NHS
Greater Glasgow and Clyde

CLINICAL GUIDELINE

Paediatric Plastic Surgery Trauma & Infection Antimicrobial Guidelines

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The online version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Paediatric Plastic Surgery Trauma & Infection Antimicrobial Guidelines

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Key Links:

NHS GG&C Infection Management Guideline: Empirical Antibiotic Therapy in Children

Royal Hospital for Children Glasgow- Antibiotic Prophylaxis for Paediatric Surgery

PLEASE NOTE- Antimicrobial recommendations and doses in this guideline do not include ***neonates***.
Please check previous microbiology results and patients existing prescribed antimicrobials as these may influence empiric choices.

MRSA SCREENING: Please review any previous microbiology results and follow the local guideline for MRSA screening. If MRSA positive, substitute ***IV*** antibiotic recommendation for a Vancomycin or Teicoplanin based regime, substitute ***oral*** antibiotic for Clindamycin or Co-trimoxazole (if age > 6weeks), depending on sensitivities. Discuss all such patients with an infection specialist (microbiology, infectious diseases or paediatric antimicrobial pharmacist).

IVOST: Consider IVOST after 48hrs if clinical improvement, afebrile and CRP reducing, unless complicated infection (deep seated and inadequate source control, significant tissue destruction, resistant pathogen, immunocompromised, under 3 months of age). See RHC IVOST guideline for more information.

DOSING IN OBESITY: The majority of antibiotics do not require dose adjustments for obesity, however caution should be exercised when prescribing **Gentamicin**. In children with BMI >30kg/m^2 OR weight >98th centile for age, **Gentamicin** should be dosed based on **Ideal body weight (IBW)**. IBW is calculated by measuring weight at corresponding height centile using RCPCH growth chart. Use Gentamicin dosing as per the paediatric prescribing and monitoring (PAM) charts for treatment doses (PAM charts are found on each paediatric ward in RHC).

RENAL/HEPATIC IMPAIRMENT: All doses stated in the guideline ***assume normal renal & hepatic function***. Please consult the BNFc, PAM charts or discuss with an infection specialist if abnormal renal and/or hepatic function.

1. Nailbed/Fingertip Injury, Including Tuft Fracture, Requiring Surgical Repair

Description: Laceration of the nail bed soft tissue under the fingernail, or pulp/fingertip, usually associated with small fracture of the distal phalanx tip ('tuft' fracture), which rarely needs fixation. Nailbed injury treated with washout and primary closure in theatre (usually within 24-48hrs).

Timing	Recommended First Line		Penicillin Allergy
PROPHYLACTIC / TIME OF INJURY	Soft Tissue Only	**Oral Flucloxacillin** Child 1 month to 1 year: 62.5-125mg QDS Child 2-9 years: 125-250mg QDS Child 10-17 years: 250-500mg QDS	**Oral Clindamycin** Child >1month: 3-6mg/kg QDS (max per dose 450mg)
	Associated Fracture	**Oral Co-amoxiclav** Child 1 month to under 1 year: 0.25ml/kg TDS of 125/31 suspension Child 1-5 years: 0.25ml/kg TDS or 5ml TDS of 125/31 suspension Child 6-12 years: 0.15ml/kg TDS or 5ml TDS of 250/62 suspension Child over 12 years: 1 tablet TDS (250/125) For severe infections in children 1 month and older, dosage may be doubled if suspension is prescribed. With tablets, increase to the 500mg/125mg tablet.	
PERIOPERATIVE / INDUCTION	Soft Tissue Only	**IV Flucloxacillin** (25mg/kg [max 1g])	**IV Clindamycin** (5mg/Kg [max 1.2g]) infused over 15 mins)
	Associated Fracture	**IV Co-amoxiclav** (30mg/kg [max 1.2g]) **+/- IV Gentamicin** if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)	**IV Clindamycin** (5mg/Kg [max 1.2g]) infused over 15 mins) **+/- IV Gentamicin** if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)
POSTOPERATIVE	No further antibiotics required unless gross contamination at time of injury, in which case patient to complete 1-week oral antibiotics post operatively. IVOST to corresponding oral dose.		

2. Complete Amputation of Fingertip Repaired by Composite Graft

Description: Injury to the tip of the finger with complete amputation of part of the nailbed and pulp. Usually, small pieces that are sutured back in place as soon as possible in theatre (usually within 6-12hrs). May be associated with small fracture of the distal phalanx tip ('tuft' fracture), which rarely needs fixation. Often this bit of bone is removed from the amputated part before re-attachment.

<table>
<tr><th>Timing</th><th colspan="2">Recommended First Line</th><th>Penicillin Allergy</th></tr>
<tr><td rowspan="2">PROPHYLACTIC / TIME OF INJURY</td><td>Soft Tissue Only</td><td>Oral Flucloxacillin
Child 1 month to 1 year: 62.5-125mg QDS
Child 2-9 years: 125-250mg QDS
Child 10-17 years: 250-500mg QDS</td><td rowspan="2">Oral Clindamycin
Child >1month: 3-6mg/kg QDS (max per dose 450mg)</td></tr>
<tr><td>Associated Fracture</td><td>Oral Co-amoxiclav
Child 1 month to under 1 year: 0.25ml/kg TDS of 125/31 suspension
Child 1-5 years: 0.25ml/kg TDS or 5ml TDS of 125/31 suspension
Child 6-12 years: 0.15ml/kg TDS or 5ml TDS of 250/62 suspension
Child over 12 years: 1 tablet TDS (250/125)
For severe infections in children 1 month and older, dosage may be doubled if suspension is prescribed. With tablets, increase to the 500mg/125mg tablet.</td></tr>
<tr><td rowspan="2">PERIOPERATIVE / INDUCTION</td><td>Soft Tissue Only</td><td>IV Flucloxacillin
(25mg/kg [max 1g])</td><td>IV Clindamycin
(5mg/kg [max 1.2g]) infused over 15 mins)</td></tr>
<tr><td>Associated Fracture</td><td>IV Co-amoxiclav (30mg/kg [max 1.2g])
+/- IV Gentamicin if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)</td><td>IV Clindamycin (5mg/kg [max 1.2g]) infused over 15 mins)
+/- IV Gentamicin if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)</td></tr>
<tr><td>POSTOPERATIVE</td><td colspan="3">No further antibiotics required unless gross contamination at time of injury, in which case patient to complete oral antibiotics for 1 week post operatively. IVOST to corresponding oral dose.</td></tr>
</table>

3. Soft Tissue Upper Limb Injury - Including Tendon/Nerve/Vessel Injury

Descriptions: Open injuries to the hand/upper limb which involve soft tissue only. This may include injuries to tendons, nerves and/or blood vessels, which may be repaired at the time of surgery, usually within 24-48hrs.

If there is an ***associated fracture*** of the upper limb- please see Section 7

Timing	Recommended First Line	Penicillin Allergy
PROPHYLACTIC / TIME OF INJURY	**Oral Flucloxacillin** Child 1 month to 1 year: 62.5-125mg QDS Child 2-9 years: 125-250mg QDS Child 10-17 years: 250-500mg QDS	**Oral Clindamycin** Child >1month: 3-6mg/kg QDS (max per dose 450mg)
PERIOPERATIVE / INDUCTION	**IV Flucloxacillin** (25mg/kg [max 1g]) **+/- IV Gentamicin** if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)	**IV Clindamycin** (5mg/kg [max 1.2g]) infused over 15 mins) **+/- IV Gentamicin** if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)
POSTOPERATIVE	No further antibiotics required unless gross contamination at time of injury, in which case patient to complete oral antibiotics for 1 week post operatively. IVOST to corresponding oral dose.	

4. Closed Soft Tissue Injuries of the Hand Requiring Surgical Fixation (Closed)

Description: Closed injuries to the hand/upper limb which involve soft tissue only. This may include injuries to tendons (closed tendon ruptures, trigger fingers/thumb), ligament (UCL of thumb, digital collateral ligaments) which may be require surgical repair usually within 3-7 days. Some fixation methods may involve the bone.

Timing	Recommended First Line	Penicillin Allergy
PROPHYLACTIC / TIME OF INJURY	Nil required as closed injury	
PERIOPERATIVE / INDUCTION Consider if ***complex prolonged procedure*** or if using ***bony fixation methods*** (e.g. Mitek® anchor)	**IV Flucloxacillin** (25mg/kg [max 1g])	**IV Clindamycin** (5mg/kg [max 1.2g] infused over 15 mins)
POSTOPERATIVE	No further antibiotics required	

5. Closed Fractures/Dislocations of the Hand Requiring Surgical Intervention

Description: Fractures or dislocations of the hand (distal to the carpal bones) which are closed at the time of injury but require either closed reduction or fixation (K-wires) or open reduction & internal fixation in theatre (K-wires, plates/screws). Includes unstable volar plate injuries and collateral ligament injuries requiring repair.

Timing	Recommended First Line	Penicillin Allergy
PROPHYLACTIC / TIME OF INJURY	Nil required as closed injury	
PERIOPERATIVE / INDUCTION	**IV Flucloxacillin** (25mg/kg [max 1g])	**IV Clindamycin** (5mg/kg [max 1.2g] infused over 15 mins)
POSTOPERATIVE	No further antibiotics required	

6. Soft Tissue Facial Injury (Lip/Facial Laceration)

Description: Open injuries face and/or lip which do not involve an underlying fracture. Most are treated in theatre within 24-48hrs.

(Patients should be referred to oral maxillofacial team if facial fracture or ENT if nasal fracture.)

Timing	Recommended First Line	Penicillin Allergy
PROPHYLACTIC / TIME OF INJURY	**Oral Co-amoxiclav** Child 1 month to under 1 year: 0.25ml/kg TDS of 125/31 suspension Child 1-5 years: 0.25ml/kg TDS or 5ml TDS of 125/31 suspension Child 6-12 years: 0.15ml/kg TDS or 5ml TDS of 250/62 suspension Child over 12 years: 1 tablet TDS (250/125) For severe infections in children 1 month and older, dosage may be doubled if suspension is prescribed. With tablets, increase to the 500mg/125mg tablet.	**Oral Clindamycin** Child >1month: 3-6mg/kg QDS (max per dose 450mg)
PERIOPERATIVE / INDUCTION	**IV Co-amoxiclav** (30mg/kg [max 1.2g]) **+/- IV Gentamicin** if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)	**IV Clindamycin** (5mg/kg [max 1.2g] infused over 15 mins) **+/- IV Gentamicin** if 'very contaminated' (5mg/kg [max 400mg]), caution with dosing in obesity)
POSTOPERATIVE	No further antibiotics required unless gross contamination at time of injury, in which case patient to complete oral antibiotics for 1 week post operatively. IVOST to corresponding oral dose as per BNFc.	

7. Open Fractures/Dislocations of the Hand

Description: Fractures or dislocations of the hand (distal to the carpal bones) which are open at the time of injury. All will require surgical intervention for a washout as a minimum, majority will require surgical fixation in the form of K-wires or plates/screws, usually within 24hs of injury. Patients with open fractures or dislocations ***should be admitted for intravenous antibiotics prior to theatre***.

This does not include tuft fractures associated with nail bed injuries (see section 1).

For severe complex open fractures of the ***arm*** or ***forearm*** with significant soft tissue loss, antimicrobial management can be followed as per 'Open Lower Limb Fractures (Section 8).

Timing	Recommended First Line	Penicillin Allergy
PROPHYLACTIC / TIME OF INJURY	**IV Co-amoxiclav** Child 1-2 months: 30mg/kg BD Child 3 months to 17 years: 30mg/kg TDS (max. per dose 1.2g) **+/- IV Gentamicin** if 'very contaminated' (Dosing as per Gentamicin PAM* charts)	**IV Clindamycin** Child >1month: 3.75-6.25mg/kg QDS. Dose can be increased to 10mg/kg QDS in severe infections. (max dose 1.2g QDS) +/- **IV Gentamicin** if 'very contaminated' (Dosing as per Gentamicin PAM* charts)
PERIOPERATIVE / INDUCTION	**IV Co-amoxiclav** (30mg/kg [max 1.2g]) **& IV Gentamicin** (5mg/kg [max 400mg]), caution with dosing in obesity) ****If patient is on IV Gentamicin prior to theatre see note below**	**IV Clindamycin** (5mg/kg [max 1.2g] infused over 15 mins) **& IV Gentamicin** (5mg/kg [max 400mg]), caution with dosing in obesity) ****If patient is on IV Gentamicin prior to theatre see note below**
POSTOPERATIVE	Open fractures should receive 24 hours of IV antibiotics from time of admission. For more complex injuries, antibiotics should be continued for 72 hours or until definitive wound closure, whichever is soonest. No further antibiotics required after definitive closure, unless concerns regarding infection at time of washout- in which case treat as septic arthritis/osteomyelitis (see section 13)	

***** Gentamicin PAM charts are available on all wards and should be used for **treatment** doses of Gentamicin.

****Patients should NOT receive 2 doses of Gentamicin within 24 hours. If last dose >24 hours previously, check timing and results of Gentamicin levels before prescribing perioperative dose. Contact ID/microbiology for advice including alternatives if Gentamicin has been given in the last 24 hours.**

8. Open Fractures/Dislocations of the Lower Limb

Description: Fractures or dislocations of the lower limb which are open at the time of injury. Most will require surgical intervention for a washout as a minimum, usually within 12hrs of injury. These patients should be primarily admitted under the care of the Orthopaedic team. Combined orthoplastic input is required for these injuries, with a senior orthopaedic and plastic surgeon available for the debridement and subsequent fixation/soft tissue coverage. Patients with open fractures or dislocations ***should be admitted for intravenous antibiotics, ideally administered within 1hr of injury***.

<table>
<tr><th>Timing</th><th>Recommended First Line</th><th>Penicillin Allergy</th></tr>
<tr><td>PROPHYLACTIC / TIME OF INJURY</td><td>IV Co-amoxiclav
Child 1-2 months: 30mg/kg BD
Child 3 months to 17 years: 30mg/kg TDS (max. per dose 1.2g)
+/- IV Gentamicin if ‘very contaminated’ or if Gustillo Grade III injury (dosing as per Gentamicin PAM* charts)</td><td>IV Clindamycin
Child >1month: 3.75-6.25mg/kg QDS. Dose can be increased to 10mg/kg QDS in severe infections. (max dose 1.2g QDS)
+/- IV Gentamicin if ‘very contaminated’ or if Gustillo Grade III injury (dosing as per Gentamicin PAM* charts)</td></tr>
<tr><td rowspan="4">PERIOPERATIVE / INDUCTION</td><td colspan="2">AT INITIAL DEBRIDEMENT</td></tr>
<tr><td>IV Co-amoxiclav (30mg/kg [max 1.2g])
& IV Gentamicin (5mg/kg [max 400mg]), caution with dosing in obesity)
**If patient is on IV Gentamicin prior to theatre see note below</td><td>IV Clindamycin (5mg/kg [max 1.2g] infused over 15 mins)
& IV Gentamicin (5mg/kg [max 400mg]), caution with dosing in obesity)
**If patient is on IV Gentamicin prior to theatre see note below</td></tr>
<tr><td colspan="2">AT DEFINITIVE SKELETAL FIXATION & SOFT TISSUE COVERAGE</td></tr>
<tr><td colspan="2">IV Teicoplanin
Child 2 months and over: 10mg/kg (max 800mg)
& IV Gentamicin (5mg/kg [max 400mg], caution with dosing in obesity)
**If patient is on IV Gentamicin prior to theatre see note below
If patients is already on Teicoplanin (or Vancomycin) prior to surgery discuss with ID/Microbiology including advice on alternatives, depending on when last doses were given.</td></tr>
<tr><td>POSTOPERATIVE/DURATION</td><td colspan="2">Open fractures should receive 24 hours of IV antibiotics from time of admission. For more complex injuries (Gustillo Grade III), antibiotics should be continued for 72 hours or until definitive wound closure, whichever is soonest. No further antibiotics required after definitive closure, unless concerns regarding infection at time of washout- in which case discuss with ID/Microbiology. If concerns about deep seated infection, consider continuing Gentamicin, adding Vancomycin (in place of Teicoplanin) and Metronidazole, & discuss with ID/Microbiology. If patient has received beyond 3 doses of Gentamicin since admission an alternative will be advised.</td></tr>
</table>

***** Gentamicin PAM charts are available on all wards and should be used for **treatment** doses of Gentamicin.

****Patients should NOT receive 2 doses of Gentamicin within 24 hours. If last dose >24 hours previously, check timing and results of Gentamicin levels before prescribing perioperative dose. Contact ID/microbiology for advice including alternatives if Gentamicin has been given in the last 24 hours.**

9. Hand/Finger Cellulitis

Description: Cellulitis of the hand or finger without an obvious collection/abscess requiring surgical intervention/drainage, not resulting from a bite.

Description	Severity	Recommended First Line	Duration	Penicillin Allergy
EMPIRICAL THERAPY	**Mild**	**Oral Flucloxacillin** Child 1 month to 1 year: 62.5-125mg QDS Child 2-9 years: 125-250mg QDS Child 10-17 years: 250-500mg QDS	5-7 days	**Oral Clindamycin** Child >1month: 3-6mg/kg QDS (max per dose 450mg)
	Severe	**IV Flucloxacillin** Child >1month: 50mg/kg QDS (max per dose 2g) **Consider addition of IV Clindamycin if suspect toxin-mediated disease** **Child >1 month: 10mg/kg QDS (maximum dose is 1.2g QDS)**	5-7 days Determined by clinical response	**IV Clindamycin** Child >1month: 10mg/kg QDS (maximum dose is 1.2g QDS) Consider addition of **IV Vancomycin** Dosing as per Vancomycin Paediatric PAM* charts
	If severe sepsis	**Add in Gentamicin*** (Dosing as per Gentamicin Paediatric PAM* charts) **AND Discuss with ID/Microbiology**		

*Gentamicin and Vancomycin prescribing, administration and monitoring (PAM) charts are available on all wards and should be used for treatment doses of Gentamicin & Vancomycin.

Check previous microbiology or screening results.

Modify according to culture results & response.

Duration: For patients on IV antibiotics, review at 48 hours and consider IVOST. Complete 5-7 days oral antibiotic course.

10. Paronychia/Felon

Description: Paronychia- abscess/purulent collection in the nail fold (eponychium) around the fingernail, usually with pus underneath the nail. If failed oral antibiotic therapy in community/on ward, often require surgical washout in theatre. Felon- abscess/purulent collection in the pulp, which may cause pulp necrosis and requires urgent surgical washout. All patients should have an XR to exclude osteomyelitis (see section 13).

Description	Severity	Recommended First Line	Duration	Penicillin Allergy
EMPIRICAL THERAPY Continue perioperatively (if surgical drainage performed)	**Mild**	**Oral Flucloxacillin** Child 1 month to 1 year: 62.5-125mg QDS Child 2-9 years: 125-250mg QDS Child 10-17 years: 250-500mg QDS	5-7 days	**Oral Clindamycin** Child >1 month: 3-6mg/kg QDS (max per dose 450mg)
	Severe	**IV Flucloxacillin** Child >1 month: 50mg/kg QDS (max per dose 2g) **Consider addition of IV Clindamycin if suspect toxin-mediated disease** **Child >1 month: 10mg/kg QDS (maximum dose is 1.2g QDS)**	5-7 days Determined by clinical response	**IV Clindamycin** Child >1month: 10 mg/kg QDS (maximum dose is 1.2g QDS) Consider addition of **IV Vancomycin** Dosing as per Vancomycin Paediatric PAM* charts
	If severe sepsis	**Add in Gentamicin*** (Dosing as per Gentamicin Paediatric PAM* charts) **AND Discuss with ID/Microbiology**		
If concern regarding herpetic whitlow	Add in **Oral Aciclovir** 1-23 months: 100mg five times per day 2-17 years: 200mg five times per day		5 days	N/A

*Gentamicin and Vancomycin prescribing, administration and monitoring (PAM) charts are available on all wards and should be used for treatment doses of Gentamicin & Vancomycin.

Check previous microbiology or screening results.
Modify according to culture results & response.

Duration: Usually continued IV if planning for second washout in theatre. After surgical source control, and patient improving, review antibiotics and consider IVOST at 48 hours. Complete 5-7 days oral antibiotic course.

11. Flexor Sheath Infection

Description: Bacterial/purulent infection within the flexor sheath of the finger/thumb, classically responds poorly to antibiotics when established. Treated with surgical washout as an emergency, usually same day/overnight to prevent tendon rupture. Usually caused by innocuous penetrating injury to digit. All are usually admitted for IV antibiotics and theatre. Uncommon in children.

If secondary to a bite wound, please follow the recommendations in Section 12.

Description	Severity	Recommended First Line	Duration	Penicillin Allergy
EMPIRICAL THERAPY Continue perioperatively (if surgical drainage performed)	**Mild**	**IV Flucloxacillin** Child >1 month: 12.5mg-25mg/kg QDS (max per dose 1g)	Continue IV antibiotics until source control achieved Review at 48hrs and consider IVOST 5-7 days oral antibiotics after IVOST	**IV Clindamycin** Child >1 month: 3.75–6.25mg/kg QDS (maximum dose is 1.2g QDS)
	Severe	**IV Flucloxacillin** Child >1 month: 50mg/kg QDS (max per dose 2g) **PLUS** **IV Clindamycin** Child >1 month: 10mg/kg QDS (maximum dose is 1.2g QDS)		**IV Clindamycin** Child >1 month: 10mg/kg QDS (maximum dose is 1.2g QDS) **PLUS** **IV Vancomycin** Dosing as per Vancomycin Paediatric PAM* charts
If severe sepsis	**Add in Gentamicin*** (Dosing as per Gentamicin Paediatric PAM* charts) **AND Discuss with ID/Microbiology**			

*Gentamicin and Vancomycin prescribing, administration and monitoring (PAM) charts are available on all wards and should be used for treatment doses of Gentamicin & Vancomycin.

Duration: Continue IV antibiotics if planning for second washout in theatre. After surgical source control, and patient improving, review antibiotics and consider IVOST at 48 hours. Complete 5-7 days oral antibiotic course as IVOST.

Modify according to culture results & response

12. Animal/Human Bite Wounds

Description: Penetrating injury to the skin caused by the teeth of an animal (usually a cat or dog) or a human. Majority present without infection. Note- referring department should also assess ***tetanus status*** of patient and assess for rabies risk in animal bites, and blood borne virus risk in human bites.

<table>
<tr><th>Description</th><th>Recommended First Line</th><th>Duration</th><th colspan="3">Penicillin Allergy</th></tr>
<tr><td>PROPHYLAXIS OR MILD INFECTION</td><td>Oral Co-amoxiclav
Child 1 month to under 1 year: 0.25ml/kg TDS of 125/31 suspension
Child 1-5years: 0.25ml/kg TDS or 5ml TDS of 125/31 suspension
Child 6-12years: 0.15ml/kg TDS or 5ml TDS of 250/62 suspension
Child over 12 years: 1 tablet TDS (250/125)</td><td>Prophylaxis- 3 days

Mild Infection-5 days</td><td colspan="3"><u>Under 12 years</u>
Oral Co-trimoxazole*
Child 6 weeks to 5 months: 120mg BD or alternatively 24mg/kg BD
Child 6 month to 5 years: 240mg BD or alternatively 24mg/kg BD
Child 6-11 years: 480mg BD or alternatively 24mg/kg BD (max per dose 960mg)

<u>Over 12 years</u>
Oral Doxycycline: Initially 200mg daily on first day, then 100-200mg daily for remaining duration & Oral Metronidazole 400mg TDS</td></tr>
<tr><td rowspan="3">DEEP BITES / SIGNIFICANT INFECTION</td><td rowspan="3">IV Co-Amoxiclav
Child 1-2months: 30mg/kg BD
Child 3months to 17years: 30mg/kg TDS (max. per dose 1.2g)</td><td rowspan="3">5-7 days***</td><td colspan="2">Low Risk Allergy (no anaphylaxis after penicillin)</td><td>High Risk Allergy (anaphylaxis or severe systemic reaction after penicillin)</td></tr>
<tr><td>IV Cefuroxime
Child >1 month: 50–60 mg/kg QDS (max per dose 1.5g)</td><td>IF SEPTIC
IV Cefotaxime
Child >1 month: 50mg/kg QDS (max. per dose 3g)</td><td>IV Vancomycin
Dosing as per Vancomycin Paediatric PAM** charts
AND
IV Ciprofloxacin
Child > 1 month: 10mg/kg TDS (max. per dose 400mg)</td></tr>
<tr><td colspan="3">AND (all penicillin allergic patients)
<u>Oral</u> Metronidazole
Child 1 month up to 2 months: 7.5mg/kg BD
Child 2 months–11 years: 7.5mg/kg TDS (max. per dose 400mg)
Child 12–17 years: 400mg TDS
Metronidazole has a high oral bioavailability and the oral route should be used as first line if tolerated. If oral not tolerated then IV Metronidazole dose as follows:
Child 1-2months: Single loading dose of 15mg/kg then (after 8 hours) 7.5mg/kg TDS. Child 2months-17years: 7.5mg/kg TDS (max per dose 500mg). No loading dose required in children 2months and over.</td></tr>
<tr><td colspan="5">Discuss ALL septic patients with ID/Microbiology</td></tr>
</table>

* Co-trimoxazole is not licenced in patients <6 weeks of age.

**PAM charts– Vancomycin Prescribing, Administration and Monitoring charts are available on all wards.

*** If high risk patient or involvement of bone/joint/tendon/vascular structures discuss with infection specialist (microbiology/infectious diseases) regarding extended duration.

Empirical antimicrobial advice: All animal and human bite wounds causing puncture wounds should be given antimicrobial prophylaxis. Dog bites should not be treated if no blood has been drawn unless a high-risk patient or at a high-risk site.

Antibiotics should also be offered in high-risk patients (immunocompromised, diabetes, cirrhotic; asplenic or presence of prosthetic valve/joint) or in high-risk sites (hands, feet, face, genitals, skin overlying cartilage, area of poor circulation) in *human, cat and dog* bites.

Treatment of Infection

Modify according to culture results & response.

Duration: If patients undergo a surgical washout and there is no sign of deeper infection, IVOST may be appropriate post-operatively. Continue IV antibiotics if planning for second washout in theatre. After surgical source control, and patient improving, review antibiotics and consider IVOST at 48 hours. Complete 5-7 days oral antibiotic course as IVOST.

Seek specialist advice from microbiology/infectious diseases for bites from a wild or exotic animal because the spectrum of bacteria involved may be different and may be risk of other serious non-bacterial infections.

Link to NICE Guidance: Human and Animal Bites: Antimicrobial Prescribing

13. Septic Arthritis/Osteomyelitis of the Hand

Description: Suspected or proven infection within bone or joints of the hand, distal to the carpus (carpus and other joints elsewhere managed by orthopaedics/paediatrics). Usually, post-traumatic. Where possible, blood cultures and samples of bone/joint aspirates should be obtained ***before*** commencing antibiotics, however in unwell/septic patients, antibiotics should not be delayed before theatre.

Description	Recommended First Line	IVOST Option	Penicillin Allergy	Duration
EMPIRICAL TREATMENT **Age 1-3 months**	**IV Cefotaxime** Child 1-3 months: 50mg/kg QDS (max. per dose 3g)	**Oral Co-amoxiclav** Child 1-3 months: 0.25ml/kg TDS of 125/31 suspension, dose doubled if necessary	***Discuss with ID/Microbiology***	**Unifocal Septic Arthritis:** 2-3 weeks **Osteomyelitis**: 3-4 weeks **Complex disease or <3 months of age**** 6 weeks or longer if not resolved (2 weeks IV then oral)
EMPIRICAL TREATMENT **Age 3 months up to 5 years**	**IV Cefuroxime** Child 3 months-5 years: 50–60 mg/kg QDS (max per dose 1.5g)	**Oral Co-amoxiclav** Child 3 month-1 year: 0.25ml/kg TDS of 125/31 suspension, dose doubled if necessary. Child 1-5 years: 0.25ml/kg TDS or 5ml TDS of 125/31 suspension, dose doubled if necessary.	***Co-trimoxazole has a high oral bioavailability and the oral route should be used as first line if tolerated.*** **Oral Co-trimoxazole** Child 3-5months: 120mg BD, alternatively 24mg/kg BD Child 6 months-5years: 240mg BD, alternatively 24mg/kg BD Child 6-11 years: 480mg BD, alternatively 24 mg/kg BD (max. per dose 960 mg) Child 12-17years: 960mg BD ***If oral is not tolerated.*** **IV Co-trimoxazole** Child 3 months-5years: 18mg/kg BD *(Note in severe infections may increase to 27mg/kg BD)* Child 6-17years: 18mg/kg BD (max per dose 960mg). *Note in severe infections may increase to 27mg/kg BD (max per dose 1.44g)*	
EMPIRICAL TREATMENT **Age 5 years and above**	**IV Flucloxacillin** Child age 5years and older: 50mg/kg QDS (max per dose 2g)	*If able to swallow tablets:* ***Oral* Flucloxacillin capsules** Child 5-9 years: 250mg QDS Child 10-17 years: 250-500mg QDS *If unable to swallow capsules* **Oral Co-amoxiclav suspension** Child 5-6 years: 0.25ml/kg TDS or 5ml TDS of 125/31 suspension, dose doubled if necessary Child 6-12 years: 0.15ml/kg TDS or 5ml TDS of 250/62 suspension, dose doubled if necessary Child >12 years: Consider Flucloxacillin liquid (Unpleasant taste). If patient does not tolerate discuss Co-amoxiclav dosing options with pharmacist.		

** Multifocal, significant bone loss, unusual or resistant pathogen, immunosuppressed patient, sepsis or shocked, infection associated with metalwork. If associated with metalwork, please discuss duration with the Infectious Diseases/Microbiology teams.

Perioperative antimicrobial advice: Continue as above.

Discuss Penicillin allergy options ID/Microbiology.

Duration: ***All cases*** should be discussed ID/Microbiology to discuss clinical picture and culture results. Modify according to culture results & response. Review all IV antibiotics at 48hrs. IVOST should be considered for osteomyelitis/septic arthritis: when patient is afebrile, pain free for >24 hours and when CRP is <20 or has reduced by 2/3 of its highest value. Ensure no signs of complications (e.g. metastatic foci inc. endocarditis, pneumonia or DVT), no growth of virulent pathogens (e.g. PVL-producing *Staphylcococcus aureus)*, and negative blood cultures before IVOST.

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