Guideline

CHQ Hospital In the Home Antibiotic Guidelines

Document ID	CHQ-GDL-63012	Version no.	3.0	Approval date	03/05/2023
Executive sponsor	Executive Director Medical Services			Effective date	03/05/2023
Author/custodian	Director – Infection Management and Prevention Services, Immunology and Rheumatology			Review date	03/05/2025
Supersedes	2.0				
Applicable to	All Children's Health Queensland clinical staff				
Authorisation	Executive Director Clinical Services				

Purpose

The recommendations of this guideline are for patients that are suitable for care by the Children's Health Queensland (CHQ) Hospital In The Home (HITH) service, who require antimicrobial therapy.

Scope

This guideline provides information for all Queensland Health clinicians (permanent, temporary and casual) and all organisations and individuals acting as its agents (including Visiting Medical Officers and other partners, contractors, consultants and volunteers).

Related documents

Procedures, Guidelines, Protocols

- CHQ-PROC-01036 Antimicrobial: Prescribing and Management
- CHQ Antimicrobial restrictions formulary
- CHQ-GDL-1202 Children's Health Queensland Paediatric Antibiocard: Empirical Antibiotic Guidelines
- CHQ At Home Outpatient Parenteral Antimicrobial Therapy Prescribing, Administration and monitoring guideline
- CHQ-WI-80002 Continuous IV infusion administration via ambIT® - pumps for HITH- A basic guide for transfer to Hospital in the Home (HITH)
- CHQ-GDL-63023 Preparation of antibiotic infusion solutions for CHQ at Home
- CHQ-PGM-01249 Intravenous Aminoglycoside therapy (Amikacin, Gentamicin and Tobramycin)
- CHQ-GDL-01057 Antimicrobial treatment: Early intravenous to oral switch – Paediatric Guideline

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Introduction

Some children with infections presenting to hospital may be deemed to be unsuitable for oral antimicrobial therapy (for example, inability to tolerate oral therapy or more severe disease) but clinically well enough to be managed without being admitted for inpatient hospital care.

Children's Health Queensland Hospital In The Home (HITH) service facilitates care and delivery of antimicrobial therapy to these children.

This guideline has been developed to assist transitioning of children directly from the Emergency Department or inpatient wards onto HITH for antimicrobial therapy.

For the following indications and antibiotics ID antibiotic approval is not required for the first 3 days of intravenous therapy.

Clinical conditions for HITH antimicrobial therapy

The following clinical conditions can be treated via HITH service:

A. Community acquired pneumonia (not tolerating oral therapy)

B. Cellulitis

C. Lymphadenitis

D. Pre-septal/peri-orbital cellulitis

E. Pyelonephritis

Antimicrobial choice and duration for each of the above clinical conditions are summarised in the treatment recommendation table below (Table 1).

Children less than 3 months of age or children with known hypersensitivity reactions or allergies to the recommended antimicrobials are not eligible for direct admission to HITH from the Emergency Department.

First dose of intravenous antibiotics to be given in the Emergency department followed by a 1 hour observation period (for allergic reaction) before patient can be transferred home on HITH.

Patients with a positive blood culture should be recalled to hospital and IV antibiotic plan and follow up management discussed with the QCH ID Team on service.

ALERT

Consider oral antibiotics first as the above clinical conditions can usually be treated with oral therapy.

Decision to commence or continue intravenous antibiotics and referral to HITH requires a review by CHQatHome/ACE Registrar in consultation with Senior Medical Officer (ED/ CHQatHome/ Infectious diseases).

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Table 1: Treatment recommendations for infants over 3 months of age, children and adolescents with normal renal function (see Footnotes)

Clinical condition for HITH	Recommended intravenous and oral antimicrobial therapy & duration (Maximum 2 to 3 days including therapy received in ED. AMS approval required >72 hours of total IV therapy)	Recommended oral switch option	Usual total duration of therapy (IV and oral)
Community acquired pneumonia (not tolerating oral therapy)[A]	**First line:** Cefazolin IV - loading dose in ED followed by continuous infusion via AmBIT pump[B] OR **Second line:** Ceftriaxone IV (100 mg/kg once daily, maximum 2 g/day)	Amoxicillin orally 25 mg/kg/dose (maximum 1 g/dose) three times a day.	5 to 7 days
Cellulitis/ Lymphadenitis[C,D]	Send site swab for M/C/S. **First line:** Cefazolin IV - loading dose in ED followed by continuous infusion via AmBIT pump [B] OR **Second line:** Ceftriaxone IV 100 mg/kg once daily (maximum 2 g/day) Document MRSA risk factors and perform MRO nasal swab. In patients with cellulitis/lymphadenitis associated with contaminated/ water immersed wounds or previous invasive MRSA infection [C,D], consult Infectious Diseases specialist for advice on treatment options before transferring to HITH.	**Good clinical response to 1st or 2nd line IV therapy with negative cultures:** Cefalexin suspension orally 30 mg/kg/dose three times a day (maximum 1 g/dose), or *For children who can swallow capsules (or can tolerate oral flucloxacillin suspension (give test dose first)):* Flucloxacillin orally 25 mg/kg/dose four times a day (maximum 1 g/dose) **Poor response to 1st or 2nd line IV therapy and/or positive cultures:** Review clinical progress, microbiology results and sensitivities – consult Infectious diseases specialist for advice on treatment options.	5 to 7 days

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Clinical condition for HITH	Recommended intravenous and oral antimicrobial therapy & duration (Maximum 2 to 3 days including therapy received in ED. AMS approval required >72 hours of total IV therapy)	Recommended oral switch option	Usual total duration of therapy (IV and oral)
Peri-orbital cellulitis [C,D]	Send site swab for M/C/S. **First line:** Cefazolin IV - loading dose in ED followed by continuous infusion via AmBIT pump [B] OR **Second line:** Ceftriaxone IV 100 mg/kg once daily (maximum 2 g/day) Document MRSA risk factors and perform MRO nasal swab. In patients with peri-orbital cellulitis associated with history of previous invasive MRSA infection [C,D], consult Infectious Diseases specialist for advice on treatment options before transferring to HITH.	**Good clinical response to 1st or 2nd line IV therapy with negative cultures and no concerns for sinusitis:** Cefalexin 30 mg/kg/dose three times per day (maximum 1g/dose) or *For children who can swallow capsules (or can tolerate oral flucloxacillin suspension (give test dose first)):* Flucloxacillin orally 25 mg/kg/dose four times a day (maximum 1 g/dose) **If clinical concerns for concurrent sinusitis or the child is under 5 years old and received no HiB vaccines:** Amoxicillin/clavulanic acid 22.5 mg/kg/dose (maximum 875 mg/dose amoxicillin component) twice daily	7 to 10 days
Uncomplicated **Urinary tract infection (UTI)**	Not a HITH candidate. Commence oral antibiotics as per Children's Health Queensland Paediatric Antibiocard: Empirical Antibiotic Guidelines.	Guided by urine culture result. Seek ID advice if required.	3 to 5 days for UTI
Pyelonephritis	Cefalexin orally 30 mg/kg/dose three times a day (maximum 1 g/dose) PLUS Gentamicin IV (calculate dose on adjusted body weight) [E] • If more than 1 month and less than 10 year old: 7.5 mg/kg once daily (Maximum 320 mg/day) • If more than 10 year old: 6 mg/kg IV once daily (Maximum 560 mg/day)	Guided by urine culture result. Seek ID advice if required.	7 to 10 days for pyelonephritis

Footnotes:

A. Oral antibiotics are sufficient in most children with community acquired pneumonia unless unable to tolerate oral or severe/complicated disease

B. Cefazolin can be given as a 24-hour infusion with the AmBIT pump via a peripheral IV cannula (minimum 22 G). Patient suitability for continuous infusion will be at the clinician's discretion.

    i. The Cefazolin 24-hour dose can be prepared in an IV bag for administration.

        a. A loading dose of 50 mg/kg (maximum 2 g) should be given prior to commencing continuous infusion (150 mg/kg/day, maximum 6 g/day).

        b. For Cefazolin infusion preparation information, please refer to:

            i. CHQ-WI-80002 Continuous IV infusion administration via ambIT® - pumps for HITH- A basic guide for transfer to Hospital in the Home (HITH)

            ii. CHQ-GDL-63023 Preparation of antibiotic infusion solutions for CHQ at Home

    ii. Further dosing/monitoring information available via the CHQ AMS website: CHQ At Home Outpatient Parenteral Antimicrobial Therapy Prescribing, Administration and monitoring guideline

C. Where there is a history of previous invasive MRSA infection, consult Infectious diseases specialist for advice on appropriate IV antibiotic therapy. Inpatient admission may be required.

D. A swab of any discharge or pus should be taken prior to commencing treatment. If no discharge or pus present, MRO swabs should be done to determine MRSA status.

E. In otherwise healthy children, therapeutic drug monitoring for gentamicin for UTI is not necessary for durations of less than 3 days. Patients who have renal impairment or renal risk factors or require therapeutic drug monitoring due to concerns for potential nephrotoxicity are not suitable for HITH admission via the Emergency Department.

Antimicrobial treatment duration exceeding 3 days

Children who require longer than 3 days of IV antimicrobial therapy as recommended above require discussion with ID and antibiotic approval for continuing IV therapy.

List of Abbreviations

Abbreviation	Definition
AMS	Antimicrobial Stewardship
CHQ	Children's Health Queensland
CHQatHome	Children's Health Queensland Hospital In The Home service
HITH	Hospital in the Home
IMPS	Infection Prevention and Management Service
ID	Infectious Diseases Team
IV	Intravenous
MRO	Multi-resistant organism screening
MRSA	Methicillin Resistant Staphylococcus Aureus
SMO	Senior Medical Officer
QCH	Queensland Children's Hospital
UTI	Urinary tract infection

Consultation

Key stakeholders who reviewed this version:

- Pharmacist Advanced – Antimicrobial Stewardship, IMPS
- Director, Infection Management and Prevention service (IMPS)
- Paediatric Infection Specialist, HITH ID Lead, IMPS
- General Paediatrician, CHQ at home
- Senior Clinical Pharmacist, CHQ at home
- Pharmacist Clinical Lead – Medical
- Paediatric Fellow, CHQ at home
- Paediatric Fellow, Infection Management and Prevention service (IMPS)
- Nurse Unit Manager, CHQ at Home
- Medicines Advisory Committee – Endorsed 20/04/2023

References and suggested reading

1. Therapeutic Guidelines: Antibiotic 2022 Therapeutic Guidelines Ltd. Melbourne
2. Taketomo CK eds. Pediatric Dosage Handbook International. Lexi-comp. Available via UpToDate.
3. BNF for Children 2021-2022. BMJ Group, London, UK.

Guideline revision and approval history

Version No.	Modified by	Amendments authorised by	Approved by
1.0 19/06/2019	Director – Infection Management and Prevention Services (IMPS), Immunology and Rheumatology	Medical Director, Division of Medicine	Executive Director Clinical Services (QCH)
2.0 12/01/2021	Infection Specialist (IMPS) Pharmacist Advanced, Antimicrobial stewardship	Medical Director, Division of Medicine	Executive Director Clinical Services
3.0 20/04/2023	Pharmacist Advanced, Antimicrobial stewardship Paediatric Infection Specialist, HITH ID Lead (IMPS) General Paediatrician (CHQatHome) Director (IMPS)	Medicines Advisory Committee	Executive Director Clinical Services

Keywords	Hospital in The Home, Antibiotics, cefazolin, ceftriaxone, cefalexin, flucloxacillin, gentamicin, amoxicillin/clavulanate, Antimicrobial Stewardship, AMS, HITH, CHQatHome, UTI, pyelonephritis, periorbital cellulitis, cellulitis, lymphadenitis, community acquired pneumonia, 63012
Accreditation references	NSQHS Standards (1-8): 1 Clinical Governance, 2 Partnering with consumers, 3 Preventing and Controlling Healthcare Associated Infections, 4 Medication safety ISO 9001:2015 Quality Management Systems: (4-10)

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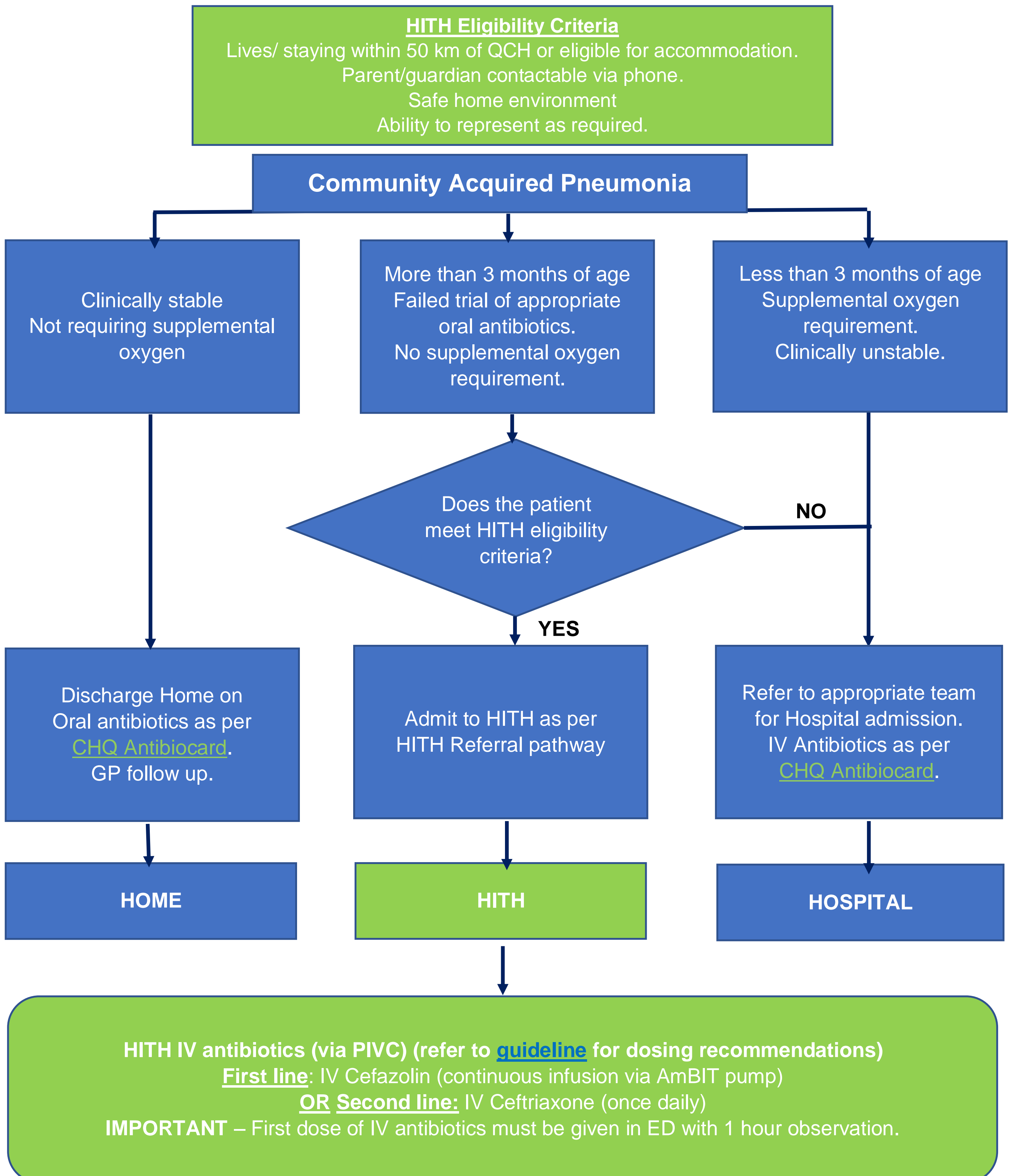
Appendix A – Community acquired pneumonia HITH pathway

Please use flowchart in conjunction with Table 1 – Community acquired pneumonia - recommendations



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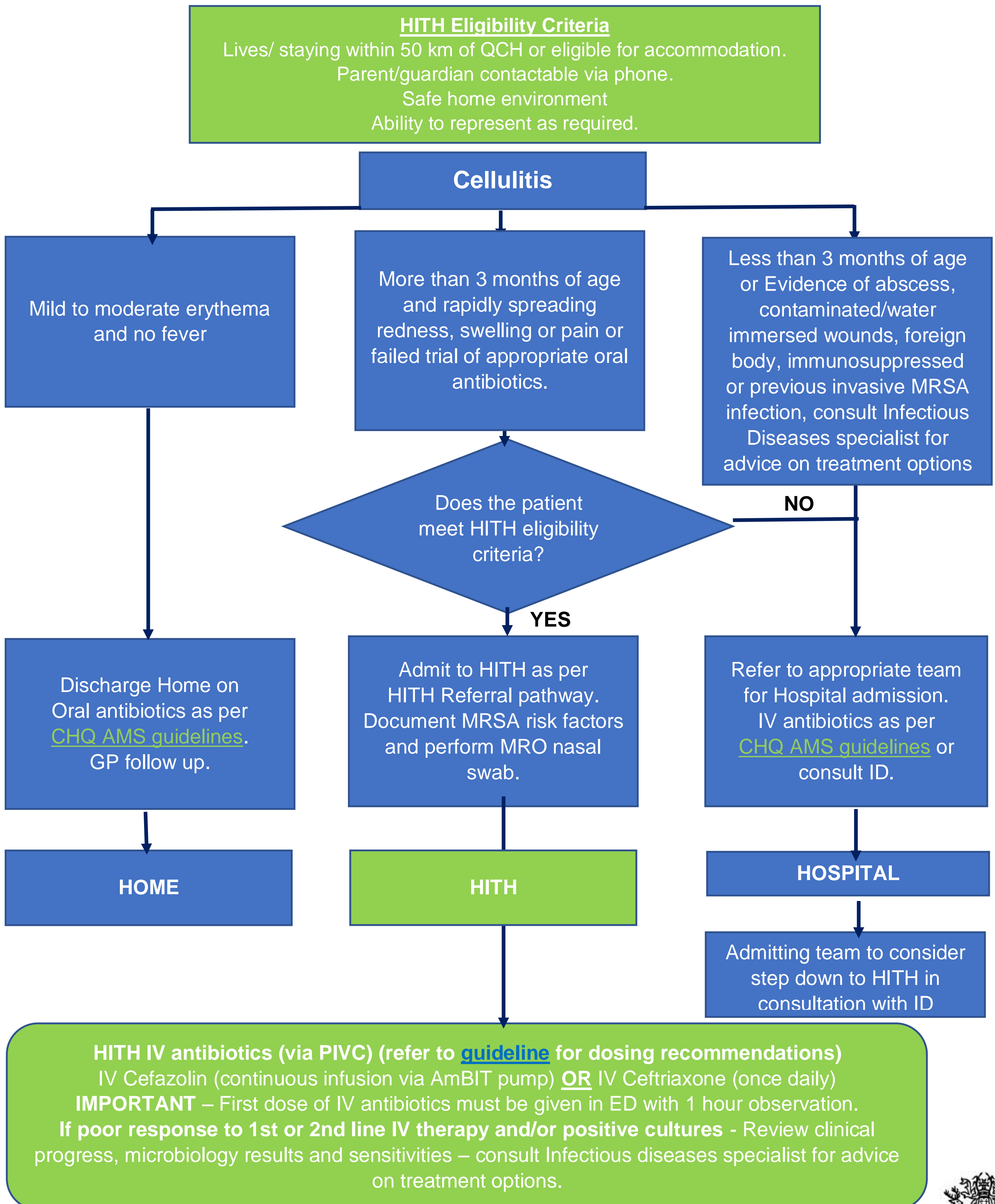
Appendix B – Cellulitis HITH pathway

Please use flowchart in conjunction with Table 1 – Cellulitis - recommendations



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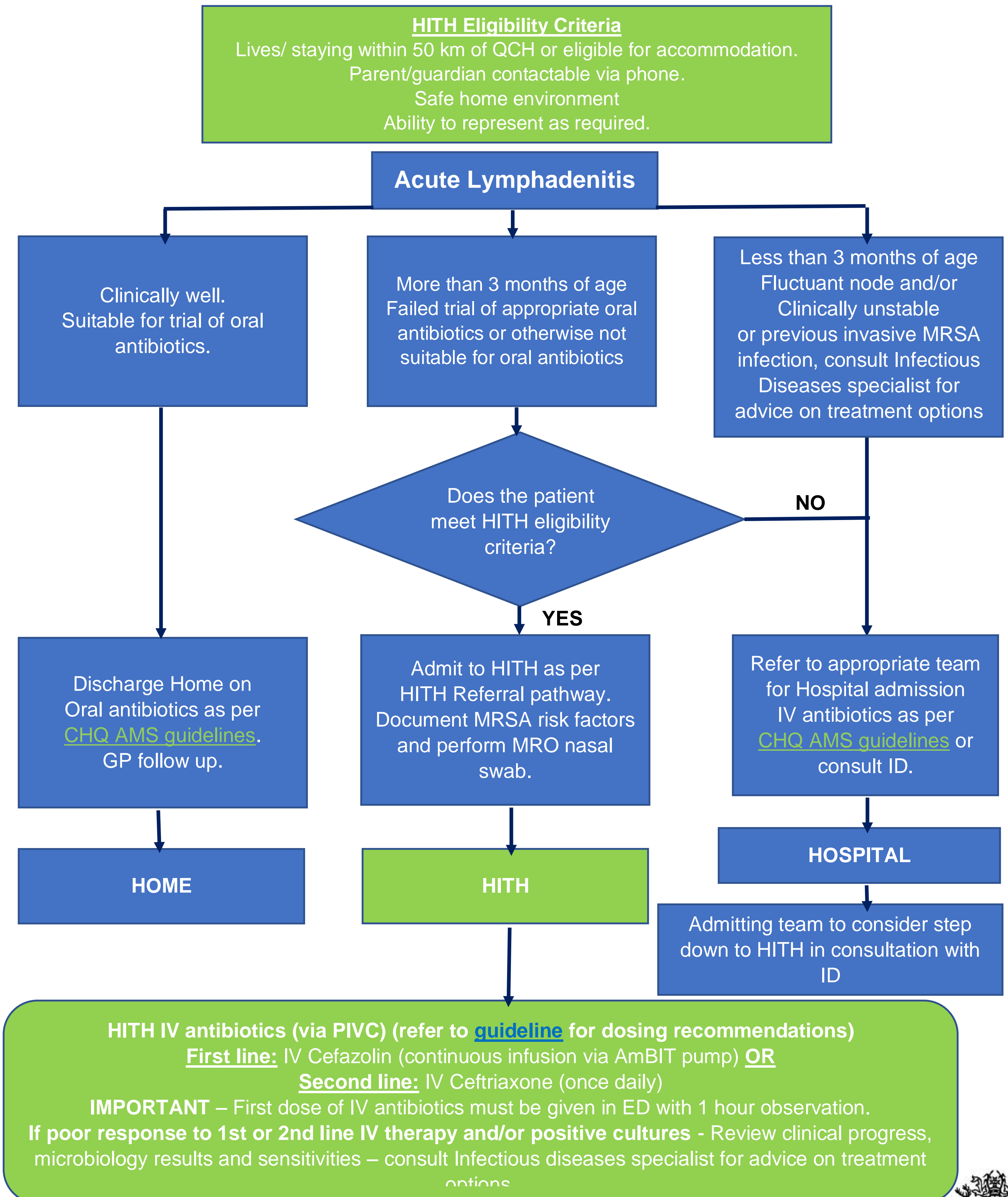
Appendix C – Lymphadenitis HITH pathway

Please use flowchart in conjunction with Table 1 – Lymphadenitis - recommendations



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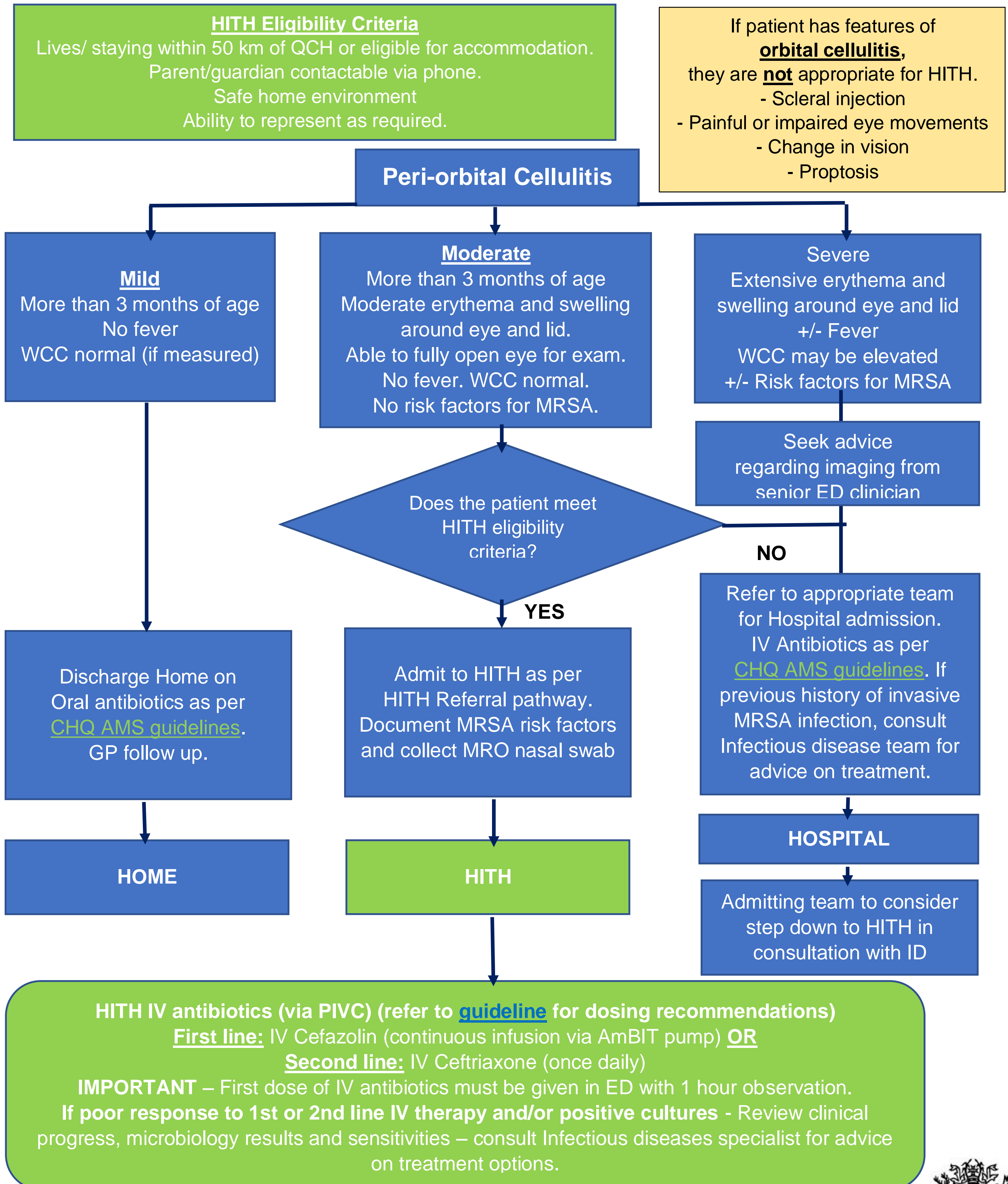
Appendix D – Peri-orbital Cellulitis HITH pathway

Please use flowchart in conjunction with Table 1 – Peri-orbital cellulitis - recommendations



Appendix E – Uncomplicated UTI and Pyelonephritis HITH pathway

Please use flowchart in conjunction with Table 1 –Uncomplicated UTI and Pyelonephritis- recommendations