

Title: **PAEDIATRIC EMPIRICAL ANTIMICROBIAL** Ref: 1118 Version 5  
**GUIDELINES**

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Responsible for review: Consultant Microbiologist  
Antimicrobial Pharmacist

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Chief Nurse  
Medical Director

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## Introduction

- These Guidelines are for the care of patients **age one month and older**. Recommendations for neonates can be found in the separate Neonatal Empirical Antimicrobial Guidelines.
- These Empirical Paediatric Antimicrobial Guidelines are divided into systems, specific guidance on Gentamicin and Vancomycin prescribing and prophylactic antibiotics.
- All the recommended **treatments are highlighted in yellow boxes**. Where not provided in the recommendation box, dosing recommendations can be found at the end of the guideline.
- The Guidelines are not exhaustive and any clinical deterioration in a patient should be d/w the Consultant Paediatrician.
- When required, advice can be obtained during working hours from the Microbiologist on 54990 or Antimicrobial Pharmacist on bleep #6650. In out-of-hours situations a Microbiologist can be contacted via switchboard.

## Good Antimicrobial Practice

1. At all times follow the trust Antimicrobial Prescribing Policy ([Policy 1098](#)).
2. Antibiotics must be used to treat infections and not colonisation, and the diagnosis must be recorded in the casenotes.
3. Microbiological culture, drainage or removal of infection and antibiotic therapy MUST be commenced in a timely manner ([Ref 0838](#)).
4. If sepsis suspected ensure Paediatric Sepsis Tool is used ([Ref 1455](#)).
5. Body-surface area (BSA) estimates are more accurate for calculating paediatric doses than body-weight. BSA can be estimated by weight (see back of BNF for Children).
6. Please note that the doses of many antibiotics should be decreased in renal failure (see BNF for Children).
  - Nephrotoxic drugs should, if possible, be avoided in children with renal disease because the consequences of nephrotoxicity are likely to be more serious when the renal reserve is already reduced.
  - Doses are adjusted according to the severity of renal impairment. This is expressed in terms of glomerular filtration rate (GFR), usually derived from the creatinine clearance (mL/minute/1.73 m<sup>2</sup>). Creatinine clearance is often estimated from the equations given below:
  - For a child over 1 year, the following equation provides a guide to the creatinine clearance:  
Approximate creatinine clearance (mL/minute/1.73 m<sup>2</sup>)  
= 40 × height (cm) / serum creatinine (micromol/litre)
7. Patients who have travelled abroad within the last 4 weeks and present with a febrile illness should always be discussed with the Consultant Microbiologist.

## **Major Changes from Version 4 to the Paediatric Empirical Antimicrobial Guidelines** **Good Antimicrobial Practice**

**Page 2:** New Paediatric Sepsis Tool is in place for suspected sepsis. See guideline Ref: 1455.

### **Musculoskeletal Infections**

**Page 9:** Osteomyelitis & Septic Arthritis – Recommended 1<sup>st</sup> line treatment is no longer Flucloxacillin IV.

**1<sup>st</sup> Line treatment now as follows:**

1 -3 months: **Cefotaxime IV** ADD **Gentamicin IV** plus **Amoxicillin IV if severe.**

>3 months: **Ceftriaxone IV** ADD **Gentamicin IV if severe**

### **Urinary Tract Infections**

**Page 15:** UTI in a child under 3 months – 1<sup>st</sup> line choice now Ceftriaxone IV (previously Cefotaxime)

### **Blood Stream Infections**

**Page 16:** Sepsis (not in neonates) community acquired – 1<sup>st</sup> line treatment now the same for all ages 1 month – 17 years.

**Ceftriaxone 80mg/kg IV** (Max dose 4g daily). DO NOT infuse with TPN or calcium containing fluids.  
ADD **Gentamicin IV** if severe.

### **CNS Infections**

**Page 17:** Meningitis (1-3 months) - 1<sup>st</sup> line choice now Ceftriaxone IV (previously Cefotaxime) plus Amoxicillin IV

### **Surgical Antibiotic Prophylaxis**

**Pages 27-32:**

The dose of **Metronidazole IV** has increased from 7.5mg/kg to 30mg/kg (Max 500mg per dose) for STAT doses in line with the BNFC.

The dose of **Cefuroxime IV** has increased from 30mg/kg to 50mg/kg (Max 1.5g per dose) for STAT doses in line with the BNFC.

### **Non-surgical Antibiotic Prophylaxis**

**Page 33:** Pacemaker Insertion - Recommended 1<sup>st</sup> line treatment is no longer Flucloxacillin IV.

**1<sup>st</sup> Line treatment now:** Teicoplanin IV 10mg/kg (Max 400mg per dose) Stat, then a further dose 12hrs later.

<b>Skin &amp; Soft Tissue Infections</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Bites: Prophylaxis</b> Recommended for all human and cat bites and other animal bites to head, hands and genitalia in immunosuppressed. <a href="http://cks.nice.org.uk/bites-human-and-animal">http://cks.nice.org.uk/bites-human-and-animal</a>	<b>Co-amoxiclav PO</b>	<6 months: Discuss with Consultant Microbiologist >6 months: <b>Azithromycin PO plus Metronidazole PO.</b> Discuss with Consultant Microbiologist if concerned or deep bite(s).	7 days
<b>Bites: Treatment</b>	<b>Co-amoxiclav PO/IV</b>	If penicillin allergic <b>Ciprofloxacin PO &amp; Metronidazole PO.</b> If no response at 24 hours discuss with Consultant Microbiologist.	7 days  According to clinical response, up to 3 weeks for an associated septic arthritis.
<ul style="list-style-type: none"> <li>Consider referral of devitalised injuries to a surgeon for debridement and intravenous antibiotics.</li> <li>For human bites (thought to be of risk) follow the inoculation accident procedure in the <a href="#">Infection Control Manual</a>.</li> <li>Please remember for animal bites obtained abroad to contact the Consultant Microbiologist as rabies prophylaxis maybe required.</li> <li>For all bites check the tetanus vaccination history. If 5 doses of vaccine have been given then there is lifelong immunity.</li> <li>If the patient has <u>not</u> completed a 5 dose schedule of immunisation or if the immunisation history is not known then a dose of the combined tetanus/diphtheria/inactivated polio vaccine (Td/IPV) should be given. Please see <a href="#">0061 Tetanus</a>. The five dose schedule should be completed by the GP. If the wound is "tetanus prone" see p379 of "Immunisation against Infectious Disease: The Green Book", then tetanus immunoglobulin will be required regardless of vaccination history: <a href="https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148506/Green-Book-Chapter-30-dh_103982.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148506/Green-Book-Chapter-30-dh_103982.pdf</a></li> </ul>			

Skin & Soft Tissue Infections- Continuation			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
Peri-orbital Cellulitis	See <a href="#">(Eye Infections)</a>		
Orbital Cellulitis	See <a href="#">(Eye Infections)</a> & <a href="#">(Ref 0692)</a>		
Cellulitis	<a href="#">Amoxicillin &amp; Flucoxacillin PO</a>	For GP's, if at school consider <a href="#">Co-amoxiclav PO</a>	7-14 days  (if <u>PVL</u> see below)
MRSA infection	<b>Under 6 weeks:</b> Discuss with Consultant Microbiologist <b>6 weeks and over:</b> Discuss with Consultant Microbiologist	<a href="#">If penicillin allergic Azithromycin PO or Clarithromycin PO if under 6 months old</a>	
Severe Cellulitis I.e. Patient requires admission.	<a href="#">Benzylpenicillin IV &amp; Flucloxacillin IV</a>	If penicillin allergic discuss with Consultant Microbiologist. <a href="#">Clindamycin IV plus Teicoplanin IV.</a> Discontinue Teicoplanin if appropriate in light of sensitivities.	7-14 days. Switch to oral when improved.
MRSA infection	<a href="#">Teicoplanin IV</a>		
Necrotising Fasciitis	<a href="#">Meropenem IV &amp; Clindamycin IV</a>  Ensure senior staff involvement in care. Discuss with Consultant Microbiologist Discuss with Surgeon	Discuss with Consultant Microbiologist	

Skin & Soft Tissue Infections- Continuation			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (eg. Penicillin allergy)	Duration & Notes
Cellulitis in PVL producing or suspected PVL producing MRSA or sensitive Staph aureus (MSSA)	According to sensitivity pattern either: <b>MSSA: Flucloxacillin PO &amp; Clindamycin PO</b>  <b>MRSA:</b> <b>&lt;6 weeks:</b> Discuss with Consultant Microbiologist <b>≥6 weeks:</b> Discuss with Consultant Microbiologist	According to sensitivity pattern either: <b>Clindamycin PO</b> <b>OR</b> <b>Rifampicin PO plus Trimethoprim PO</b>	7 days Always inform Consultant Microbiologist if a PVL infection is suspected <a href="http://www.hpa.org.uk/web/HPAweb&amp;Page&amp;HPAwebAutoListName/Page/1207208304710?p=1207208304710">http://www.hpa.org.uk/web/HPAweb&amp;Page&amp;HPAwebAutoListName/Page/1207208304710?p=1207208304710</a>  If no improvement seen or if systemically unwell discuss escalation of treatment with a Paediatric and Microbiology Consultant immediately.
Post-laparotomy wound infection  Do a MRSA screen ( <a href="#">Policy 0396</a> )	<b>Co-amoxiclav IV then PO</b>  Review antibiotic choice once swab cultures available.	<b>Clarithromycin IV</b>  If no h/o anaphylaxis to penicillin: <b>Cefalexin PO plus Metronidazole PO</b>	5 days. Switch to oral when normal temperature, pulse, WCC and functioning GI tract.  If an h/o anaphylaxis to penicillin discuss oral switch with Consultant Microbiologist.
Impetigo	If area <2cm diameter use <b>Topical Mupirocin (Bactroban ointment®)</b> <b>1 month-18yrs:</b> Apply TDS.  If area >2cm diameter or a neonate use <b>Flucloxacillin PO</b>	If area >2cm diameter and penicillin allergic use: <b>Azithromycin PO or Clarithromycin PO if under 6 months old</b>	<b>Topical</b> treatment no longer than 10 days.  <b>Oral</b> treatment 7 days.

Skin & Soft Tissue Infections- Continuation			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
<b>Severe Nappy Rash</b>	<p><b>Hydrocortisone Cream 0.5% or 1% TOP</b> applied once a day for 5-7 days (avoid in neonates) <b>plus Clotrimazole cream 1% TOP</b> applied BD-TDS a day continue for 7 days after the rash has cleared.</p> <p>If features of secondary bacterial infection then use <b>Flucloxacillin PO</b></p> <p>If candida use <b>Nystatin PO</b></p>	<p>If penicillin allergic and features of secondary bacterial infection: <b>Azithromycin PO or Clarithromycin PO if under 6 months old</b></p>	<p>Duration: see text.</p> <p>Ensure general care (changing nappies frequently, leave skin exposed to air and if skin excoriated but not infected use barrier creams e.g. Zinc Cream or Ointment BP).</p> <p>If barrier creams are used they should be applied after the topical hydrocortisone.</p> <p>If there is suspicion of candidal infection (thrush), then ensure the gastrointestinal tract is also treated with <b>Nystatin PO</b> &amp; avoid barrier creams whilst treated.</p>
<b>Tinea corporis, Tinea cruris &amp; Tinea pedis (Dermatophyte/Ringworm infections of body, groin and foot)</b>	<p><b>Clotrimazole cream 1% TOP</b> applied TDS and continued for 7 days after the rash has cleared.</p>		<p>If Dermatophyte/Ringworm infection is recurrent refer to a Consultant Dermatologist</p>
<b>Tinea capitis, (Dermatophyte/Ringworm infection of the scalp)</b>	<p>Systemic treatment required, please refer to Consultant Dermatologist <b>Terbinafine PO for scalp infections:</b> Terbinafine is not licensed for children but has been used safely. See: <a href="https://med.virginia.edu/pediatrics/wp-content/uploads/sites/237/2015/12/200607.pdf">https://med.virginia.edu/pediatrics/wp-content/uploads/sites/237/2015/12/200607.pdf</a></p>		<p>Treat for 4 weeks.</p> <p>NB: Trichophyton tonsurans accounts for 90% of fungal scalp infections in the UK).</p>
<b>Tinea unguium, Onychomycosis (Dermatophyte infection of the nails)</b>	<p>Systemic treatment required, please refer to Consultant Dermatologist <b>Itraconazole</b>, administered as a pulse treatment (for 1 week a month). <b>1-12 years:</b> 5 mg/kg/daily (max 200mg) PO <b>12-18 years:</b> 200mg BD PO</p>		<p>The recommended duration of therapy is 2 pulses for fingernail involvement and 3 pulses for toenails.</p>
<b>Chronic paronychia</b>	<p><b>Clotrimazole cream 1% TOP</b> applied TDS and continued for 7 days after the chronic paronychia has cleared.</p>		<p>Usually due to a candida infection. Try to discourage sucking of fingers especially if topical anti-fungal is used.</p>

Skin & Soft Tissue Infections- Continuation			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
<b>Chickenpox/Varicella zoster</b>	<p><b>Immunocompetent children:</b> No need to treat with anti-viral medication.</p> <p><b>Immunosuppressed children or children on immunosuppressing treatment or children with severe cardiorespiratory disease or chronic skin disorder:</b> Treat with <b>Aciclovir IV</b> started within 24hrs of rash appearing.</p>		<p>7 days in &lt;3 months old 5 days in &gt;3 months old Inform Consultant Paediatrician</p> <p>For neonates and immunosuppressed children or children on immunosuppressing treatment <u>in contact</u> with Chickenpox or Shingles please d/w Consultant Microbiologist asap.</p> <p>Be aware of the risk of impetigo and secondary bacterial infection.</p>
<b>Shingles/Herpes zoster</b>	<p><b>Immunosuppressed children or children on immunosuppressing treatment:</b> Treat with <b>Aciclovir IV</b> started within 72hrs of rash appearing</p>		<p>7 days If an IMMUNOCOMPETENT child has shingles d/w Consultant Paediatrician.</p>
<b>Primary Herpes simplex virus (HSV) infection affecting ability to drink</b>	<p>Treat with <b>Aciclovir IV</b> for 48 hours then <b>Aciclovir PO</b> for a further 5 days, <b>plus Chlorhexidine gluconate 0.2% mouth wash (Corsodyl®)</b> 10mL rinse mouth for 1 minute bd.</p>		



Musculoskeletal Infections			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
Osteomyelitis and Septic Arthritis	<p>1 -3 months: <b>Cefotaxime IV</b> ADD <b>Gentamicin IV</b> plus <b>Amoxicillin IV</b> if severe.</p> <p>&gt;3 months: <b>Ceftriaxone IV</b> ADD <b>Gentamicin IV</b> if severe</p> <p>In osteomyelitis consider adding <b>Rifampicin PO</b> or <b>Fusidic Acid PO</b> for an initial 2/52.</p>	<p>If history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.</p> <p>1 month-18yrs: <b>Clindamycin IV</b> &amp; discuss with Consultant Microbiologist.</p> <p>In osteomyelitis consider adding <b>Rifampicin PO</b> or <b>Fusidic Acid PO</b> for an initial 2/52.</p>	<p><b>Always</b> discuss with Consultant Microbiologist</p> <p>Always refer to T&amp;O for tissue diagnosis and washout.</p> <p>4-6 weeks for septic arthritis</p> <p>6 weeks for osteomyelitis</p>

Respiratory Tract Infections			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
<b>Bronchiolitis (usually under 1yr)</b> <i>(Ref: 0266)</i>	Antibiotics not recommended as usually caused by RSV.	If secondary bacterial infection suspected (Fever >38.5°C or symptomatic > 1 week) treat as Community Acquired Pneumonia and consider <i>Staph aureus</i> as an aetiology.	Consider Whooping cough ( <i>Bordetella pertussis</i> ) if not vaccinated.
<b>Croup (usually under 3yrs)</b> <i>(Ref: 0613)</i>	Antibiotics not recommended as usually caused by Para'flu' viruses.	If secondary bacterial infection suspected (Fever >38.5°C or symptomatic > 1 week) consider bacterial tracheitis. See <i>(Bacterial Tracheitis)</i> & discuss with Paediatric and ENT Consultant immediately.	Admit if salivary drooling or IC recession and consider epiglottitis.  See <i>(Epiglottitis in ENT section)</i> . Consider Whooping cough ( <i>Bordetella pertussis</i> ) if not vaccinated.
<b>Acute bronchitis</b>  See <i>NICE CG69</i> <a href="https://www.nice.org.uk/guidance/cg69">https://www.nice.org.uk/guidance/cg69</a>	In general antibiotics are not prescribed. Antibiotics are recommended for those who are/have: <ul style="list-style-type: none"> <li>Systemically very unwell or serious illness.</li> <li>Comorbidities such as heart, lung, renal, liver or neuromuscular disease, immunosuppression or cystic fibrosis.</li> </ul> <b>Amoxicillin PO</b>	In general antibiotics are not prescribed. Antibiotics are recommended for those who are/have: <ul style="list-style-type: none"> <li>Systemically very unwell or serious illness.</li> <li>Comorbidities such as heart, lung, renal, liver or neuromuscular disease, immunosuppression or cystic fibrosis.</li> </ul> If penicillin allergic: <b>&lt;6 months: Clarithromycin PO</b> <b>6months-18yrs: Azithromycin PO</b>	5 – 7 days

Respiratory Tract Infections Continuation			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
<b>Community-acquired Pneumonia (CAP)</b> See <a href="https://www.brit-thoracic.org.uk/standards-of-care/guidelines/bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-adults-update-2009/">https://www.brit-thoracic.org.uk/standards-of-care/guidelines/bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-adults-update-2009/</a>	>1 month: <b>Amoxicillin PO</b>  <b>Azithromycin PO (Clarithromycin PO if &lt;6months)</b> may be added if no response to 1 <sup>st</sup> line therapy or if atypical pneumonia is suspected.  <b>If post-influenza or influenza suspected: Co-amoxiclav PO</b>	<b>6months - 18yrs: Azithromycin PO OR Clarithromycin PO if &lt; 6months</b> (if poor response consider <b>Cefalexin PO</b> as long as no history of anaphylaxis or facial swelling with penicillin).	7-10 days (3-5 days for Azithromycin)  If associated with night sweats & weight-loss exclude Tuberculous pneumonia.  Consider Whooping cough (Bordetella pertussis) if not vaccinated.
<b>Community-acquired Pneumonia (CAP) &amp; already received antibiotics from GP OR Recurrent lower respiratory tract infections (LRTI) in children with abnormal lungs (not cystic fibrosis).</b>	<b>Co-amoxiclav PO &amp; Azithromycin PO (or Clarithromycin PO if &lt; 6 months).</b>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	7-10 days (3-5 days for Azithromycin)  Always do an MRSA screen ( <a href="#">Policy 0396</a> )
<b>Severe Community-acquired Pneumonia (CAP) - signs of sepsis, alveolar infiltrate or large pleural effusion</b>	IV antibiotics recommended if patient unable to tolerate orals, if there are signs of septicaemia or complicated pneumonia.  <b>&gt; 1 month - 6months: Escalate antibiotics to Co-amoxiclav IV plus Clarithromycin PO</b> <b>&gt; 6 months: Escalate antibiotics to Co-amoxiclav IV plus Azithromycin PO</b>  Promptly de-escalate as appropriate once micro results available.	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	7-10 days, 14-21 days if Staphylococcal, Pseudomonas or Coliform aetiology.  Switch to oral as for CAP when clinically improved.  If not improving discuss with Consultant Microbiologist.

Respiratory Tract Infections Continuation			
Infection	1st Choice	2nd Choice (e.g. Penicillin allergy)	Duration & Notes
<b>Bacterial Tracheitis</b>	Inform Paediatric & ENT Consultant immediately. <b>Ceftriaxone IV</b> OR <b>Cefotaxime IV</b> if under 3 months	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	7-10 days. If Staph aureus isolated d/w Consultant Microbiologist
<b>Hospital-acquired Pneumonia (HAP) onset LESS than 5 days after admission</b>  Do an MRSA screen. ( <a href="#">Policy 0396</a> )	1month -5yrs: <b>Cefuroxime IV</b> 5-18yrs: <b>Cefuroxime IV &amp; Clarithromycin IV</b>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	7 days
<b>Hospital-acquired Pneumonia (HAP) onset MORE than 5 days after admission</b>  Do an MRSA screen. ( <a href="#">Policy 0396</a> )	>1 month: <b>Piperacillin-tazobactam IV</b> . If severe illness caused by pseudomonas aeruginosa ADD <b>Gentamicin IV</b>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV</b> .	7 days  14-21 days if Staphylococcal, Pseudomonas or Coliform aetiology.  Discuss oral switch with Consultant Microbiologist.
<b>Whooping cough (Bordetella pertussis)</b> <a href="#">See HPA guidance</a>	<b>Azithromycin PO</b> or <b>Clarithromycin PO</b> if under 6 months		Azithromycin: 5 days Clarithromycin: 14 days
<b>Cystic Fibrosis (CF)</b> ( <a href="#">Policy 1168</a> )	Due to the complex and individual nature of CF and the variances in antimicrobial sensitivities between patients, please discuss individual patient management with the relevant specialist clinician or a Consultant Microbiologist.  Please refer to ( <a href="#">Policy 1168</a> )		

<b>Cardiovascular Infections</b>			
<b>Infection</b>	<b>1st Choice</b>	<b>2nd Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Endocarditis</b>	Regimes not well defined in children; consider Vancomycin & Gentamicin for echocardiogram-positive endocarditis, pending culture results; combination provides bactericidal activity against most strains of streptococci, enterococci and staphylococci. See <a href="#">(Vancomycin)</a> & <a href="#">(Gentamicin)</a>		<p>Always discuss with Consultant. Microbiologist or a Consultant Paediatrician with a special interest in cardiology.</p> <p>If blood cultures are negative please discuss serological tests and empirical antibiotic therapy with a Consultant Microbiologist or a Consultant Cardiologist.</p>

<b>Gastro-intestinal and Intra-abdominal Infections</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Gastroenteritis</b>	Antibiotics not indicated		Often viral in origin
<b>Typhoid (<i>Salmonella typhi</i> or <i>S. paratyphi</i>)</b>  <b>Notify PHE (0300 303 8162)</b>	<u>Ceftriaxone IV</u>		10-14 days Discuss oral switch with Consultant Microbiologist Do not use anti-motility agents & assess/treat dehydration in every child See <a href="#">(Policy 0614)</a>
<b>Acute abdomen or Appendicitis or Peritonitis</b>	<u>Cefuroxime IV plus Metronidazole IV</u>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	Do not use anti-motility agents & assess/treat dehydration in every child See <a href="#">(Policy 0614)</a>
<b>Mild Clostridium difficile Infection</b> See <a href="#">(Ref 0914)</a>	<u>Metronidazole PO</u>	If NBM <u>Metronidazole IV</u>	14 days  Do not use anti-motility agents & assess/treat dehydration in every child See <a href="#">(Policy 0614)</a>
<b>Moderate or Severe Clostridium difficile Infection or Recurrent Clostridium difficile Infection</b> See <a href="#">(Ref 0914)</a>	<u>Vancomycin PO</u>	If NBM <u>Metronidazole IV</u>	14 days Always d/w Consultant Microbiologist. Do not use anti-motility agents & assess/treat dehydration in every child See <a href="#">(Policy 0614)</a>

<b>Urinary Tract Infections (UTI's)</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>UTI in a systemically well child <u>3 months or older</u></b> <b>See: NICE CG 54</b> <a href="https://www.nice.org.uk/guidance/cg54">https://www.nice.org.uk/guidance/cg54</a>	<b>Trimethoprim PO</b> or <b>Nitrofurantoin PO</b>		3 days But if unwell at 24-48hrs reassess & send urine culture
<b>UTI /Pyelonephritis in a systemically unwell child <u>3 months or older</u></b>  Fever and one or more of the following: <ul style="list-style-type: none"> <li>• Loin or abdominal pain</li> <li>• Vomiting</li> <li>• Irritability</li> <li>• Poor feeding</li> <li>• Lethargy</li> </ul> <b>See: NICE CG 54</b> <a href="https://www.nice.org.uk/guidance/cg54">https://www.nice.org.uk/guidance/cg54</a> <b>See: NICE CG 160</b> <a href="https://www.nice.org.uk/guidance/cg160">https://www.nice.org.uk/guidance/cg160</a> <b>See: Trust Guideline (Ref 1104)</b>	For first 48 hours treat IV: <b>&gt;3 months: Ceftriaxone IV</b>  Then PO switch to: <b>Cefalexin PO</b> or <b>Co-amoxiclav PO</b>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	Always send urine for culture. Treat for 7-10 days.
<b>UTI in a child <u>under 3 months</u></b> <ul style="list-style-type: none"> <li>• Fever</li> <li>• Vomiting</li> <li>• Lethargy</li> <li>• Irritability</li> <li>• Poor feeding</li> <li>• Failure to thrive</li> </ul> <b>See: NICE CG 54</b> <a href="https://www.nice.org.uk/guidance/cg54">https://www.nice.org.uk/guidance/cg54</a> <b>See: NICE CG 160</b> <a href="https://www.nice.org.uk/guidance/cg160">https://www.nice.org.uk/guidance/cg160</a> <b>See: Guideline (Ref 1104)</b>	<b>Age 1-3months: Ceftriaxone IV</b>  If source of infection unknown add <b>Amoxicillin IV</b> to cover Listeria.	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	Use IV for 2-4 days then switch to oral, according to sensitivity results, to complete a 7-10 day course.
<b>Asymptomatic Bacteriuria</b>	<b>No antibiotics required</b>		

<b>Blood Stream Infections</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Sepsis (not in neonate) community acquired</b> <b>See: NICE CG 160</b> <a href="https://www.nice.org.uk/guidance/cg160">https://www.nice.org.uk/guidance/cg160</a>  For meningococcal sepsis See Meningitis (Ref 1460)	<b>1 month – 17 years:</b> <b>Ceftriaxone 80mg/kg IV</b> (Max dose 4g daily). <b>DO NOT</b> infuse with TPN or calcium containing fluids. <b>ADD Gentamicin IV</b> if severe.  See ( <a href="#">Gentamicin</a> )	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist.	Review antibiotic choice at 48 hours once culture results available.
<b>Sepsis (not in neonate) hospital acquired</b>	<b>Piperacillin-tazobactam IV</b> <b>ADD Gentamicin IV</b> if severe.  See ( <a href="#">Gentamicin</a> )	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV</b> .	Review antibiotic choice at 48 hours once culture results available.
<b>Neutropenic sepsis</b>	<b>Piperacillin-tazobactam IV plus Gentamicin IV</b>  See ( <a href="#">Gentamicin</a> )	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV</b> .	Review antibiotic choice at 48 hours once culture results available.



Central Nervous System (CNS) Infections			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
<p><b>Meningitis (1-3 months)</b></p> <p>See NICE CG 102  <a href="https://www.nice.org.uk/guidance/cg102">https://www.nice.org.uk/guidance/cg102</a></p> <p>Notify HPA: 01803 861833                      See <a href="#">Prophylaxis</a></p> <p>If recent travel outside of UK <b>OR</b> Multiple prolonged exposure to antibiotics in the last 3 months.</p>	<p><b>Ceftriaxone 80mg/kg IV</b> (Max dose 4g daily). DO NOT infuse with TPN or calcium containing fluids. <b>plus Amoxicillin IV</b></p> <p>Add <b>Vancomycin IV</b></p>	<p>If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV</b>.</p> <p>Add <b>Vancomycin IV</b></p>	<p><b>Group B Strep:</b> 14 days.  <b>Pneumococcal:</b> 14 days.  <b>Gram negative:</b> 21 days.  <b>Listeria:</b> Amoxicillin IV 21days &amp; Gentamicin IV 7days  <b>Meningococcal:</b> 7 days  <b>Undiagnosed:</b> 14 days</p> <p>Adjunctive corticosteroids of <u>no</u> benefit.</p>
<p><b>Meningitis (&gt;3 months)</b></p> <p>See NICE CG 102  <a href="https://www.nice.org.uk/guidance/cg102">https://www.nice.org.uk/guidance/cg102</a></p> <p>Notify HPA: 01803 861833                      See <a href="#">Prophylaxis</a></p> <p>If recent travel outside of UK <b>OR</b> Multiple prolonged exposure to antibiotics in the last 3 months.</p>	<p><b>Ceftriaxone IV</b>                      DO NOT infuse with TPN or calcium containing fluids.</p> <p>Add <b>Vancomycin IV</b></p>	<p>If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV</b>.</p> <p>Add <b>Vancomycin IV</b></p>	<p><b>Meningococcal:</b> 7 days  <b>Pneumococcal:</b> 14 days  <b>Haemophilus influenzae:</b> 10 days  <b>Undiagnosed:</b> 10 days</p> <p><b>Always discuss with a Consultant Paediatrician:</b>  <b>Dexamethasone IV</b> (0.15mg/kg: - to a max dose of 10mg QDS for 4 days) for suspected or confirmed bacterial meningitis as soon as possible within 4 hours of starting antibiotics. Do not start dexamethasone more than 12 hours after starting antibiotics. If lumbar puncture reveals any of the following:</p> <ul style="list-style-type: none"> <li>• Frankly purulent CSF</li> <li>• CSF WCC&gt;1,000/microlitre</li> <li>• Raised CSF WCC with protein concentration &gt;1g/L.</li> <li>• Bacteria on Gram stain.</li> </ul> <p>Discuss with Consultant Microbiologist if Tuberculous meningitis suspected.</p>

Central Nervous System Infections Continuation			
Infection	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	Duration & Notes
Encephalitis (non-neonatal)	Aciclovir IV		21 days If diagnosis of encephalitis is definite patient will need full course of treatment even if PCR negative for herpes virus.  Use ideal weight for height in obese patients.

<b>ENT and Maxillofacial Infections</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Otitis Externa</b>	<p>Ensure malignant Otitis Externa is excluded (urgent ENT referral).</p> <p>Eczema /Psoriasis: <b>Betnesol<sup>®</sup> 2 drops TDS TOP.</b></p> <p>Suspected bacterial infection: <b>Gentamicin 0.3% w/v and Hydrocortisone acetate 1% w/v Ear Drops (Gentisone<sup>®</sup> HC) 2 drops QDS TOP.</b></p> <p>Suspected infected eczema/psoriasis: <b>flumetasone 0.02% and clioquinol 1% Ear drops (Locorten-Vioform<sup>®</sup>) 2-3 drops BD TOP</b> (not in children&lt;2yrs). NB. Avoid if perforated ear drum confirmed or suspected.</p> <p>If fungal infection: <b>Clotrimazole 1% solution 2 drops in ear TDS TOP</b> &amp; regular microsuction.</p>	<p><b>Otocomb Otic<sup>®</sup></b> (unlicensed in UK – equivalent to Tri-adcortyl Otic which is now discontinued).</p> <p>Outpatient ENT use only (not in children &lt; 1yr).</p>	<p>7 – 14 days</p> <p>4 weeks for fungal infection</p>
<p><b>Acute Otitis Media (AOM)</b> See: NICE CG69 <a href="https://www.nice.org.uk/guidance/cg69">https://www.nice.org.uk/guidance/cg69</a></p>	<p>In general adopt a ‘no or delayed antibiotic’ strategy. Prescribe antibiotics straightaway if either bilateral AOM in children &lt; 2 years or AOM with otorrhoea. <b>Amoxicillin PO.</b></p> <p>If patient has had Amoxicillin PO in the community and this has failed then use: <b>Co-amoxiclav PO</b></p>	<p>In general adopt a ‘no or delayed antibiotic’ strategy. Prescribe antibiotics straightaway if either bilateral AOM in children &lt; 2 years or AOM with otorrhoea. <b>Clarithromycin PO OR Azithromycin if &gt; 6 months.</b></p>	<p>5 days</p> <p>A certain diagnosis of AOM meets 3 criteria:</p> <ul style="list-style-type: none"> <li>i) History of acute onset of signs and symptoms</li> <li>ii) Presence of middle ear effusion</li> <li>iii) Signs or symptoms of middle-ear inflammation.</li> </ul>

Continued

<b>ENT and Maxillofacial Infections - Continuation</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Otitis Media with Effusion (OME)</b>	<b>Antibiotics not required</b>		Consider referral to ENT
<b>Acute Rhinosinusitis</b>  <b>See: NICE CG69</b> <a href="https://www.nice.org.uk/guidance/cg69">https://www.nice.org.uk/guidance/cg69</a>	In general adopt a 'no or delayed antibiotic' strategy. Immediate antibiotic therapy if systemically unwell or symptoms or signs of serious complications e.g. heart, lung, renal, liver or neuromuscular disease, immunosuppression or CF or young children who were born prematurely. <b>Amoxicillin PO</b>  For persistent infection consider: <b>Co-amoxiclav PO</b>	In general adopt a 'no or delayed antibiotic' strategy.  Immediate antibiotic therapy if systemically unwell or symptoms or signs of serious complications e.g. heart, lung, renal, liver or neuromuscular disease, immunosuppression or CF or young children who were born prematurely.  <b>Clarithromycin PO OR Azithromycin PO if &gt; 6 months.</b>	7 days
<b>Pharyngitis</b>  <b>See: NICE CG69</b> <a href="https://www.nice.org.uk/guidance/cg69">https://www.nice.org.uk/guidance/cg69</a>	In general antibiotics are not prescribed. Antibiotics are recommended for those who have any 3 of:~ i) Presence of tonsillar exudate ii) Tender anterior cervical lymphadenopathy or lymphadenitis iii) History of fever iv) Absence of cough <b>Penicillin V PO</b>	If penicillin allergic <b>Clarithromycin PO OR Azithromycin if &gt; 6 months.</b>	10 days (except Azithromycin PO for 5 days) Can use Amoxicillin in the place of Penicillin V in young children because of acceptance of the taste of the suspension.
<b>Throat - Group A Streptococcus Carriers</b>	<b>Antibiotics not required</b> These are apparent bacteriological treatment failures without illness or immunological response. They have a low risk of spread and a low risk of suppurative and non-suppurative complications.		
<b>Peri-tonsillar Abscess</b>	<b>Co-amoxiclav IV</b> If can swallow and have been afebrile for 48h switch to <b>Co-amoxiclav PO</b>	<b>Clindamycin PO/IV</b>	10 days
<b>Epiglottitis / Supraglottitis</b>	<b>&lt; 3 months: Cefotaxime IV</b> <b>&gt;3 months: Ceftriaxone IV</b>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV.</b>	7-10 days

<b>ENT and Maxillofacial Infections - Continuation</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Retro-pharyngeal Abscess OR Deep Neck Space Infections</b>	<u>Co-amoxiclav IV</u> If severe add <u>Metronidazole IV</u>	<u>Clindamycin IV</u>	10 days  Consider Lemierre's Disease and d/w Consultant Microbiologist
<b>Dental Abscess - In-patient</b>	<u>Benzympenicillin IV &amp; Metronidazole IV</u> Switch to oral as below.	<u>Clarithromycin IV &amp; Metronidazole IV</u> Switch to oral as below.	5 days
<b>Dental Abscess - Out-patient</b>	<u>Amoxicillin PO</u> OR <u>Metronidazole PO</u>	<u>Metronidazole PO</u>	5 days if tooth retained. Single dose if tooth removed

Continued

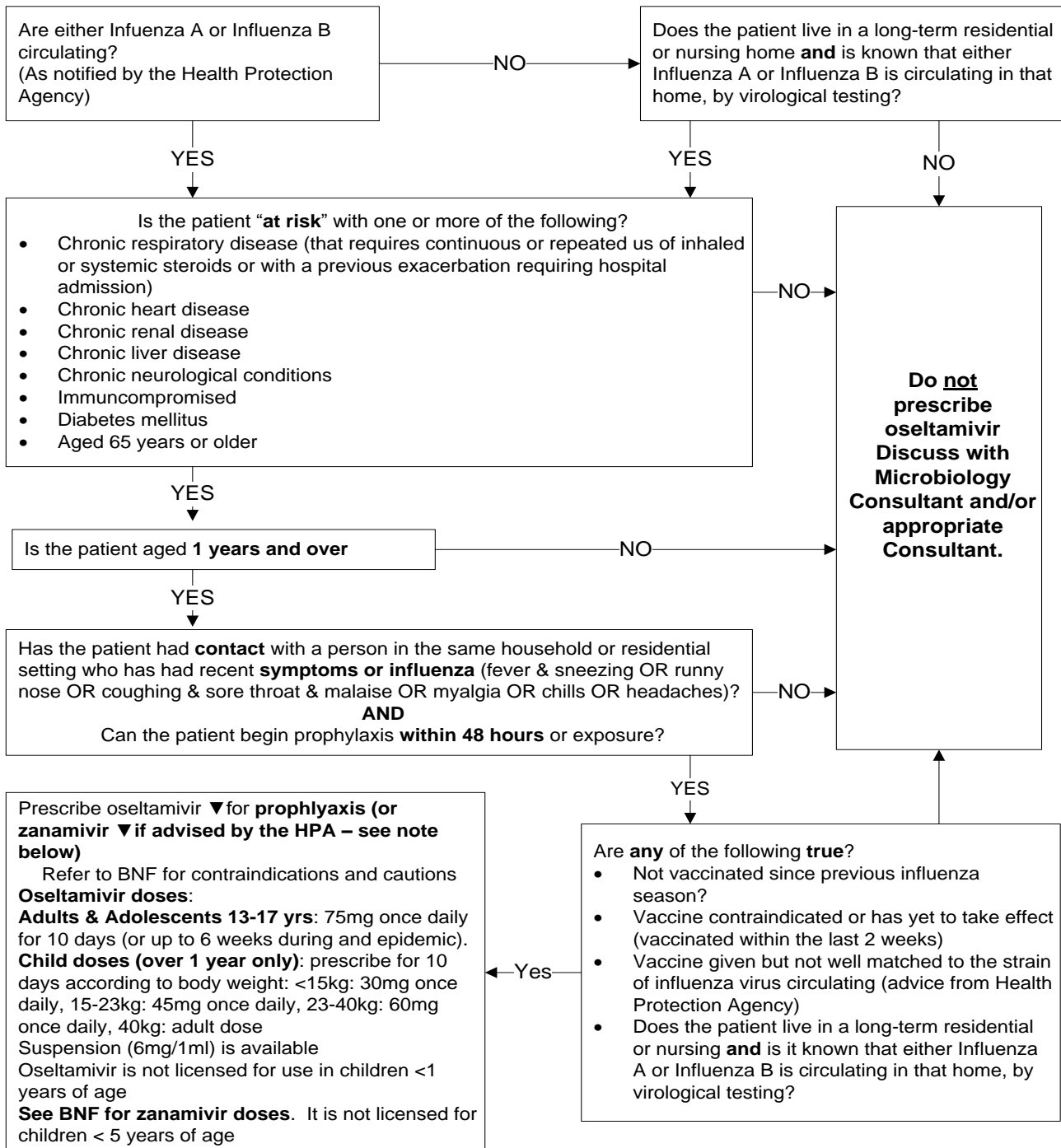
<b>Eye Infections</b>			
<b>Infection</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Duration &amp; Notes</b>
<b>Purulent conjunctivitis (not neonate)</b>	<b>Chloramphenicol 0.5% eye drops QDS TOP</b>		5 days
<b>MILD Peri-orbital (or Preseptal) Cellulitis</b>	<b>Co-amoxiclav PO</b> If IV therapy required use <b>Co-amoxiclav IV</b>	Clindamycin PO	7-10 days – switch to oral when ENT & Ophthalmology agree.
<b>MODERATE Peri-orbital (Preseptal) or Orbital (Postseptal) Cellulitis (Ref: 0692)</b>	<b>&lt; 3months:Cefotaxime IV plus Metronidazole IV</b> <b>&gt;3 months:Ceftriaxone IV plus Metronidazole IV</b>	If a history of ANAPHYLAXIS or FACIAL SWELLING with penicillin please d/w Consultant Microbiologist. If there is no history of ANAPHYLAXIS or FACIAL SWELLING with penicillin then consider <b>Meropenem IV</b> .	14 days – switch to oral when ENT & Ophthalmology agree.
<b>SEVERE Peri-orbital (Pre-septal) or Orbital (Post-septal) Cellulitis (Ref: 0692)</b>	<b>Meropenem IV Plus Clindamycin IV</b>	Discuss with Consultant Microbiologist	14 days – switch to oral when ENT & Ophthalmology agree.

Aminoglycoside Dosing and Monitoring	
<p><b>Gentamicin &amp; Tobramycin in 1 month-18yrs:</b> Once daily dosing regimen (<b>Not suitable for cystic fibrosis, endocarditis or meningitis</b>)</p>	<p>7mg/kg IV OD, then adjusted to serum Gentamicin / Tobramycin concentration</p> <p><b>DOSES AT EXTREMES OF BODY WEIGHT</b></p> <p>To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>
	<ul style="list-style-type: none"> <li>• Consider lower doses when using Gentamicin /Tobramycin in children with <u>impaired renal function</u> &amp; give one dose and then give subsequent doses according to pre-dose, 'trough' levels.</li> <li>• Take pre-dose levels before <b>2nd</b> dose if treatment continuing for more than 48 hours</li> <li>• No levels need to be taken for treatment courses of 48 hours or less.               <ol style="list-style-type: none"> <li>1. If Gentamicin / Tobramycin level &lt; 1mg/L administer dose once daily.</li> <li>2. If Gentamicin / Tobramycin level &gt;= 1 and &lt; 2mg/L then prolong dosing interval to every 36 hours.</li> <li>3. In all cases where levels &gt; 1mg/L discuss with Consultant Microbiologist or Paediatrician to see if a preferable alternative is available.</li> </ol> </li> <li>• Do pre-dose levels twice a week (or more frequently if clinical events occur that may affect renal function e.g. hypotension, blood loss, diarrhoea etc.) and check U&amp;Es.</li> </ul>
<p><b>Vancomycin in 1 month – 18yrs:</b></p>	<p>15mg/kg IV TDS (max 2grams/day), then adjusted according to plasma-concentration monitoring</p>
	<ul style="list-style-type: none"> <li>• Consider prolonging the dosing interval in children with <u>impaired renal function</u>.</li> <li>• The pre-dose, 'trough' concentration should be 10-15mg/L (may need to be higher in endocarditis, prosthetic infections, pneumonia or MRSA infections with a high MIC to Vancomycin).</li> <li>• Do pre-dose levels twice a week (or more frequently if clinical events occur that may affect renal function e.g. hypotension, blood loss, diarrhoea etc.) and check U&amp;Es.</li> </ul>

**Flowchart for the use of oseltamivir or zanamivir for the PROPHYLAXIS of Seasonal influenza (NOT Pandemic) in Adults and Children 1 years and older**

Based on NICE technology appraisal guidance 158, February 2009

Accessed via: <https://www.nice.org.uk/Guidance/ta158>



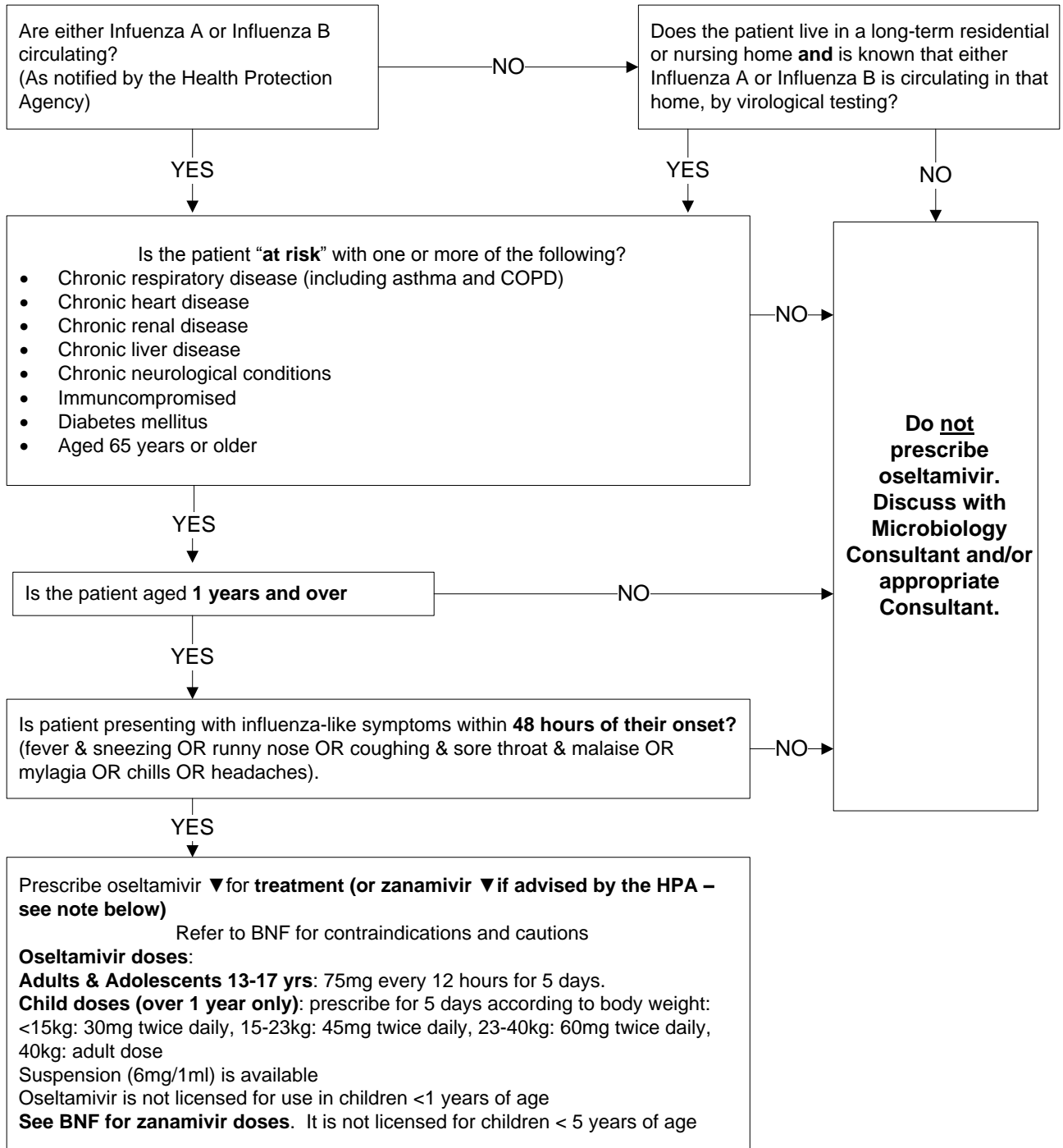
Note: At the time of review no resistance to oseltamivir has been identified in South Devon and therefore oseltamivir remains the first choice agent for the treatment of influenza. However, if local resistance becomes apparent, prescribers may be asked to prescribe zanamivir in accordance with NICE TAGs 158 and 168 on the advice of the Health Protection Agency. Oseltamivir and zanamivir should not be used during pregnancy or in breast-feeding women unless the potential benefit to the woman overrides the potential risk for the foetus or infant.



**Flowchart for the use of Oseltamvir or Zanamivir for the TREATMENT of Seasonal influenza (NOT pandemic) in Adults and Children 1 years and older**

Based on NICE technology appraisal guidance 168, February 2009

<https://www.nice.org.uk/Guidance/ta168>



Note: At the time of review no resistance to oseltamvir has been identified in South Devon and therefore oseltamvir remains the first choice agent for the treatment of influenza. However, if local resistance becomes apparent, prescribers may be asked to prescribe zanamivir in accordance with NICE TAGs 158 and 168 on the advice of the Health Protection Agency. Oseltamvir and zanamivir should not be used during pregnancy or in breast-feeding women unless the potential benefit to the woman overrides the potential risk for the foetus or infant.

**PROPHYLAXIS doses of Oseltamivir (Tamiflu) for PANDEMIC influenza**

Oseltamivir is not licensed for use in children less than 1 year old unless there is a pandemic.  
 Renal Impairment: Estimated Glomerular Filtration Rate (eGFR) 30-60mL/minute/1.73 m<sup>2</sup>: Use 40% of normal dose OD. For eGFR 10-30mL/minute/1.73 m<sup>2</sup>: Use 40% of normal dose every 48 hours. Avoid if eGFR less than 10 mL/minute/1.73 m<sup>2</sup>

<b>Under 1 month</b>	3mg/kg once daily for 10 days use Oseltamivir suspension (6mg/mL)
<b>1 – 11 months</b>	3mg/kg once daily for 10 days use Oseltamivir suspension (6mg/mL)
<b>1 – 12 years (Body-weight 10-15kg)</b>	<b>ONE</b> 30mg capsule ONCE a day for 10 days
<b>1 -12 years 15kg – 23kg</b>	<b>ONE</b> 45mg capsule ONCE a day for 10 days
<b>1 -12 years 23kg – 40kg</b>	<b>TWO</b> 30mg capsules ONCE a day for 10 days
<b>1 -12 years &gt;40kg</b>	<b>ONE</b> 75mg capsule ONCE a day for 10 days
<b>13 – 17 years</b>	<b>ONE</b> 75mg capsule ONCE a day for 10 days

**TREATMENT doses of Oseltamivir (Tamiflu) for PANDEMIC influenza**

Oseltamivir is not licensed for use in children less than 1 year old unless there is a pandemic.  
 Renal Impairment: Estimated Glomerular Filtration Rate (eGFR) 30-60mL/minute/1.73 m<sup>2</sup>: Use 40% of normal dose BD. For eGFR 10-30mL/minute/1.73 m<sup>2</sup>: Use 40% of normal dose OD. Avoid if eGFR less than 10 mL/minute/1.73 m<sup>2</sup>

<b>Under 1 month</b>	3 mg/kg twice daily for 5 days use Oseltamivir suspension (6mg/mL)
<b>1 – 11 months</b>	3mg/kg twice daily for 5 days use Oseltamivir suspension (6mg/mL)
<b>1 -12 years 10kg-15kg</b>	<b>ONE</b> 30mg capsule TWICE a day for 5 days
<b>1 -12 years 15kg – 23kg</b>	<b>ONE</b> 45mg capsule TWICE a day for 5 days
<b>1 -12 years 23kg – 40kg</b>	<b>TWO</b> 30mg capsules TWICE a day for 5 days
<b>1 -12 years &gt;40kg</b>	<b>ONE</b> 75mg capsule TWICE a day for 5 days
<b>13 – 17 years</b>	<b>ONE</b> 75mg capsule TWICE a day for 5 days

<b>Treat Pneumonia with antibiotics for 5 days</b> <b>Consider antibiotics in the presence of lower respiratory features when :</b> <ul style="list-style-type: none"> <li>• ex-preterm infants</li> <li>• chronic respiratory disease</li> <li>• chronic heart disease</li> <li>• chronic renal disease</li> <li>• chronic liver disease</li> <li>• diabetes</li> <li>• chronic metabolic disorders</li> <li>• immune-suppression</li> <li>• malignancy</li> </ul>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>
	<b>Co-amoxiclav PO</b> <b>1-2 months:</b> 0.25mL/kg of <b>125/31</b> suspension TDS, double dose if severe. <b>2 months -2yrs:</b> 0.15mL/kg of <b>400/57</b> suspension BD, double dose if severe. <b>2 -6yrs (13-21kg):</b> 2.5mL of <b>400/57</b> suspension BD, double dose if severe <b>7-12yrs (22-40kg):</b> 5mL of <b>400/57</b> suspension BD <b>12 – 17yrs:</b> one <b>250/125</b> strength tablet TDS; increased in severe infections to one <b>500/125</b> strength tablet TDS.	<b>Clarithromycin PO</b> <b>1month- 11 years:</b> Body wt <8kg: 7.5mg/kg BD Body wt 8-11kg: 62.5mg BD Body wt 12-19kg 125mg BD Body wt 20-29kg 187.5mg BD Body wt 30-40kg 250mg BD <b>12 – 17 years:</b> 250 -500mg BD

**Surgical Antibiotic Prophylaxis** (<http://www.sign.ac.uk/guidelines/fulltext/104/index.html>)

- Surgical antibiotic prophylaxis must use intravenous antibiotics as a STAT dose.
  - Administer within 30 minutes of incision (exception is: surgery with a tourniquet administer antibiotics 10 minutes before applying the tourniquet).
  - Intra-operative doses are required if there is excessive blood loss (in children 25mL/kg) then an additional dose can be given after fluid replacement. Surgeons, at their own discretion, can give a further intra-operative dose if the operation lasts more than 3 hours, however there is no evidence base to support this.
  - Additional post-operative doses are not required unless:
    - An infection has been discovered e.g. pus or peritonitis
    - Gross spillage from a viscus
    - Devitalised viscus
    - Major break in sterile technique
    - Amputation
  - There is no evidence base to support the vascular surgery traditions of 2 further post-operative doses.
  - If there is a history of previous MRSA colonisation/infection always treat as MRSA positive, even if recent screens are MRSA negative.
- If there is a h/o of Clostridium difficile diarrhoea within the last 12 months alternative antibiotics to prophylaxis should be with Gentamicin, Teicoplanin and Metronidazole when indicated (d/w Consultant Microbiologist).

Operation	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy)	MRSA positive
<b>General Surgical Operations:</b> Appendectomy Gastro-oesophageal Open Biliary tract Pancreato-biliary Colorectal	<u>Cefuroxime IV &amp; Metronidazole IV</u>  <u>Cefuroxime IV</u> <b>1 month-17yrs:</b> 50mg/kg (max.1.5g) <u>Metronidazole IV</u> <b>1 month-12yrs:</b> 30mg/kg (max. 500mg) <b>12-17yrs:</b> 500mg  (Some Consultant Surgeons may wish to use <u>Co-amoxiclav IV</u> ) <u>Co-amoxiclav IV</u> <b>1 month-12yrs:</b> 30mg/kg (Max 1.2g) <b>12-17yrs:</b> 1.2g	Penicillin allergy with a history of anaphylaxis or facial swelling use <u>Gentamicin IV &amp; Metronidazole IV.</u>  <u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.  <u>Metronidazole IV</u> <b>1 month-12yrs:</b> 30mg/kg (max. 500mg) <b>12-17yrs:</b> 500mg  Any Penicillin allergy use above	<u>Teicoplanin IV &amp; Gentamicin IV &amp; Metronidazole IV</u>  <u>Teicoplanin IV</u> <b>1 month –17yrs:</b> 10mg/kg (max. 400mg)  <u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.  <u>Metronidazole IV</u> <b>1 month-12yrs:</b> 30mg/kg (max. 500mg) <b>12-17yrs:</b> 500mg

Operations General Surgical – Continuation	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (eg. Penicillin Allergy) / MRSA Positive
PEG or RIG insertion	<p><u>Cefuroxime IV</u>  <b>1 month-17yrs:</b> 50mg/kg (max.1.5g) at induction.</p>	<p>Penicillin allergy with a history of anaphylaxis or facial swelling <b>OR</b> MRSA use  <u>Teicoplanin IV</u> &amp; <u>Gentamicin IV</u></p> <p><u>Teicoplanin IV</u>  <b>1 month –17yrs:</b> 10mg/kg (max. 400mg)</p> <p><u>Gentamicin IV</u>            7mg/kg IV OD, then adjusted to serum Gentamicin concentration  <b>DOSES AT EXTREMES OF BODY WEIGHT</b>            To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>
Inguinal hernia repair (laparoscopic & non-laparoscopic)	Antibiotics not recommended	
ENT /Maxillofacial Surgery Tonsillectomy	Antibiotics not recommended	
Nose or sinus	Antibiotics not recommended	
Ear Surgery - ‘Clean’ Eg. exploratory tympanoplasties (including stapedotomy) and "dry perforation" tympanoplasties	Antibiotics not recommended	
Insertion of Grommets	Single dose of 2 -3 drops of topical <u>Ciprofloxacin 0.3%</u>	
Ear Surgery - ‘Dirty’ E.g. draining ears or cholesteatoma	<p><u>Cefuroxime IV</u>  <b>1 month-17yrs:</b> 50mg/kg (max.1.5g) at induction.</p>	<p>Penicillin allergy with a history of anaphylaxis or facial swelling <b>OR</b> MRSA use  <u>Teicoplanin IV</u> &amp; <u>Gentamicin IV</u></p> <p><u>Teicoplanin IV</u>  <b>1 month –17yrs:</b> 10mg/kg (max. 400mg)</p> <p><u>Gentamicin IV</u>            7mg/kg IV OD, then adjusted to serum Gentamicin concentration  <b>DOSES AT EXTREMES OF BODY WEIGHT</b>            To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>

Clean head & neck	<b>Antibiotics not recommended</b>	
Major head & neck	<p><b>Cefuroxime IV &amp; Metronidazole IV</b> for a duration of no longer than 24 hours.</p> <p><b>Cefuroxime IV</b>  <b>1 month-17yrs:</b> 50mg/kg (max.1.5g) at induction.</p> <p><b>Metronidazole IV</b>  <b>1 month-11yrs:</b> 30mg/kg (max 500mg per dose)  <b>12-17yrs:</b> 500mg</p>	<p>Penicillin allergy with a history of anaphylaxis or facial swelling <b>OR</b> MRSA use <b>Teicoplanin IV &amp; Gentamicin IV &amp; Metronidazole IV.</b></p> <p><b>Teicoplanin IV</b>  <b>1 month –17yrs:</b> 10mg/kg (max. 400mg)</p> <p><b>Gentamicin IV</b>          7mg/kg IV OD, then adjusted to serum Gentamicin concentration  <b>DOSES AT EXTREMES OF BODY WEIGHT</b>          To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p> <p><b>Metronidazole IV</b>  <b>1 month-11yrs:</b> 30mg/kg (max 500mg per dose)  <b>12-17yrs:</b> 500mg</p>

Continued

Operations - continuation	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin allergy) / MRSA Positive
<b>Trauma &amp; Orthopaedic Surgery</b> Total joint replacement Hip fracture repair Closed fracture fixation Insertion of a prosthetic device	<u>Cefuroxime IV</u> <b>1 month-17yrs:</b> 50mg/kg (max.1.5g) at induction.	Penicillin allergy with a history of anaphylaxis or facial swelling OR MRSA use <u>Teicoplanin IV</u> & <u>Gentamicin IV</u>  <u>Teicoplanin IV</u> <b>1 month –17yrs:</b> 10mg/kg (max. 400mg)
Open Limb Fractures	<b>Gustillo type I &amp; II:</b> <u>Cefuroxime IV</u> & <u>Metronidazole IV</u> (2-3 days) <b>Gustillo type III:</b> <u>Cefuroxime IV</u> & <u>Metronidazole IV</u> & <u>Gentamicin</u> (up to 5 days)  <u>Cefuroxime IV</u> <b>1 month-17yrs:</b> 50mg/kg (max.1.5g) at induction.  <u>Metronidazole IV</u> <b>1 month: Loading dose of 15mg/kg followed by 7.5mg/kg TDS after 8 hours of initial loading dose.</b> <b>2 months-17yrs:</b> 7.5mg/kg TDS (max. 500mg TDS).	Penicillin allergy with a history of anaphylaxis or facial swelling OR MRSA use: <u>Teicoplanin IV</u> & <u>Gentamicin IV</u> & <u>Metronidazole IV</u> (for Gustillo I & II for 2-3 days and Gustillo III up to 5 days).  <u>Teicoplanin IV</u> <b>1 month –17yrs:</b> 10mg/kg (max. 400mg) every 12hrs for 3 doses then 6mg/kg OD.  <u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.
Orthopaedic surgery without a prosthetic device	<b>Antibiotics not recommended</b>	
Amputation of lower limb or traumatic amputation	<u>Benzympenicillin IV</u> & <u>Metronidazole IV</u> for 5 days. <u>Benzympenicillin IV</u> <b>1 month-17yrs:</b> 25mg/kg QDS <u>Metronidazole IV</u> <b>1 month: Loading dose of 15mg/kg followed by 7.5mg/kg TDS after 8 hours of initial loading dose.</b> <b>2 months-17yrs:</b> 7.5mg/kg TDS (max. 500mg TDS).	Penicillin allergy OR MRSA use: <u>Teicoplanin IV</u> & <u>Metronidazole IV</u> for 5 days.  <u>Teicoplanin IV</u> <b>1 month –17yrs:</b> 10mg/kg (max. 400mg) every 12hrs for 3 doses then 6mg/kg OD. <u>Metronidazole IV</u> <b>1 month: Loading dose of 15mg/kg followed by 7.5mg/kg TDS after 8 hours of initial loading dose.</b> <b>2 months-17yrs:</b> 7.5mg/kg TDS (max. 500mg TDS).

Operations - continuation	1 <sup>st</sup> Choice	2 <sup>nd</sup> Choice (e.g. Penicillin Allergy)	MRSA positive
<p><b>Urological Surgery</b> Shock-wave lithotripsy (SWL)</p>	<p><u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>		<p><u>Gentamicin IV</u> &amp; <u>Teicoplanin IV</u>  <u>Teicoplanin IV</u> <b>1 month –18yrs:</b> 10mg/kg (max. 400mg) every 12hrs for 3 doses then 6mg/kg OD.  <u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>
<p>Cystoscopy</p>	<p>Antibiotics not recommended <u>but</u> if bacteruria d/w Consultant Microbiologist</p>		
<p>Cystoscopy with urethral dilatation</p>	<p><u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>		<p><u>Gentamicin IV</u> &amp; <u>Teicoplanin IV</u>  <u>Teicoplanin IV</u> <b>1 month –18yrs:</b> 10mg/kg (max. 400mg) every 12hrs for 3 doses then 6mg/kg OD.  <u>Gentamicin IV</u> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>

<p>Open cystectomy</p>	<p><b>Gentamicin IV &amp; Metronidazole IV</b></p> <p><b>Metronidazole IV</b>  <b>1 month-11yrs:</b> 30mg/kg (max 500mg per dose)  <b>12-17yrs:</b> 500mg</p> <p><b>Gentamicin IV</b>  7mg/kg IV OD, then adjusted to serum Gentamicin concentration  <b>DOSES AT EXTREMES OF BODY WEIGHT</b>  To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>		<p><b>Gentamicin IV &amp; Metronidazole IV &amp; Teicoplanin IV</b></p> <p><b>Metronidazole IV</b>  <b>1 month-11yrs:</b> 30mg/kg (max 500mg per dose)  <b>12-17yrs:</b> 500mg  <b>Teicoplanin IV</b>  <b>1 month –17yrs:</b> 10mg/kg (max. 400mg)  <b>Gentamicin IV</b>  7mg/kg IV OD, then adjusted to serum Gentamicin concentration  <b>DOSES AT EXTREMES OF BODY WEIGHT</b>  To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.</p>
<p><b>Obstetrics &amp; Gynaecology</b>  Caesarean section  See <a href="#">(Ref: 0592)</a></p>	<p><b>Co-amoxiclav IV</b> after cutting the cord  <b>12 – 17yrs:</b> 1.2g</p>	<p>If Penicillin allergy and <u>no</u> history of anaphylaxis or facial swelling  <b>Cefuroxime IV &amp; Metronidazole IV.</b>  If Penicillin allergy <u>with</u> a h/o anaphylaxis or facial swelling  <b>Teicoplanin IV &amp; Gentamicin IV &amp; Metronidazole IV</b></p> <p><b>Cefuroxime IV</b>  <b>12-17yrs:</b> 50mg/kg (max.1.5g)  <b>Metronidazole IV</b>  <b>12-17yrs:</b> 500mg  <b>Teicoplanin IV</b>  <b>12 –17yrs:</b> 10mg/Kg (max. 400mg)</p>	<p><b>Teicoplanin IV &amp; Gentamicin IV &amp; Metronidazole IV</b></p> <p><b>Teicoplanin IV</b>  <b>12 –17yrs:</b> 10mg/kg (max. 400mg)  <b>Metronidazole IV</b>  <b>12-17yrs:</b> 500mg</p>
<p>Termination of Pregnancy</p>	<p><b>Metronidazole PR</b> 1g by suppository (if Chlamydia test not done or if Chlamydia positive) add <b>Azithromycin PO</b> 1g Stat both 1-2 hours pre-procedure.</p>		



<b>Non-surgical Antibiotic Prophylaxis</b>			
<b>Indication</b>	<b>1<sup>st</sup> Choice</b>	<b>2<sup>nd</sup> Choice (e.g. Penicillin allergy)</b>	<b>Notes</b>
<b>Urinary catheter insertion /change</b>	Antibiotics not recommended but see below for exceptions		
<b>Urinary catheter insertion /change &amp;</b> <ul style="list-style-type: none"> <li>• history of bacteraemia on previous insertion/ change OR</li> <li>• prosthetic material in patient OR</li> <li>• neutropenia (not already on antibiotics) OR</li> <li>• undergoing peritoneal dialysis</li> </ul>	<b>Gentamicin IV</b> 7mg/kg IV OD, then adjusted to serum Gentamicin concentration <b>DOSES AT EXTREMES OF BODY WEIGHT</b> To avoid excessive dosage in obese patients, use ideal weight for height to calculate dose and monitor serum-gentamicin concentration closely.		
<b>Pacemaker insertion. See (Ref:1090)</b>	<b>Teicoplanin IV</b> 10mg/kg (Max 400mg per dose) Stat, then a further dose 12hrs later.		
<b>Hyposplenism</b> (see separate guideline).			
<b>Prevention of secondary cases in contacts of Meningococcal Meningitis</b>	<b>Ciprofloxacin PO</b> <b>1 month - 4 years:</b> 30mg/kg (Max 125mg per dose) for 1 dose. <b>5 – 11 years:</b> 250mg for 1 dose <b>12 – 17 years:</b> 500mg for 1 dose	<b>Penicillin allergy:</b> <b>Rifampicin PO</b> <b>1-11 months:</b> 5mg/kg BD for 2 days <b>1-11yrs:</b> 10mg/kg (max. 600mg) BD for 2 days <b>12-17yrs:</b> 600mg BD 2 days  <b>If pregnant:</b> <b>Ceftriaxone IM</b> 12-17 years: 250mg for 1 dose.	
<b>At discretion of PHE: Prevention of secondary cases in contacts of <i>Haemophilus influenzae</i> type b disease</b>	PHE will instruct		

<p><b>Prevention of secondary cases of Group A Streptococcal (GAS) infection.</b>  <a href="#">See Ref: 1517</a></p> <p>Prophylaxis advised for:~</p> <ol style="list-style-type: none"> <li>1) Mother &amp; baby if either develop GAS infection in the neonatal period.</li> <li>2) Close contacts who have symptoms of a GAS infection.</li> <li>3) For a household who have 2 or more cases of invasive GAS within 30 days.</li> </ol>	<p><b>Phenoxymethylpenicillin PO</b>  <b>1-11 months:</b> 62.5mg QDS  <b>1 - 5yrs:</b> 125mg QDS  <b>6 - 11yrs:</b> 250mg QDS  <b>12 - 17yrs:</b> 250-500mg QDS</p>	<p>Penicillin allergy:          6 months – 17 years: <b>Azithromycin PO</b>          12mg/kg OD (Max 500mg daily)</p>	<p><b>Penicillin V:</b> 10 days  <b>Azithromycin:</b> 5 days</p>
<p><b>Prevention of recurrent invasive Pneumococcal disease</b>  <a href="https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book">https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book</a></p>	<p>Any case of invasive pneumococcal infection or lobar pneumonia believed to be due to <i>Strep pneumoniae</i> infection should have a case review to establish whether they are in a recognised risk-group (chronic respiratory disease, chronic heart disease, chronic renal disease, diabetes, immunosuppression or CSF leaks). Patients with risk factors, previously unvaccinated against pneumococcal disease, should be given vaccination on discharge from hospital.</p>		

<p><b>Endocarditis prophylaxis</b> See <a href="#">(Ref: 0129)</a>, <a href="#">Section 5 in the BNF</a>., and NICE CG64</p>	<p><b>Patients at risk of infective endocarditis</b> Acquired valvular heart disease with stenosis or regurgitation Valve replacement Structural congenital heart disease including surgically corrected or palliated structural conditions, but <b>excluding</b> isolated ASD, fully repaired VSD or fully repaired patent ductus arteriosus, and closure devices that are judged to be endothelialised (if not sure d/w Consultant Cardiologist). Previous infective endocarditis Hypertrophic cardiomyopathy</p> <p><b>Advise patients</b> Antibiotic prophylaxis no longer routinely recommended as the known risk of taking these outweighs the unknown risk of contracting endocarditis. Be aware of symptoms that may indicate endocarditis and when to seek expert advice. On the importance of maintaining good oral health. On the risks of undergoing invasive procedures, including non-medical procedures such as body piercing and tattooing.</p> <p><b>Prophylaxis against infective endocarditis is not recommended:</b> For people undergoing dental procedures For people undergoing non-dental procedures at the following sites:</p> <ul style="list-style-type: none"> <li>• upper and lower gastrointestinal tract</li> <li>• genitourinary tract; this includes urological, gynaecological and obstetric procedures, and childbirth</li> <li>• upper and lower respiratory tract; this includes ear, nose and throat procedures and bronchoscopy</li> </ul> <p><b>Infection</b> Any infections in people at risk of infective endocarditis should be investigated and treated promptly. For procedures where there is suspected infection antibiotics should be given that cover organisms that cause endocarditis. If in doubt please contact the on call microbiologist.</p>
<p><b>Prevention of infection in patients with absent spleens or those with functional hyposplenism</b></p>	<p><b>This condition is very uncommon in children. The immunisation schedule is dependent upon vaccination history and age. Please contact Consultant Microbiologist and/or Paediatrician for advice regarding immunisation and antibiotic prophylaxis advice.</b></p>

**ANTIMICROBIAL DOSES FOR PAEDIATRICS**

**For neonatal doses & all other antimicrobials use the latest edition of the BNF for Children**

<p><b>Amoxicillin PO</b> 1 – 11 months: 125mg TDS (Increased if necessary up to 30mg/kg TDS) 1-4yrs: 250mg TDS (Increased if necessary up to 30mg/kg TDS) 5-11yrs: 500mg TDS (Increased if necessary up to 30mg/kg TDS, MAX per dose 1g) 12-17yrs: 500mg TDS; increased if necessary up to 1g TDS. Used increased dose in severe infection.</p> <p><b>Amoxicillin IV</b> 1month-17yrs: 20–30 mg/kg every 8 hours (max. per dose 500 mg), increased if necessary to 40–60 mg/kg every 8 hours (max. per dose 1 g every 8 hours), increased dose used in severe infection.</p>	<p><b>Ceftazidime IV</b> 1 month- 17yrs: 25mg/kg TDS; dose can be doubled in severe infection (Max 6g daily).</p> <p><b>Cefotaxime IV</b> 1month-17yrs: 50mg/kg BD-TDS. Increased to QDS in severe infection (Max 12g daily)</p>	<p><b>Ciprofloxacin PO</b> 1 month -17yrs: 10mg/kg BD, dose can be doubled in severe infection (Max750mg per dose)</p>
<p><b>Flucloxacillin PO</b> 1month-1yrs: 62.5-125mg QDS 2-9yrs: 125-250mg QDS 10-17yrs: 250-500mg QDS</p> <p><b>Flucloxacillin IV</b> 1month-17yrs: 12.5-25mg/kg QDS (Max 1g per dose) In severe infection 1month – 17yrs: 25-50mg/kg QDS (Max 2g per dose)</p>	<p><b>Ceftriaxone IV</b> <b>Do not infuse with tpn or calcium containing fluids.</b> <b>Child 1 month to 11yrs:</b> 50-80mg/kg OD (Max 4g daily). Higher end of recommended range used in severe cases. <b>Child 12-17yrs:</b> 1-2g OD</p>	<p><b>Rifampicin PO</b> 1-11 months: 5-10mg/kg BD 1 -17yrs: 10mg/kg BD (Max 600mg per dose)</p>
<p><b>Benzylpenicillin IV</b> 1month-17yrs: 25 mg/kg every 6 hours; increased if necessary to 50 mg/kg every 4–6 hours (max. per dose 2.4 g every 4 hours) in severe infection.</p> <p><b>Penicillin V PO</b> 1- 11 months: 62.5mg QDS (increased if necessary up to 12.5mg/kg QDS) 1 -5yrs: 125mg QDS (increased if necessary up to 12.5mg/kg QDS) 6 -11yrs: 250mg QDS (increased if necessary up to 12.5mg/kg QDS) 12 -17yrs: 500mg QDS (increased if necessary up to 1g QDS)</p>	<p><b>Piperacillin-tazobactam IV</b> 1 month- 11yrs: 90mg/kg TDS-QDS (Max 4.5g per dose) 12-17yrs: 4.5g TDS. Can increase to QDS in severe infection.</p>	<p><b>Metronidazole PO</b> 1 month: 7.5mg/kg BD 2 months- 11yrs: 7.5mg/kg TDS (Max 400mg per dose) 12-17yrs: 400mg TDS</p> <p><b>Metronidazole IV</b> 1 month: Loading dose 15mg/kg, followed by 7.5mg/kg after 8hrs, then 7.5mg/kg TDS 2 month-17yrs: 7.5mg/kg TDS (Max 500mg per dose).</p>
<p><b>Co-amoxiclav PO</b> 1-2 months: 0.25mL/kg of 125/31 suspension TDS, double dose if severe. 2 months - 2yrs: 0.15mL/kg of 400/57 suspension BD, double dose if severe. 2 -6yrs (13-21kg): 2.5mL of 400/57 suspension BD, double dose if severe 7-12yrs (22-40kg): 5mL of 400/57 suspension BD 12 – 17yrs: one 250/125 strength tablet TDS; increased in severe infections to one 500/125 strength tablet TDS.</p> <p><b>Co-amoxiclav IV</b> 1-2 months: 30mg/kg BD 3months- 17yrs: 30mg/kg TDS (Max 1.2g per dose)</p>	<p><b>Meropenem IV</b> 1 month-11yrs:&lt;50kg 10-20mg/kg TDS 1 month-11yrs:&gt;50kg 0.5-1g TDS 12-17yrs: 0.5-1g TDS</p> <p>For Meningitis 1 month - 11 years: &lt;50kg 40mg/kg TDS 1 month – 17 years: &gt;50kg 2g TDS</p>	<p><b>Gentamicin &amp; Tobramycin IV</b> 1 month-17yrs: (Not suitable for CF, endocarditis or meningitis) Once daily dosing regimen <u>7mg/kg OD</u> , then adjusted to serum Gentamicin /Tobramycin level</p> <ul style="list-style-type: none"> <li>Consider lower doses when using Gentamicin /Tobramycin in children with <u>impaired renal function</u> &amp; give one dose and then give subsequent doses according to pre-dose, 'trough' levels.</li> <li>Take pre-dose levels before <b>2nd</b> dose if treatment continuing for more than 48 hours</li> <li>No levels need to be taken for treatment courses of 48 hours or less. <ol style="list-style-type: none"> <li>If Gentamicin / Tobramycin level &lt; 1mg/L administer dose once daily.</li> <li>If Gentamicin / Tobramycin level &gt;= 1 and &lt; 2mg/L then prolong dosing interval to every 36 hours.</li> <li>In all cases where levels &gt; 1mg/L discuss with Consultant Microbiologist or Paediatrician to see if a preferable alternative is available.</li> </ol> </li> </ul>
<p><b>Cefalexin PO</b> 1month-11months: 125mg BD 1-4yrs: 125mg TDS 5-11yrs: 250mg TDS 12-17yrs: 500mg BD-TDS</p>	<p><b>Azithromycin PO:- Cellulitis, Respiratory Tract Infections &amp; Whooping Cough (Pertussis).</b> &gt;6 months-17yrs: 10mg/kg OD (Max 500mg per dose) for 3 days.</p> <p><b>Azithromycin PO:- Prevention of secondary GAS infection</b> &gt; 6 months-17yrs: 12mg/kg OD (Max 500mg per dose) for 5 days</p> <p><b>Clarithromycin PO</b> 1month- 11yrs: &lt;8kg: 7.5mg/kg BD 8-11kg: 62.5mg BD 12-19kg 125mg BD 20-29kg: 187.5mg BD 30-40kg: 250mg BD 12-17yrs: 250mg BD increased to 500mg BD in severe infection if required.</p>	<p>Do pre-dose levels twice a week (or more frequently if clinical events occur that may affect renal function e.g. hypotension, blood loss, diarrhoea etc) and check U&amp;Es.</p>
<p><b>Cefuroxime IV</b> 1month-17yrs: 20 mg/kg TDS (Max. per dose 750 mg); increased to 50–60 mg/kg every 6–8 hours (max. per dose 1.5g), increased dose used for severe infection and cystic fibrosis.</p>	<p><b>Clarithromycin IV</b> 1 month-11yrs: 7.5mg/kg BD (Max 500mg per dose) 12-17yrs: 500mg BD</p> <p><b>Clindamycin PO</b> 1 month-17yrs: 3-6mg/kg QDS (Max 450mg per dose) <b>Clindamycin IV</b> 1 month-17yrs: 3.75-6.25mg/kg QDS. Increased to 10mg/kg QDS (Max 1.2g per dose) in severe infection if required.</p>	<p><b>Vancomycin IV</b> 1 month – 17yrs: 15mg/kg IV TDS (Max 2g per day)</p> <ul style="list-style-type: none"> <li>Consider prolonging the dosing interval in children with <u>impaired renal function</u>.</li> <li>The pre-dose, 'trough' concentration should be 10-15mg/L (may need to be higher in endocarditis, prosthetic infections, pneumonia or MRSA infections with a high MIC to Vancomycin).</li> </ul> <p>Do pre-dose levels twice a week (or more frequently if clinical events occur that may affect renal function e.g. hypotension, blood loss, diarrhoea etc.) and check U&amp;Es.</p>
		<p><b>Teicoplanin IV</b> 1month -17yrs: Initially 10 mg/kg (Max 400mg per dose) every 12 hours for 3 doses, then 6mg/kg (Max. 400mg per dose) OD. Can increase to 10mg/kg OD (Max 400mg per dose) in severe infection.</p>

**Prescribing for Children: Weight, Height and Gender**

The table below shows the mean values for weight, height and gender by age.  
Adapted from BNF for *Children* September 2016-2017

<b>Age</b>	<b>Weight (kg)</b>	<b>Height (cm)</b>
<b>1 month</b>	4.3	55
<b>2 months</b>	5.4	58
<b>3 months</b>	6.1	61
<b>4 months</b>	6.7	63
<b>6 months</b>	7.6	67
<b>1 year</b>	9	75
<b>3 years</b>	14	96
<b>5 years</b>	18	109
<b>7 years</b>	23	122
<b>10 years</b>	32	138
<b>12 years</b>	39	149
<b>14 year old boy</b>	49	163
<b>14 year old girl</b>	50	159
<b>Adult male</b>	68	176
<b>Adult female</b>	58	164

## **References**

### **General**

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## Protocols & Guidelines – Document Control

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Ref: 1118	Title: Paediatric Empirical Antimicrobial Guidelines		
Date of Issue:	5 May 2017	Next Review Date:	5 May 2020
Version:	5		
Author:	Consultant Microbiologist Antimicrobial Pharmacist		
Index:	Laboratory Medicine		
Classification:	Guideline		
Applicability:	As indicated		
Equality Impact:	The guidance contained in this document is intended to be inclusive for all patients within the clinical group specified, regardless of age, disability, gender, gender identity, sexual orientation, race and ethnicity & religion or belief.		
Evidence based:	Yes		
References:			
Produced following audit:	No		
Audited:	Yes		
Approval Route:	See ratification	Date Approved:	28 April 2017
Approved By:	Medicines Management Committee Chief Nurse Medical Director		
Links or overlaps with other policies: 1098 – Antimicrobial Policy; 0838 – Paediatric Attendances in A&E, Getting Patients seen in a Timely Manner; 0598 – Paediatric High Dependency Assessment and Early Warning System; 0988 – A&E Paediatric Transfer Criteria; 0739 – Blood Borne Viruses (Hepatitis B, C and HIV) and Staff; 0061 – Tetanus; 0692 – Orbital Cellulitis; 0114 – MRSA Screening; 0619 – Aciclovir; 0266 – Bronchiolitis; 0613 – Upper Airway Obstruction and Hospital Management of Viral Croup; 0593 – Close contact of Pertussis; 1168 – Cystic Fibrosis; 0444 – Infectious Disease or Food Poisoning, Notification of; 0614 – Acute Diarrhoea (With or Without Vomiting); 0914 – Clostridium Difficile; 1104 – Diagnosis, Treatment and Management of Urinary Tract Infection in Infants and Children; 0878 – Non-Blanching Rash in Children; 1062 – Peninsula Neonatal Care Network Guidelines; 1005 – Treatment of Problems of the External Auditory Meatus; 0642 – Vancomycin; 1090 – Permanent Pacemaker Implant/Lead Replacement/Cardian Resynchronisation Therapy (CRT) Implantable Cardioconverter Dibrillator (ICD) Box Change/Reveal Implant/Reveal Explants, Management of Patients admitted for; 0129 – Antibiotic Prophylaxis of Endocarditis			
All TSDFT Trust strategies, policies and procedure documents.			

### PUBLICATION HISTORY:

Issue	Date	Status	Authorised
1	24 December 2008	New	Clinical Director of Pharmacy Medical Director
2	25 November 2010	Revised	Clinical Lead Clinical Director of Pharmacy Medical Director
3	20 January 2011	Revised	Clinical Lead

			Clinical Director of Pharmacy Medical Director
3	1 November 2013	Withdrawn – Overdue for review	
4	7 November 2013	Reinstated and revised	Clinical Lead Clinical Director of Pharmacy Medical Director Clinical Director of Child Health
5	5 May 2017	Revised	Medicines Management Committee Chief Nurse Medical Director
5	19 February 2018	Review Date Extended - 2 Years to 3 Years	

## The Mental Capacity Act 2005

The Mental Capacity Act provides a statutory framework for people who lack capacity to make decisions for themselves, or who have capacity and want to make preparations for a time when they lack capacity in the future. It sets out who can take decisions, in which situations, and how they should go about this. It covers a wide range of decision making from health and welfare decisions to finance and property decisions

Enshrined in the Mental Capacity Act is the principle that people must be assumed to have capacity unless it is established that they do not. This is an important aspect of law that all health and social care practitioners must implement when proposing to undertake any act in connection with care and treatment that requires consent. In circumstances where there is an element of doubt about a person's ability to make a decision due to 'an impairment of or disturbance in the functioning of the mind or brain' the practitioner must implement the Mental Capacity Act.

The legal framework provided by the Mental Capacity Act 2005 is supported by a Code of Practice, which provides guidance and information about how the Act works in practice. The Code of Practice has statutory force which means that health and social care practitioners have a legal duty to have regard to it when working with or caring for adults who may lack capacity to make decisions for themselves.

**“The Act is intended to assist and support people who may lack capacity and to discourage anyone who is involved in caring for someone who lacks capacity from being overly restrictive or controlling. It aims to balance an individual's right to make decisions for themselves with their right to be protected from harm if they lack the capacity to make decisions to protect themselves”. (3)**

All Trust workers can access the Code of Practice, Mental Capacity Act 2005 Policy, Mental Capacity Act 2005 Practice Guidance, information booklets and all assessment, checklists and Independent Mental Capacity Advocate referral forms on iCare

[http://icare/Operations/mental\\_capacity\\_act/Pages/default.aspx](http://icare/Operations/mental_capacity_act/Pages/default.aspx)

## Infection Control

All staff will have access to Infection Control Policies and comply with the standards within them in the work place. All staff will attend Infection Control Training annually as part of their mandatory training programme.

**Rapid (E)quality Impact Assessment (EqIA)** (for use when writing policies)

<b>Policy Title</b> (and number)	<b>G1118 Paediatric Empirical Antimicrobial Guidelines</b>	<b>Version and Date</b>	Version 5 February 2017
<b>Policy Author</b>	(Consultant Microbiologist) & (Antimicrobial Pharmacist)		
An (e)quality impact assessment is a process designed to ensure that policies do not discriminate or disadvantage people whilst advancing equality. Consider the nature and extent of the impact, not the number of people affected.			
<b>Who may be affected by this document?</b>			
Patients/ Service Users	<input checked="" type="checkbox"/>	Staff	<input type="checkbox"/>
Other, please state...		<input type="checkbox"/>	
<b>Could the policy treat people from protected groups less favorably than the general population?</b> <i>PLEASE NOTE: Any 'Yes' answers may trigger a full EIA and must be referred to the equality leads below</i>			
Age	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gender Reassignment	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Race	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Disability	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Gender	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Pregnancy/Maternity	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Sexual Orientation			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Religion/Belief (non)			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Marriage/ Civil Partnership			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Is it likely that the policy could affect particular 'Inclusion Health' groups less favourably than the general population?</b> (substance misuse; teenage mums; carers <sup>1</sup> ; travellers <sup>2</sup> ; homeless <sup>3</sup> ; convictions; social isolation <sup>4</sup> ; refugees)			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Please provide details for each protected group where you have indicated 'Yes'.</b>			
N/A			
<b>VISION AND VALUES:</b> Policies must aim to remove unintentional barriers and promote inclusion			
Is inclusive language <sup>5</sup> used throughout?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Are the services outlined in the policy fully accessible <sup>6</sup> ?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Does the policy encourage individualised and person-centered care?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Could there be an adverse impact on an individual's independence or autonomy <sup>7</sup> ?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>
<b>EXTERNAL FACTORS</b>			
<b>Is the policy a result of national legislation which cannot be modified in any way?</b>			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>What is the reason for writing this policy?</b> (Is it a result in a change of legislation/ national research?)			
To guide antibiotic prescribing so that they are used appropriately and effectively (antimicrobial stewardship) in order to achieve the best outcomes possible for paediatric patients with infections.			
<b>Who was consulted when drafting this policy?</b>			
Patients/ Service Users	<input type="checkbox"/>	Trade Unions	<input type="checkbox"/>
Staff	<input type="checkbox"/>	Protected Groups (including Trust Equality Groups)	<input type="checkbox"/>
General Public	<input type="checkbox"/>	Other, please state...	<input type="checkbox"/>
<b>What were the recommendations/suggestions?</b>			
<b>Does this document require a service redesign or substantial amendments to an existing process?</b> <i>PLEASE NOTE: 'Yes' may trigger a full EIA, please refer to the equality leads below</i>			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>ACTION PLAN:</b> Please list all actions identified to address any impacts			
<b>Action</b>	<b>Person responsible</b>	<b>Completion date</b>	
<b>AUTHORISATION:</b>			
By signing below, I confirm that the named person responsible above is aware of the actions assigned to them			
<b>Name of person completing the form</b>	Consultant Microbiologist	<b>Signature</b>	
<b>Validated by (line manager)</b>	Clinical Pharmacy Manager	<b>Signature</b>	