected add IV Vancomycin to the above combinations **Duration:** 2-4 weeks		

Respiratory Tract Infections References:

[1] NICE Clinical Guideline 69; 'Respiratory Tract Infections'. July 2008. http://www.nice.org.uk/cg069

[2] SIGN Guideline No. 66; 'Diagnosis and Management of Childhood Otitis Media in Primary Care'. Feb. 2003. http://www.sign.ac.uk/guidelines/fulltext/66/

[3] The American Academy of Pediatrics Clinical Practice Guideline; 'The Diagnosis and Management of Acute Otitis Media'. Feb 2013. http://pediatrics.aappublications.org/content/early/2013/02/20/peds.2012-3488

[4] Infectious Diseases Society for America; 'IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults'. July 2012. http://www.guideline.gov/content.aspx?id=36681

[5] SIGN Guideline No. 117, 'Management of Sore Throat and Indications for Tonsillectomy'. April 2010. http://www.sign.ac.uk/guidelines/fulltext/117/

[6] Infectious Diseases Society of America. 'Clinical Practice Guideline for the Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America'. Sept. 2012. http://www.idsociety.org/IDSA/Site_Map/Guidelines/Patient_Care/IDSA_Practice_Guidelines/Infections_by_Organ_System/Lower/Upper_Respiratory/Streptococcal_Pharyngitis.aspx

[7] British Thoracic Society. **'**BTS Guidelines for the Management of Community Acquired Pneumonia in Children: Update 2011'. Oct 2011. http://www.brit-thoracic.org.uk/guidelines/pneumonia-guidelines.aspx

[8] Infectious Diseases Society For America. 'The Management of Community-Acquired Pneumonia in Infants and Children Older Than 3 Months of Age: Clinical Practice Guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America'. April 2014. http://www.idsociety.org/IDSA/Site_Map/Guidelines/Patient_Care/IDSA_Practice_Guidelines/Infections_by_Organ_System/Lower/Upper_Respiratory/CAP_in_Infants_and_Children.aspx

[9] The British Society for Antimicrobial Chemotherapy; ' Guidelines for the management of hospital-acquired pneumonia in the UK: Report of the Working Party on Hospital-Acquired Pneumonia of the British Society for Antimicrobial Chemotherapy'. July 2008. http://jac.oxfordjournals.org/content/62/1/5.full.pdf+html?sid=490c8455-ddc9-4139-8069-a5ded90e4e7b

[10] The British Thoracic Society. 'BTS guidelines for the management of pleural infection in children'. (2005, reviewed 2008)

CNS Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Bacterial meningitis and meningococcal disease **Empiric therapy** Children < 3 months	IV Cefotaxime + IV Amoxicillin	If history of immediate hypersensitivity to penicillin or cephalosporin : IV Chloramphenicol	Do not use corticosteroids in children < 3 months
Children > 3 months	IV Ceftriaxone IV +/- IV Dexamethasone (0.15mg/kg max 10mg qds for 4 days)	If history of immediate hypersensitivity to penicillin or cephalosporin : IV Fosfomycin	**Add** Dexamethasone if lumbar puncture shows any of the following: -CSF is very purulent, - CSF WBC count > 1000/microlitre - raised CSF WBC count and protein greater than 1g/litre - bacteria on gram stain Give dexamethasone preferably before or with 1st dose of antibiotics or within 4 hours, (if missed do not start 12 hours or later after starting antibiotics). **Avoid dexamethasone** in septic shock, meningococcal septicaemia, if immunocompromised, or in meningitis following surgery.
For all ages: If recent multiple antibiotics exposure or overseas travel	Consider adding IV Vancomycin		At discretion of Consultant
If signs/symptoms suggestive of herpes simplex encephalitis	Add IV Aciclovir		

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
For confirmed disease: **Children < 3 months** Neisseria meningitidis	IV Cefotaxime for 7 days in total		
Group B streptococci	IV Cefotaxime for at least 14 days		
Listeria monocytogenes	IV Amoxicillin for 21 days + IV Gentamicin for 1st 7 days		
Gram negative bacilli	IV Cefotaxime for at least 21 days		Perform lumbar puncture on 20th day of 3 week course, before decision is made to stop treatment
For unconfirmed disease: **Children < 3 months**	IV Cefotaxime + IV Amoxicillin for at least 14 days		Failed lumbar puncture or negative blood/CSF culture and/or blood/CSF PCR
For confirmed disease: **Children > 3 months** Neisseria meningitidis	IV Ceftriaxone for 7 days in total	If history of immediate hypersensitivity to penicillin or cephalosporin : IV Fosfomycin	Do not give Ceftriaxone with calcium containing fluids
Strep pneumoniae	IV Ceftriaxone for 14 days	If history of immediate	
H. influenzae type b	IV Ceftriaxone for 10 days	hypersensitivity to penicillin or cephalosporin : IV Fosfomycin	
For unconfirmed disease: **Children > 3 months**	IV Ceftriaxone for at least 10 days	If history of immediate hypersensitivity to penicillin or cephalosporin : IV Fosfomycin	Failed lumbar puncture or negative blood/CSF culture and/or blood/CSF PCR Do not give ceftriaxone with calcium containing fluids

Reference:
NICE Clinical Guideline 102 Bacterial meningitis and meningococcal septicaemia. Management of bacterial meningitis and meningococcal septicaemia in children and young people younger than 16 years in primary and secondary care. June 2010, amended Sept 2010.

Meningococcal Meningitis Prophylaxis - Elimination of nasal carriage of organisms

- Any patient with confirmed or suspected meningococcus not treated with ceftriaxone must be given prophylaxis before discharge from hospital to prevent secondary cases. (Cefotaxime or chloramphenicol have not been shown to eliminate the nasal carriage of meningococcus).

- To confirm which patient contacts require prophylaxis **always contact** the Consultant for Communicable Diseases at Cheshire and Mersey Health Protection Team (tel 0844225 1295 (option 1 x 2) or out of hours On Call Public Health through the Countess of Chester switchboard. See separate policy.

- Healthcare staff do not require prophylaxis unless there has been direct exposure of the mouth or nose to infectious droplets from a patient with meningococcal disease who has received less than 24 hours of antibacterial treatment. **Prophylaxis can only be given to staff after discussion with a consultant microbiologist or public health and requires a prescription.** See separate policy.

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Prophylaxis of meningococcal meningitis			Must be given to any baby / child who has not received ceftriaxone
Neonate	**PO Ciprofloxacin:** 30mg/kg (max 125mg) as single dose		(Ciprofloxacin is not licensed for meningococcal prophylaxis).
Child 1 month – 5 years	30mg/kg (max 125mg) as single dose		
Child 5 – 12 years	250mg as single dose		
Child 12-18 years	500mg as a single dose **OR**		
Neonate	**PO Rifampicin:** 5mg/kg every 12 hours for 2 days		Stains body fluids orange including urine, saliva and tears
Child 1 month – 1 year	5mg/kg every 12 hours for 2 days		
Child 1-12 years	10mg/kg (max 600mg) every 12 hours for 2 days		
Child 12-18 years	600mg every 12 hours for 2 days		Can stain contact lenses. Reduces effectiveness of hormonal contraceptives, alternative measures must be used.

References

BNF for children 2013-2014.
Guidance for public health management of meningococcal disease in the UK. Health Protection Agency. Updated March 2012.

Urinary Tract Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Children < 3 months with possible UTI[1]	**IV Cefotaxime + IV Amoxicillin**		Treat as per feverish illness in children (see page 12)
Acute pyelonephritis Infants and children > 3 months	IV Ceftriaxone for 72 hours then review. Step down to PO cefalexin or as per sensitivities **Duration:** 10 days	IV Gentamicin for 72 hours then review. Step down to PO Trimethoprim if sensitive **Duration:** 10 days	Ceftriaxone contra-indicated in G6PD deficiency, impaired renal function
Cystitis/Lower UTI[1] Infants and children > 3 months	1st Line: PO Cefalexin 2nd line: PO Trimethoprim **Duration:** 3 days	PO Trimethoprim	Asymptomatic bacteriuria should not be treated with antibiotics
UTI Prophylaxis If prophylaxis warranted	PO Trimethoprim		

References

1. NICE Clinical Guideline 54. Urinary tract Infection in children: diagnosis, treatment and long-term management. August 2007 Reviewed 2013

Bone and Joint Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Osteomyelitis and Septic Arthritis Organisms:			
< 3 months Group B Strep. Staph aureus Coliforms	IV Cefotaxime + if sepsis or meningitis IV amoxicillin (stop amoxicillin when listeria meningitis excluded) Step down to PO Co-amoxiclav **Duration:** 14 – 21 days IV, treat for 6 weeks total		See also feverish illness in children (page 12)
3 months to 5 years Staph. aureus Kingella kingae S pneumoniae Haemophilus sp. E coli	IV Ceftriaxone + PO Fusidic acid /Sodium fusidate **Duration:** 4 weeks IV or depending on radiology or clinical decision	IV Clindamycin + PO Fusidic acid /Sodium fusidate **Duration** 4 weeks IV or depending on radiology or clinical decision	Suspension = fusidic acid and dosing is higher than sodium fusidate tablets. If source identified and sensitive can step down to PO Flucloxacillin if appropriate
> 5 years Staph. aureus	IV Flucloxacillin **Duration:** 4 weeks IV or depending on radiology or clinical decision	IV Clindamycin **Duration:** 4 weeks IV or depending on radiology or clinical decision	

Reference:

Faust SN, Clark J, Pallett A, Clarke NM. Managing bone and joint infection in children. Arch Dis Child; 2012 Jun; 97 (6): 545-53

Skin and Soft Tissue Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Erysipelas Group A Strep (most common) Staph. aureus	PO Phenoxymethylpenicillin (Penicillin V) If known Staph aureus PO Flucloxacillin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	PO Erythromycin Or PO Clarithromycin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	Increasing resistance of group A Strep against macrolides, review if no improvement
If severe	IV Benzylpenicillin Or if known Staph aureus IV Flucloxacillin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	IV Clindamycin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	
Cellulitis Staph aureus Group A Strep or other Streptococci			
Severe	IV Benzylpenicillin + IV Flucloxacillin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	IV Clindamycin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	
Less severe or step down	PO Flucloxacillin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	PO Clindamycin **Duration** 7-10 days based on clinical decision, further treatment if indicated clinically	

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Infected Eczema Staph aureus	1st line: PO Flucloxacillin 2nd line: PO Co-amoxiclav **Duration:** 10 days	PO Erythromycin or PO Clarithromycin **Duration:** 10 days	As guided by skin swabs
Preseptal (Periorbital) Cellulitis Staph aureus Coagulase negative staph Streptococci Anaerobes Haemophilus influenzae	IV Co-amoxiclav **Duration:** Ideally 2 weeks, however oral step down can be considered on clinical grounds	IV Clindamycin **Duration:** Ideally 2 weeks however oral step down can be considered on clinical grounds	Risk of extension into the orbit in young children
Orbital cellulitis Strep pneumoniae Staph aureus Strep pyogenes H. influenzae Anaerobes < 3 months > 3 months	 IV Cefotaxime IV Ceftriaxone	 IV Clindamycin + IV Aztreonam	**Ophthalmic Emergency** Infection of soft tissues behind orbital septum. **Refer urgently to Ophthalmology** Refer to ENT If no improvement within 48 hours consider adding IV Metronidazole + IV Clindamycin
	Duration: Minimum 2 weeks , longer if needed		
Dog bite / Human bite	PO Co-amoxiclav **Duration:** 5 to 7 days	PO Metronidazole and PO Erythromycin or Clarithromycin **Duration:** 5 to 7 days	

Ophthalmic Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Conjunctivitis	Chloramphenicol eye drops 0.5% **Duration:** 5 days or based on clinical improvement		

Dental Infections

Infection	Antibiotic Therapy	Penicillin Allergy	Comments
Dental Abscess	PO Metronidazole **Duration:** 7 to 14 days Review day 3, if no improvement add PO Amoxicillin	PO Metronidazole **Duration:** 7 to 14 days Review day 3, if no improvement add PO Clindamycin	

Surgical Prophylaxis

- Prophylactic antibiotics should be given in the 30 minutes before skin incision (at induction). Antimicrobial cover may be sub-optimal if given >1 hour prior to skin incision or post skin incision. Antibiotic prophylaxis should be prescribed on the anaesthetic chart; the time the antibiotic is administered should be clearly documented.
- If the procedure requires antibiotic prophylaxis, a **SINGLE DOSE** of antibiotic is sufficient except in exceptional cases (prolonged procedures or excess blood loss), when a further intra-operative dose may be required . The finding of pus or a perforated viscus at surgery implies that infection was present before surgery and warrants a course of **treatment**, not prophylaxis

Procedure	Prophylactic Antibiotic	Penicillin Allergy	Comments
Tonsillectomy	Antibiotic prophylaxis not recommended		
Adenoidectomy by curettage	Antibiotic prophylaxis is not recommended		
Grommet insertion	Single topical dose Chloramphenicol ear drops		
Appendicectomy	At induction: IV Amoxicillin 50mg/kg (max 2g) + IV Metronidazole infusion Child if 17kg or more give 500mg (if less than 17 kg give 30mg/kg)	At induction: IV Gentamicin 2.5mg/kg + IV Metronidazole infusion if 17kg or more give 500mg (if less than 17 kg give 30mg/kg)	If gangrenous appendix then change to IV Amoxicillin + IV Metronidazole for 5 days
Colorectal surgery	At induction: IV Amoxicillin 50mg/kg (max 2g) + IV Metronidazole infusion if 17kg or more give 500mg (if less than 17 kg give 30mg/kg)	At induction: IV Gentamicin 2.5mg/kg + IV Metronidazole infusion if 17kg or more give 500mg (if less than 17 kg give 30mg/kg)	If further treatment is required post-op switch to IV Amoxicillin + IV Metronidazole
Splenectomy	Antibiotic prophylaxis is not recommended Consider in immunosuppression		
Open surgery for closed fractures	At induction: IV Co-Amoxiclav	At Induction: IV Clindamycin	

References:

Antibiotic prophylaxis in surgery a national guideline. SIGN guideline 104. July 2008

APPENDIX 1 AMINOGLYCOSIDE DOSING AND MONITORING GUIDELINES

AMINOGLYCOSIDE DOSING AND MONITORING GUIDELINES
Once daily dose regimens (see BNFc)
For children over 1 month (over 44 weeks corrected gestational age)

Exclusion criteria
Children less than one month old (<44 weeks corrected gestational age) – see BNFc
Children with pre-existing renal impairment
Endocarditis
Meningitis
Myasthenia Gravis

Doses			**Trough levels 18-24 hours after dose is given**
Gentamicin	7mg/kg OD	Max 420mg*	Gentamicin < 1mg/L
Tobramycin	7mg/kg OD (10mg/kg OD for CF)	Max 420mg* (Max 600mg)*	Tobramicin < 1mg/L

* In obese or severely oedematous children use ideal body weight to calculate the dose and monitor levels closely (check with pharmacist).

Administration
Dilute to at least 10mls with sodium chloride 0.9% (smaller volume may be used in babies) and infuse over 20 minutes. Flush the line (over 10 minutes) after completion of infusion.

Frequency of routine monitoring		
Prior to 2nd dose	**Trough level U&Es**	If results < 1mg/L: Child >2 years: no further routine monitoring required for a 1 week course, unless new clinical symptoms develop or there are new potential drug interactions (see page 2). Child <2 years: re- check prior to 4th dose
Prior to 4th dose	**Trough level U&Es**	Routine if child < 2 years old
Prior to 9th dose	**Trough level U&Es**	If results < 1mg/L: No further routine monitoring required for a 2 week course, unless new clinical symptoms develop or there are new potential drug interactions (see page 2)
From dose 15 onwards	**Trough level U&Es**	Repeat twice a week. If there is any risk of toxic increases, measure trough level and creatinine before giving next daily dose. If the trough is high, do **not** give the next dose until levels have dropped. Involve a pharmacist

Trough measurement: Taken 18-24hrs post dose	Accurate documentation on blood request form & monitoring sheet to contain: ▪ *Exact time & amount of previous dose* ▪ *Exact time of blood sample*

Result	Action
Acceptable trough level (< 1mg/L)	Continue following **frequency of monitoring guidelines**
High trough level (1mg/L greater)	Omit dose then re-check trough level 12 hours later. ▪ Continue if result acceptable and re-check trough before next dose. ▪ If trough remains high - **Do not give dose -** Discuss with registrar/consultant/pharmacist. Consider factors that may have led to level. Do not give further dose until levels have dropped.

NOTE: Do not give any dose until the latest trough level is known to be within acceptable limits – discuss with senior colleague if there is a long delay in obtaining results and an unacceptable risk in delaying the dose.

Factors Contributing to Aminoglycoside Toxicity		
The factors below can increase the risk of Aminoglycoside toxicity, particularly in children under 2 years old. If any of the following factors are present, check trough level and creatinine before giving the next dose.		
Clinical Symptoms	Dehydration / Starvation Diarrhoea / Vomiting	Renal impairment Poor cardiac output
Drug Interactions	Cephalosporins Cyclosporin / Tacrolimus NSAIDS *(eg diclofenac, ibuprofen)*	Furosemide ACE Inhibitors *(eg captopril, enalapril)*

Sampling Factors Affecting Levels

- **Contaminated sample** - Finger prick samples should always be used to check levels. Samples from lines may be contaminated and will need to be repeated. Do not adjust the dose based on a contaminated sample.
- **Flushing the line** - Ensure line is flushed through (over 10 minutes) after completing the infusion
- **Hydration status** - Dehydration may increase the drug concentration. Check trough levels before giving the next daily dose and involve a pharmacist if trough is high.

References

BNF for Children 2014/2015
Aminoglycoside Guidelines. Alder Hey Children's Hospital. Dec 2013

Aminoglycoside dosing and monitoring guidelines (Once daily dose) paediatric
Version 2.0 Date of introduction Oct 2015, Review date Oct 2017
Approved by MMG 07/09/2015

APPENDIX 2 Amendments to Paediatric Antibiotic Policy

For Version 2:

Page 4	Compliance of the policy will be audited by regular antibiotic ward rounds and a point prevalence audit every 12 months.
Page 5	Amendments to start smart then Focus diagram as per updated guidelines 2015
Page 11	Change of term "Restricted Antibiotics" to "Protected Antibiotics". Addition of Fosfomycin for use in CNS infections in penicillin allergic patients. Addition of Co-trimoxazole (IV) for feverish illness in children > 3 months if history of immediate hypersensitivity to penicillin or cephalosporin
Page 12	Addition of comment "If history of immediate hypersensivity to penicillin or cephalosporin" added to penicillin allergy box prior to alternative agents. Feverish illness in children > 3 months "if history of immediate hypersensitivity to penicillin or cephalosporin" added and IV Clarithromycin changed to IV Co-trimoxazole.
Page 13	Addition of po Co-trimoxazole + po Metronidazole for oral step down for intra-abdominal sepsis Addition to comments section for Perianal abscess "Switch to oral at clinical discretion. Aim for minimum of 5 days IV"
Page 14	Duration of non-severe acute sinusitis altered from 10-14 days to 7 days (same as Leighton and MRI)
Page 19	For Empyema, Acute, community acquired usually parapneumonic Vancomycin deleted for penicillin allergy. Statement "If MRSA is suspected add IV Vancomycin to the above combinations" then added for all options.
Page 20	IV Fosfomycin recommended instead of IV Chloramphenicol for empiric therapy of bacterial meningitis and meningococcal disease in children > 3 months in penicillin allergy where there is a history of immediate hypersensitivity to penicillin or cephalosporin.
Page 23	Addition of IV Gentamicin as an option for penicillin allergy for acute pyelonephritis with an oral step down to Trimethoprim if organism sensitive. Wording for date of NICE reference changed to "Reviewed 2013".
Page 26	Consider addition of IV Clindamycin and IV Metronidazole for Orbital cellulitis if no improvement within 48 hours.
Page 28	Alteration of dosing information for IV Metronidazole when used for prophylaxis for appendicectomy and colo-rectal surgery to "if 17kg or more give 500mg (if less than 17 kg give 30mg/kg)" For appendicetomy addition to comments "If gangrenous appendix then change to IV Piperacillin / Tazobactam for 5 days" For colo-rectal surgery addition to comments " If further treatment is required post-op switch to IV Piperacillin/Tazobactam"
Page 30	Replacement with new Gentamicin Guidelines as Appendix 1.

<u>For Version 2.1:Replacement of Piperacillin/Tazobactam due to Unavailability</u>

Page 13	For intra-abdominal sepsis and post-operative intra-abdominal infections IV Amoxicillin + IV Metronidazole replace IV Piperacillin/Tazobactam
Page 18	For hospital acquired pneumonia IV Ceftazidime replaces IV Piperacillin/Tazobactam
Page 19	For empyema if < 3 months use IV Cefotaxime; if >3 months use IV Cefotaxime replaces IV Piperacillin/Tazobactam

Page 28	Surgical prophylaxis, Appendicectomy, if gangrenous appendix then change to IV Amoxicillin + IV Metronidazole to replace IV Piperacillin/Tazobactam. Colorectal surgery, if further treatment is required post-op switch to IV Amoxicillin + IV Metronidazole to replace IV Piperacillin/Tazobactam

APPENDIX 3 Equality Analysis (Impact assessment)

Please START this assessment BEFORE writing your policy, procedure, proposal, strategy or service so that you can identify any adverse impacts and include action to mitigate these in your finished policy, procedure, proposal, strategy or service. **Use it to help you develop fair and equal services.**
Eg. If there is an impact on Deaf people, then include in the policy how Deaf people will have equal access.

1. What is being assessed?

Paediatric Antibiotic Policy for children aged 1 month to 18 years

Details of person responsible for completing the assessment:

- *Name:* Sally Stubington
- *Position:* Antibiotic Pharmacist
- *Team/service:* Pharmacy

State main purpose or aim of the policy, procedure, proposal, strategy or service:
(usually the first paragraph of what you are writing. Also include details of legislation, guidance, regulations etc which have shaped or informed the document)

This policy provides guidance to all staff in East Cheshire NHS Trust regarding prudent prescribing of antibiotics for paediatric patients.
All staff prescribing antibiotics for paediatric patients should refer to this policy and prescribe according to these recommendations and restrictions AND comply with all the general requirements of prescribing as defined in the Medicines Policy.

2. Consideration of Data and Research

To carry out the equality analysis you will need to consider information about the people who use the service and the staff that provide it. Think about the information below – how does this apply to your policy, procedure, proposal, strategy or service

2.1 Give details of RELEVANT information available that gives you an understanding of who will be affected by this document

Cheshire East (CE) covers Eastern Cheshire CCG and South Cheshire CCG. Cheshire West & Chester (CWAC) covers Vale Royal CCG and Cheshire West CCG. In 2011, 370,100 people resided in CE and 329,608 people resided in CWAC.

Age: East Cheshire and South Cheshire CCG's serve a predominantly older population than the national average, with 19.3% aged over 65 (71,400 people) and 2.6% aged over 85 (9,700 people).

Vale Royal CCGs registered population in general has a younger age profile compared to the CWAC average, with 14% aged over 65 (14,561 people) and 2% aged over 85 (2,111 people).

Since the 2001 census the number of over 65s has increased by 26% compared with 20% nationally. The number of over 85s has increased by 35% compared with 24% nationally.

Race:

- In 2011, 93.6% of CE residents, and 94.7% of CWAC residents were White British
- 5.1% of CE residents, and 4.9% of CWAC residents were born outside the UK – Poland and India being the most common
- 3% of CE households have members for whom English is not the main language (11,103 people) and 1.2% of CWAC households have no people for whom English is their main language.

- Gypsies & travellers – estimated 18,600 in England in 2011.

Gender: In 2011, c. 49% of the population in both CE and CWAC were male and 51% female. For CE, the assumption from national figures is that 20 per 100,000 are likely to be transgender and for CWAC 1,500 transgender people will be living in the CWAC area.

Disability:

- In 2011, 7.9% of the population in CE and 8.7% in CWAC had a long term health problem or disability
- In CE, there are c.4500 people aged 65+ with dementia, and c.1430 aged 65+ with dementia in CWAC. 1 in 20 people over 65 has a form of dementia
- Over 10 million (c. 1 in 6) people in the UK have a degree of hearing impairment or deafness.
- C. 2 million people in the UK have visual impairment, of these around 365,000 are registered as blind or partially sighted.
- In CE, it is estimated that around 7000 people have learning disabilities and 6500 people in CWAC.
- Mental health – 1 in 4 will have mental health problems at some time in their lives.

Sexual Orientation:

- CE - In 2011, the lesbian, gay, bisexual and transgender (LGBT) population in CE was estimated at18,700, based on assumptions that 5-7% of the population are likely to be lesbian, gay or bisexual and 20 per 100,000 are likely to be transgender *(The Lesbian & Gay Foundation)*.
- CWAC - In 2011, the LGBT population in CWAC is unknown, but in 2010 there were c. 20,000 LGB people in the area and as many as 1,500 transgender people residing in CWAC.

Religion/Belief:

The proportion of CE people classing themselves as Christian has fallen from 80.3% in 2001 to 68.9% In 2011 and in CWAC a similar picture from 80.7% to 70.1%, the proportion saying they had no religion doubled in both areas from around 11%-22%.

- **Christian:** 68.9% of Cheshire East and 70.1% of Cheshire West & Chester
- **Sikh:** 0.07% of Cheshire East and 0.1% of Cheshire West & Chester
- **Buddhist:** 0.24% of Cheshire East and 0.2% of Cheshire West & Chester
- **Hindu:** 0.36% of Cheshire East and 0.2% of Cheshire West & Chester
- **Jewish:** 0.16% of Cheshire East and 0.1% of Cheshire West & Chester
- **Muslim:** 0.66% of Cheshire East and 0.5% of Cheshire West & Chester
- **Other:** 0.29% of Cheshire East and 0.3% of Cheshire West & Chester
- **None:** 22.69%of Cheshire East and 22.0% of Cheshire West & Chester
- **Not stated:** 6.66% of Cheshire East and 6.5% of Cheshire West & Chester

Carers: In 2011, nearly 11% (40,000) of the population in CE are unpaid carers and just over 11% (37,000) of the population in CWAC.

2.2 Evidence of complaints on grounds of discrimination: (Are there any complaints or concerns raised either from patients or staff (grievance) relating to the **policy, procedure, proposal, strategy or service** or its effects on different groups?)

No

2.3 Does the information gathered from 2.1 – 2.3 indicate any negative impact as a result of this document?

No

3. Assessment of Impact

Now that you have looked at the purpose, etc. of the **policy, procedure, proposal, strategy or service** (part 1) and looked at the data and research you have (part 2), this section asks you to assess the impact of the **policy, procedure, proposal, strategy or service** on each of the strands listed below.

RACE:

From the evidence available does the **policy**, **procedure, proposal, strategy or service** affect, or have the potential to affect, racial groups differently? Yes ☐ No ☐X

Explain your response:

As the policy requires staff to check whether the patient has any allergies and also to assess mental state, then if a patient's first language is not English, staff will follow the Trust interpretation and translation policy.

GENDER (INCLUDING TRANSGENDER):

From the evidence available does the **policy**, **procedure, proposal, strategy or service** affect, or have the potential to affect, different gender groups differently? Yes ☐ No ☐X

Consideration may need to be given to the interaction of any antibiotic with any drugs a person is taking as part of transgender treatment.

DISABILITY

From the evidence available does the **policy, procedure, proposal, strategy or service** affect, or have the potential to affect, disabled people differently? Yes ☐ No ☐X

Explain your response: If a patient has difficulty communicating as a result of visual or hearing impairment, then staff will follow the Trust interpretation and translation policy. If a patient has learning disabilities, support may be needed to ensure best route of treatment, ie can patient take tablets or would they be better with liquid format. There is a picture communications book in the communications aids boxes on the wards. If a patient has swallowing difficulties, again, an appropriate route of administration needs to be identified. This information will be available on the patient passport if the patient has one. Any patient with learning disabilities will have a reasonable adjustments care plan and issues with medication route will be documented on this along with best route and support needed.

AGE:

From the evidence available does the **policy**, **procedure, proposal, strategy or service,** affect, or have the potential to affect, age groups differently? Yes ☐ X No ☐

Explain your response:

This policy is for paediatric patients and the choice of antibiotics for some infections is different for different aged children.

LESBIAN, GAY, BISEXUAL:

From the evidence available does the **policy**, **procedure, proposal, strategy or service** affect, or have the potential to affect, lesbian, gay or bisexual groups differently? Yes ☐ No ☐X

Explain your response: No adverse impact identified as a result of this policy. All staff can access training on equality and diversity and the Trust has participated in the Stonewall Healthcare equality index.

RELIGION/BELIEF:

From the evidence available does the **policy**, **procedure, proposal, strategy or service** affect, or have the potential to affect, religious belief groups differently? Yes ☐ No ☐X

Explain your response: If the patient follows a religion or belief where certain substances are not allowed the prescriber should always check that the antibiotic does not contain these products. Eg Muslim and porcine products. This should be discussed with the patient and/ or carer as appropriate.

CARERS:

From the evidence available does the **policy**, **procedure, proposal, strategy or service** affect, or have the potential to affect, carers differently? Yes ☐ No ☐X

Explain your response:

Support may be required from the carer if the patient is to continue the antibiotic at home, particularly if the patient has a disability.

OTHER: EG Pregnant women, people in civil partnerships, human rights issues.

From the evidence available does the **policy**, **procedure, proposal, strategy or service** affect, or have the potential to affect any other groups differently? Yes ☐ No ☐X

Explain your response:

Choice of antibiotics for pregnant patients would need to be checked separately.

---

4. Safeguarding Assessment - CHILDREN

a. Is there a direct or indirect impact upon children? Yes ☐X No ☐
b. If yes please describe the nature and level of the impact (consideration to be given to all children; children in a specific group or area, or individual children. As well as consideration of impact now or in the future; competing / conflicting impact between different groups of children and young people: This policy applies to children from 1 month to 18 years. Guidance for choice of antibiotics is based on age so recommendations for the choice of antibiotics for some infections for different aged paediatric patients is different. Neonates are not covered by this policy as antibiotic choices will be covered by a different policy.
c. If no please describe why there is considered to be no impact / significant impact on children

5. Relevant consultation

Having identified key groups, how have you consulted with them to find out their views and that the made sure that the **policy**, **procedure, proposal, strategy or service** *will affect them in the way that you intend? Have you spoken to staff groups, charities, national organisations etc?*

Consulted with:

Paediatric Consultants, Paediatric Antibiotic Pharmacist, Antimicrobial Stewardship Group, medicines Management Committee

6. Date completed: Review Date:

7. Any actions identified: Have you identified any work which you will need to do in the future to ensure that the document has no adverse impact?

Action	Lead	Date to be Achieved

8. Approval – At this point, you should forward the template to the Trust Equality and Diversity Lead lynbailey@nhs.net

Approved by Trust Equality and Diversity Lead:

Date: 21/6/16