EMPIRIC ANTIBIOTIC GUIDELINES-SCH

POLICY©

DOCUMENT SUMMARY/KEY POINTS

- These updated guidelines outline the initial and appropriate empiric antibiotics for specific clinical conditions in a non immunocompromised patient, until the organism(s) and sensitivities are identified
- They form the basis for the Sydney Children's Hospital (Randwick) Antimicrobial Stewardship Program and electronic "GuidanceMS" system

CHANGE SUMMARY

- Several changes have been made throughout the table – recommend re-reading the entire document.

READ ACKNOWLEDGEMENT

- All staff at SCH who are involved in the provision of antimicrobial agents to SCH patients are to read and acknowledge they understand the contents of this document.
- Department Heads and Nursing Unit Managers at SCH are to be aware of this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure & Guideline Committee	
Date Effective:	1st September 2015	**Review Period**: 3 years
Team Leader:	Staff Specialist	**Area/Dept**: Infectious Diseases SCH

1 Empiric antibiotic guidelines

THESE GUIDELINES ARE FOR EMPIRIC ANTIBIOTIC USE IN NON IMMUNOCOMPROMISED CHILDREN UNTIL THE ORGANISM AND SESITIVITIES ARE IDENTIFIED.

CONDITION / SYSTEM	AGE	SUSPECTED ORGANISMS	ANTIBIOTICS
SUSPECTED BACTERIAL SEPSIS (not critically ill)			
Normal CSF and urine microscopy	< 3 months	Group B *Streptococcus* *Escherichia coli*	IV ampicillin (50mg/kg, 6-hourly) + IV gentamicin***
	≥ 3 months	*Streptococcus pneumoniae* *Neisseria meningitidis*	IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 24-hourly)
SEVERE SEPSIS (sepsis + organ dysfunction)			
	Any age	*Streptococcus pneumoniae* *Neisseria meningitidis* *Staphylococcus aureus*	IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 24-hourly) ‡ + IV vancomycin€ + IV gentamicin**
CENTRAL NERVOUS SYSTEM INFECTIONS			
Meningitis (suspected or proven)	< 3 months	Group B *Streptococcus* *Escherichia coli* *Listeria monocytogenes*	IV ampicillin 1st week of age: 50mg/kg, 8-hourly 2-4 weeks of age: 50mg/kg, 6-hourly >4 weeks of age: 50mg/kg, 4-hourly + IV cefotaxime (50mg/kg, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 12-hourly) if > 1 month of age
	≥ 3 months	*Streptococcus pneumoniae* *Neisseria meningitidis* *Haemophilus influenzae*	IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 12-hourly)§ + IV dexamethasone (0.15mg/kg up to 10mg) before or with first dose of antibiotics
Encephalitis	Any age	Herpes simplex virus Enterovirus	IV aciclovir‖ If ≤ 3 months: <35wk postconceptional age: 20mg/kg 12-hourly ≥35wk postconceptional age: 20mg/kg 8-hourly If 3 months – 12 years: 500mg/m^2 8-hourly If > 12 years: 10mg/kg 8-hourly

CONDITION / SYSTEM	AGE	SUSPECTED ORGANISMS	ANTIBIOTICS
OPHTHALMOLOGICAL			
Mild periorbital (preseptal) cellulitis	Any age	*Staphylococcus aureus* *Streptococcus pneumoniae*	PO cephalexin (12.5mg/kg up to 500mg, 6-hourly) OR PO flucloxacillin (12.5mg/kg up to 500mg, 6-hourly)
Orbital cellulitis or moderate to severe periorbital cellulitis	Any age	*Streptococcus pneumoniae* *Staphylococcus aureus* *Haemophilus* species	IV flucloxacillin (50mg/kg, 6-hourly)† + IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 12-hourly) ‡
CARDIOVASCULAR			
Endocarditis	Any age	*Staphylococcus aureus* *Streptococcus viridans* Enterococci	IV benzylpenicillin (60mg/kg up to 1.8g, 4-hourly) + IV flucloxacillin (50mg/kg up to 2g, 6-hourly)† + IV gentamicin**
GASTROINTESTINAL			
Acute peritonitis or cholangitis	Any age	Polymicrobial flora	IV ampicillin (50mg/kg up to 2g, 6-hourly) + IV gentamicin** + IV metronidazole (7.5mg/kg up to 500mg, 8-hourly) OR SINGLE AGENT IV piperacillin-tazobactam (100mg/kg of pip component up to 4g, 8-hourly)
GENITOURINARY TRACT			
Urinary tract infections (UTI)	≤ 6 months	*Escherichia coli* Other gram negative bacilli Enterococci	IV ampicillin (50mg/kg, 6-hourly) + IV gentamicin**
Urinary tract infections	> 6 months		**Uncomplicated UTI:** PO trimethoprim+sulfamethoxazole (4mg/kg of trimethoprim component up to 160, 12-hourly) OR PO cephalexin (12.5mg/kg up to 500mg, 6-hourly)
	> 6 months		**Pyelonephritis or urosepsis** IV ampicillin (50mg/kg up to 2g, 6-hourly) + IV gentamicin**

CONDITION / SYSTEM	AGE	SUSPECTED ORGANISMS	ANTIBIOTICS
RESPIRATORY			
Acute bacterial pharyngitis/tonsillitis	Any age	*Streptococcus pyogenes*	PO phenoxymethylpenicillin (15mg/kg up to 500mg, 12hourly)
Acute otitis media	< 1 month	*Streptococcus pneumoniae* *Haemophilus* species *Moraxella catarrhalis*	PO amoxycillin (15mg/kg up to 500mg, 8-hourly) OR PO amoxycillin / clavulanate (Augmentin®: 15mg/kg of amoxycillin component, 12-hourly)
	1 month – 12 years	*Streptococcus pneumoniae* *Haemophilus* species *Moraxella catarrhalis*	PO amoxycillin (15mg/kg up to 500mg, 8-hourly) OR PO amoxycillin / clavulanic acid (Augmentin®: 15mg/kg of amoxycillin component, 8-hourly) (Augmentin Duo®: 22.5mg/kg of amoxycillin component up to 875mg, 12-hourly)
Acute epiglottitis or bacterial tracheitis	Any age	*Haemophillus influenza* type B if not previously immunised	IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 24-hourly) ‡ + IV flucloxacillin (50mg/kg up to 2g, 6-hourly)
Pneumonia	< 3 months	*Group B Streptococcus* Enterobacteriaceae *Streptococcus pneumoniae* *Chlamydia trachomatis* *Bordetella pertussis* HSV	**Mild-moderate disease:** IV benzylpenicillin (60mg/kg, 6-hourly) + IV gentamicin** Add azithromycin if considering pertussis or chlamydia **Severe disease**: IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 24-hourly) † ¶ + IV azithromycin Add IV vancomycin€ if shocked or ICU admission. Consider IV aciclovir if risk factors for HSV pneumonitis‖
Pneumonia	≥ 3 months	*Streptococcus pneumoniae* *Mycoplasma pneumoniae*	**Mild disease:** PO amoxycillin (25mg/kg up to 500mg, 8-hourly) AND/OR PO roxithromycin (4mg/kg 12-hourly) if considering mycoplasma¶ **Moderate disease** IV benzylpenicillin (60mg/kg up to 2.4g, 6-hourly) AND/OR PO roxithromycin (4mg/kg 12-hourly) if considering mycoplasma¶

			Severe disease: Consult respiratory team¶ IV cefotaxime (50mg/kg up to 2g, 6-hourly) OR IV ceftriaxone (50mg/kg up to 2g, 24-hourly) + IV clindamycin (10mg/kg up to 450mg, 8-hourly)† ADD IV vancomycin€ if severe sepsis or requiring ventilatory support. Add IV azithromycin if considering atypical organisms.
Pertussis (suspected or confirmed)	<6 months	*Bordetella pertussis*	PO azithromycin (10 mg/kg orally daily for 5 days)
	>6months		PO azithromycin (10mg/kg up to 500mg day 1, then 5mg/kg up to 250mg day 2-5) OR PO trimethoprim + sulfamethoxazole (4+20 mg/kg up to 160+800 mg, 12-hourly for 7 days) OR PO clarithromycin (7.5mg/kg up to 500mg, 12-hourly for 7 days)
SKIN/SOFT TISSUE/BONE			
Impetigo or mild cellulitis	Any age	*Staphylococcus aureus*	PO flucloxacillin (12.5mg/kg up to 500mg, 6-hourly) OR PO cephalexin (12.5mg/kg up to 500mg, 6-hourly)†
Cellulitis (moderate to severe)	Any age	*Staphylococcus aureus* *Streptococcus pyogenes*	IV flucloxacillin (50mg/kg up to 2g, 6-hourly)†
Osteomyelitis / septic arthritis	Any age	*Staphylococcus aureus*	IV flucloxacillin (50mg/kg up to 2g, 6-hourly)†
Sepsis with severe skin/soft tissue/bone/joint infection	Any age	*Staphylococcus aureus* *Streptococcus pyogenes*	IV flucloxacillin (50mg/kg up to 2g, 6-hourly)† + IV vancomycin€
Bites (human and animal)	Any age	*Staphylococcus aureus* *Pasteurella multocida* Oral anaerobes	IV piperacillin-tazobactam (100mg/kg of pip component up to 4g, 8-hourly) OR PO amoxycillin-clavulanic acid (Augmentin®: 15mg/kg of amoxycillin component, 8-hourly) (Augmentin Duo®: 22.5mg/kg of amoxycillin component up to 875mg, 12-hourly)
Compound fracture	Any age	Clean wound: *Staphylococcus aureus*	IV flucloxacillin (50mg/kg up to 2g, 6-hourly)†
		Soiled wound: Polymicrobial flora, including *Aeromonas* if water-related injury	IV piperacillin-tazobactam (100mg/kg of pip component up to 4g, 8-hourly) + PO ciprofloxacin (20mg/kg up to 750mg, 12-hourly) if water-related injury

2 Explanatory notes

**	The dose and frequency of gentamicin is influenced by age and risk factors for toxicity. See Once Daily Gentamicin Guidelines SCH
€	See Vancomycin Guideline SCH
‡	Ceftriaxone is not recommended in children ≤ 28 days
§	Add vancomycin if suspect pneumococcal meningitis. See NSW Health : Acute Management of Bacterial Meningitis Clinical Practice Guideline
†	In children with suspected community-acquired methicillin resistant Staphylococcus aureus infection (ca-MRSA), contact Infectious Diseases for advice. NOTE: Use vancomycin for premature neonates.
¶	See Community Acquired Pneumonia –SCH Practice Guideline
‖	See Aciclovir Intravenous SCH-Drug Protocol

3 References

1. Antibiotic Expert Groups. Therapeutic guidelines: antibiotic. Version 15. Melbourne: Therapeutic Guidelines Limited; 2014.
2. AMH Children's Dosing Companion (online). Adelaide: Australian Medicines Handbook Pty Ltd; 2015 January. Available from: https://childrens.amh/net.au [Accessed 23rd April 2015]
3. NSW Health : Acute Management of Bacterial Meningitis Clinical Practice Guideline (online) Available from: NSW Health : Acute Management of Bacterial Meningitis Clinical Practice Guideline [Accessed 23rd April 2015]
4. NSW Health Management of Whooping Cough (Pertussis)(online) available from: http://www.health.nsw.gov.au/Infectious/whoopingcough/Pages/workers-managing-cases.aspx [Accessed 26th June 2015]
5. BNF Joint Formulary Committee. British National Formulary (online) London: BMJ Group and Pharmaceutical Press available from: http://www.medicinescomplete.com.acs.hcn.com.au [Accessed 26th June 2015]