



**GUIDELINE**

**Enteral Infections: Paediatric**

<b>Scope (Staff):</b>	Medical, Nursing, Pharmacy
<b>Scope (Area):</b>	Perth Children's Hospital (PCH)

**Child Safe Organisation Statement of Commitment**

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

**This document should be read in conjunction with this [disclaimer](#)**

- Consideration should be given to the appropriate exclusion periods for patients and carers.
  - Refer to: The WA Communicable Disease Control Directorate guideline on the [Exclusion of People with Enteric Diseases and their Contacts](#) for further information.
- Discuss all patients below 4 weeks of age with the suspected or confirmed infections included in the table with Infectious Diseases.
- The majority of diarrhoeal illnesses do not require antibiotic treatment, with hydration being the mainstay of treatment.
- For patients who are severely unwell, the [sepsis pathway](#) should be followed.
- For diarrhoea +/- fever returned travellers, please also see [Fever in the returned traveller](#) guideline.

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES
		Standard Protocol
<p><b>Mild</b> <i>Salmonella</i> enteritis (Non-typhoidal) <b>Child ≥4 weeks</b></p>	Nil	<p><i>Salmonella</i> enteritis is self-limiting in many patients and no therapy is indicated for mild cases in children ≥3 months of age.</p> <p><b>Antibiotic therapy is recommended in:</b></p> <ul style="list-style-type: none"> <li>• Severe diarrhoea in patients of any age (e.g. requiring inpatient admission)</li> <li>• Patients with prosthetic vascular grafts or haemoglobinopathies</li> <li>• Immunocompromised patients</li> <li>• Neonates and children &lt;3 months</li> <li>• Complicated (invasive) disease including bacteraemia, endovascular infection, meningitis and osteoarticular infection</li> </ul> <p>If antibiotic therapy is required, treat as per uncomplicated <i>Salmonella</i> enteritis (below).</p>
<p><b>Uncomplicated</b> <i>Salmonella</i> enteritis (Non-typhoidal) <b>Child ≥ 4 weeks</b></p>	5 days	<p>In febrile patients &lt;12 months of age, and all patients &lt; 3 months, a blood culture +/- CSF is strongly recommended.</p> <p>Oral <a href="#">azithromycin</a> 20 mg/kg/dose (to a maximum of 1 gram) on day one, followed by 10 mg/kg/dose (to a maximum of 500 mg) once daily for a further 4 days.</p> <p><b>OR, If confirmed susceptible</b></p> <p>Oral <a href="#">amoxicillin</a> 30 mg/kg/dose (to a maximum of 1 gram) given 8 hourly for 5 days.</p>
<p><b>Complicated</b> <i>Salmonella</i> enteritis (Non-typhoidal) <b>Child ≥4 weeks</b></p>	Variable	<p>In children &lt; 3 months of age CSF should be collected to exclude meningitis. Consider lumbar puncture in older infants based on clinical picture.</p> <p>Complicated infection includes bacteraemia, meningitis, osteoarticular and endovascular infections. Recommended duration depends on the clinical scenario. An Infectious Diseases referral is recommended.</p> <p>IV <a href="#">ceftriaxone</a> 100 mg/kg/dose (to a maximum of 4 grams) 24 hourly.</p>

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES
		Standard Protocol
<p>Enteric fever – typhoid and paratyphoid (<i>Salmonella</i> – typhi or paratyphi bacteraemia)</p> <p><b>Child &gt; 4 weeks and &lt; 1 year</b></p>	<p>7-10 days (all IV)</p>	<p>In children &lt; 3 months of age, CSF should be collected to exclude meningitis. Consider in older infants based on clinical picture.</p> <p>IV <a href="#">ceftriaxone</a> 100 mg/kg/dose (to a maximum of 4 grams) 24 hourly.</p> <p><b>OR in patients with <a href="#">high risk beta-lactam allergy</a><sup>a</sup></b></p> <p>IV <a href="#">azithromycin</a> 10 mg/kg/dose (to a maximum of 1 gram) once daily</p> <p>For patients with severe disease who have sepsis or have not responded to treatment, discuss with Infectious Diseases team as cover for XDR typhoid may be indicated.</p> <p><b>Duration of IV therapy (NO oral step down):</b></p> <p>Children &lt;3 months old: 10 days</p> <p>Children ≥3 months and &lt;12 months: 7 days</p>
<p><b>Uncomplicated</b></p> <p>Enteric fever – typhoid and paratyphoid (<i>Salmonella</i> – typhi or paratyphi)</p> <p><b>Children ≥ 1 year</b></p>	<p>5 to 7 days</p>	<p>Patients able to tolerate oral therapy:</p> <p>Oral <a href="#">azithromycin</a> 20 mg/kg/dose (to a maximum of 1 gram) once daily for 5 to 7 days.</p> <p>In patients unable to tolerate oral therapy, treat as for children &gt; 4 weeks and &lt; 1 year above.</p>
<p><b>Severe</b></p> <p>Enteric fever – typhoid and paratyphoid (<i>Salmonella</i> – typhi or paratyphi)</p> <p><b>Children ≥ 1 year</b></p>	<p>7-10 days (IV and oral)</p>	<p>IV <a href="#">ceftriaxone</a> 100 mg/kg/dose (to a maximum of 4 grams) 24 hourly</p> <p><b>OR in patients with <a href="#">high risk beta-lactam allergy</a><sup>a</sup></b></p> <p>IV <a href="#">azithromycin</a> 10 mg/kg/dose (to a maximum of 500 mg) once daily until oral therapy tolerated to complete a total course of 5 to 7 days.</p> <p>Oral switch as per ‘uncomplicated enteric fever’ (above) once patient is able to tolerate oral therapy.</p> <p>For patients with severe disease who have sepsis or have not responded to treatment, discuss with Infectious Diseases team as cover for XDR typhoid may be indicated.</p>

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES
		Standard Protocol
<p><b>Mild</b> <i>Shigella</i> enteritis <b>Child ≥4 weeks</b></p>	5 days	<p>Due to high resistance rates, empiric therapy should not be commenced except in severe disease or immunocompromised patients. Await results of susceptibility testing before starting oral treatment.</p> <p>Treatment is usually only indicated in severe disease or immunocompromised patients, but may be considered in the following groups to reduce transmission:</p> <ul style="list-style-type: none"> <li>• Children &lt; 6 years</li> <li>• Food/healthcare/childcare workers</li> <li>• People working or living in aged care facilities</li> <li>• Where multidrug <i>Shigella</i> is identified and the patient remains symptomatic.</li> </ul>
<p><b>Severe disease or immune-compromised patient</b> <i>Shigella</i> enteritis <b>Child ≥4 weeks</b></p>	5 days	<p>In severe disease or immunocompromised patients: IV <a href="#">ceftriaxone</a> 50 mg/kg/dose (to a maximum of 2 grams) once daily while awaiting results of susceptibility testing.</p> <p>Consider oral switch once patient is able to tolerate oral therapy, guided by susceptibility testing.</p>
<p><i>Campylobacter</i> enteritis <b>Child ≥4 weeks</b></p>	3 days	<p><i>Campylobacter</i> enteritis is self-limiting in most patients. Consider antibiotic therapy in infants under 3 months, immunocompromised children or if enteritis is severe or patients with renal or cardiac disease.</p> <p>Oral <a href="#">azithromycin</a> 10 mg/kg/dose (to a maximum of 500 mg) once daily.</p> <p><b>OR</b></p> <p>Oral <a href="#">ciprofloxacin</a><sup>b</sup> 12.5 mg/kg/dose (to a maximum of 500 mg) twice daily.</p>

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<p><i>Giardiasis</i>  <b>Child ≥4 weeks</b></p>	<p>3 – 5 days</p>	<p>Consider treatment in symptomatic patients.</p> <p>Oral <a href="#">metronidazole</a> 30 mg/kg/dose (to a maximum of 2 grams) once daily for 3 days.</p> <p><b>OR</b></p> <p>Oral <a href="#">metronidazole</a> 10 mg/kg/dose (to a maximum of 400 mg) three times a day for 5 days.</p>
<p><i>Clostridioides difficile</i> – <b>First episode</b>  <b>Child ≥4 weeks:</b></p>	<p>10 days</p>	<ul style="list-style-type: none"> <li>Asymptomatic colonisation of young infants is common. Treatment of children &lt; 2 years old should be discussed with Infectious Diseases.</li> <li>Precipitating factors (e.g. broad-spectrum antibiotics such as 3<sup>rd</sup> generation cephalosporins, carbapenems or fluoroquinolones), should be modified or ceased, where possible.</li> <li>Proton pump inhibitors (e.g. esomeprazole, lansoprazole) should be avoided where possible.</li> <li>Treat only if PCR AND toxin EIA positive AND symptomatic.</li> <li>Repeat testing is not recommended within 7 days original testing OR in patients who have symptomatically recovered.</li> </ul> <p>Oral <a href="#">metronidazole</a> 10mg/kg/dose (to a maximum of 400mg) 8 hourly.</p>
<p><i>Clostridioides difficile</i> - <b>First recurrence</b>  <b>Child ≥4 weeks:</b></p>	<p>14 days</p>	<p>Oral <a href="#">vancomycin</a><sup>c</sup> 10 mg/kg/dose (to a maximum of 125 mg) four times a day for 14 days.</p>

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES
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<p><i>Clostridioides difficile</i></p> <p><b>Second or subsequent recurrence</b></p>	Variable	<p><b>Child ≥ 4 weeks:</b></p> <p>Oral <a href="#">vancomycin</a><sup>c</sup> 10 mg/kg/dose (to a maximum of 125 mg) four times a day for 14 days then taper as outlined in the oral vancomycin monograph.</p> <p><b>OR Child ≥ 1 year:</b></p> <p>Oral nitazoxanide<sup>e</sup> for 10 days</p> <p>Child ≥ 1 to &lt; 4 years: 100mg 12 hourly for 7 to 10 days</p> <p>Child ≥ 4 years to &lt; 12 years: 200mg 12 hourly 7 to 10 days</p> <p>Nitazoxanide is only available via the SAS scheme and is a ChAMP red (protected) medication.</p> <p><b>OR</b></p> <p><b>Child ≥ 6 months:</b></p> <p>Oral fidaxomicin<sup>d</sup> 16mg/kg/dose (to a maximum of 200mg) 12 hourly for 10 days</p> <p>Fidaxomicin is only available via the SAS scheme and requires an individual patient approval from the Drugs and Therapeutics Committee.</p>

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES
		Standard Protocol
<p><i>Clostridioides difficile</i></p> <p><b>Severe</b></p>	<p>10 days</p>	<ul style="list-style-type: none"> <li>• Treatment of children &lt; 2 years old should be discussed with Infectious Diseases.</li> <li>• Alternative causes (e.g. rotavirus or norovirus) should be excluded prior to treatment</li> <li>• Precipitating factors (e.g. broad-spectrum antibiotics such as 3rd generation cephalosporins, carbapenems or fluoroquinolones), should be modified or ceased, where possible.</li> <li>• Proton pump inhibitors (e.g. esomeprazole, lansoprazole) should be avoided where possible.</li> </ul> <p>Severe disease includes patients with:</p> <ul style="list-style-type: none"> <li>• fever &gt;38.5°C</li> <li>• haemodynamic instability</li> <li>• severe abdominal pain (or evidence of bowel perforation)</li> <li>• ileus or toxic megacolon</li> <li>• white cell count &gt;15 x 10<sup>9</sup>/L and &lt;20% neutrophils</li> <li>• elevated creatinine</li> <li>• elevated lactate</li> <li>• low albumin</li> </ul> <p>Discuss all severe or recurrent patients with Infectious Diseases.</p> <p><b>Child ≥ 4 weeks:</b> Oral <a href="#">vancomycin</a><sup>c</sup> 10 mg/kg/dose (to a maximum of 125 mg) four times a day.</p> <p>In complicated patients (e.g. hypotension, shock or ileus),</p> <p><b>ADD</b></p> <p><b>Child ≥ 4 weeks:</b> IV <a href="#">metronidazole</a> 12.5 mg/kg/dose (to a maximum of 500 mg) 8 hourly.</p>

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES
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<p><i>Helicobacter pylori</i> Child ≥4 weeks</p>	14 days	<p><i>Helicobacter pylori</i> infection is less common in children than in adults, with a prevalence of &lt;5%. The “test and treat strategy” is NOT recommended in children.</p> <p><b>IF <i>H. pylori</i> infection is endoscopically proven with peptic ulcer disease</b> empiric treatment should be based on standard treatment guidelines. In settings of persistent or recurrent disease, culture and susceptibility testing may inform alternative schedules.</p> <p><b>Child ≥4 weeks:</b> Oral <a href="#">amoxicillin</a> 25mg/kg/dose (to a maximum of 1 gram) twice daily.</p> <p><b>AND</b></p> <p><b>Child ≥4 weeks:</b> Oral <a href="#">clarithromycin</a> 7.5mg/kg/dose (to a maximum of 500mg) twice daily.</p> <p><b>AND</b></p> <p>a proton pump inhibitor (e.g. esomeprazole or lansoprazole)</p> <p>In high or low risk penicillin<sup>a</sup> allergy use oral <a href="#">metronidazole</a> 10mg/kg/dose (to a maximum of 400mg) twice daily instead of amoxicillin. Alternatively, consider amoxicillin oral challenge for patients with low risk penicillin allergy in discussion with immunology.</p>
<p>Perianal and fistulising disease in Crohn’s disease Child ≥4 weeks</p>	Variable	<p><b>Child ≥4 weeks:</b> Oral <a href="#">metronidazole</a> 10mg/kg/dose (to a maximum of 400mg) twice daily.</p> <p><b>OR</b></p> <p>If refractory to metronidazole:</p> <p><b>Child ≥4 weeks:</b> Oral <a href="#">ciprofloxacin</a><sup>b</sup> 12.5mg/kg/dose (to a maximum of 500mg) twice daily.</p>

- a. Refer to the [ChAMP Beta-lactam Allergy Guideline](#)
  - Low risk allergy: a delayed rash (>1hr after initial exposure) without mucosal or systemic involvement (without respiratory distress and/or cardiovascular compromise).
  - High risk allergy: an immediate rash (<1hr after exposure); anaphylaxis; severe cutaneous adverse reaction {e.g. Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) and Stevens – Johnson syndrome (SJS) / Toxic Epidermal Necrolysis (TEN)} or other severe systemic reaction.
  
- b. Oral [ciprofloxacin](#) should only be used in those patients able to swallow tablets as ciprofloxacin is extremely unpalatable. Doses should be rounded to the nearest portion of a tablet. (Tablet strengths are 250mg and 500mg).



- c. [Oral vancomycin](#) – IV solution may be administered orally in those unable to swallow capsules or for doses <125mg. For outpatients unable to swallow solid oral dosage forms with a nasogastric tube, SAS oral vancomycin suspension is available.
- d. Oral fidaxomicin is currently a non-formulary agent and requires an Individual Patient Approval and Special Access Scheme (SAS) approval before prescribing.
- e. Oral nitazoxanide is a ChAMP red/ protected agent. ID approval and SAS approval required before prescribing.

### Related CAHS internal policies, procedures and guidelines

[Antimicrobial Stewardship Policy](#) (PCH Website)

[ChAMP Empiric Guidelines](#)

[Sepsis recognition and management](#)


### Useful resources (including related forms)

[Guidelines for exclusion of people with enteric infections and their contacts from work, school and childcare settings.](#)

### References and related external legislation, policies, and guidelines

1. Antibiotic Writing Group. Therapeutic Guidelines - Antibiotic. West Melbourne: Therapeutic Guidelines Ltd; 2022. Available from: <https://tqldcdp-tg-org-au.pklibresources.health.wa.gov.au/etqAccess>.
2. Kimberlin DW, Barnett E, Lynfield R, Sawyer MH, editors. Red Book: 2021 Report of the Committee on Infectious Diseases. 32nd edition ed. Illinois: American Academy of Pediatrics; 2021 - 2024.
3. Trubiano JA, Cheng AC, Korman TM, Roder C, Campbell A, May MLA, et al. Australasian Society of Infectious Diseases updated guidelines for the management of Clostridium difficile infection in adults and children in Australia and New Zealand. Internal Medicine Journal. 2016;46(4):479-93.
4. Wen S, Best E, Nourse C. Non-typhoidal Salmonella infections in children: Review of literature and recommendations for management. Journal of Paediatric and Child Health. 2017;53:936-41.
5. Homan M, Jones NL, Bontems P, Carroll MW, Czinn SJ, Gold BD, et al. Updated joint ESPGHAN/NASPGHAN guidelines for management of Helicobacter pylori infection in children and adolescents (2023). Journal of pediatric gastroenterology and nutrition. 2024;79(3):758-85.
6. Up To Date - Paediatric Drug information [Internet]. Lexicomp. 2024 [cited 2024 October 29th]. Available from: <https://www.uptodate-com.pklibresources.health.wa.gov.au/contents/table-of-contents/drug-information/pediatric-drug-information>.

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## Healthy kids, healthy communities

Compassion
Excellence
Collaboration
Accountability
Equity
Respect

Neonatology | Community Health | Mental Health | Perth Children’s Hospital