Guideline	
Presumed bacteraemia/sepsis – Paediatric (Neonates and immunocompetent children)	
Scope (Staff):	Clinical Staff – Medical, Nursing, Pharmacy
Scope (Area):	Clinical Staff – Medical, Nursing, Pharmacy

This document should be read in conjunction with this DISCLAIMER

Management of sepsis should take into consideration previous microbiological results and recent travel history. For therapeutic advice, discuss with infectious diseases or clinical microbiology services.

CLINICAL SCENARIO		DRUGS/DOSES			
		Standard Protocol	**Known or Suspected MRSA[a]**	**Penicillin allergy[b] (Delayed)**	**Penicillin allergy[b] (Immediate)**
Refer to the separate ChAMP guidelines for children with suspected meningitis/ meningoencephalitis or presumed bacteraemia/sepsis in immunocompromised patients (febrile neutropenia)					
Severe sepsis	Severe Sepsis with **haemodynamic instability** requiring **ICU admission** and/or vasopressors.	In severe sepsis, antimicrobial therapy should be administered without delay. Following empiric treatment with antimicrobials, all patients with severe sepsis should be discussed with infectious diseases or clinical microbiology services			
		Due to the increased prevalence of multi-drug resistant organisms, **GIVE** IV meropenem 40mg/kg/dose (maximum dose of 2gram) 8 hourly **AND** IV vancomycin[c] 15mg/kg/dose (to a maximum initial dose of 750mg) 6 hourly	As per standard protocol		vancomycin[c,d] **AND** amikacin[e]
Neonatal sepsis (<1month of age)	Neonatal viral infections can sometimes present with neonatal sepsis. Consider HSV testing and empiric treatment with aciclovir				
	Early onset neonatal sepsis (<48 hours of life)	IV gentamicin **AND** IV benzylpenicillin doses as per neonatal guidelines	As per standard protocol	Discuss with ID or Microbiology service	
	Late onset (hospital acquired) neonatal sepsis (≥48 hours old)	IV gentamicin **AND** IV vancomycin doses as per neonatal guidelines			

CLINICAL SCENARIO		DRUGS/DOSES			
		Standard Protocol	**Known or Suspected MRSA[a]**	**Penicillin allergy[b] (Delayed)**	**Penicillin allergy[b] (Immediate)**
Neonatal sepsis (<1month of age)	Community acquired neonatal sepsis - meningitis excluded	IV gentamicin **AND** IV benzylpenicillin doses as per neonatal guidelines	As per standard protocol	Discuss with ID or Microbiology service	
Neonatal sepsis (<1month of age)	Community acquired neonatal sepsis - meningitis not excluded	IV benzylpenicillin **AND** IV cefotaxime **CONSIDER ADDING** IV gentamicin **IF** haemodynamically unstable doses as per neonatal guidelines	As per standard protocol	Discuss with ID or Microbiology service	
Sepsis/ presumed serious bacterial infection ≥ 1month of age	Fever >38˚C without a source – possible* serious bacterial infection **(1 to ≤3 months)**	IV ceftriaxone 50mg/kg/dose (to a maximum of 2grams) 12 hourly	As per standard protocol		gentamicin[f] **AND** vancomycin[c, d]
		Febrile children >3 months who are well without signs of serious illness are not routinely recommended antibiotics. Observation and investigation is recommended.			
Sepsis/ presumed serious bacterial infection ≥ 1month of age	Community acquired sepsis/ presumed* serious bacterial infection with uncertain source **(≥1 month)**	IV ceftriaxone 50mg/kg/dose (to a maximum of 2grams) 12 hourly **AND** IV vancomycin[c] 15mg/kg/dose (to a maximum initial dose of 750mg) 6 hourly **CONSIDER ADDING (as a stat dose)** IV gentamicin 7.5mg/kg as a single dose (to a maximum of 480mg) **IF** haemodynamically unstable	As per standard protocol		gentamicin[f] **AND** vancomycin[c, d]
Sepsis/ presumed serious bacterial infection ≥ 1month of age	Healthcare-Associated Sepsis ie. presumed* serious bacterial infection with no known source (≥ 1 month): includes community acquired sepsis with CVL in place	Management of Healthcare-Associated Sepsis should take into consideration previous microbiological results. For therapeutic advice, discuss with Infectious Diseases or Clinical Microbiology services			
		IV piperacillin/tazobactam 100mg/kg/dose (to a maximum of 4gram piperacillin component) 6 hourly **AND** IV vancomycin[c] 15mg/kg/dose (to a maximum initial dose of 750mg) 6 hourly **CONSIDER ADDING (as a stat dose)** IV gentamicin 7.5mg/kg as a single dose (to a maximum of 480mg) **IF** haemodynamically unstable	As per standard protocol	gentamicin[f] **AND** vancomycin[c, d]	gentamicin[f] **AND** vancomycin[c, d]

CLINICAL SCENARIO		DRUGS/DOSES			
		Standard Protocol	**Known or Suspected MRSA[a]**	**Penicillin allergy[b] (Delayed)**	**Penicillin allergy[b] (Immediate)**
Asplenia	Sepsis in an asplenic patient – presumed serious bacterial infection	Treat as for community acquired sepsis			
	Fever in an asplenic patient (possible serious bacterial infection)	IV ceftriaxone 50mg/kg/dose (to a maximum of 2grams) 24 hourly	Discuss with ID or Microbiology services	As per standard protocol	Discuss with ID or Microbiology services
Endocarditis-Endovascular infection	Endocarditis or other endovascular infection; native valve or homograft	IV benzylpenicillin 50mg/kg/dose (to a maximum of 1.8grams) 4 hourly **AND** IV flucloxacillin 50mg/kg/dose (to a maximum of 2grams) 4 hourly **AND** IV gentamicin[f] 7.5mg/kg/dose (to a maximum of 480mg) once daily	vancomycin[d] **AND** flucloxacillin[g] **AND** gentamicin[f]	vancomycin[d] **AND** cefazolin[h] **AND** gentamicin[f]	vancomycin[d] **AND** gentamicin[f]
	Endocarditis or other endovascular infection; prosthetic valve or graft	IV vancomycin 15mg/kg/dose (maximum initial dose 750mg) 6 hourly **AND** IV flucloxacillin 50 mg/kg/dose (to a maximum of 2grams) 4 hourly **AND** IV gentamicin[f] 7.5mg/kg/dose (to a maximum of 480mg) once daily	As per standard protocol	vancomycin[d] **AND** cepfazolin[h] **AND** gentamicin[f]	vancomycin[d] **AND** gentamicin[f]

a) Children known or suspected to be colonised with MRSA may need to have their therapy/prophylaxis modified. Children suspected of having MRSA include:
   i) household contacts of MRSA colonised individuals and
   ii) children with recurrent skin infections or those unresponsive to beta-lactam therapy. For further advice, discuss with Microbiology or ID service
b) An immediate (IgE mediated) reaction is characterised by the development of urticaria, angioedema, bronchospasm or anaphylaxis within 1 to 2 hours of drug administration. Delayed reactions including maculopapular or morbilloform rashes, drug fever and cytopenias and are more in keeping with other forms of immunological reactivity. Isolated diarrhoea is not usually immune-mediated and does NOT contraindicate the future use of an antibiotic
c) Consider a vancomycin loading dose for patients with severe infection in discussion with infectious diseases or clinical microbiology
d) IV vancomycin **15mg/kg/dose** (maximum initial dose 750mg) 6 hourly. Therapeutic drug monitoring required.
e) IV amikacin **30mg/kg/dose** (to a maximum of 1250mg) 24 hourly. Clinical review is required after 3 doses Therapeutic drug monitoring is required for all patients. ChAMP approval is also required.
f) IV gentamicin **7.5mg/kg/dose** (to a maximum of 480mg) once daily. Therapeutic drug monitoring required if therapy extends beyond 72 hours.
g) IV flucloxacillin **50mg/kg/dose** (to a maximum of 2grams) 4 hourly
h) IV cefazolin **50mg/kg/dose** (to a maximum of 2gram) 6 hourly
   * **Possible**: Low likelihood of serious bacterial infection but serious bacterial infection has not been excluded
   * **Presumed**: Moderate to high likelihood of serious bacterial infection but serious bacterial infection has not been confirmed

Related policy, procedures and guidelines.
Antimicrobial Stewardship Policy

Resources
ChAMP Empiric Guidelines

References
1. Antibiotic Writing Group. Therapeutic Guidelines - Antibiotic. West Melbourne: Therapeutic Guidelines Ltd; 2014. Available from: http://online.tg.org.au.pklibresources.health.wa.gov.au/ip/.
2. Expert opinion – Paediatric Infectious Diseases Physicians

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