

<b>CLINICAL GUIDELINE</b>		Bedford Hospital  NHS Trust
<b>Subject:</b> Paediatric Antibiotic Guideline  <b>TRUSTWIDE</b>		
<b>Reviewed by:</b> Oseiwa Kwapong - Consultant Paediatrician Specialist Pharmacist – Women & Children		<b>Key Reference:</b> BNF for Children 2017 – 2018 NICE CG160 Feverish illness in children. NICE CG54 UTI in children. NICE NG84 Sore Throat (acute) antimicrobial prescribing.
<b>Date of Approval:</b> July 2018		<b>Review Date:</b> July 2021
<b>Purpose</b>	To outline the initial management of various infections in children and adolescents between 1 month and 18 years of age.	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>- To promote the effective and appropriate treatment/prophylaxis of infections</li> <li>- To limit the emergence and propagation of resistant organisms</li> <li>- To reduce the incidence of toxicity and other adverse effects associated with antimicrobial use</li> <li>- To promote the cost-effective use of antimicrobials</li> </ul>	
<b>For Use By</b>	All medical and nursing staff involved with the management of paediatric infections.	
<b>Related Policies</b> <i>Any policies or guidelines that directly impact or are impacted by this Guideline</i>	Refer also to related guidelines for specific infections: <ul style="list-style-type: none"> <li>• Management of Bacterial Meningitis and Meningococcal disease in Children,</li> <li>• Feverish illness in Children</li> <li>• Periorbital cellulitis in children</li> <li>• Urinary Tract Infections in Children,</li> </ul> Also the relevant Shared Care guidelines <ul style="list-style-type: none"> <li>• Cystic Fibrosis Manual – GOSH</li> <li>• Acute Paediatric Haemoglobinopathy Protocol</li> </ul> For children under 1 month of age refer to the Eastern Neonatal Antibiotic Policy, available on the Intranet	
<b>Definitions</b> <i>Any Acronyms or Abbreviations used in Guideline</i>	IV – Intravenous IM – Intramuscular PO - Oral BD – Twice a day TDS – Three times a day QDS – Four times a day	
<b>Status / Version Control</b> <i>Previous versions of the Guideline should be stated here with former name if changed along with dates when they were approved.</i>	Version 4 Replaces Version 3 (approved December 2015)	

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## Guideline

### INTRODUCTION

- Antimicrobials are not "cure-alls" and are no substitute for meticulous aseptic technique.
- Antimicrobials are effective because they reduce the numbers of organisms to a level with which the body's defence mechanisms can cope.
- Antimicrobial therapy can be toxic (eg aminoglycosides) and may increase patients' risk of C.difficile and MRSA infections.
- Antimicrobial therapy can be expensive.
- Usefulness of any antibiotic may be compromised if it is used inappropriately both within the hospital and the local community due to the selection of resistant strains of bacteria.
- The Consultant Microbiologists are available to discuss the treatment of infections and to advise on the length of treatment (details below) . For shared care patients the appropriate guidelines should be followed and advice should be sought from the relevant centre e.g. Addenbrookes or Great Ormond Street Hospital. If the recommendation includes a product which is not locally used then further advice should be sought from the Consultant Microbiologist.

### USEFUL CONTACT NUMBERS

- *Consultant Microbiologists: ext. 4703*  
(Out of hours: Registrar grade or above to contact the Consultant Microbiologist via switchboard during oncall hours)
- *Antimicrobials pharmacist: ext. 6293*
- *Microbiology Results: ext. 4703*
- *Pathology Results (for antibiotic assays): ext. 4654*
- *Public Health England numbers (previously known as Health Protection Unit)for notification*
- *Daytime: 03003038537*
- *On call: 01643481272*

### BEFORE STARTING TREATMENT

- i) Decide on the clinical diagnosis and/or focus of infection.
- ii) Antimicrobial agents should only be used where there is a clinical diagnosis of infection with a potentially susceptible micro-organism.
- iii) TAKE ALL SPECIMENS FOR MICROBIOLOGICAL DIAGNOSIS before starting antibiotic treatment, if possible. Isolation of the causal organism may be difficult or impossible if specimens are collected after treatment has begun. If an antibiotic has already been used, please inform the laboratory by documenting the information on the request form.
- iv) Always document the antibiotic that you intend to prescribe on the request form. This will help to ensure that any isolated organisms are tested for sensitivity to the prescribed antibiotic.

## CHOOSING BEST DRUG and APPROPRIATE DOSAGE

- Consider the known or predicted sensitivity of the likely causative organism(s).
- Narrow spectrum antibiotics aimed specifically at the implicated organisms are best as broad spectrum agents will lay the patient open to super-infections with resistant organisms due to a reduction in normal flora, especially if the treatment period is prolonged.
- Treatment of any bacterial infection should be initiated with empirical antibiotics. This should be modified according to bacteriological confirmation and sensitivity results.
- Drug allergies - This must be assessed based on a good history from the patient or relative. In patients with a confirmed allergy to an antimicrobial, seek advice from Consultant Microbiologist if empirical recommendations are not appropriate.
- Combinations of Drugs are only indicated in certain situations :-
  - When a broad spectrum of activity is needed as in severe infection of unknown aetiology.
  - When a combination results in valuable synergy, as in the treatment of bacterial endocarditis with a penicillin and an aminoglycoside.
  - When the development of resistance to the drugs being used may be a problem, as in the treatment of tuberculosis.
  - Empirical treatment in certain groups of patients. E.g., febrile neutropenia, cystic fibrosis.

## RENAL or HEPATIC IMPAIRMENT

- Remember, you will need to reduce the dose of certain antimicrobials in patients with renal or hepatic impairment. In addition, certain antibiotics are contraindicated in renal/hepatic impairment. If you need advice on dosing in these patients refer to either:
  - Individual drug monographs in the BNF for Children
  - Contact your ward pharmacist
  - Contact the antimicrobials pharmacist
  - Contact the consultant microbiologist

## MODE OF ADMINISTRATION

**IV treatment** is required in:

- Very ill patients
- Those with poor absorption from the bowel
- Specific infections (please refer to empirical guidelines)
- The need to continue IV therapy should be reviewed every 24 hours and treatment should be changed to oral as soon as the clinical condition warrants (Some infections are exceptions to this general guidance - see next section 'switching from IV to oral').

If, on review, there is a need to continue IV therapy, the prescriber must ensure that the prescription is re-signed to allow continued administration for the next period. Review every day by the prescriber must continue and evidence that a switch has been considered written in the medical notes.

**Intramuscular** use of antibiotics is rarely of value as absorption can be very erratic and often involves the injection of large volumes.

**Topical** use of antibiotics leads to the emergence of resistant strains of bacteria and is generally contra-indicated other than in well recognised situations e.g. conjunctivitis.

## **SWITCHING from IV to ORAL therapy**

- Review IV antibiotics to assess progress. IV to oral switch could be made 24 – 48 hours (depending on severity) after a child becomes afebrile.
- *Some infections require IV therapy for the entire course of treatment* e.g. bacterial meningitis and infections in febrile neutropenic patients.
- Refer to empirical guidelines for more information. If there is any doubt you must discuss with the Consultant Microbiologist.

### **General advice**

- Switching from IV to oral therapy should occur as soon as a good clinical response has been achieved providing:
  - Patient has a functional gastrointestinal tract
  - Patient is able to tolerate oral medication
  - Patient is being treated for an infection that does NOT require the use of IV antibiotics for the entire treatment period.
- If positive microbiology cultures are available, guidance on appropriate oral antibiotics will be included on the sensitivity report. In the absence of such microbiology, consider the likely pathogens you have been treating and their potential sensitivity patterns, and make a logical choice. Contact Consultant Microbiologists if necessary.

## **IF TREATMENT FAILS**

*Consider the following:*

- Is the patient taking the drug?
- Is the drug being absorbed?
- Is the dose adequate?
- Is the drug reaching the site of infection?
- Was the original culture representative?
- Is surgical drainage of a collection of pus required?
- Has superinfection with another organism occurred?
- Is the infection due to a fungal cause?
- Review diagnosis?

**Please note doses included in the guideline are for information only; the dose required should be confirmed in an up-to-date BNF for Children, preferably the online version which can be accessed via [www.medicinescomplete.com](http://www.medicinescomplete.com)**

## Children requiring IV antibiotics – EMPIRICAL Therapy

Clinical Condition	Causative organisms (Examples)	Recommended EMPIRICAL Therapy	Comments
<p><b>Seriously ill (“septic”) child with suspected bacterial infection WITHOUT a focus.</b></p>	<p><i>Group B-haemolytic streptococci</i></p> <p><i>Escherichia coli</i></p> <p><i>Listeria monocytogenes</i></p> <p><i>Streptococcus pneumoniae (Pneumococcus)</i></p> <p><i>Neisseria meningitides (Meningococcus)</i></p> <p><i>Haemophilus influenzae</i></p>	<p><b>Ceftriaxone IV</b>  <b>1 month – 11 years (body-weight &lt;50kg)</b>                      50-80mg/kg once daily.  <b>12-18 years and/or body-weight ≥50kg</b>                      2-4 g once daily.</p> <p>If deterioration/no improvement after 24 hours and no culture results available:</p> <ul style="list-style-type: none"> <li>• Discuss with Consultant Microbiologist AND</li> <li>• Add <b>Gentamicin IV</b></li> </ul> <p><b>Gentamicin IV</b>  <b>Once daily dose regimen (not for endocarditis or meningitis)</b>  <b>1 month – 18 years</b>                      7mg/kg once daily, then dosing interval adjusted according to serum-gentamicin concentration. (See <a href="#">Appendix 2</a>)</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Multiple daily dose regimen</b>  <b>1 month – 11 years</b>                      2.5mg/kg every 8 hours  <b>12 – 18 years</b>                      2mg/kg every 8 hours</p>	<p>If child is younger than 3 months of age consider adding Amoxicillin to cover for listerial infection</p> <p><b>Amoxicillin IV</b>  <b>1 month – 18 years</b>                      20-30mg/kg every 8 hours; dose doubled in severe infection (Max 1g every 8 hours)                      (NB doses to treat listerial meningitis are higher than this – refer to BNF-C for dose)</p> <p>Add <b>Aciclovir IV</b> if herpes simplex encephalitis is suspected. (See BNF-C for doses)</p> <p>Inform Public Health England if meningococcal infection is suspected and co-ordinate prophylaxis if required. Always discuss with Consultant Microbiologist ext 4703 and/or Consultant in Communicable Disease Control (CCDC), prior to prescribing any prophylaxis. Out of hours contact via switchboard.</p>
<p><b>Suspected meningitis</b></p>	<p style="text-align: center;"><b>Refer to separate guideline “Meningitis – Management of Bacterial Meningitis and Meningococcal disease in Children”</b></p>		
<p><b>Chest Infection (including pneumonia)</b></p>	<p><i>Streptococcus pneumoniae (Pneumococcus)</i></p> <p><i>Haemophilus influenzae</i></p> <p><i>Group A streptococcus</i></p> <p><i>Staphylococcus aureus</i></p>	<p><b>Co-amoxiclav IV</b>  <b>1-2 months</b>                      30mg/kg every 12 hours  <b>3 months–18 years</b>                      30mg/kg (Max 1.2g) every 8 hours</p> <p>If atypical infection suspected add <b>Clarithromycin oral</b>                      See <a href="#">Appendix 1</a> for oral doses</p> <p>(If IV is required refer to BNF-C for doses. Note: Clarithromycin IV is very irritant, oral route is preferable)</p>	<p><u>Duration of treatment:</u>                      IV antibiotics until afebrile for 24 hrs. Total treatment course 7-14 days depending on severity.</p> <p><b>If Penicillin allergy: Clarithromycin consider adding Vancomycin IV depending on the severity</b></p> <p><b>Vancomycin IV</b>  <b>1 month -18 years</b>                      15mg/kg every 8 hours (maximum daily dose 2g); adjusted according to plasma concentration</p>

Clinical Condition	Causative organisms (Examples)	Recommended EMPIRICAL Therapy	Comments
<p>Urinary tract infection with sepsis</p> <p>OR</p> <p>Acute pyelonephritis / other upper urinary tract infection</p>	<p><i>Escherichia coli</i></p> <p><i>Klebsiella spp</i></p> <p><i>Proteus spp</i></p> <p><i>Staphylococci spp</i> (coagulase negative) coliforms</p>	<p><b>Refer also to Bedford Hospital Guideline: Urinary Tract Infection in Children for further guidance</b></p> <p><b>Ceftriaxone IV</b>  <b>1 month – 11 years (body-weight &lt;50kg)</b>  50 – 80 mg/kg once daily.</p> <p><b>12-18 years and/or body-weight ≥50kg</b>  1g daily; 2-4 g daily in severe infections.</p> <p><b><i>If severe consider adding</i></b></p> <p><b>Gentamicin IV</b>  7mg/kg once daily then adjusted according to serum-gentamicin concentration. (See <a href="#">Appendix 2</a>)</p>	<p><u>Duration of treatment:</u>  2 – 4 days IV therapy then change to an appropriate oral antibiotic based on sensitivities for a total of 7-10 days treatment.</p>
<p>Febrile Neutropenia (Oncology patients)</p>		<p><b>The hospital which the patient is under the care of should be contacted for advice.</b></p> <p>If advice cannot be obtained promptly the following empirical treatment should be started, whilst still trying to obtain advice from the tertiary centre:</p> <p><b>Piperacillin/Tazobactam IV</b>  <b>1 month – 11 years</b>  90mg/kg (max 4.5g) every 6 hours</p> <p>NB: Piperacillin-Tazobactam cannot be given within 48 hours of high dose IV methotrexate (with rescue). If methotrexate is due or has just been given, second line antibiotics (meropenem) should be given in place of Piperacillin-Tazobactam.</p> <p>(taken from Addenbrookes Paediatric Neutropenic Fever Guideline)</p>	<p><b><u>If penicillin allergy:</u></b></p> <p><b>Meropenem IV</b>  (If severe penicillin allergy use Ciprofloxacin IV and Vancomycin IV)</p> <p><b>Meropenem IV</b>  <b>1 month -11 years (body weight &lt;50kg)</b>  20mg/kg (max 1g) every 8 hours  <b>1 month -18 years (body weight &gt;50kg)</b>  1g every 8 hours</p> <p><b>Ciprofloxacin IV</b>  <b>1 month -11 months</b>  10mg/kg every 12 hours  <b>1 -18 years</b>  10mg/kg (max 400mg) every 8 hours</p> <p><b>Vancomycin IV</b>  <b>1 month -18 years</b>  15mg/kg every 8 hours (maximum daily dose 2g); adjusted according to plasma concentration</p>
<p>Periorbital cellulitis</p>	<p><b>Refer to Bedford Hospital Periorbital Cellulitis in Children Guideline</b></p>		

Clinical Condition	Causative organisms (Examples)	Recommended EMPIRICAL Therapy	Comments
<p><b>Other types of cellulitis</b></p>	<p><i>Streptococcus pyogenes</i></p> <p><i>Staphylococcus aureus</i></p> <p>Other organisms including anaerobes</p>	<p><b>Flucloxacillin IV</b>  <b>1 month – 18 years</b>  12.5-25mg/kg every 6 hours (max 1g every 6 hours); may be doubled in severe infection.</p> <p style="text-align: center;"><b>plus</b></p> <p><b>Benzylpenicillin IV</b>  <b>1 month – 18 years</b>  25mg/kg every 6 hours; increased to 50mg/kg every 4-6 hours(max 2.4g every 4 hours) in severe infection.</p>	<p><u>Duration of treatment:</u>  10 – 14 days depending on severity</p> <p><b>If penicillin allergy:</b>  <b>Clarithromycin</b></p> <p>See <a href="#">Appendix 1</a> for oral doses</p> <p>(If IV is required refer to BNF-C for doses. Note: Clarithromycin IV is very irritant, oral route is preferable)</p>
<p><b>Septic arthritis</b></p>	<p><i>Staphylococcus aureus</i></p> <p>(most common)</p>	<p><b>Flucloxacillin IV</b>  <b>1 month – 18 years -</b>  12.5-25mg/kg 6 hourly (Max 1g every 6 hours); may be doubled in severe infection.</p> <p><b>If confirmed <i>Staphylococcus</i> infection plus</b></p> <p><b>Sodium fusidate oral.</b>  See <a href="#">Appendix 1</a> for oral doses</p>	<p><u>Duration of treatment:</u>  6 weeks or longer, once improving switch to oral antibiotics</p> <p><b>If penicillin allergy:</b>  <b>Clindamycin IV or oral</b></p> <p><b>Clindamycin IV</b>  <b>1 month -18 years</b>  3.75-6.25mg/kg 4 times a day. Increased up to 10mg/kg (Max 1.2g) 4 times a day in severe infections</p>

## Children requiring oral antibiotics – EMPIRICAL Therapy

Clinical Condition	Causative organisms (Examples)	Recommended Empirical Therapy See <a href="#">Appendix 1</a> for doses	Comments
<b>Urinary tract Infection</b>  <b>Cystitis/ lower urinary tract infection</b>	<i>Escherichia coli</i> <i>Klebsiella spp</i> <i>Proteus spp</i> <i>Staphylococci spp</i> (coagulase negative)	<b>3 months – 18 years</b> <b>Trimethoprim* or Nitrofurantoin*</b>  * Recommendation based on local sensitivities and will be under continual review.	<u>Duration of Treatment:</u> 5 days (Consider 3 days treatment for children 3 months and over who have an uncomplicated lower UTI. Re-assess if still unwell after 24-48hrs treatment.)
<b>Acute pyelonephritis/other upper urinary tract infection (non-severe)</b>		<b>3months – 18 years</b> <b>Co-amoxiclav</b>  <u>Patients allergic to penicillin</u> <b>Cefalexin</b>	<u>Duration of treatment:</u> 7-10 days  (Be aware 0.5-6.5% of penicillin allergic patients will also be allergic to cephalosporins)
<b>Chest Infection</b>	<i>Pneumococcus</i> <i>Haemophilus influenzae</i> Group A <i>streptococcus</i> <i>Staphylococcus aureus</i>	<b>Amoxicillin</b> <b>OR</b> <b>Co-amoxiclav</b>  <u>Patients allergic to penicillin</u> <b>Clarithromycin</b>	<u>Duration of treatment</u> 5 days
<b>Cellulitis / Abscess</b>	<i>Staphylococcus aureus</i> Group A <i>streptococcus</i> Coliforms	<b>Flucloxacillin</b> <b>plus</b> <b>Penicillin V</b>  <u>Patients allergic to penicillin</u> <b>Clarithromycin OR</b> <b>Clindamycin (for abscess)</b>	<u>Duration of treatment</u> Minimum 7 days
<b>Otitis Media</b>	<i>Streptococcus pneumoniae</i> <i>Streptococcus pyogenes</i> (Group A streptococci)	<b>Co-amoxiclav</b> <b>OR</b> <b>Clarithromycin</b>	<u>Duration of treatment</u> 7 days
<b>Tonsillitis</b>	<i>Streptococcus pyogenes</i> (Group A haemolytic streptococci)	<b>Penicillin V</b>  <u>Patients allergic to penicillin or intolerance</u> <b>Clarithromycin OR</b> <b>Erythromycin (preferred for young pregnant women)</b>	<u>Duration of treatment</u> 10 days (Penicillin V) 5 days (Clarithromycin and Erythromycin)

## Empirical Treatment – Eye Infections

Clinical Condition	Likely Causative organisms	Recommended Empirical Therapy
<b>Conjunctivitis</b>	<i>Staphylococcus aureus</i> <i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i> <i>Coliforms</i> <i>Moraxella spp</i> <i>Pseudomonas spp</i> <i>Other organisms</i>	<p><b>Chloramphenicol eye drops</b>                      1 drop 2 hourly then reduce frequency as infection is controlled and continue for 48 hours after healing.</p> <p><b>AND/OR</b></p> <p><b>Chloramphenicol eye ointment</b>                      Apply either at night (if eye drops used during the day) or 3-4 times daily (if eye ointment used alone)</p>

## Urinary tract infections – Prophylaxis

Refer to Bedford Hospital Guideline: Urinary Tract Infections in Children for information on when prophylaxis is appropriate for Urinary Tract Infections

## Antimicrobial Choice for Children with Haemoglobinopathies and Inherited Anaemias including Sickle Cell Disease and Thalassaemia

Refer to Acute Paediatric Haemoglobinopathy Protocol under Clinical Policies and Guidelines

## Antimicrobial Choice for Children with Cystic Fibrosis

Refer to Cystic Fibrosis Manual under Clinical Policies and Guidelines

## APPENDIX 1: Oral Antibiotic Doses

Drug	Age	Dose	Comments
Amoxicillin (oral)	1 - 11 months	125mg TDS	
	1 - 4 years	250mg TDS	
	5 - 18 years	500mg TDS	
Cefalexin (oral)	1 – 11 months	125mg BD	Alternatively, can be dosed at 12.5mg/kg BD
	1 – 4 years	125mg TDS	
	5 – 11years	250mg TDS	
	12 - 18 years	500mg 2-3 times daily	
Co-amoxiclav (oral)	1 – 11 months	0.25ml/kg of the 125/31 suspension TDS	
	1 - 5 years	5ml of the 125/31 suspension TDS	
	6 - 11 years	5ml of the 250/62 suspension TDS	
	12-18 years	1 tablet (250/125) TDS or (500/125) TDS in severe infections.	
Clarithromycin (oral)	1 month – 11 years		
	Body-weight under 8 kg	7.5mg/kg BD	
	Body-weight 8-11kg	62.5mg BD	
	Body-weight 12-19kg	125mg BD	
	Body-weight 20-29kg	187.5mg BD	
	Body-weight 30-40kg	250mg BD	
	12-18 years	250mg BD increased to 500mg BD in severe infections.	
Clindamycin (oral)	1 month – 18 years	3-6 mg/kg QDS (Max 450mg per dose)	
Erythromycin (oral)	1 month – 1 year	125mg QDS	Dose may be doubled. Total daily dose can be given in
	2 – 7 years	250mg QDS	
	8 – 18 years	250 – 500mg QDS	

Drug	Age	Dose	Comments
			two divided doses.
<b>Flucloxacillin</b> (oral)	<b>1 month - 1 year</b>	62.5mg – 125mg QDS	
	<b>2 – 9 years</b>	125mg – 250mg QDS	
	<b>10 – 18 years</b>	250mg – 500mg QDS	
<b>Nitrofurantoin</b> (oral) (treatment dose)	<b>3 months – 11 years</b>	750 micrograms/kg QDS	<b>Contraindicated in &lt; 3months.</b>
	<b>12-18 years</b>	50mg QDS	
<b>Nitrofurantoin</b> (oral) (prophylactic dose)	<b>3 months – 11 years</b>	1mg/kg at night	
	<b>12-18 years</b>	50-100mg at night	
<b>Penicillin V</b> (oral)	<b>1 – 11 months</b>	62.5mg QDS*	*Increase in severe infection to ensure at least 12.5mg/kg QDS
	<b>1 – 5 years</b>	125mg QDS*	
	<b>6 – 11 years</b>	250mg QDS*	
	<b>12-18 years</b>	500mg QDS increased in severe infection up to 1g QDS	
<b>Sodium fusidate or Fusidic acid</b>	<b>1 - 11 months</b>	15mg/kg TDS (fusidic acid suspension)	Note: Fusidic acid is incompletely absorbed and doses recommended for suspension are proportionately higher than those for sodium fusidate tablets.
	<b>1 – 4 years</b>	250mg TDS (fusidic acid suspension)	
	<b>5 – 11 years</b>	500mg TDS (fusidic acid suspension)	
	<b>12 – 18 years</b>	750mg TDS (fusidic acid suspension)	
	<b>12 -18 years</b>	500mg TDS (dose doubled for severe infection) (sodium fusidate tablets)	For skin infections: refer to BNF-C for recommended dose
<b>Trimethoprim</b> (oral) (treatment dose)	<b>6 weeks – 5 months</b>	25mg BD	<i>Alternatively, can be dosed at 4mg/kg (max 200mg) BD</i>
	<b>6 months – 5 years</b>	50mg BD	
	<b>6 – 11 years</b>	100mg BD	
	<b>12 – 18 years</b>	200mg BD	
<b>Trimethoprim</b>	<b>6 weeks – 5 months</b>	12.5mg once daily at night	<i>Alternatively, can</i>

Drug	Age	Dose	Comments
(oral) (prophylactic dose)			<i>be dosed at 2mg/kg (max 100mg) BD</i>
	<b>6 months – 5 years</b>	25mg once daily at night	
	<b>6 – 11 years</b>	50mg once daily at night	
	<b>12 – 18 years</b>	100mg once daily at night	

Addressograph

**APPENDIX 2:**

**Paediatric Once Daily Gentamicin  
Prescription Chart**

Age	Once Daily Dose	Administration
<b>Neonates</b> (<28 days)	<i>Refer to Neonatal Gentamicin Prescription chart and Neonatal Antibiotic Guideline</i>	
<b>Children</b> (1 month – 18 years)	7 mg/kg IV (Maximum 500mg)	Infuse over at least 30 minutes

*Dosing at extremes of body weight: Ideal Body Weight (extrapolated from height) should be used if the child is obese.*

Multiple daily gentamicin dosing regimens are still recommended for the following patients (refer to the BNFC for dosing and monitoring recommendations and liaise with pharmacist):

- Endocarditis
- Meningitis
- Where intramuscular gentamicin is necessary (i.e. where IV is not possible)
- 

**Monitoring:**

In children with normal renal function (eGFR >90 ml/min/1.73m<sup>2</sup>) and good urine output, measure gentamicin **pre-dose level before the 2<sup>nd</sup> dose** and the dose can be **given** without waiting for the result.

Level	Gentamicin Pre-dose level and Action to take			Renal impairment
	< 1mg/L	1-2 mg/L	> 2 mg/L	≥ 1 mg/L
<b>Action</b>	Continue current regimen.  Repeat level after 3-4 days providing renal function stable	If renal function stable, increase dosing interval to 36 hourly and repeat levels with next dose (level and <u>give</u> )	Review the need for gentamicin therapy, assess renal function. Withhold further doses until discussed with microbiology and levels within target trough range (repeat after 24 hours)	Recheck levels after 12-24 hours. Do not give further doses until level < 1mg/L

Date	Time to be given	Drug	I.V Dose	Frequency of administration	Prescriber sign and PRINT	Write 'LEVEL and GIVE' or 'LEVEL and HOLD'.	Given by		LEVELS		Pharm
							Initials*	Time	Initial when level taken	Result of level	
-- / -- / --	-- : --	Gentamicin	mg				/	-- : --			
-- / -- / --	-- : --	Gentamicin	mg			LEVEL AND .....	/	-- : --			
-- / -- / --	-- : --	Gentamicin	mg				/	-- : --			
-- / -- / --	-- : --	Gentamicin	mg				/	-- : --			
-- / -- / --	-- : --	Gentamicin	mg				/	-- : --			
-- / -- / --	-- : --	Gentamicin	mg				/	-- : --			
-- / -- / --	-- : --	Gentamicin	mg				/	-- : --			

Appendix 3:

Antibiotics between **24 and 72hrs** from prescribing  
(File this form in the medical notes on the day of review)

Date	/ /			
Patient NAME or Addressograph				
Consultant NAME				
<b>Antibiotic Decision</b> <b>(1 out of 4 sections below must be completed)</b>				
✓ tick [ ]	STOP	Write Stop DATE:	/ /	
[ ]	IV to Oral switch	New antibiotic(s) (Please write on the right hand side)	Please state new antibiotic(s):	
		NEW Review or Stop DATE	/ /	
[ ]	CONTINUE IV	NEW Review or Stop DATE	/ /	
		Reason for not switching	Patient is nil by mouth or not absorbing	✓ tick [ ]
			No oral option available	[ ]
			Patient not clinically improving	[ ]
			Deep seated infection	[ ]
Based on Micro/ Antimicrobial Pharmacist advice	[ ]			
[ ]	SWITCH to another IV	Escalate ( patient deteriorated) [ ]	Please state new antibiotic(s):	
		De-escalate ( as per blood culture) [ ]	Please state new antibiotic(s):	
		Changed as per microbiology advice [ ]	Please state new antibiotic(s):	
		NEW Review or Stop DATE	/ /	

Name /Signature/Bleep of a doctor completing:



<b>References</b> <i>i.e. NICE guidance, externally recognised reports or research</i>	<ol style="list-style-type: none"> <li>1. BNF for Children 2017-18 (Accessed via <a href="http://www.medicinescomplete.com">www.medicinescomplete.com</a> on 14/05/2018)</li> <li>2. Bedford Hospital NHS Trust Antibiotics Guidelines (Adults) – Via trust intranet.</li> <li>3. NICE CG160. Feverish illness in children. Assessment and initial management in children younger than 5 years. Issue date: May 2013.</li> <li>4. NICE CG54. UTI in children. Urinary tract infection in children: diagnosis, treatment and long term management. Issue date: August 2007.</li> <li>5. NICE NG84. Sore Throat (acute) antimicrobial prescribing. Issue date: January 2018</li> </ol>
<b>Staff Involved In Development</b>	Dr O Kwapong, Consultant Paediatrician George Osei-Barnieh, Specialist Pharmacist – Women & Children

### Monitoring / Audit Criteria

Aspect	Method	Frequency	Responsibility	Reporting Arrangements
Correct antibiotics are prescribed at the correct dose	Pharmacist ward rounds	Daily (Monday-Friday)	Paediatric Pharmacist	Prescriber will be contacted if pharmacist believes there is an error
Antibiotic treatment is reviewed daily and adjusted according to cultures	Audit	Annual	Paediatric Audit lead	Report at Paediatric audit meeting

### Approving Signatories

Name of Leading Sub-Committee / Business  
Division Approving this Guideline:

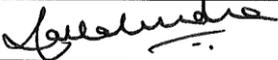
**Women and Children's**

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#### Approval Signature

Signature: 	Date: <b>19/7/2018</b>
Print Name: <b>PALLAB RUDRA</b>	Job Title: <b>Clinical Director, W &amp; C</b>

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Name of Other Sub-Committee / Business  
Division involved in Approval of Guideline:

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Date:	Date:
Signature:	Signature:
Print Name:	Print Name:
(Chairperson of Board or Committee indicated above)	(Chairperson of Board or Committee indicated above)

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#### Ratification Signature

Approved by Associate Director of Operations – W&C

Date:	19/7/18
Signature: 	
Print Name	<b>Linda McGranahan</b>

## Consultation List

A completed list should accompany **every** guideline/policy  
(This gives evidence on who has seen this Guideline and any comments made)

Name of Person	Department or Committee	Comments
Simantee Guha	Consultant Microbiologist	Comments received and incorporated
George Osei-Barnieh	Paediatric Pharmacist	Comments received and incorporated
Dr Rishi Arora	Consultant Paediatrician	No comments
Dr Anita Mittal	Consultant Paediatrician	No comments
Dr Oseiwa Kwamong	Consultant Paediatrician	No comments
Dr Pramod Nair	Consultant Paediatrician	No comments
Dr Swati Pradhan	Consultant Paediatrician	No comments
Dr Babita Khetriwal	Consultant Paediatrician	No comments
Dr Parag Tambe	Consultant Paediatrician	No comments
Dr Arun Kuppuswamy	Consultant Paediatrician	No comments
Eileen Forbes	Paediatric Matron	No comments
Julie Sharpe	Riverbank Ward Manager	No comments

<b>Kyrsti Watson</b>	<b>Children's Assessment Unit Manager</b>	<b>No comments</b>
<b>Linda McGranahan</b>	<b>Associate Director of Operations – W&amp;C Services</b>	<b>No comments</b>
<b>Shirley Jones</b>	<b>Head of Midwifery and Nursing</b>	<b>No comments</b>