Ashford and St. Peter's Hospitals
NHS Foundation Trust

Blood Tests for Children undergoing Safeguarding Investigations for Bruising and Bleeding

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Guideline History		
Date	**Comments**	**Approved By**
May 2025	Guideline created	Paediatric Guideline Committee

To be used in conjunction with SSCP guideline: Bruising in Babies and Children

and Royal College of Paediatrics and Child Health - Child Protection Companion

Contents

Page

1. Guideline: Blood tests for children undergoing safeguarding investigations presenting with bruising and bleeding.

- a. Introduction 3
- b. Purpose 3
- c. Bleeding Disorders 4
- d. Conditions which may mimic bruising 4
- e. History and Examination 4
- f. Investigations 5
- g. Flowchart guide to haematological investigations 6

2. Supporting References 7

3. Supporting Trust Guidelines 8

4. Guideline Governance 9

- a. Scope
- b. Purpose
- c. Duties and Responsibilities
- d. Approval and Ratification
- e. Dissemination and Implementation
- f. Review and Revision Arrangements
- g. Equality Impact Assessment
- h. Document Checklist

5. Appendices

1.

Blood Tests for Children undergoing Safeguarding Investigations for Bruising and Bleeding

INTRODUCTION

Bruising is the most common presenting injury in physical child abuse[1]. Children also sustain bruises during normal childhood activities and play. It is important to distinguish abusive from non-abusive injuries, which includes ruling out underlying medical conditions. This may involve taking relevant blood tests.

PURPOSE

This guideline aims to provide a straightforward pathway for all medical professionals at Ashford and St Peter's Hospitals who are initiating safeguarding investigations in children with bruising or bleeding, helping them to determine which blood tests are appropriate.

BRUISING

Frequency and pattern of bruising in childhood is influenced by mobility, with pre-mobile babies least likely to bruise following normal childhood activities (prevalence 0.6-1.3%).[2,3]

Once independently mobile (crawling, bottom-shuffling, cruising and pulling to stand), bruising is usually found over bony prominences, most commonly knees and shins[4]. Head injuries usually occur on the occiput and the 'T' shape across the forehead, nose, upper lip and chin.[2,5]

Multiple bruises rarely occur from a single mechanism of injury, with the exception of major accidents[6]. Patterned injuries commonly mimic the object used to create the impact[7]. Petechiae and linear bruising patterns in pre-mobile children are more likely to be associated with abusive injury[8,9].

Note that a bruise ***cannot*** be accurately aged therefore the age of the bruise should not be commented on in the medical notes[6].

Bleeding disorders presenting with Bruising[6]:

- Defects in Primary Haemostasis (platelet plug formation at injury site):
    - Von Willebrand disease, Idiopathic Thombocytopenic Purpura, inherited disorders of platelet function disorders.
- Defects in Secondary Haemostasis (coagulation factor cascade):
    - Factor VIII/ IX/ XIII deficiency, Vitamin K deficiency, drugs e.g. heparin

Physical abuse and bleeding disorders may co-exist[6] therefore discussions between Paediatricians and Paediatric Haematologists are important part of decision-making.

Conditions which may mimic bruising[6]:

- Birth marks (e.g. Congenital Dermal Melanocytosis, capillary haemangioma)
- Vasculitic disorders/ Henoch Schonlein Purpura
- Infection/ DIC
- Erythema Nodosum
- Photosensitive & contact dermatitis
- Connective Tissue Disorders (e.g. Ehlers-Danlos)
- Malignancy (e.g. leukaemia, neuroblastoma)
- Drug related eg NSAIDs

History and Examination:

Take thorough history and to help identify haemostasis, ask specifically about[6]:

- Vitamin K administration at birth (in young babies)
- Prolonged bleeding from umbilical stump (in young babies)
- Muco-cutaneous bleeding or frequent/ prolonged epistaxis
- Excessive bleeding following surgery, dental extractions or minor trauma
- Family history of bleeding disorder

Full systemic examination looking for medical causes of bruising

- Examine mucosal surfaces for evidence of bleeding[6]
- Examine head to toe, measuring and documenting all marks and bruises[6]

Investigations

No laboratory investigations are required in independently mobile children if any one of the following:

- Mechanism of injury explains the bruise
- There is a clear imprint of a hand or object[6]
- Bruising is on bony prominences only

Perform laboratory investigations when there is one or more of the following:

- Bruising in pre-mobile child where safeguarding investigations are initiated[8]
- Unusual bruising pattern[6,8]
- Excessive bruising, out of proportion with mechanism suggested[6,8]
- ***Unexplained bleeding at a critical site[6,8] (e.g. IC haemorrhage, retinal, GI)***
- Clinical suspicion of a haemostatic disorder[6,8] from personal/family history and/or examination.

First-line: FBC, blood film, basic coagulation screen (PT/ APTT, fibrinogen)[8]
Please note: *Child Safeguarding Care Set* is available on Cerner to assist requests.

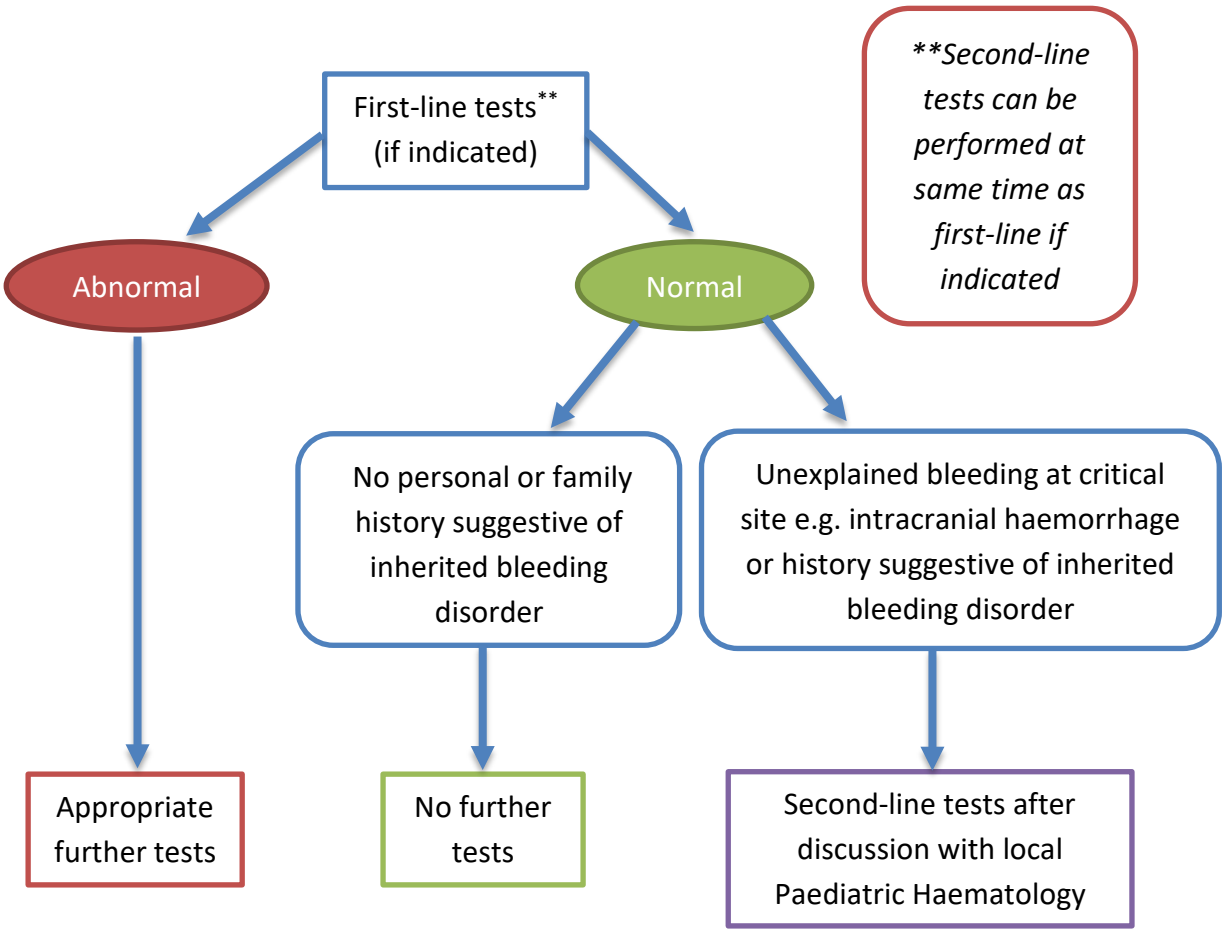
Second-line: Must be discussed with local Paediatric Haematology to ensure age appropriate and relevant tests are undertaken.
Tests to be considered depending on 1st line results and discussion with Paed Haematology[8]:

- Factors II, V, VII, VIII, IX, X, XI, XII & XIII
- von Willebrand Factor antigen and activity
- platelet function analysis (PFA 100 – platelet function assay)[8]

Perform if ***unexplained bleeding at a critical site (e.g. IC haemorrhage)*** or clinical suspicion of a haemostatic disorder despite normal first-line tests.[8]

If platelet function analysis is abnormal and VW screen normal then may need to consider platelet aggregometry testing/flow – discuss this with Paed Haematology. This is a tertiary haemostasis centre test (test needs to be performed at Evelina Hospital).

Flowchart Guide to Haematological Investigations[8]



2. Supporting References

1. Sheets et al. Sentinel Injuries in Infants Evaluated for Physical Abuse. Pediatrics 2013; 131(4): 701-707
2. Kemp et al. Patterns of Bruising in Preschool Children – a Longitudinal Study. Archives of Disease in Childhood 2015; 100(5): 426-431
3. Pierce et al. The Prevalence of Bruising among Infants in Pediatric Emergency Departments. Annals of Emergency Medicine 2016; 67(1): 1-6
4. Maguire et al. Are there Patterns of Bruising in Childhood which are Diagnostic or Suggestive of Abuse? A Systemic Review. Arch Dis Child 2005; 90(2): 182-186
5. Chang et al. Craniofacial Injuries from Slip, Trip and Fall Accidents in Children. J Trauma 2007; 63(1): 70-74
6. Royal College of Paediatrics & Child Health: Child Protection Companion, Dec 2021
7. Johnson et al. Injury Variables in Child Abuse. Child Abuse Negl 1985; 9(2): 207-215
8. Biss et al. Haematological Evaluation of Bruising and Bleeding in Children undergoing Child Protection Investigation for Possible Physical Maltreatment: A British Society for Haematology Good Practice Paper. Br J Haematol 2022; 199(1): 45-53.
9. Nayak K et al. How useful is the presence of petechiae in distinguishing non-accidental from accidental injury? Child Abuse Negl 2006;30(5):549-555.

3. Supporting relevant trust guidelines

This guideline should be used in associated with mandatory safeguarding training.

This guideline should be used in conjugation with Surrey Safeguarding Children Partnership (SSCP) Guideline: Bruising in infants and children: https://surreyscp.trixonline.co.uk/chapter/bruising-in-babies-and-children

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 who are undergoing safeguarding investigations.

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 • Who was involved in the Equality Impact Assessment
Author and the supervising consultants.
Methodology • 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) • The data sources and any other information used • 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 • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
There is no evidence of discrimination.
Conclusion • Provide a summary of the overall conclusions
There is no evidence of discrimination.
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • 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: Blood tests for children undergoing safeguarding investigations presenting with bruising and bleeding

Policy (document) Author: Dr Charlotte Card

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**	**Paediatric Guideline Committee, Safeguarding team, SABP**
	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?	**N/A**	
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?	**Y**	
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 (Paediatric 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	**Dr Alexandra Jones**	**Date**	**20/6/2025**
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			