GUIDELINE

Intravenous to Oral Switch

Scope (Staff):	Clinical Staff – Medical, Nursing, Pharmacy
Scope (Area):	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

Aim

The aim of this document is to provide guidance on the appropriate time to switch to oral antimicrobial therapy following intravenous (IV) administration.

Background

For many bacterial infections, treatment can be completed with oral antimicrobials. For severe infections, this is often following initial IV therapy. Oral therapy tends to have fewer and less serious adverse effects when compared with IV therapy.(1) Oral therapy avoids the need for an IV catheter which reduces:

i) the risk of catheter-related complications and

ii) hospital length of stay.(2)

The following document provides general principles and potential options for IV to oral switch. These recommendations provide a framework to tailor treatment, taking into consideration individual patient factors.

Key points

- For most infections, a switch from IV to oral therapy is appropriate in clinically stable patients once oral / enteral therapy is tolerated.
- Where minimal IV treatment duration by indication / pathogen is not documented below, daily review of the need for ongoing IV therapy and overall antimicrobial duration should be assessed and clearly documented in the patient progress notes.(1)

Oral therapy can be considered when[3]:

- The patient is clinically stable without signs of severe sepsis.
- The patient can absorb oral medications
    - Tolerates oral / enteral medications (not vomiting or nil by mouth)
    - No impairment of absorption (e.g. no ileus or mucositis)
    - **Note:** longer durations of IV therapy are often used in neonates, given the variable absorption. There may be circumstances where oral switch can be considered in neonates, please discuss with paediatric Infectious diseases for IV to oral switch options for neonates.
- There is an appropriate oral option
    - An oral antibiotic is available to treat the identified (or suspected) organism
    - An oral formulation is available to administer the required dose that is palatable
    - The oral antimicrobial has sufficient penetration to affected tissue.
- The patient is likely to adhere to oral antimicrobials.

A summary of recommended minimum intravenous and total antibiotic durations for common paediatric infections are summarised in Appendix 1: Recommended minimum intravenous and total antibiotic durations for selected infections. For further information refer to: Antibiotic duration and timing of the oral switch from intravenous to oral route for bacterial infections in children: systematic review and guidelines and the current Australian Therapeutic Guidelines - Antibiotic.

Early IV to oral switch is generally NOT appropriate for

- Bacterial meningitis or other Central Nervous System (CNS) infections
- Blood stream infections
- Endocarditis or intravascular infection
- Central Venous Access Device (CVAD) infection
- Necrotising enterocolitis
- Infections in immunosuppressed patients (may be suitable on discussion with Infectious Diseases)
- Patients with absorption issues (e.g. severe diarrhoea or uncontrolled nausea and vomiting)

Options for IV to oral switch

- Take into account all relevant microbiological results for sensitivities (e.g. urinary tract infections)
- Empiric oral switch options are included in the individual ChAMP empiric guidelines

Suitable oral switch agents for empiric therapy for susceptible organisms		
Indication	**IV antimicrobial and dose**	**Oral antimicrobial conversion**
Pneumonia	benzylpenicillin	amoxicillin
Severe pneumonia	ceftriaxone	amoxicillin
Intraabdominal infection (e.g. post appendicectomy)	amoxicillin clavulanic acid	amoxicillin clavulanic acid
Mastoiditis/sinusitis	ceftriaxone	amoxicillin clavulanic acid
Bone and joint infection	flucloxacillin or cefazolin	flucloxacillin or cefalexin
Skin or soft tissue infection	Flucloxacillin or cefazolin	flucloxacillin or cefalexin

Hospital in the Home

For patients on Intravenous antibiotics through the HiTH service, consider the option for switching to oral therapy. Ensure the patient is provided with the appropriate supply or prescriptions prior to discharge from HiTH.

Related CAHS internal policies, procedures and guidelines *(if required)*
ChAMP empiric guidelines and monographs
Antimicrobial Stewardship Policy

References and related external legislation, policies, and guidelines
1. Antibiotic Writing Group. Therapeutic Guidelines - Antibiotic. West Melbourne: Therapeutic Guidelines Ltd; 2022. Available from: https://tgldcdp-tg-org-au.pklibresources.health.wa.gov.au/etgAccess. 2. Avent ML, Lee XJ, Irwin AD, Graham N, Brain D, Fejzic J, et al. An innovative antimicrobial stewardship programme for children in remote and regional areas in Queensland, Australia: optimising antibiotic use through timely intravenous-to-oral switch. Journal of global antimicrobial resistance. 2022;28:53-8.

3. McMullan BJ, Andresen D, Blyth CC, Avent ML, Bowen AC, Britton PN, et al. Antibiotic duration and timing of the switch from intravenous to oral route for bacterial infections in children: systematic review and guidelines. Lancet Infect Dis. 2016;16(e139-52).

This document can be made available in alternative formats on request.

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Appendix 1: Recommended minimum intravenous and total antibiotic durations for selected infections in children ≥ 4 weeks old

Infection	Minimum IV antibiotic duration	Minimum TOTAL (IV+oral) antibiotic duration
Bacteraemia – ChAMP Sepsis and Bacteraemia empiric guideline These durations are for uncomplicated isolated bacteraemia in non-immunocompromised patients		
Streptococcus pneumoniae	Occult: 1 day	7 - 10 days
	Non-occult: 3 days	4 -10 days
Bacteraemic UTI	5 days	7 - 10 days
Respiratory infections – ChAMP Acute respiratory tract infection		
Community acquired pneumonia (CAP)	0 days	Mild to moderate: 3 days
	Severe: initial IV	Severe: ≤ 7 days
Pneumonia – Aspiration	Mild to moderate: 0 days	Mild to moderate: 7 days
	Severe: initial IV	Severe: 7 days
Ventilator Associated Pneumonia (VAP)	Initial IV	5 days (extend to 10 days if *Pseudomonas* infection)
Empyema	Initial IV – until at least 24 hours afebrile	1-4 weeks
Ear, nose and throat – ChAMP Ear, nose, throat and dental infections		
Pharyngitis	0 days	*Streptococcus pyogenes* 10 days (phenoxymethylpenicillin)
Quinsy (peritonsillar abscess)	1-2 days post drainage	10 days
Otitis Media – with systemic features	0 days	If treated: 5-7 days
Retropharyngeal abscess	3-5 days	10-14 days
Mastoiditis	5 days	12-15 days
Acute bacterial sinusitis (mild)	Acute bacterial sinusitis is usually self-limiting and antibiotics make little difference to the course of the illness	
	0 days	If treated: 5 days
Acute cervical lymphadenitis	0 days	5-7 days
	Mild: 0 days Moderate to severe: 2-3 days	Mild: 7 days Moderate to severe: 7 days
Musculoskeletal infections – ChAMP Bone and joint infections		
Acute osteomyelitis	Uncomplicated: 3 days	Minimum 3 weeks, longer if complex
Chronic osteomyelitis	No prosthesis: 0 days	Minimum 6 weeks
	Prosthesis: initial IV	
Septic arthritis	Uncomplicated: 3 days	Minimum 3 weeks, longer if complex
Skin and soft tissue infections – ChAMP Skin and soft tissue infections		

Infection	Minimum IV antibiotic duration	Minimum TOTAL (IV+oral) antibiotic duration
Cellulitis / skin abscess	Mild / drained: 0 days Moderate to severe: 1-3 days	Mild / drained: 5 days Moderate to severe: ≤ 5 days
Pre-septal (periorbital) cellulitis	Mild: 0 days Moderate to severe: 2 days	7 days (10 -14 days if severe)
Orbital cellulitis	3 days	7 days (10 -14 days if severe)
Superficial surgical site infection	0 days	0 days (if started 5-7 days)
Abdominopelvic infections – ChAMP Intra-abdominal sepsis		
Appendicitis – without peritoneal soiling	Single pre-op dose	Nil extra if uncomplicated.
Perforated appendix	Initial IV	Up to 5 days after source control
Intra-abdominal infection	Initial IV	3-7 days, stop when signs of infection have resolved
Genitourinary infections – ChAMP Urinary tract infections		
Cystitis	0 days	3 – 5 days
Pyelonephritis (non-severe)	0 days	7-10 days
Pyelonephritis (severe)	5 days	7-10 days
Epididymo-orchitis	0 days	Normal urinalysis: 0 days Abnormal: oral for 2 weeks