Empiric Antibiotics Quick Reference for CED and Paediatric Wards - Antibiotic Guideline

Reference no.:CG-ANTI/2018/054

Before starting any antibiotics please document the following in the notes/ EPMA:

1. Indication for antibiotics including severity of infection
2. All cultures taken (blood; peripheral or central lines, CSF, urine, surface swabs)
3. Duration if determined
4. Review or stop date
5. Allergy history (challenge history and establish allergy or anaphylaxis)
6. Discussion with parents

Clinical indication	Age group	Likely pathogens	Antibiotics (may not cover all likely pathogens)	Comments
Sepsis unknown focus Notify PHE if suspected meningococcal septicaemia – see below for treatment	<3 months	*GBS, E. coli, Listeria, S. pneumoniae, N. meningitidis,* other Gram +ve and Gram – ve	Amoxicillin and Cefotaxime	Consider Ceftriaxone * alone if >30 days old with no risk of listeria AND no evidence of *enterococci* UTI *(see note 3)
	≥3 month	*S. pneumoniae, N. meningitidis,* other Gram positive and Gram negative bacteria	Ceftriaxone (see note 3)	Add amoxicillin to cover for listeria if immunocompromised or as part of an outbreak. Add Clindamycin IF Toxic shock syndrome or PVL *S. aureus*
NEUTROPENIC SEPSIS			Piperacillin/tazobactam and gentamicin	Liaise with tertiary centre
RETURN TRAVELLER		Resistant pneumococci	Add vancomycin for resistant pneumococci	
		Malaria	Artemether with lumefantrine (Riamet), or quinine	Notify PHE and seek expert advice in severe cases
CNS INFECTION				
MENINGITIS Notify PHE if suspected meningococcal meningitis	<3 months	*GBS, E. coli, Listeria* (LM), *S. pneumoniae, N. meningitidis,* Gram pos or Gram neg bacteria	Amoxicillin and Cefotaxime	Consider Ceftriaxone* alone if >30 days with no risk of Listeria meningitis or enterococcus UTI. *(see note 3)
	≥3 months	*S. pneumoniae, N. meningitidis,* other Gram + and Gram -	Ceftriaxone (see note 3 below) If child has suspected/ confirmed immune deficiency, consider Meropenem	Cefotaxime if ceftriaxone is contraindicated. Add amoxicillin for listeria if immunocompromised or as part of a

			Add Vancomycin if recent foreign travel or multiple antibiotics in last 3 months	listeria infection outbreak. Dexamethasone if >3m old + CSF cloudy or CSF WBC >1000 or Gram stain shows bacteria or Prot>1g/L. Do not use dexamethasone if purpuric rash, meningococcal contact or > 12 hrs since antibiotics were started
ENCEPHALITIS	All age groups	Cover for HSV	Aciclovir and Ceftriaxone (see note 3)	
BRAIN ABSCESS			Ceftriaxone and Metronidazole	Meropenem if child has a complex history. Needs neurosurgical opinion
SHUNT INFECTION			Vancomycin and Ceftriaxone	Discuss with Neurosurgery
RESPIRATORY INFECTION				
PNEUMONIA where child is admitted and IV needed	<6 months	GBS and *E. coli*	Cefuroxime	
	>6 months	*S. pneumoniae, Group A streptococcus, S. aureus, H. influenzae*	Benzyl penicillin	Erythromycin if penicillin allergy (Clarithromycin/ Azithromycin)
PNEUMONIA if not admitted or if oral treatment indicated	All ages		Oral amoxicillin	Use Clarithromycin in penicillin allergy, previous oral amoxicillin or if atypical pathogens such as mycoplasma suspected (more common in >5yr olds)
PNEUMONIA: If no improvement on >24 hrs oral amoxicillin in the community		*S. pneumoniae*, GAS, *S. aureus, H. influenzae*	Cefuroxime (50mg/kg 8 hourly is preferred. Maximum dose is 1.5g)	Add clarithromycin orally or IV erythromycin if atypical such as mycoplasma is suspected
PNEUMONIA + EFFUSION		*S. pneumoniae, Group A streptococcus, S. aureus, H. influenzae*	Cefuroxime	
ASPIRATION PNEUMONIA		Cover for anaerobes	Cefuroxime + Metronidazole	Co-amoxiclav may suffice
PERTUSSIS		*B. pertussis, B. parapertussis*	Clarithromycin	Notify PHE
INFLUENZA (A OR B)			Consider Oseltamivir	Discuss with consultant
ENT AND NECK				
TONSILLITIS		Proven Group A strep or 3/4 Centor criteria present (exudate, tender anterior LNs, fever and no cough)	Penicillin V	If penicillin allergy use Clarithromycin

EPIGLOTTITIS/ TRACHEITIS		*H. influenzae*	Ceftriaxone (see note 3)	
ACUTE OTITIS MEDIA		If otorrhoea or bilateral in <2y	Amoxicillin	
MASTOIDITIS		*S. pneumoniae, Moraxella catarrhalis, H. influenzae*, GAS, *S. aureus*, anaerobes	Co-amoxiclav If CNS involvement use Ceftriaxone 80mg/kg plus Metronidazole (see note 3)	Co-trimoxazole in Penicillin allergy
LYMPHADENITIS		*S. aureus,* GAS	Co-amoxiclav	Clindamycin if penicillin allergy. If using Clinda need to check for sensitivity + clinical response as resistance is more likely to macrolides than beta-lactams among MSSA + GAS
GENITO-URINARY TRACT				
UTI	0-3 months	*E. coli, , coliforms, Enterococcus, Proteus, Klebsiella, Pseudomonas,* Multidrug resistant organisms	Amoxicillin + cefotaxime	Consider Cefotaxime/ ceftriaxone (see note 3) alone if > 1 month and no previous enterococci or congenital renal abnormality
	≥3 months	*E. coli, Enterococcus, coliforms, Klebsiella, Pseudomonas, Proteus,* Multidrug resistant organisms	PO: Co-amoxiclav or cephalexin or Nitrofurantoin IV: Co-amoxiclav/ Cefuroxime	Use previous cultures sensitivity for empiric antibiotics in recurrent UTI or known renal abnormality. Add Gentamicin if febrile ≥48h. Nitrofurantoin is only suitable for lower UTI
Pelvic Inflammatory Disease (PID)	2-12 years	*N. gonorrhoea, Chlamydia,* coliforms, anaerobes	Erythromycin+ Metronidazole + single dose ceftriaxone	Contact tracing
	12-18 years	*N. gonorrhoea, Chlamydia,* coliforms, anaerobes	Doxycycline + Metronidazole + single dose ceftriaxone	Contact tracing
GASTROINTESTINAL TRACT				
BLOODY DIARRHOEA AND SEPSIS	All ages	*Salmonella typhi,* Non typhoidal *Salmonella*, *Shigella*, *E. coli*, Campylobacter	Ceftriaxone for enteric fever (typhoid/paratyphoid) Others treat conservatively unless immunocompromised	Notify PHE
CHOLANGITIS		*E. coli, Enterobacter, Enterococci*, anaerobes	Piperacillin-tazobactam + Gentamicin	Liaise with the tertiary centre in case of known patient
PERITONITIS		*E. coli, Enterococci*, Strep, other Gram neg and anaerobes	Amoxicillin + Gentamicin + Metronidazole	
SKIN AND SOFT TISSUE				
IMPETIGO		Staph and Strep	Flucloxacillin	
INFECTED ECZEMA			Flucloxacillin 50mg/kg	+ Aciclovir in eczema herpeticum

CELLULITIS	> 1month	*S. aureus*, GAS	Flucloxacillin: in-patient IV or if oral indicated Ceftriaxone: If IV needed in ambulatory patient	Clarithromycin if penicillin allergy
BITES		*S. aureus*, GAS, Bacteroides and other anaerobes. Pasteurella in animal bites	PO Co-amoxiclav If allergic to penicillin & > 12y doxycycline and metronidazole. If < 12 y clindamycin + co-trimoxazole.	If severe bite IV Co-amoxiclav Review need for Hep B & tetanus vaccine in human bites. Tetanus Ig in animal bites/ incomplete tetanus status
EYES				
PERIORBITAL/ ORBITAL (Joint ENT/ Ophthalmology)		*Group A streptococcus, S. aureus, H. influenzae, Moraxella*, Anaerobes	Cefuroxime and Metronidazole. Ambulatory: Co-amoxiclav	Ceftriaxone & Metronidazole if CNS involvement Orbital: urgent ophthalmology review
OPHTHALMIA NEONATORUM	<7 days	N. gonorrhoea	Ceftriaxone	
	5-14 d	Chlamydia	Ceftriaxone and clarithromycin	Oral Erythromycin is an alternative
CARDIOVASCULAR				
ENDOCARDITIS	All ages	*S. aureus, S. epidermidis, α-haem Streptococcus, Enterococci, Coxiella,* (HACEK)	Flucloxacillin + Gentamicin	Use Vancomycin and Rifampicin and Gentamicin if prosthetic material or penicillin allergy.
PROPHYLAXIS				
SURGICAL			Antibiotics may not be required	See separate guideline
MENINGOCOCCAL		PHE to decide on contacts	Ciprofloxacin (first line) OR Rifampicin	Notify PHE
CHEST INFECTIONS			Azithromycin (3 times a week)	Specialist advice ONLY
PERTUSSIS (see eligibility)			Clarithromycin	Notify PHE
PRE MCUG			Cefalexin	Nitrofurantoin if on prophylaxis
Hyposplenism		Encapsulated bacteria	Penicillin V	62.5 mg BD (<1y), 125 mg BD (1-5y) & 250mg BD (5-18y)

PATIENT SAFETY AND STEWARDSHIP:

1. Ensure detailed allergy history and if in doubt consider alternative antibiotics (discuss with seniors).
2. If any travel to Eastern Europe, Middle East, Africa or Asia within the last 6 months: Consider resistant pneumococcus and other MDR organisms e.g. (ESBL & CRE)
3. Do not give Ceftriaxone instead of cefotaxime if patient is on a calcium infusion, receiving TPN or is jaundiced or has septic shock
4. Ensure appropriate doses for indication
5. Change to narrow spectrum based on sensitivities (actively chase culture results)
6. Discuss with child and family about use of antibiotics. If going to theatre or prolonged antibiotics consider PICC line.
7. Discuss duration of antibiotics if unsure or no existing guideline

RECOMMENDED DURATION OF ANTIBIOTICS

Very few randomised control studies exist on the duration of antibiotics for specific infections. The recommendations below are based on current evidence and expert opinion.

- Pneumonia 5-7 days, empyema 2 weeks
- Simple UTI 3 days, complicated UTI 7-10 days
- Lymphadenitis 7 days, uncomplicated mastoiditis 10 days
- Cellulitis 7 days, impetigo 5 days, bites 7-14 days
- Bloody diarrhoea and septic 5 days
- Blood stream infection – according to organism (d/w micro)
- Meningitis (pathogen dependent, if no organism isolated: <3 months old 14 days, > 3 months old - 10 days)
  GBS meningitis ≥14 days, Meningococcus 7 days, *H. influenzae* 10 days, Pneumococcus 14 days, *E. coli* 21 days, Listeria 21 days
- Bone and joint infections: generally, 4-6 weeks or 2-3 weeks for septic arthritis. Consider IV to oral switch when: pain and or fever settles showing clinical resolution for example weight bearing, CRP <20 or <1/3 of maximum level

In all other infections consider IV to oral switch if clinical improvement, afebrile >24 hours, CRP normalising, available oral alternative, able to tolerate oral antibiotics and the infections is not MENINGITIS, ENDOCARDITIS OR CF EXACERBATION.

WE HAVE WEEKLY ANTIBIOTICS STEWARDSHIP WARD ROUND BASED ON THE CURRENT EMPIRIC GUIDE.
LET US BE GOOD ANTIBIOTIC GUARDIANS