Joint Trust Guidelines for the Limping Child with no History of Trauma

Document Control:

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	Children's Assessment Unit		
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Version	Date	Author	Reason/Change
V4.1	06/2020	Dr Julie Riechmann Dr Charlotte Lindsay Dr Aravind Shastri Mr Anish Sanghrajka	Document is now a 3 trust document. Local supporter added: Dr Abigail Reeve, Paediatric Consultant (JPUH).
V4.2	04/2024	Dr Sobhanman Mukhopadhyay Dr Aravind Shastri Mr Anish Sanghrajka	New updatation

Previous Titles for this Document:

Previous Title/Amalgamated Titles	Date Revised
None	Not applicable

Distribution Control

Printed copies of this document should be considered out of date. The most up to date version is available from the Trust Intranet.

Consultation

The following were consulted during the development of this document:
Dr Sudeep Damodaran, Consultant Paediatrician. Dr Sara Abdelgalil, Paediatric Consultant; Dr Vijayalakshmi Wardley, Paediatric Consultant; Miss Helen Chase, Paediatric Orthopaedic Consultant;Dr Abigail Reeve, Paediatric Consultant (JPUH).

Monitoring and Review of Procedural Document

The document owner is responsible for monitoring and reviewing the effectiveness of this Procedural Document. This review is continuous however as a minimum will be achieved at the point this procedural document requires a review e.g. changes in legislation, findings from incidents or document expiry.

Relationship of this document to other procedural documents

This document is a clinical guideline applicable to Acute Collaborative; please refer to local Trust's procedural documents for further guidance, as noted in Section 5.

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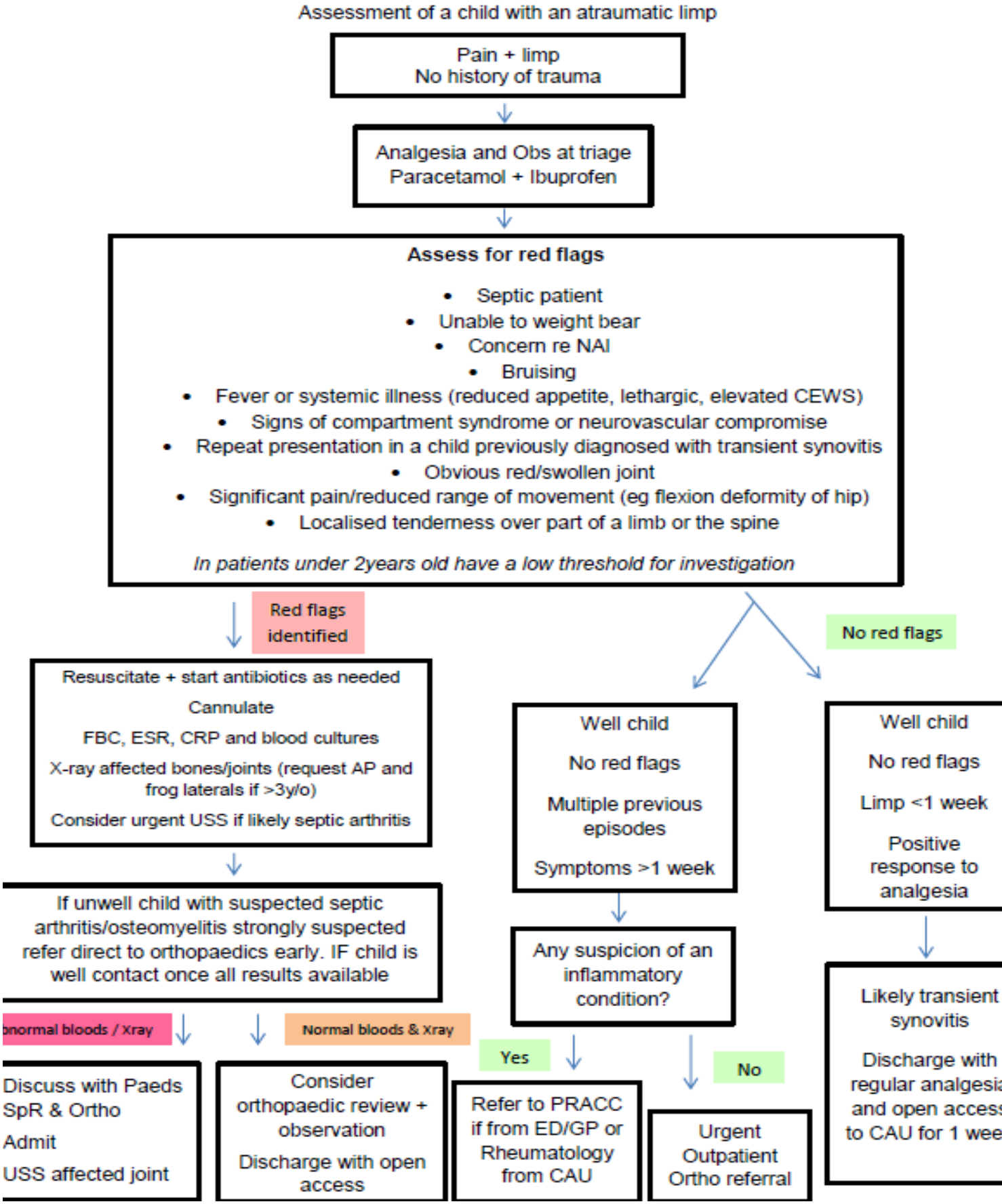
Quick reference (optional)



1. Introduction

1.1. Rationale

A pre-guideline survey found that both paediatricians and orthopaedic surgeons were managing children presenting with a limp and a possible diagnosis of irritable hip or septic arthritis. The management varied in investigations undertaken, admission and follow-up arrangements. This guideline was developed following a review of the literature and agreement between specialties to rationalise the management of such children.

1.2. Objective

To promote thorough assessment and rational management of children with acute lower limb pain, limp or non-weight bearing, without a history of injury or trauma.

1.3. Scope

This guideline covers the updated clinical guideline for limping child with no history of trauma only.

1.4. Glossary

ANA – anti-nuclear antibody
AP – Antero-posterior
BC - Blood culture
CAU – Children's Assessment Unit
CRP – C-reactive protein
DDH – Developmental Dysplasia of the Hip (previously known as congenital dysplasia of hip)
ENT – Ear, nose and throat
ESR – Erythrocyte sedimentation rate
FBC – Full blood count
GA- general anaesthetic
HSP- Henoch Schönlein purpura
JIA – Juvenile idiopathic arthritis
MSK - musculoskeletal
ROM – range of movement
SHO – senior house officer
SpR- specialist registrar
SUFE – slipped upper femoral epiphysis
USS – ultra-sound scan
WCC – white cell count
XR – X-Ray

2. Responsibilities

Dr Sobhanman Mukhopadhyay, Paediatric Trainee – Reformatted the document
Dr Aravind Shastri, Paediatric Consultant and Mr Anish Sanghrajka, Paediatric Orthopaedic Consultant produced the original guideline

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3. Processes to be followed

Major differential diagnoses of a child with a limp.

Condition:	Typical features:
Septic arthritis (hip or other joint)	Any age. Most common <2yrs. Often painful (pseudo-paralysis), non-weight bearing, fever and unwell – these are not necessary. Reduced ROM of affected joint. CRP > 20 is likely to be associated with septic arthritis.
Osteomyelitis	Any age, similar features to septic arthritis BUT often more indolent presentation. Partial treatment with antibiotics common. Look for bone tenderness. In under 2's often co-exists with septic arthritis
Transient synovitis of the hip (Irritable hip)	3-9 years. Post viral. Pain and limp, decreased ROM of hip but not as painful as septic arthritis
Fracture – non-accidental injury or unrecognised trauma	Take history carefully. Be alert to late presentations, inconsistencies. Toddler fracture – often minor fall resulting in undisplaced tibial fracture. Be aware of fractured fibula
Inflammatory arthritis (reactive, JIA, lyme disease, HSP)	Joint swelling and heat (not detectable in hip). Decreased ROM but not as painful as septic arthritis. Longer history. Limping and pain and stiffness worse in morning/ after period of rest
Late presentation of Developmental Dysplasia	Always walked with limp. May have asymmetrical skin creases, shortened leg, look for a limitation of abduction in flexion
Perthes disease	3-10 years, boys>girls. Limp with groin, thigh or knee pain. Decreased ROM with internal rotation of hip often reduced first
Slipped upper femoral epiphysis (SUFE)	8-15 years, boys>girls. Longer history limp, sudden minor trauma often worsens pain and leads to presentation, knee pain common, decreased ROM hip
Neoplasia - leukaemia	Night pain. General malaise. Weight loss, hepato-spleno megally, pallor, bruising
Neoplasia - Osteosarcoma	Pain, localised swelling (knee especially), often no history of systemic symptoms or night pain
Discitis	<5y/o Patient refusing to walk. Back pain. Loss of lumbar lordosis on examination
Neurological	Always consider neurological causes in a longstanding limp.

Assessment

Initial assessment and documentation:

Pain - assess on pain scales according to age. Give appropriate analgesia
Normal observations – inform a doctor urgently if concerned about sepsis.
Weight (height if able to stand).

Medical assessment:

Key points of history

- Pain – site, severity, radiation, duration, exacerbating and relieving factors.

Limp – similar detail.

- A history of preceding viral symptoms is often found in irritable hip.
- Preceding streptococcal sore throat / diarrhoeal illness in reactive arthritis.
- Fever height, duration, frequency.
- Recent antibiotic use may mask or partially treat a septic arthritis / osteomyelitis.
- Is the child considered to be generally well or unwell? Is s/he eating and drinking normally.
- Duration of symptoms – between 1 and 5 days associated with increased risk of infection.

Examination key points

- Is the child generally well or unwell?
- What is the gait and are they able to weight bear?
- Observe, palpate and move all bones and joints (look for heat, erythema, swelling, pain, restriction). Ensure you examine the spine.
- Severity of pain?
- Fever ≥38.5°C is likely to be associated with increased risk of infection.
- Conduct a detailed neurology examination, including eliciting deep tendon reflexes (DTR). Remember, a child who is not weight bearing and has abnormal neurological findings like absent reflexes may have an underlying neurological cause to their limp.

Follow algorithm for management.

Contact orthopaedic registrar on call on alertive devices if septic arthritis or osteomyelitis are suspected in an unwell patient. Consultnt to Consultnt discussion is also recommended in unwell patients.

For Outpatient referrals:

- *PRACC Clinic:* Discuss with and email CAU Consultant On Call 6580 or Night registrar
- *Rheumatology Clinic*: Make a referral using link on intranet (Electronic Forms)
- *Orthopaedic Clinic* in 7-10days: Email secretaries: Kelly.tilbury@nnuh.nhs.uk / Deanna.elliott@nnuh.nhs.uk. Also email paeds ortho Consultant On call (switch are aware of names) that day: Helen.Chase@nnuh.nhs.uk / Anish.Sanghrajka@nnuh.nhs.uk

Medication doses as per BNFC November 2023:

Patient Age	Paracetamol Dose
28 weeks - 32 weeks CGA	20 mg/kg 1st dose, then 10–15 mg/kg 8–12 hrly PRN, Max 30 mg/kg/day
32 weeks CGA + above	20 mg/kg 1st dose, then 10–15 mg/kg 6–8 hrly PRN. Max 60 mg/kg/day
1–2 months	30–60 mg 8hrly, Max 60 mg/kg/day
3–5 months	60 mg 4–6 hrly, Max QDS
6-23 months	120 mg mg 4–6 hrly, Max QDS
2-3 years	180 mg mg 4–6 hrly, Max QDS
4-5 years	240 mg mg 4–6 hrly, Max QDS
6–7 years	240–250 mg 4–6 hrly, Max QDS
8–9 years	360–375 mg mg 4–6 hrly, Max QDS
10–11 years	480–500 mg mg 4–6 hrly, Max QDS
12–15 years	480–750 mg mg 4–6 hrly, Max QDS
16–17 years	0.5–1 g mg 4–6 hrly, Max QDS

Patient Age	Ibuprofen dose
1-2 months	5 mg/kg TDS-QDS
3-5 months	50 mg TDS; Max 30 mg/kg/day.
6-11 months	50 mg TDS-QDS, Max 30 mg/kg/day
1-3 years	100 mg TDS, Max 30 mg/kg/day
4-6 years	150 mg TDS, Max 30 mg/kg/day
7-9 years	200 mg TDS, Max 30 mg/kg/day. Max 2.4g/day
10-11years	300 mg TDS, Max 30 mg/kg/day. Max 2.4g/day
12-17years	300–400 mg TDS, Max 600 mg QDS

Upper Reference Range Limits for bloods:

- WCC >12
- ESR >20
- CRP >20

General Advice

Careful and full examination is imperative if clues concerning non-accidental injury, osteomyelitis and septic arthritis at any site or inflammatory arthritis are to be detected. Fully expose, palpate and move all bones / joints including the spine. Ensure full general examination is done including ENT and urine dip if febrile. Consider haemarthroses in child with excessive bruising. Developmental dysplasia of hip may present late with limp. If red flags are identified then organise bloods and necessary imaging concurrently.

X-Ray affected bones / joints (or whole of lower limb if very difficult to localise problem). If a fracture is present consider mechanism and any child protection issues. Refer to orthopaedics for fracture management or in suspected primary bone malignancies (bleep orthopaedic SpR on call on 0996).

ASO titre, anti-DNAse B and viral serology if reactive arthritis likely. ANA, autoantibody screen, immunoglobulins and rheumatoid factor are indicated if arthritis is likely but are not required urgently, or at first presentation.

The key is not to miss children with a septic hip joint since severe destruction of the joint can occur within 24 hours if not treated. If they are non-weight bearing despite analgesia and you suspect infection, inform the paediatric orthopaedic team early. If any doubt, investigate with blood tests and consider USS and aspiration / observation / admission / paediatric orthopaedic opinion. If any bony abnormality such as Perthes, SUFE or primary bone tumours are seen on X-ray refer to paediatric orthopaedic team.

Admission guidance

3.1. Any child who is not able to weight bear after appropriate analgesia should be admitted.

If a child is generally unwell (fever and/or significant pain and tenderness) they need investigation and likely admission for a period of observation. A paediatric orthopaedic opinion should be sought for any admitted child.

Parents should be given open access to phone the children's assessment unit and return to hospital in the next 2 weeks with the same problem. The parent information sheet at the end of this guideline should be given to them, with instruction to return if:

- The child is not better after 7 days of rest.
- The child develops a high temperature or is generally not well in himself or herself.
- The child is in more pain or is not able to put weight on their leg to walk.
- If they have any concerns they should phone 01603 289774.

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5. Monitoring Compliance

Compliance with the process will be monitored through the following:

- Initial point of contact should be paediatric on call team.
- Appropriate investigations when required.
- Appropriate referral to orthopaedics.
- Irritable hips given analgesia and advise sheet.

Monitoring of: Length of time in CAU, any delay in diagnosis and treatment of septic arthritis / osteomyelitis

Key elements	Process for Monitoring	By Whom (Individual / group /committee)	Responsible Governance Committee /dept	Frequency of monitoring
• Initial point of contact should be paediatric on call team. • Appropriate investigations when required. • Appropriate referral to orthopaedics. • Irritable hips given analgesia and advise sheet. • Length of time in CAU, any delay in diagnosis and treatment of septic arthritis / osteomyelitis		All staff	Paediatrics	Continuous

The audit results are to be discussed at relevant governance meetings to review the results and recommendations for further action. Then sent to Paediatric Governance who will ensure that the actions and recommendations are suitable and sufficient.

6. Appendices

There are no appendices for this document.

7. Equality Impact Assessment (EIA)

Type of function or policy	New

Division	Women and Children's	**Department**	Paediatrics
Name of person completing form		**Date**	June 2024

Equality Area	Potential Negative Impact	Impact Positive Impact	Which groups are affected	Full Impact Assessment Required YES/NO
Race				No
Pregnancy & Maternity				No
Disability				No
Religion and beliefs				No
Sex				No
Gender reassignment				No
Sexual Orientation				No
Age				No
Marriage & Civil Partnership				No
EDS2 – How does this change impact the Equality and Diversity Strategic plan (contact HR or see EDS2 plan)?	N/A			

- **A full assessment will only be required if: The impact is potentially discriminatory under the general equality duty**
- **Any groups of patients/staff/visitors or communities could be potentially disadvantaged by the policy or function/service**
- **The policy or function/service is assessed to be of high significance**

IF IN DOUBT A FULL IMPACT ASSESSMENT FORM IS REQUIRED

The review of the existing policy re-affirms the rights of all groups and clarifies the individual, managerial and organisational responsibilities in line with statutory and best practice guidance.