Please find below the results of your literature search request. If you would like the full text of any of the abstracts included, or would like a further search completed on this topic, please let us know.

“Google can bring you back 100,000 answers, a librarian can bring you back the right one.”

Neil Gaiman

Literture Search Results

Search request date: 5th February 2014
Search completion date: 11th February 2014
Search completed by: Alison Price

Enquiry Details

Are there any official (DH, NHS England, NICE etc) guidelines relating to the provision in hospitals of medical photography.

Are there any published studies to show the current or recent level of provision of this service e.g. “we surveyed x hospitals and y said they had a day time only service and z had a 24 hour service”

A child presented to A&E with a head injury, and sometime later, having been admitted to hospital, was found to have a suspicious bruise on the leg. Are there any official guidelines (eg NICE or from the College of Emergency Medicine) which describe how extensive an examination of a child should take place in A&E? e.g. “children who present with any injury should be examined for x, y and z”

Disclaimer

Every effort has been made to ensure that this information is accurate, up-to-date, and complete. However it is possible that it is not representative of the whole body of evidence available. No responsibility can be accepted for any action taken on the basis of this information. It is the responsibility of the requester to determine the accuracy, validity and interpretation of the search results.

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Links are given to full text resources where available. For some of the papers, you will need a free NHS Athens Account. If you do not have an account you can register by following the steps at: https://register.athensams.net/nhs/nhseng/ You can then access the papers by simply entering your username and password. If you do not have easy access to the internet to gain access, please let us know and we can download the papers for you.

Guidance on Searching within Online Documents
Links are provided to the full text of each of these documents. Relevant extracts have been copied and pasted into these Search Results. Rather than browse through often lengthy documents, you can search for specific words and phrases as follows:

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Click on the Search button (illustrated with binoculars). This will open up a search window. Type in the term you need to find and links to all of the references to that term within the document will be displayed in the window. You can jump to each reference by clicking it. You can search for more terms by pressing 'search again'.

Word documents
Select Edit from the menu, the Find and type in your term in the search box which is presented. The search function will locate the first use of the term in the document. By pressing 'next' you will jump to further references.
Institute of Medical Illustrators’ National Guidelines – Photography of Non-accidental Injuries

Since 1968 IMI has set and maintained standards for the medical illustration profession, bringing together the disciplines of clinical photography, medical art, illustration, graphic design and video within healthcare.

It is important that all medical photography and illustration units in the UK that deal with non-accidental injury photography make use of the nationally agreed guidelines.

Medical photographers play an important role in creating evidence in NAI cases. It is vital that NAI cases are documented thoroughly. High quality photographs can be an accurate and reliable source of evidence used in court. These images can help courts adjudicate on whether abuse has taken place. It is important to document all circumstances relating to photographing such injuries as well as undertaking the actual photography.

There is a need for departments to use these guidelines in NAI photography to ensure the photographs taken can be used as credible evidence.

The guidelines have been divided into requirement categories, in sequential order, for an NAI assignment: request, photographic procedures, processing of images, post production, accompanying documentation.

The guidelines have been developed with advice from many expert sources: eight different medical photography departments, child protection units, social workers, nursing staff, doctors, police, home office and by referencing the Department of Health Guidelines, The Children Act, Data Protection Act, and other published material.

The guidelines aim to satisfy the requirements of all interested parties: patients, families, doctors, child protection teams, as well as medical photography departments, and legal and forensic departments.

It is important that departments use these guidelines to write up their own, applying them to their own departmental practices within their policies and procedures. These include a concise quick reference checklist accompanied by detailed guidelines and sample documentation.


REQUEST FROM LKRS
5.7 Guidelines for Medical Photography for Suspected Non-Accidental Injury of Children *University Hospitals Coventry and Warwickshire NHS Trust (UHCW)*
The Section 47 Enquiry (Child Protection Enquiry) Procedure

1. Photographs of suspected non-accidental injuries may be required to supplement clinical notes and body diagrams, which should be completed in all cases by the examining clinician. Photographs may provide a record of injuries in the clinical notes and may be required for court purposes;

2. Whenever possible, photographs of suspected non-accidental injuries should be obtained from the medical photography department at the earliest opportunity. Where possible, these should be taken under optimal conditions in a designated suite. Where this is not possible, photographs may be taken on a ward or in an outpatient department or other community settings. The examining clinician will need to specify details of what images are required. Ideally, the examining clinician will be present during the photography;

3. In any statement or court report, the clinician should refer to any photographs taken and document what they show and how this relates to the clinical notes and body diagrams. If there are any discrepancies between the photographs and clinical notes or body diagrams, these should be described;

4. Out of hours the paediatrician should discuss with the senior investigating officer (police). If it is considered appropriate to obtain photographs out of hours, this should be done by a police photographer (scenes of crime officer (SOCO)/ forensic officer). The Medical Photography Department should be contacted the next working day to also take photographs;

5. Health staff should never take photographs of suspected Non Accidental Injuries (NAI);

6. Police officers, in the absence of SOCO, or as well as, may take photographs for a range of criminal investigation reasons. These photographs should not normally be presented as evidence and should always be supplemented by professional images obtained through medical photography or scenes of crime photography;

7. Photographs of suspected non-accidental injuries should incorporate, where possible, a colour chart and appropriate 2 dimensional curvi-linear scales. They should be properly labelled with the child’s identifying details and the date and time. All photographs should be mounted on the headed side of the mounting paper only, so that they are clearly labelled for filing in hospital records;

8. Only original photographs and not photocopies should be used in court cases for evidential purposes. If requested by legal services, original photographs should be obtained from the medical photography department;

9. These guidelines apply to photographs of suspected physical injuries. They do not apply to intimate images taken in the investigation of suspected child sexual abuse.

Published studies to show the current or recent level of provision of this service;

The following article has been published:

Clinicians taking pictures--a survey of current practice in emergency departments and proposed recommendations of best practice.
Emergency Medicine Journal, November 2005, vol./is. 22/11(761-5)
Bhangoo P, Maconochie IK, Batrick N, Henry E

Abstract: The primary objective of this survey was to establish current practice in emergency departments in the UK. Variation in obtaining consent, how image collection is achieved, and the images stored were considered to be important outcomes. An initial postal questionnaire followed by phone survey posed questions about practical and procedural issues when capturing clinical images in emergency departments in the UK. Altogether, 117 departments replied out of 150 surveyed. Only 21 departments have a written policy permitting medico-legal case photography. A total of 53 do take clinical photographs where no policy exists, seven of which actively take assault/domestic violence images, only four of which document consent. All departments with photographic facilities take images for clinical/teaching purposes. Thirty two of those without a policy attach the photograph to the clinical notes and so may be potentially called upon for medico-legal proceedings if relevant, which raises issues of adequate consent procedures, storage, and confidentiality. This is particularly pertinent with the increasing use of digital photography and image manipulation. A large variation in current practice has been identified in relation to a number of issues surrounding clinical image handling in emergency departments. Subsequently, recommendations for best practice have been proposed to protect both the patient and the clinician with regards to all forms of photography in the emergency department setting.

The IMI manages a quality assessment scheme for hospital departments, which are listed on their website:

The following departments have achieved QAS Level 1
Medical Illustration, St. Lukes Hospital, Bradford Teaching Hospitals NHS Foundation Trust
Clinical Photography and Design Services, Birmingham Children's Hospital NHS Foundation Trust
Medical Illustration, University Hospitals Birmingham NHS Foundation Trust
Medical Illustration & Photography, Norfolk and Norwich University Hospitals NHS Foundation Trust
Medical Photography and Illustration, Queen's Hospital, Burton Hospitals NHS Foundation Trust
Medical Illustration, New Cross Hospital, Royal Wolverhampton Hospitals NHS Trust
Photography and Design, Gloucester Royal Hospital, Gloucestershire Hospitals NHS Foundation Trust
Medical Photography, Cheltenham General Hospital, Gloucestershire Hospitals NHS Foundation Trust
Media Resources Centre, University of Wales College of Medicine and Cardiff Vale NHS Trust
Medical Illustration, Birmingham Heartlands Hospital, Heart of England NHS Foundation Trust
Clinical Photography, Royal Infirmary, University Hospital of North Staffordshire NHS Trust
Medical Photography, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust
Clinical Media Centre, Royal Sussex County Hospital, Brighton
Clinical Photography and Illustration, East & North Hertfordshire NHS Trust
Medical Photography & AV Services, Crosshouse Hospital, Kilmarnock
Medical illustration, Sandwell and West Birmingham Hospitals NHS Trust

The following departments have achieved QAS Level 2
Medical Illustration, St. Lukes Hospital, Bradford Teaching Hospitals NHS Foundation Trust
Clinical Photography and Design Services, Birmingham Children's Hospital NHS Foundation Trust
Medical Illustration, University Hospital Birmingham NHS Foundation Trust
How extensive should an examination of a child in A&E be?

**Guidelines**

I could find no single definitive UK guideline, but the following provide contain relevant details:

National Guidance for Child Protection in Scotland: Guidance for Health Professionals in Scotland
Chapter 4 Medical Assessments in Child Abuse
This section:
- Outlines which medical specialities examine children and young people.
- Sets out the role of: GP services
- emergency and urgent care medical services
- emergency medicine services.
- Outlines when to request a medical assessment.
- Describes the types of medical examination in child protection.
  [www.scotland.gov.uk/Publications/2012/12/9727/6](http://www.scotland.gov.uk/Publications/2012/12/9727/6)

Medical and forensic assessments of child abuse and neglect of children and adolescents within emergency departments in the Perth metropolitan area.
There is little information available from international or national research on how best to deliver medical and forensic investigations for children where child abuse or neglect is suspected. Research is typically concerned with aspects of individual practice for the service provision of medical and forensic assessments to children.

University of Texas Clinical Practice Guideline for Inpatient Units and Emergency Department:
Evaluation and Management of Suspected Child Abuse or Neglect – this detailed breakdown of evaluative steps is REQUEST FROM LKRS

Safeguarding Children – this chapter includes types of injury to be aware of.
REQUEST FROM LKRS

International Standards of Care for Children in Emergency Departments 2012
Paediatric Special Interest Group
This document is a consensus document aimed at assisting hospitals around the world in defining minimum standards of care for children aged 0-18 years in the Emergency Department.

The chapter on Safeguarding is reproduced overleaf:
Systematic Reviews

Performance of screening tests for child physical abuse in accident and emergency departments J Woodman,1 M Pitt,2 R Wentz,1 B Taylor,3 D Hodes4 and RE Gilbert1*


Checklists and protocols are used in UK accident and emergency (A&E) departments to screen for physical abuse but information is lacking on the performance of these tests.

Objectives; To determine the effectiveness of screening tests for physical abuse in injured children attending A&E departments in the UK.

Methods; We used a simple decision-analytic model to integrate the findings of nine systematic reviews. We reviewed the incidence of physical abuse, the characteristics of abused and non-abused children attending A&E, and the performance of screening tests for physical abuse that could be universally applied to injured children in A&E. Strategies involved the standard clinical screening assessment combined with a checklist, a community liaison nurse to scrutinise A&E attendance records of all children and discuss findings at a multidisciplinary team meeting, and protocols requiring paediatric assessment of specific groups of children defined by age, type of injury, repeat attendances for injury, child protection registration and whether allocated to social services.

Results; We examined 7383 articles, retrieved 448 papers and included 66 studies, including 11 unpublished studies, in the nine systematic reviews used to inform the parameters for the model. Overall the quality of the studies was poor.

We found consistent evidence that physical abuse affects about 1 in 11 children in the UK each year. The proportion of abused children who require medical attention is small but poorly quantified. We estimated that approximately 1% of all child attendances for injury at A&E are for physical abuse, amounting to just under 1 in 50 of all physical abuse episodes in the community.

We found clear evidence that physically abused children attending A&E are missed but the performance of the clinical screening assessment was poorly quantified. We found no evidence that any test was highly predictive of physical abuse. We found no clear evidence that repeated A&E attendance or type of injury was predictive of physical abuse. Among severely injured children admitted to hospital, those aged under 1 year were more likely to be abused than older children. Evidence that young age was a risk factor for abuse among all injured children attending A&E was inconsistent. There was weak evidence that a community liaison nurse improved the performance of the screening assessment in A&E.

We estimated that a strategy involving the standard clinical assessment screen combined with a community liaison nurse would result in referral to social services of about half the physically abused children attending A&E. Given the poor quality of the data, this result is highly uncertain.

The addition of screening protocols to the clinical screening assessment offered only marginal benefits and the number of additional false-positive referrals exceeded the number of additional abused children detected. The benefits of protocols declined as the accuracy of the clinical screening assessment improved. The most effective protocol involved referral of all injured infants and all injured children who were social work active.

REQUEST FROM LKRS
Screening injured children for physical abuse or neglect in emergency departments: a systematic review.
Child: Care, Health & Development, March 2010, vol./is. 36/2(153-64)
Woodman J, Lecky F, Hodes D, Pitt M, Taylor B, Gilbert R
Abstract: BACKGROUND: Screening markers are used in emergency departments (EDs) to identify children who should be assessed for possible physical abuse and neglect. We conducted three systematic reviews evaluating age, repeat attendance and injury type as markers for physical abuse or neglect in injured children attending EDs.METHODS: We included studies comparing markers in physically abused or neglected children and non-abused injured children attending ED or hospital. We calculated likelihood ratios (LRs) for age group, repeat attendance and injury type (head injury, bruises, fractures, burns or other). Given the low prevalence of abuse or neglect, we considered that an LR of 10 or more would be clinically useful.RESULTS: All studies were poor quality. Infancy increased the risk of physical abuse or neglect in severely injured or admitted children (LRs 7.7-13.0, 2 studies) but was not strongly associated in children attending the ED (LR 1.5, 95% CI: 0.9, 2.8; one study). Repeat attendance did not substantially increase the risk of abuse or neglect and may be confounded by chronic disease and socio-economic status (LRs 0.8-3.9, 3 studies). One study showed no evidence that the type of injury substantially increased the risk of physical abuse or neglect in severely injured children.CONCLUSIONS: There was no evidence that any of the markers (infancy, type of injury, repeated attendance) were sufficiently accurate (i.e. LR >or= 10) to screen injured children in the ED to identify those requiring paediatric assessment for possible physical abuse or neglect. Clinicians should be aware that among injured children at ED a high proportion of abused children will present without these characteristics and a high proportion of non-abused children will present with them. Information about age, injury type and repeat attendances should be interpreted in this context.

REQUEST FROM LKRS
Screening for child abuse at emergency departments: a systematic review.
Archives of Disease in Childhood, March 2010, vol./is. 95/3(214-8), 0003-9888;1468-2044
Louwers EC, Affourtit MJ, Moll HA, de Koning HJ, Korfage IJ
Abstract: INTRODUCTION: Child abuse is a serious problem worldwide and can be difficult to detect. Although children who experience the consequences of abuse will probably be treated at an emergency department, detection rates of child abuse at emergency departments remain low.OBJECTIVE: To identify effective interventions applied at emergency departments that significantly increase the detection rate of confirmed cases of child abuse.DESIGN: This review was carried out according to the Cochrane Handbook. Two reviewers individually searched PubMed, the Cochrane Library, EMBASE, Web of Science and CINAHL for papers that met the inclusion criteria.RESULTS: Fifteen papers describing interventions were selected and reviewed; four of these were finally included and assessed for quality. In these studies the intervention consisted of a checklist of indicators of risk for child abuse. After implementation, the rate of detected cases of suspected child abuse increased by 180% (weighted mean in three studies). The number of confirmed cases of child abuse, reported in two out of four studies, showed no significant increase.CONCLUSIONS: Interventions at emergency departments to increase the detection rate of cases of confirmed child abuse are scarce in the literature. Past study numbers and methodology have been inadequate to show conclusive evidence on effectiveness.
http://adc.bmj.com/content/95/3/214.full.pdf+html
Improving child protection in the emergency department: a systematic review of professional interventions for health care providers.

Academic Emergency Medicine, February 2010, vol./is. 17/2(117-25)

Newton AS, Zou B, Hamm MP, Curran J, Gupta S, Dumonceaux C, Lewis M

Abstract: OBJECTIVES: This systematic review evaluated the effectiveness of professional and organizational interventions aimed at improving medical processes, such as documentation or clinical assessments by health care providers, in the care of pediatric emergency department (ED) patients where abuse was suspected.

METHODS: A search of electronic databases, references, key journals, and conference proceedings was conducted and primary authors were contacted. Studies whose purpose was to evaluate a strategy aimed at improving ED clinical care of suspected abuse were included. Study methodologic quality was assessed by two independent reviewers. One reviewer extracted the data, and a second checked for completeness and accuracy.

RESULTS: Six studies met the inclusion criteria: one randomized controlled trial (RCT), one quasi-RCT, and four observational studies. Study quality ranged from modest (observational studies) to good (trials). Variation in study interventions and outcomes limited between-study comparisons. The quasi-RCT supported self-instructional education kits as a means to improve physician knowledge for both physical abuse (mean +/- standard deviation [SD] pretest score = 13.12 +/- 2.36; mean +/- SD posttest score = 18.16 +/- 1.64) and sexual abuse (mean +/- SD pretest score = 10.81 +/- 3.20; mean +/- SD posttest score = 18.45 +/- 1.79). Modest-quality observational studies evaluated reminder systems for physician documentation with similar results across studies. Compared to standard practice, chart checklists paired with an educational program increased physician consideration of nonaccidental burns in burn cases (59% increase), documentation of time of injury (36% increase), and documentation of consistency (53% increase) and compatibility (55% increase) of reported histories. Decisional flow charts for suspected physical abuse also increased documentation of nonaccidental physical injury (69.5% increase; p < 0.0001) and had a similar significant effect as checklists on increasing documentation of history consistency and compatibility (69.5 and 70.0% increases, respectively; p < 0.0001) when compared to standard practice. No improvements were noted in these studies for documentation of consultations or current status with child protective services. The introduction of a specialized team and crisis center to standardize practice had little effect on physician documentation, but did increase documentation of child protective services involvement (22.7% increase; p < 0.005) and discharge status (23.7% increase; p < 0.02). Referral to social services increased in one study following the introduction of a chart checklist (8.6% increase; p = 0.018). A recently conducted multisite RCT did not support observational findings, reporting no significant effect of educational sessions and/or a chart checklist on ED practices.

CONCLUSIONS: The small number of studies identified in this review highlights the need for future quality studies that address care of a vulnerable clinical population. While moderate-quality observational studies suggest that education and reminder systems increase clinical knowledge and documentation, these findings are not supported by a multisite randomized trial. The limited theoretical base for conceptualizing change in health care providers and the influence of the ED environment on clinical practice are limitations to this current evidence base.
CORE Info Systematic Reviews on Injury Type
Cardiff Child Protection Systematic Reviews (Core Info) is jointly run by Professor Alison Kemp and Dr Sabine Maguire. It is conducted by an in-house research team and supported by Cardiff University’s Support Unit for Research Evidence (SURE). Reviews are conducted by a valued team of UK-based professionals dedicated to our themes.

The systematic review findings in these articles are only accurate up to the date of their publication. If you have a specific clinical case, we strongly recommend you read all of the relevant references as cited and look for additional material released since our publications.

Bites

Can we identify abusive bites on children? Archives of Disease in Childhood. 2006;91(11):951
There were no studies validating the much used BAFO9 guidelines for bite mark analysis. Clearly confusion can occur between bites and dermatological conditions, burns, shoe prints, etc. In addition, the commonest bites children sustain are animal bites, although these have different canine distributions and usually tear rather than compress flesh.
www.core-info.cardiff.ac.uk/publications/bites

Bruising

Are there patterns of bruising in childhood which are diagnostic or suggestive of abuse? Archives of Disease in Childhood. 2005;90(2):182-186
When abuse is suspected, bruising must be assessed in the context of medical, social, and developmental history, the explanation given, and the patterns of non-abusive bruising. Bruises in non-mobile infants, over soft tissue areas, that carry the imprint of an implement and multiple bruises of uniform shape are suggestive of abuse. Quality research across the whole spectrum of children is urgently needed.

Bruising as an indicator of child abuse: when should I be concerned? Paediatrics and Child Health. 2008;18(12):545-549
This article will review the features of abusive childhood bruises in comparison to accidental ones, examine issues surrounding ageing of bruises, highlight important features on history or examination, and look at investigations that need to be considered in children with bruising that causes concern.

Systematic Reviews of bruising challenged accepted wisdom regarding ageing of bruises, which had no scientific basis; stimulated higher quality research on patterns of bruises distinguishing abusive and non-abusive bruising patterns, and highlighted the benefits of regular updates of these reviews.

This pilot study demonstrated that clinicians collectively favoured cross-Polarised in addition to conventional imaging. Further studies are required to determine the value of ultraviolet and infrared imaging in the assessment of childhood bruises.
• Measurements produced by different observers varied widely when assessing the same bruise
• Less variation was found when observers repeated the measurement electronically, than when done manually
• In contrast, electronic measurements varied more than manual measurements between different observers
• Defining the boundary of a bruise allows a more detailed assessment of size, shape, location, pattern, and colour
• Including a right-angled linear scale is recommended in any photographic image of a bruise

Burns

We propose an evidence based triage tool to aid in distinguishing intentional from unintentional scalds, requiring prospective validation.

Contact, Cigarette and Flame Burns in Physical Abuse: A Systematic Review. Child Abuse Review. 2013, 28 June
• The commonest reported cause of intentional non-scald burns are contact burns: cigarettes, irons, hairdryers or domestic heaters.
• Burns are often clearly demarcated in the shape of the causative agent.
• Burns are found on the limbs, back or trunk, in locations other than the palms of the hands.
• Burns are often multiple and may co-exist with other injuries suspicious of abuse.
• Single or multiple circular, deep-cratered burns are consistent with cigarette burns.

Fractures

Radiologic dating of fractures is an inexact science. Most radiologists date fractures on the basis of their personal clinical experience, and the literature provides little consistent data to act as a resource. There is an urgent need for research to validate the criteria used in the radiologic dating of fractures in children younger than 5 years.

Rib fractures after cardiopulmonary resuscitation are rare. When they do occur, they are anterior and may be multiple. As the studies performed to date did not use the most sensitive techniques for detecting rib fractures, further prospective studies of children would be valuable to provide additional clarification on this question.

Which radiological investigations should be performed to identify fractures in suspected child abuse? Clinical Radiology. 2006;61(9):723-736
In children under 2-years old, where physical abuse is suspected, diagnostic imaging of the skeleton should be mandatory. SS or BS alone is inadequate to identify all fractures. It is recommended that all SS should include oblique views of the ribs. This review suggests that the following options would optimize the diagnostic yield. However, each needs to be evaluated prospectively: SS that includes oblique views, SS and BS, a SS with repeat SS or selected images 2 weeks later or a BS plus skull radiography and coned views of metaphyses and epiphyses.
When infants and toddlers present with a fracture in the absence of a confirmed cause, physical abuse should be considered as a potential cause. No fracture, on its own, can distinguish an abusive from a non-abusive cause. During the assessment of individual fractures, the site, fracture type, and developmental stage of the child can help to determine the likelihood of abuse. The number of high quality comparative research studies in this field is limited, and further prospective epidemiology is indicated.

This review identifies some of the features that can be used to differentiate abusive fractures from the greater numbers of childhood fractures that are sustained from accidental trauma. Current investigation strategies and diagnostic dilemmas are discussed.

Recent literature validates the original conclusions that repeat skeletal imaging adds important information on fractures. Comparative studies of femoral, humeral, rib and skull fractures enabled a meta-analysis by age, however further comparative studies are needed.

The results of this study show that fractures in young children may be dated as acute (< 1 week), recent (8-35 days), or old (≥ 36 days) on the basis of the presence of six key radiologic features in combination. Furthermore, good interobserver agreement suggests these results are reproducible.

Neurological injuries

This systematic review shows that apnoea and retinal haemorrhage have a high odds ratio for association with iBI. This review identifies key features that should be recorded in the assessment of children where iBI is suspected and may help clinicians to define the likelihood of iBI.

Neuroimaging: what neuroradiological features distinguish abusive from non-abusive head trauma? A systematic review. Archives of Disease in Childhood. 2011;96(12):1103-1112 Multiple SDH over the convexity, interhemispheric haemorrhages, posterior fossa SDH, HII and cerebral oedema are significantly associated with AHT and should be considered together with clinical features when identifying the condition.

This article describes the evidence base behind the associated historical, clinical and neuroradiological features of AHT and spinal injury in physical abuse and sets out an algorithm of essential investigations that should be performed in any infant or young child where AHT is suspected.

www.core-info.cardiff.ac.uk/publications/neurological-injuries
Oral injuries

**Diagnosing abuse: A systematic review of torn frenum and intra-oral injuries.** Archives of Disease in Childhood. 2007;92(12):1113-1117

Current literature does not support the diagnosis of abuse based on a torn labial frenum in isolation. The intra-oral hard and soft tissue should be examined in all suspected abuse cases, and a dental opinion sought where abnormalities are found.

[www.core-info.cardiff.ac.uk/publications/oral-injuries](http://www.core-info.cardiff.ac.uk/publications/oral-injuries)

Retinal findings


Our systematic review confirms that although certain patterns of RH were far commoner in AHT, namely large numbers of RH in both the eyes, present in all layers of the retina, and extension into the periphery, there was no retinal sign that was unique to abusive injury. RH are rare in accidental trauma and, when present, are predominantly unilateral, few in number and in the posterior pole.


•Retinal Haemorrhages are strongly associated with Abusive Head Trauma, but have been described in certain medical conditions.
•Neither cough nor ALTE are associated with RH, which have been found in < 3% of children with seizures. There are inadequate data to conclude that CPR is associated with RH.
•Case series have reported RH in children who also have clinical features that may overlap with physical abuse, namely certain metabolic, vascular, haematologic disorders and bony dysplasias (specifically osteogenesis imperfecta).

**Newborn retinal hemorrhages: A systematic review.** Journal of AAPOS. 2013;17(1):70-78

Birth-related RH in infants occurs in one-quarter of normal deliveries and are far more common after instrumental deliveries. Commonly bilateral, they were predominantly intraretinal, posterior, resolved rapidly, and very rarely persisted beyond 6 weeks.


We have developed and validated a standardized clinical reporting tool for ophthalmic findings in suspected abusive head trauma, which has excellent interobserver and intraobserver agreement among consultant specialists and residents. We suggest that its use will improve standardized clinical reporting of such cases.

[www.core-info.cardiff.ac.uk/publications/retinal-findings](http://www.core-info.cardiff.ac.uk/publications/retinal-findings)

Spinal injuries

**What are the clinical and radiological characteristics of spinal injuries from physical abuse: a systematic review.** Archives of Disease in Childhood. 2010;95(5):355 -360

Spinal injury is a potentially devastating inflicted injury in infants and young children. The published evidence base is limited. However, this case series leads us to recommend that any clinical or radiological indication of spinal injury warrants an MRI. In children undergoing brain MRI for abusive head trauma, consideration should be given to including an MRI of the spine. All skeletal surveys in children with suspected abuse should include lateral views of the cervical and thoraco-lumbar spine. Further prospective comparative studies would define the discriminating features of inflicted spinal injuries.

[www.core-info.cardiff.ac.uk/publications/spinal-injuries](http://www.core-info.cardiff.ac.uk/publications/spinal-injuries)
Visceral injuries


Visceral injuries may affect any organ of the body, predominantly abdominal viscera. A non-motor vehicle related duodenal trauma in a child aged<five years warrants consideration of abuse as an etiology. In the absence of clear evidence for a screening strategy, clinical vigilance is warranted in any young child with suspected abuse for the presence of abdominal injury, where the absence of abdominal bruising or specific symptoms does not preclude significant injury.

www.core-info.cardiff.ac.uk/publications/visceral-injuries
Screening methods to detect child maltreatment: high variability in Dutch emergency departments.


Hoytema van Konijnenburg EM, Teeuw AH, Zwaard SA, van der Lee JH, van Rijn RR.

BACKGROUND: In the Netherlands, screening for child maltreatment is mandatory in all emergency departments but it is unclear which screening methods are being used. As a first step towards implementation of a universal screening method across all emergency departments, we assessed the currently used screening methods.

OBJECTIVE: To provide an overview of the screening methods for child maltreatment across all emergency departments in the Netherlands and to assess their empirical substantiation.

METHODS: We surveyed all emergency departments in the Netherlands using a questionnaire on screening methods. All screening checklists used in emergency departments were assembled and compared with the literature.

RESULTS: 85 hospitals with an emergency department were approached, 80 of which completed the questionnaire and 77 provided copies of their screening checklists. All participating hospitals use a screening checklist, 41% a screening physical examination, 60% a screening based on parental risk factors and 3% a retrospective review of all charts. The empirical substantiation for these screening methods is largely lacking, and at least 73% of the hospitals use a checklist that has not been reported in the literature.

CONCLUSIONS: Large variations in screening methods exist across emergency departments in the Netherlands, most of which are not based on empirical evidence.

Effects of systematic screening and detection of child abuse in emergency departments.


Louwers EC, Korfage IJ, Affourtit MJ, Scheewe DJ, van de Merwe MH.

OBJECTIVE: Although systematic screening for child abuse of children presenting at emergency departments might increase the detection rate, studies to support this are scarce. This study investigates whether introducing screening, and training of emergency department nurses, increases the detection rate of child abuse.

METHODS: In an intervention cohort study, children aged 0 to 18 years visiting the emergency departments of 7 hospitals between February 2008 and December 2009 were enrolled. We developed a screening checklist for child abuse (the "Escape Form") and training sessions for nurses; these were implemented by using an interrupted time-series design. Cases of suspected child abuse were determined by an expert panel using predefined criteria.

The effect of the interventions on the screening rate for child abuse was calculated by interrupted time-series analyses and by the odds ratios for detection of child abuse in screened children.

RESULTS: A total of 104028 children aged 18 years or younger were included. The screening rate increased from 20% in February 2008 to 67% in December 2009. Significant trend changes were observed after training the nurses and after the legal requirement of screening by the Dutch Health Care Inspectorate in 2009. The detection rate in children screened for child abuse was 5 times higher than that in children not screened (0.5% vs 0.1%, P < .001).

CONCLUSIONS: These results indicate that systematic screening for child abuse in emergency departments is effective in increasing the detection of suspected child abuse. Both a legal requirement and staff training are recommended to significantly increase the extent of screening.
Child abuse detection at the emergency department using a new protocol based on parental characteristics
Diderich H.
Archives of Disease in Childhood, October 2012, vol./is. 97/(A420)
Abstract: Background and Aims The number of children identified as victims of child abuse in the Emergency Department represent only the tip of the iceberg. The "Hague-protocol" takes a new and successful approach to the recognition of child abuse at the E.D. Methods These new guidelines call for notification to the Reporting Center for Child Abuse and Neglect when an adult patient who is responsible for children at home, visits the E.D. because of either 1) Substance abuse 2) Suicide attempt 3) Domestic violence. A before and after study was done at E.D.’s of five hospitals in an urban region in the Netherlands. Results In the two years prior to the introduction of the protocol, a total of 4 parents were reported. After the guidelines were issued in 2007 the number of suspected child abuse cases reported to the Reporting Center, based on parental characteristics, rose substantially. A total number of 107 cases were reported in 2008, 149 cases in 2009, and 126 cases in 2010. Results indicate that child abuse was confirmed in the large majority (92%) of the reported cases. In 5% of the cases child abuse could not be confirmed and in 3% of the cases it was concluded that there was no child abuse. Conclusion The Hague-protocol can substantially improve and increase the detection rate of child abuse cases via the E.D. Parental characteristics can be strong predictors of child abuse, and can be included in E.D.’s guidelines to help identify new cases of child abuse.

A Practical Guide to Differentiating Abusive From Accidental Fractures: An Injury Plausibility Approach
Clinical Pediatric Emergency Medicine, September 2012, vol./is. 13/3(166-177)
Pierce M.C., Kaczor K., Lohr D., Richter K., Starling S.P.
Abstract: A young child presents to you for care and you have identified a fracture. Now what? What are the steps you need to take to make sure you are not missing abuse, and what are the most common characteristics of an abuse case? What are common pitfalls that result in an incorrect conclusion? This article will offer a practical approach to the assessment and management of the young child or infant diagnosed as having a fracture. This article will focus on the questions to ask that help ascertain the manner of injury and determine whether the history provided is a plausible explanation of the fracture. A general overview of the literature regarding fractures in children is also provided. 2012 Elsevier Inc.

Educational paper: Detection of child abuse and neglect at the emergency room.
European Journal of Pediatrics, June 2012, vol./is. 171/6(877-85)
Teeuw AH, Derkx BH, Koster WA, van Rijn RR
Abstract: The emergency room (ER) represents the main system entry for crises-based health care visits. It is estimated that 2% to 10% of children visiting the ER are victims of child abuse and neglect (CAN). Therefore, ER personnel may be the first hospital contact and opportunity for CAN victims to be recognised. Early diagnosis of CAN is important, as without early identification and intervention, about one in three children will suffer subsequent abuse. This educational paper provides the reader with an up-to-date and in-depth overview of the current screening methods for CAN at the ER. Conclusion: We believe that a combined approach, using a checklist with risk factors for CAN, a structured clinical assessment and inspection of the undressed patient (called 'top-toe' inspection) and a system of standard referral of all children from parents who attend the ER because of alcohol or drugs intoxication, severe psychiatric disorders or with injuries due to intimate partner violence, is the most promising procedure for the early diagnosis of CAN in the ER setting.
Watch out for children!: Can a paediatric injury proforma help in the identification of child abuse and neglect in the emergency department?

Journal of Paediatrics and Child Health, May 2012, vol./is. 48(16)
Phillips L., Newsom D., Sabesan V.

Abstract: Background: Child abuse and neglect (CAN) is an underreported problem. Young children are most vulnerable to physical abuse and are often seen in emergency departments (ED) following trauma. It is the responsibility of staff to identify CAN and report to the Department of Child Safety. A clinical checklist for CAN improves identification and documentation. Some units such as the Royal Children's Hospital (RCH) in Brisbane have been using a paediatric injury proforma (PIP) to identify CAN in trauma presentations to ED for over 10 years. Aims/Objectives: Would a PIP improve the identification and reporting of CAN cases in ED? Methods: A retrospective review of case notes of paediatric trauma (<2 years) who attended The Townsville Hospital ED within a 3-month period. Case notes were compared to PIP to find recording gaps. DOCS outcomes for these cases were checked with the Child protection liaison officer. Results: 44 case notes of trauma in <2s were reviewed. The clinicians/admission notes had recorded: 100% when, 82% where, 39% injury compatible with history, 27% developmental level, 7% delay in ED attendance without satisfactory explanation, 14% appropriate carer behaviour/interaction, 27% any suspicion or not of child abuse or neglect. Four cases resulted in DOCS notifications with another referred to the coroner. One case was identified as at risk of CAN as per the PIP but had not been reported. Conclusion: History taking and examination of children for suspected CAN is not intuitive. As part of a range of educational resources a PIP could improve the identification and reporting of CAN across Australia.

Western Australian emergency department presentations related to child maltreatment and intentional injury: Population level study utilising linked health and child protection data

Journal of Paediatrics and Child Health, January 2012, vol./is. 48/1(57-65)
O'Donnell M., Nassar N., Jacoby P., Stanley F.

Abstract: Aim: The aim of this study is to determine the proportion of child maltreatment-related emergency department (ED) presentations in Western Australia (WA) and describe the type of injuries associated with them. It is also to investigate the proportion of maltreatment-related ED presentations resulting in hospitalisation, the proportion referred to the Department for Child Protection and their outcomes. Methods: This is a retrospective cohort study of all children aged 0-17 years residing in WA from 2001 to 2005 who had an ED presentation recorded in the ED Data Collection. This study used de-identified administrative data linked across the Departments of Health and Child Protection. Results: Only 0.03% of ED presentations were identified as maltreatment related and 0.2% for all intentional injury presentations. One in five children with maltreatment-related ED presentations was admitted to hospital and a similar proportion had a notification to Department for Child Protection and 87% of these subsequently substantiated. Conclusions: This study showed that there are limitations with ED data for child maltreatment surveillance in WA and raises concerns that there may be missed opportunities for identifying maltreatment and for referring families for further assessment and support. Recommendations are provided to improve maltreatment surveillance and ED data, particularly for the identification of external causes of injury.
Facilitators and barriers to screening for child abuse in the emergency department.
Louwers EC, Korfage IJ, Affourtit MJ, De Koning HJ, Moll HA

Abstract: BACKGROUND: To identify facilitators of, and barriers to, screening for child abuse in emergency departments (ED) through interviews with ED staff, members of the hospital Board, and related experts.

METHODS: This qualitative study is based on semi-structured interviews with 27 professionals from seven Dutch hospitals (i.e. seven pediatricians, two surgeons, six ED nurses, six ED managers and six hospital Board members). The resulting list of facilitators/barriers was subsequently discussed with five experts in child abuse and one implementation expert. The results are ordered using the Child Abuse Framework of the Dutch Health Care Inspectorate that legally requires screening for child abuse.

RESULTS: Lack of knowledge of child abuse, communication with parents in the case of suspected abuse, and lack of time for development of policy and cases are barriers for ED staff to screen for child abuse. For Board members, lack of means and time, and a high turnover of ED staff are impediments to improving their child abuse policy. Screening can be promoted by training ED staff to better recognize child abuse, improving communication skills, appointing an attendant specifically for child abuse, explicit support of the screening policy by management, and by national implementation of an approved protocol and validated screening instrument.

CONCLUSIONS: ED staff are motivated to work according to the Dutch Health Care Inspectorate requirements but experiences many barriers, particularly communication with parents of children suspected of being abused. Introduction of a national child abuse protocol can improve screening on child abuse at EDs.

www.biomedcentral.com/content/pdf/1471-2431-12-167.pdf

Diagnostic coding of abuse related fractures at two children's emergency departments.
Child Abuse & Neglect, November 2011, vol./is. 35/11(905-14)
Somji Z, Plint A, McGahern C, Al-Saleh A, Boutis K

Abstract: OBJECTIVES: Pediatric fractures suspicious for abuse are often evaluated in emergency departments (ED), although corresponding diagnostic coding for possible abuse may be lacking. Thus, the primary objective of this study was to determine the proportion of fracture cases investigated in the ED for abuse that had corresponding International Classification of Diseases (ICD) codes documenting abuse suspicion. Additional objectives were to determine the proportion of these fractures with admission ICD abuse coding, and physician text diagnoses recording abuse suspicion in the ED and/or admission notes. Factors possibly associated with abuse-related ED ICD codes were also examined.

METHODS: Children less than three years of age that presented primarily with a fracture to two large academic children's hospitals from 1997 to 2007 and were evaluated for suspicion of abuse by child protective services were included in this retrospective review. The main outcome measure was the proportion of the fracture cases that had abuse suspicion reflected in ED discharge ICD codes.

RESULTS: Of the 216 eligible patients, only 23 (11.5%) patients had ED ICD codes that included the possibility of abuse. Forty-nine (22.7%) had the possibility for abuse documented by physicians as an ED discharge diagnosis. In addition, 53/149 (35.6%) of all admitted patients and 34/55 (61.8%) of confirmed abuse cases included abuse-related admission ICD coding. Female gender was found to be a factor associated with ED ICD abuse codes.

CONCLUSION: Current standards of ICD coding result in a significant underestimate of the prevalence of children assessed in the ED and hospital wards for possible and confirmed abusive fracture(s). Copyright 2011
Archives of Disease in Childhood, May 2011, vol./is. 96/5(422-5)
Louwers EC, Korfage IJ, Affourtit MJ, Scheewe DJ, van de Merwe MH, Vooijs-Moulaert FA,
Abstract: OBJECTIVE: This study examines the detection rates of suspected child abuse in the
emergency departments of seven Dutch hospitals complying and not complying with screening
guidelines for child abuse.DESIGN: Data on demographics, diagnosis and suspected child abuse
were collected for all children aged <18 years who visited the emergency departments over a 6-
month period. The completion of a checklist of warning signs of child abuse in at least 10% of the
emergency department visits was considered to be compliance with screening
guidelines.RESULTS: A total of 24 472 visits were analysed, 54% of which took place in an
emergency department complying with screening guidelines. Child abuse was suspected in 52
children (0.2%). In 40 (77%) of these 52 cases, a checklist of warning signs had been completed
compared with a completion rate of 19% in the total sample. In hospitals complying with
screening guidelines for child abuse, the detection rate was higher (0.3%) than in those not
complying (0.1%, p<0.001).CONCLUSION: During a 6-month period, emergency department
staff suspected child abuse in 0.2% of all children visiting the emergency department of seven
Dutch hospitals. The numbers of suspected abuse cases detected were low, but an increase is
likely if uniform screening guidelines are widely implemented.
www.ncbi.nlm.nih.gov/pmc/articles/PMC3075563/pdf/adc-96-5-0422.pdf

Child abuse inventory at emergency rooms: CHAIN-ER rationale and design.
BMC Pediatrics, 2011, vol./is. 11/(91), 1471-2431;1471-2431 (2011)
Sittig JS, Uiterwaal CS, Moons KG, Nieuwenhuis EE, van de Putte EM
Abstract: BACKGROUND: Child abuse and neglect is an important international health problem
with unacceptable levels of morbidity and mortality. Although maltreatment as a cause of injury is
estimated to be only 1% or less of the injured children attending the emergency room, the
consequences of both missed child abuse cases and wrong suspicions are substantial.
Therefore, the accuracy of ongoing detection at emergency rooms by health care professionals is
highly important. Internationally, several diagnostic instruments or strategies for child abuse
detection are used at emergency rooms, but their diagnostic value is still unknown. The aim of
the study 'Child Abuse Inventory at Emergency Rooms' (CHAIN-ER) is to assess if active
structured inquiry by emergency room staff can accurately detect physical maltreatment in
children presenting at emergency rooms with physical injury.METHODS/DESIGN: CHAIN-ER is
a multi-centre, cross-sectional study with 6 months diagnostic follow-up. Five thousand children
aged 0-7 presenting with injury at an emergency room will be included. The index test - the
SPUTOVAMO-R questionnaire- is to be tested for its diagnostic value against the decision of an
expert panel. All SPUTOVOAMO-R positives and a 15% random sample of the SPUTOVOAMO-R
negatives will undergo the same systematic diagnostic work up, which consists of an adequate
history being taken by a pediatrician, inquiry with other health care providers by structured
questionnaires in order to obtain child abuse predictors, and by additional follow-up information.
Eventually, an expert panel (reference test) determines the true presence or absence of child
abuse.DISCUSSION: CHAIN-ER will determine both positive and negative predictive value of a
child abuse detection instrument used in the emergency room. We mention a benefit of the use
of an expert panel and of the use of complete data. Conducting a diagnostic accuracy study on a
child abuse detection instrument is also accompanied by scientific hurdles, such as the lack of an
accepted reference standard and potential (non-) response. Notwithstanding these scientific
challenges, CHAIN-ER will provide accurate data on the predictive value of SPUTOVOAMO-R.
www.biomedcentral.com/content/pdf/1471-2431-11-91.pdf
Emergency department attendance by children at risk of abuse
Emergency Medicine Journal, January 2010, vol./is. 27/1(26-28)
Leaman A.M., Holt A., Pummi Ramakrishnan R.G.
Abstract: Background: Frequency of emergency department (ED) attendance has long been thought to be a risk factor for child abuse. The aim of this study was to test this assumption by comparing the ED attendances of at-risk children (before being placed on a child protection register) with the attendances of an age-matched control group (before an index attendance) Method: A group of 220 children (aged 0-12 years inclusive) were identified from the two child protection registers in the Shropshire area in 2006. The ED attendances of these children in the 2 years before registration were identified using the computer records of the two local EDs. A control group of 150 children for each year of age (0-12 years inclusive) was then identified from ED attendances between October and December 2006. The attendances of these children in the 2 years before this index attendance were obtained. The data for these two groups of children were then compared. Results: The at-risk children did not attend the EDs more frequently than did the children in the control group. Conclusion: The identification of children who attend EDs frequently may be useful for other reasons but is unlikely to be an effective way to detect child abuse.

Randomized prospective study to evaluate child abuse documentation in the emergency department.
Academic Emergency Medicine, March 2009, vol./is. 16/3(249-57)
Guenther E, Olsen C, Keenan H, Newberry C, Dean JM, Olson LM
Abstract: OBJECTIVES: The objective was to determine whether an educational intervention for health care providers would result in improved documentation of cases of possible physical child abuse in children <36 months old treated in the emergency department (ED) setting.METHODS: This study had a statewide group-randomized prospective trial design. Participating EDs were randomized to one of three intervention groups: no intervention, partial intervention, or full intervention. Medical records for children <36 months of age were abstracted before, during, and after the intervention periods for specific documentation elements. The main outcome measure was the change in documentation from baseline. Generalized estimating equations (GEEs) were used to test for intervention effect.RESULTS: A total of 1,575 charts from 14 hospitals EDs were abstracted. Hospital and demographic characteristics were similar across intervention groups. There were 922 (59%) injury visits and 653 (41%) noninjury visits. For each specific documentation element, a GEE model gave p-values of >0.2 in independent tests, indicating no evidence of significant change in documentation after the intervention. Even among the 26 charts in which the possibility of physical abuse was noted, documentation remained variable.CONCLUSIONS: The educational interventions studied did not improve ED documentation of cases of possible physical child abuse. The need for improved health care provider education in child abuse identification and documentation remains. Future innovative educational studies to improve recognition of abuse are warranted.
Recognising and responding to child maltreatment
Attempts have been made to improve identification of injuries due to child maltreatment by
implementation of screening strategies. Some emergency departments use screening
methods, such as checklists or protocols, to identify children who need experienced
paediatric assessment. These methods are based on markers, such as age and type of
injury, repeated attendance, or a history inconsistent with the injury. However, none of these methods substantially improve the detection rate, and they risk
overwhelming paediatricians with false-positive referrals. The authors of a systematic review concluded that experienced clinical assessment is likely to be more accurate than
screening tests.
Another approach consists of a scoring system based on a combination of specific injuries
and age. Its utility over diagnostic assessment alone has not yet been tested in the clinical
setting, but investigators caution that the current model accounts for only 30% of the
variance between injuries due to physical abuse and non-inflicted injuries. A key issue for
these tests is that maltreatment is a cause of injury in an estimated 1% or less of injured
children attending the emergency department. Maltreatment is much more common in
severely injured preschool children admitted to hospital, but these children warrant detailed
paediatric assessment, and not screening tests.

https://www.meddiump.com/content/Assets_1200000-1249999/asset_1223331/file_metadata_1223330.pdf
Child protection procedures in emergency departments.
Emergency Medicine Journal, December 2007, vol./is. 24/12(831-5)
Sidebotham P, Biu T, Goldsworthy L

BACKGROUND: Emergency departments (EDs) may be the first point at which children who have been subject to abuse or neglect come into contact with professionals who are able to act for their protection. In order to ascertain current procedures for identifying and managing child abuse, we conducted a survey of EDs in England and Northern Ireland.

METHODS: Questionnaires were sent to the lead professionals in a random sample of 81 EDs in England and 20 in Northern Ireland. Departments were asked to provide copies of their procedures for child protection. These were analysed qualitatively using a structured template.

RESULTS: A total of 74 questionnaires were returned. 91.3% of departments had written protocols for child protection. Of these, 27 provided copies of their protocols for analysis. Factors judged to improve the practical usefulness of protocols included: those that were brief; were specific to the department; incorporated both medical and nursing management; included relevant contact details; included a single page flow chart which could be accessed separately. 25/71 (35.2%) departments reported that they used a checklist to highlight concerns. The most common factors on the checklists included an inconsistent history or one which did not match the examination; frequent attendances; delay in presentation; or concerns about the child's appearance or behaviour, or the parent-child interaction.

CONCLUSIONS: There is a lack of consistency in the approach to identifying and responding to child abuse in EDs. Drawing on the results of this survey, we are able to suggest good practice guidelines for the management of suspected child abuse in EDs. Minimum standards could improve management and facilitate clinical audit and relevant training.

Evaluation of Suspected Child Physical Abuse
Pediatrics 2007;119;1232, Nancy D. Kellogg

This report provides guidance in the clinical approach to the evaluation of suspected physical abuse in children. The medical assessment is outlined with respect to obtaining a history, physical examination, and appropriate ancillary testing. The role of the physician may encompass reporting suspected abuse; assessing the consistency of the explanation, the child's developmental capabilities, and the characteristics of the injury or injuries; and coordination with other professionals to provide immediate and long-term treatment and follow-up for victims. Accurate and timely diagnosis of children who are suspected victims of abuse can ensure appropriate evaluation, investigation, and outcomes for these children and their families.

http://pediatrics.aappublications.org/content/119/6/1232.full.pdf+html
The multi-institutional validation of the new screening index for physical child abuse
Journal of pediatric surgery, January 2005, vol./is. 40/1(114-119)
Chang D.C., Knight V.M., Ziegfeld S., Haider A., Paidas C.
Abstract: BACKGROUND/PURPOSE: There is currently no evidence-based screening instrument to assist in the detection of physical child abuse patients. The screening index for physical child abuse (SIPCA) was previously developed as a potentially new tool for this need. It is a scale that assigns point values, on the basis of variable weights from logistic regression models, to age and patterns of injuries (including fracture of base or vault of skull, contusion of eye, rib fracture, intracranial bleeding, multiple burns), with higher scores indicating greater suspicion for abuse. The purpose of this study is to validate this new tool in another independent data set. METHODS: A cross-sectional hospital discharge database from 1961 hospitals in 17 states is used (n = 58558). Children aged 14 years or younger with International Classification of Diseases, Ninth Revision, Clinical Modification codes 800 to 959 are included for analysis. Child abuse cases are identified by E codes and certain International Classification of Diseases, Ninth Revision, Clinical Modification codes in the 995.5x range. Screening index for physical child abuse performance is evaluated by discrimination (receiver operating characteristic) and goodness of fit (pseudo r2). RESULTS: A total of 447 abused patients (0.76%) was identified. The receiver operating characteristic of SIPCA in this data set is 0.89 as compared with 0.86 in the development data set. The pseudo r 2 of SIPCA in this data set is 0.26 as compared with 0.28 in the development data set. A SIPCA score of 3 has a sensitivity of 86.6% and a specificity of 80.5% for detecting physical abuse; raising the threshold to a score of 4 improves the specificity to 93.1% but at a loss of sensitivity to 71.8%. CONCLUSIONS: The validity of the new SIPCA instrument is supported by its performance in an independently derived data set. A score of 3 on SIPCA represents a balanced trade off in the sensitivity and specificity of the instrument in detecting physical abuse and is an optimal threshold above which to begin considering abuse in differential diagnosis. Application of the instrument could assist clinicians in detecting physical child abuse cases among pediatric trauma patients.
ATTACHED

The tip of the iceberg for child abuse: The critical roles of the pediatric trauma service and its registry
Journal of Trauma - Injury, Infection and Critical Care, 2004, vol./is. 57/6(1189-1198)
Chang D.C., Knight V., Ziegfeld S., Haider A., Warfield D., Paidas C.
Abstract: Background: The incidence of child abuse is approximately 10% of all children presenting to an emergency department (ED), with a mortality rate less than 1%. By contrast, the characteristics of the subset of abused children presenting to a pediatric trauma service (PTS) is not well defined. Methods: This study was a retrospective evaluation of prospectively collected information from an urban Level I pediatric trauma registry from 1990 to 2002 (n = 11,919). Child abuse cases and their perpetrators were identified by E-codes. Patterns of injuries were examined by integer International Classification of Diseases, Ninth Revision codes, and diagnostic model was evaluated by discrimination and goodness-of-fit. Results: A total of 171 cases of child abuse (1.4%) were identified, and the majority were boys (59%, p > 0.05 vs. non-abuse cases). The median age of the abused cohort was younger than 1 year old, and the number of abuse cases did not differ over time (mean, 11 per year.) Abused children present with a higher median Injury Severity Score (10 vs. 4, p < 0.01), more severe injuries of the head and integument, longer hospital lengths of stay (4 vs. 1 day, p < 0.01), and a higher mortality rate (12% vs. 2%, p < 0.01). The following variables
emerged with significant association to abuse: fracture of base or vault of skull, contusion of eye, rib fracture, intracranial bleeding, multiple burns, and age. A new Diagnostic Index for Physical Child Abuse was created. Conclusion: Significant characteristics of the abused children in this pediatric trauma service include higher Injury Severity Score (especially in the head and integument), requirement for longer lengths of stay, and a nearly 10-times higher risk of death compared with the ED population. The Diagnostic Index for Physical Child Abuse is proposed as a new tool to assist in the identification of child abuse among pediatric trauma patients. An epidemiologic triangle for child abuse is described, with different prevalence and severity of child abuse seen at different levels of our health care system, starting with primary care providers, followed by the ED, the PTS, and ultimately the medical examiners. The number of cases decreases from the bottom to the top of the health care system, but the mortality rate increases as abuse escalates through the triangle. This establishes the PTS as possibly the final gatekeeper before an abused case becomes a fatality. These data emphasize the need for rigorous registry evaluation and subsequent evidence-based prevention initiatives.

**Detection of non-accidental injuries presenting at emergency departments.**

Emergency Medicine Journal, September 2004, vol./is. 21/5(562-4)

McKinney A, Lane G, Hickey F

Abstract: OBJECTIVES: To investigate whether cases of possible non-accidental injury as identified using five risk indicators give rise to any subjective concerns of child abuse.METHODS: Questionnaires were completed by the triage nurse and attending doctor for every child attending the general hospitals of the North Western Health Board, with an injury, during a six month period. The questionnaires included an assessment of subjective concerns about the injury occurrence and five risk indicators of child abuse.RESULTS: Children presenting with an injury who had two or more positive indicators failed to raise subjective concerns in the attending emergency department staff.CONCLUSIONS: The introduction of a policy of identifying positive indicators from the five risk indicators of child abuse needs additional computer support within emergency departments. [http://emj.bmj.com/content/21/5/562.full.pdf](http://emj.bmj.com/content/21/5/562.full.pdf)

**Fractures in young children: Are physicians in the emergency department and orthopedic clinics adequately screening for possible abuse?**

Pediatric Emergency Care, June 2003, vol./is. 19/3(148-153)

Oral R., Blum K.L., Johnson C.

Abstract: Objectives: 1) To determine whether physicians are sufficiently investigating the cause of fractures in children younger than 3 years and 2) To find out what influences physicians' quality of history taking and documentation necessary to rule out inflicted trauma. Design: Descriptive, retrospective chart review. Setting: Pediatric emergency department and orthopedic clinic of an urban teaching hospital. Subjects: Children younger than 3 years treated between January 1, 1995, and December 31, 1998, presenting with a fracture. Results: A total of 653 charts met entry criteria. Information that was significantly lacking in the recorded history included witness presence, history of previous injury, review of past medical record, other injury description, and whether the injury was consistent with the development of the child. It was not possible to rule out inflicted injury in 42% of the patients. Four groups emerged from the entire cohort: group 1, accidental trauma, which made up 63% of the entire group (n = 413); group 2, inflicted trauma, which made up 13% (n = 85); group 3, missed inflicted trauma, which made up 23% (n = 151); and group 4, missed
accidental trauma, which made up 0.6% (n = 4). Younger age of the child, multiple fractures, need for hospital admission, and the examining physician being a pediatrician positively influenced physicians’ propensity to accurately report inflicted trauma. Conclusions: A large percentage of the charts reviewed contained inadequate documentation to explain the cause of fractures and thereby rule out inflicted trauma. Information in 23% of the charts reviewed aroused suspicion of inflicted trauma. There is a need to ensure that adequate information is obtained and documented in hospital records to rule out inflicted injury. This will require changes in the knowledge, skills, and attitudes of physicians. The use of forms, protocols, and periodic chart review will help to ensure compliance.

**National audit of emergency department child protection procedures.**
Emergency Medicine Journal, May 2003, vol./is. 20/3(222-4)
King W, Reid C

Abstract: OBJECTIVE: To assess the compliance with national guidelines on child protection procedures and provision of paediatric services in major English emergency departments. BACKGROUND: Victims of child abuse may present to emergency departments, and successful detection and management depends on adequate child protection procedures being in place. Two official documents published in 1999 provide recommendations for child protection procedures and staffing arrangements in emergency departments, and these can be used as standards for audit. METHODS: Structured telephone questionnaire survey of English emergency departments receiving at least 18 000 child attenders per year. RESULTS: Many of the standards are being met. Areas for improvement include: better access to child protection registers with clearer indications for their use; improved communication with other professionals such as the school nurse; more formal training for medical and nursing staff in the identification of potential indicators of child abuse; and improved awareness of local named professionals with expertise in child protection. More consultants with training in paediatric emergency medicine and more registered children's nurses are needed. CONCLUSION: Many nationally agreed recommendations are being met, but there is a need for improved training, increased numbers of specialised staff, and improved communication between professionals. There is considerable variation in practice between departments.
http://emj.bmj.com/content/20/3/222.full.pdf

**Simple intervention to improve detection of child abuse in emergency departments.**
BMJ, March 2002, vol./is. 324/7340(780), 0959-535X;1756-1833 (2002 Mar 30)
Benger JR, Pearce V

Abstract: PROBLEM: Child abuse is easily overlooked in a busy emergency department. DESIGN: Two stage audit of 1000 children before and after introduction of reminder flowchart. BACKGROUND AND SETTING: An emergency department in a suburban teaching hospital seeing about 4000 injured preschool children a year. KEY MEASURES FOR IMPROVEMENT: Number of records in which intentional injury was adequately documented and considered and the number of children referred for further assessment before and after introduction of reminder flowchart into emergency department notes. STRATEGIES FOR CHANGE: Nurses were asked to insert a reminder flowchart for assessing intentional injury into the notes of all children aged 0-5 years attending the department with any injury and to record the results of checking the child protection register. EFFECT OF CHANGE: Documentation of all eight indicators that intentional injury had been considered had increased in the second audit. Records of compatibility of history with injury
and consistency of history increased from less than 2% to more than 70% (P<0.0001). More children were referred for further assessment in the second audit than the first, although the difference was not significant (6 (0.6%) v 14 (1.4%), P=0.072). The general level of awareness and vigilance increased in the second audit, even for children whose records did not contain the flowchart.LESSONS LEARNT: Inclusion of a simple reminder flowchart in the notes of injured preschool children attending the emergency department increases awareness, consideration, and documentation of intentional injury. Rates of referral for further assessment also increase.

Audit of child protection procedures in accident and emergency department to identify children at risk of abuse.
BMJ, October 1997, vol./is. 315/7112(855-6), 0959-8138;0959-535X (1997 Oct 4)
Sidebotham PD, Pearce AV
Hospital accident and emergency departments are often the first place where injured children come into contact with the health services. Children who are victims of or at risk of abuse may be passing through these departments unrecognised. Accident and emergency departments must have clear protocols for recognising and handling suspected abuse and for training staff and updating that training. Triage by nurses of all children arriving in the accident and emergency department at the Royal United Hospital in Bath includes checking the child protection register and assessing five indicators of risk for child abuse. These indicators are: whether the child has previously been seen at the department, whether there is an inconsistent medical history, whether the findings on examination match the history, whether there was a delay in bringing the child to the department, and whether there is a head injury or fracture in a child younger than 1 year old. The department has a clear and accessible protocol for the management of suspected cases of child abuse.
http://www.bmj.com/content/315/7112/855
Background reference:

**NICE Guideline. When to suspect child maltreatment, 2009**

5.6 Attendance at medical services

There are a number of reasons why maltreated children are thought to attend frequently at healthcare services. The first is that overt physical injuries, either inflicted or due to inadequate supervision, are likely to need treatment and maltreatment is unlikely to be an isolated incident. Secondly, children in whom illness has been fabricated or induced are likely to be presented frequently to health services.

**Overview of available evidence**

A systematic review and a comparative study were identified that considered repeated healthcare use as a sign of maltreatment.

**Evidence statement**

According to the systematic review, there is no UK-based published study that addresses the rate of previous attendance at A&E departments for injury in physically abused children in comparison with non-abused children. A recent US longitudinal data linkage study found a strong link between repeated attendance and substantiated maltreatment, suggesting that there is an increased tendency for children who have been maltreated to have sought medical opinion more often than non-abused children. Indirect data from the UK suggest that it is not uncommon for pre-school children to re-attend at A&E in a 12 month period irrespective of abuse status.


**Royal College of Paediatrics and Child Health – Child Protection Guidelines**

RCPCH and FFLM have published flowcharts which seek to aid forensic physicians and paediatricians when deciding when to examine both a pre and post-pubertal child in cases of suspected sexual offences. This guidance should help paediatricians when considering if to examine out of hours or whether to wait until the following day.

- Pre-pubertal complaints
- Post-pubertal complaints
- Fabricated or Induced Illness by Carers (FII): A Practical Guide for Paediatricians,
- Guidance for best practice for the management of intimate images that may become evidence in court
- Service Specification for the Clinical Evaluation of Children & Young People who may have been sexually abused
- Standards for Radiological Investigations of Suspected Non-Accidental Injury
- Child Protection and the Anaesthetist: Safeguarding Children in the Operating Theatre

**The Physical Signs of Child Sexual Abuse**

The document focuses on evidence for the physical signs of child sexual abuse (CSA) in the following areas: female genitalia, male genitalia, anal signs, oral signs and sexually transmitted infections. The publication is available free of charge to all designated and named doctors