Ashford and St. Peter's Hospitals
NHS Foundation Trust

# Recommendation for the use of X-rays in common Paediatric presentations and emergencies

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| Guideline History | | |
|---|---|---|
| **Date** | **Comments** | **Approved By** |
| **2014** | Dr Sylwia Niewiarowski, Consultant Radiologist | Original guideline |

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# Recommendation for the use of X-rays in common Paediatric presentations and emergencies

## Introduction

The following is a list of imaging that would be indicated, not routinely indicated or not indicated for emergency attendances to the Children and Young People Emergency Department (CYPED). It has been developed in collaboration with Emergency, Paediatric and Radiology colleagues. Where any uncertainty exists a senior to senior discussion should take place between the requesting team and the Radiologist.

## Responsibilities

In all imaging requests, IRMER and ALARA principles must be adhered to. That is to say all imaging should be justified (the benefits outweigh the risks) and optimised (radiation doses kept as low as reasonably achievable).

Nurse practitioners and senior paediatric nursing members may request X-rays in the following situations:

Children are aged between 2 and 16 **AND**

Clear history of minor trauma, upper or lower limb injury which are deemed to require imaging **OR**

A wound with a potential radio-opaque foreign body **OR**

A post reduction X-ray.

If there is uncertainty for the need of imaging a senior clinical colleague should be consulted.

## Key

**INDICATED** This shows the investigation most likely to contribute to clinical diagnosis and management

**NOT ROUTINELY INDICATED** This emphasises that while no recommendation is absolute, the request will only be carried out if a clinician gives cogent arguments for it.

**NOT INDICATED** Examination in this group are those where the supposed rationale for the investigation is untenable.

## Chest

| Clinical reason | Imaging | Indication |
|---|---|---|
| **Acute chest infection** | **CXR** | **Not routinely indicated** |
| Initial and follow-up films are indicated in the presence of persisting clinical signs or symptoms or in the severely ill child. Consider the need for CXR in PUO. Children may have pneumonia without clinical signs. | | |
| **Recurrent productive cough** | **CXR** | **Not routinely indicated** |
| Children with recurrent chest infection tend to have normal CXR's (apart from bronchial wall thickening). Routine follow up CXR not indicated unless collapse present on initial CXR. When cystic fibrosis or bronchiectasis is suspected clinically or from CXR, then low-dose HRCT may help. | | |
| **Inhaled FB (suspected)** | **CXR** | **Indicated** |
| History of inhalation often not clear, a CXR is usually sufficient to confirm the presence of air trapping. | | |
| **Wheeze** | **CXR** | **Not routinely indicated** |
| Children with asthma usually have normal CXR apart from hyperinflation and bronchial wall thickening. | | |
| **Sudden unexplained wheeze** | **CXR** | **Indicated** |
| May be due to inhaled FB. | | |
| **Acute stridor** | **XR** | **Not indicated** |
| Epiglottitis is a clinical diagnosis but consider FB | | |
| **Heart murmur** | **CXR** | **Not routinely indicated** |
| Specialist referral needed; echocardiography may be indicated. | | |

## Abdomen

| Clinical reason | Imaging | Indication |
|---|---|---|
| **Intussusception** | **USS**<br><br>**AXR** | **Indicated**<br><br>**Indicated** |
| **Swallowed foreign body** | **AXR** | **Not routinely indicated** |
| Refer to guidelines on 'Foreign Body Ingestion in Paediatrics.' Symptomatic and hazardous foreign bodies would require imaging. | | |
| **Trauma to Abdomen** | **AXR** | **Not indicated** |
| If visceral trauma is suspected CT is the investigation of choice. Refer to 'Imaging in Paediatric Major Trauma' guideline. | | |
| **Projectile Vomiting** | **US** | **Indicated** |
| US can confirm the presence of hypertrophic pyloric stenosis, especially when clinical findings are equivocal. | | |
| **Palpable abdominal/pelvis mass** | **US** | **Indicated** |
| If malignancy is suspected in a clinically well patient, emergency imaging is not appropriate. A co-ordinated investigation plan is required.<br><br>Additional imaging may be required in case to case basis. | | |

## Central Nervous System

| Clinical reason | Imaging | Indication |
|---|---|---|
| **Abnormal head shape** | **US/SXR/CT/MR** | **Not routinely indicated** |
| The need for imaging should be determined on a case-by-case basis. In young infants with an open anterior fontanelle, ultrasound (US) is useful for excluding ventricular dilatation and may also be used to confirm suture patency. In older children, where the cranial sutures are closed or closing and intracranial pathology is suspected, magnetic resonance imaging (MRI) is indicated. Skull radiography (SXR) may be useful in evaluating premature suture fusion. However, if there is a high clinical suspicion of craniosynostosis, the child should be referred directly to the GOSH Craniosynostosis Clinic without local imaging, as specialist assessment will determine the most appropriate imaging, if required. | | |
| **Shunt malformation** | **US or CT**<br><br>**XR** | **Indicated**<br><br>**Not routinely indicated** |
| US if practical (babies). XR shunt series is limited to patients with hydrocephalus who specifically have suspected mechanical cause of shunt failure. | | |
| **Headaches** | **SXR** | **Not routinely indicated** |
| If persistent or associated with clinical signs, refer to Radiologist for consideration of CT or MRI. | | |
| **Sinusitis** | **Sinus XR** | **Not routinely indicated** |
| Not indicated before 5 years as the sinuses are poorly developed. Mucosal thickening can be a normal finding in children. | | |
| **Head Injury** | **CT** | **Not routinely indicated** |
| CT head is recommended in cases fulfilling the criteria in 'Head and Cervical Spine Injury' local guideline or NICE NG232 (2023) Guideline | | |
| **Neck Injury** | **XR/CT** | **Not routinely indicated** |
| Paediatric cervical spine injury is uncommon. CT or XR cervical spine is indicated in cases fulfilling the criteria in 'Head and Cervical Spine Injury' local guideline or NICE NG232 (2023) Guideline | | |

## Musculoskeletal

| Clinical reason | Imaging | Indication |
|---|---|---|
| **NAI/Child abuse** | **XR** | **Indicated** |
| Local policies apply. See NAI protocol. The Skeletal survey must be undertaken as a planned event in the main X-ray Department and not in A&E X-ray. | | |
| **LIMB INJURY OPPOSITE SIDE FOR COMPARISON X-RAY** | **XR** | **Not routinely indicated** |
| Senior clinical advice by requesting team should be sought first. If still required, should be discussed with Radiology. | | |
| **Atraumatic painful hip / Limp** | **US** | **Not routinely indicated** |
| Follow local guideline on 'Atraumatic paediatric hip pain and limping child in ED.' US will confirm presence of an effusion but will not discriminate sepsis from transient synovitis. | | |
| **Atraumatic painful hip / Limp** | **Pelvic XR**<br><br>**Frog Leg Pelvic XR** | **Not routinely indicated**<br><br>**Not routinely indicated** |
| Follow local guideline on 'Atraumatic paediatric hip pain and limping child in ED.'<br><br>Further imaging will be guided by the absence or presence of radiographic signs on the initial radiograph. US will delineate effusions and MRI should be considered when Perthes' disease is suspected and plain x-rays are normal. | | |
| **Facial bone pain** | **XR / US / MRI** | **Indicated** |
| X-Ray may be normal initially. US can be helpful particularly in osteomyelitis. MRI can identify abnormality when plain films and US are normal. CT is only of use in special circumstances eg suspected osteoid osteoma. | | |
| **Clicking hip** | **US** | **Indicated** |

| | | |
|---|---|---|
| Hip US is indicated at < 6 months of age selectively where there is clinical suspicion of developmental dysplasia of the hip but not for routine screening. XR may be necessary in the older child of > 6 months. | | |
| **Osgood-Schlatter's disease** | **XR** | **Not indicated** |
| Although bony radiological changes are visible these overlap with normal appearances. Associated soft tissue swelling should be assessed clinically rather than radiographically. | | |

## Neck and Spine

| Clinical reason | Imaging | Indication |
|---|---|---|
| **Torticollis without trauma** | **XR** | **Not indicated** |
| Deformity is usually due to spasm with no significant bone changes. If persistent, CT imaging may be indicated following consultation. | | |
| **Back or Neck pain** | **XR** | **Indicated** |
| Back pain is uncommon in children without a cause. Follow up and consider for MRI | | |
| **Spina bifida occulta** | **XR** | **Not indicated** |
| A common variation and not in itself significant (even in enuresis). However, neurological signs would require investigation. | | |
| **Hairy patch, Sacral dimple** | **XR** | **Not indicated** |
| Routine USS for all patients with a sacral dimple is not indicated. Only atypical dimples are associated with a high risk for spinal dysraphism, particularly those that are large (>5 mm), high on the back (>2.5 cm from the anus), or appear in combination with other lesions. US may therefore be useful in these babies. MRI is indicated if neurological signs are present. | | |

## 2. Supporting References


- The Royal College of Radiologists. Major paediatric trauma radiology guidance [Internet]. London: The Royal College of Radiologists; 2024 [cited 2026 Jun 12]. Available from: RCR Major Paediatric Trauma Radiology Guidance PDF
- National Institute for Health and Care Excellence (NICE). Head injury: assessment and early management (NG232) [Internet]. London: NICE; 2023 [cited 2026 Jun 12]. Available from: NICE Guideline NG232


## 3. Supporting relevant trust guidelines

- Atraumatic Paediatric Hip Pain and Limping Child ED
- Head and cervical spine injury
- Imaging in Paediatric Major trauma
- Skeletal Survey for Suspected Non-Accidental Injury (Apr 23)

## 2. Guideline Governance

### a. Scope

This guideline is relevant to all staff caring for all children from 0-18 years old across the emergency department, inpatient ward and outpatient department.

### b. Purpose

i. This guidelines aims to facilitate a common approach to the management of children. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

ii. This guideline is subject to regular review to ensure ongoing evidence based practice.

### c. Duties and Responsibilities

All healthcare professionals responsible for the care of all children 0-18years should be aware of practice according to this guideline.

### d. Approval and Ratification

This guideline will be approved and ratified by the Paediatric Guidelines Group.

### e. Dissemination and Implementation

i. This guideline will be uploaded to the trust intranet 'Paediatric Guidelines' page and thus available for common use.
ii. This guideline will be shared as part of ongoing education within the Paediatric Department for both medical and nursing staff.
iii. All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

### f. Review and Revision Arrangements

a. This policy will be reviewed on a 3 yearly basis by the appropriate persons.
b. If new information comes to light prior to the review date, an earlier review will be prompted.
c. Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Paediatric Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

## g. Equality Impact Assessment

| |
|---|
| **Background**<br><br>• Who was involved in the Equality Impact Assessment |
| Author and the supervising consultants. |
| **Methodology**<br><br>• A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age)<br>• The data sources and any other information used<br>• The consultation that was carried out (who, why and how?) |
| All groups of staff and patients were taken into consideration and there is no bias towards or against any particular group. |
| **Key Findings**<br><br>• Describe the results of the assessment<br>• Identify if there is adverse or a potentially adverse impacts for any equalities groups |
| There is no evidence of discrimination. |
| **Conclusion**<br><br>• Provide a summary of the overall conclusions |
| There is no evidence of discrimination. |
| **Recommendations**<br><br>• State recommended changes to the proposed policy as a result of the impact assessment<br>• Where it has not been possible to amend the policy, provide the detail of any actions that have been identified<br>• Describe the plans for reviewing the assessment |
| This guideline is appropriate for use. |

## h. Document Checklist

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

**Title of the document:**

**Policy (document) Author:**

**Executive Director: N/A**

| | | Yes/No/ Unsure/NA | Comments |
|---|---|---|---|
| **1.** | **Title** | | |
| | Is the title clear and unambiguous? | **Y** | |
| | Is it clear whether the document is a guideline, policy, protocol or standard? | **Y** | |
| **2.** | **Scope/Purpose** | | |
| | Is the target population clear and unambiguous? | **Y** | |
| | Is the purpose of the document clear? | **Y** | |
| | Are the intended outcomes described? | **Y** | |
| | Are the statements clear and unambiguous? | **Y** | |
| **3.** | **Development Process** | | |
| | Is there evidence of engagement with stakeholders and users? | **Y** | |
| | Who was engaged in a review of the document (list committees/ individuals)? | **Y** | |
| | Has the policy template been followed (i.e. is the format correct)? | **Y** | |
| **4.** | **Evidence Base** | | |
| | Is the type of evidence to support the document identified explicitly? | **Y** | |

| | | Yes/No/ Unsure/NA | Comments |
|---|---|---|---|
| | Are local/organisational supporting documents referenced? | **Y** | |
| **5.** | **Approval** | | |
| | Does the document identify which committee/group will approve/ratify it? | **Y** | |
| | If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document? | **Y** | |
| **6.** | **Dissemination and Implementation** | | |
| | Is there an outline/plan to identify how this will be done? | **Y** | |
| | Does the plan include the necessary training/support to ensure compliance? | **Y** | |
| **7.** | **Process for Monitoring Compliance** | | |
| | Are there measurable standards or KPIs to support monitoring compliance of the document? | - | |
| **8.** | **Review Date** | | |
| | Is the review date identified and is this acceptable? | **Y** | |
| **9.** | **Overall Responsibility for the Document** | | |
| | Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation? | **Y** | |
| **10.** | **Equality Impact Assessment (EIA)** | | |
| | Has a suitable EIA been completed? | Y | |

| **Committee Approval (Emergency Guidelines Group)** | | | |
|---|---|---|---|
| If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner | | | |
| **Name of Chair** | **Mohammed Waqar** | **Date** | **29/07/2027** |
| **Ratification by Management Executive (if appropriate)** | | | |
| If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner | | | |
| **Date: n/a** | | | |