# Epistaxis

## Definition / Supporting Information

Epistaxis is defined as acute bleeding from the nostril, nasal cavity, or nasopharynx. It is relatively common and usually self-limiting in childhood.

- Anterior epistaxis
  - Accounts for > 90% of epistaxis in children
  - Almost all the blood exits anteriorly through the nares
  - Much easier to visualise and control than posterior bleeding
- Posterior epistaxis
  - Most of the blood flows into the nasopharynx and mouth, making the degree of bleeding difficult to assess
  - Bleeding generally much more profuse than anterior bleeding
  - More likely than anterior bleeding to lead to haemodynamic instability

## Essential History

**Ask about:**

- Association between bleeding and:
  - Season
  - Other environmental conditions
- History of nose picking or blunt trauma
- Unilaterality
  - May suggest a local anatomical cause
- Presence and character of any associated rhinorrhoea
  - Clear, watery rhinorrhoea with associated sneezing
    - Suggests allergic rhinitis
  - Mucopurulent discharge with cough
    - Suggests upper respiratory tract infection
- Degree of chronicity
  - May suggest an inherited systemic cause
- Migraine headaches
  - Significant association between migraine headaches and recurrent epistaxis
- Family history of bleeding disorder or unusual bleeding or bruising (see Petechiae and Purpura)
  - Undiagnosed bleeding disorder such as von Willebrand Disease type 1

## ‘Red Flag’ Symptoms and Signs

**Ask about:**

- Signs and symptoms that may indicate a bleeding disorder
  - Petechiae
  - Easy bruising
  - Other mucosal bleeding (eg, menorrhagia, after surgery)
- Associated fever or pallor
  - May suggest leukaemia
- History of medication use
  - Particularly aspirin or non-steroidal anti-inflammatory drugs (NSAIDs)
- Family history of bleeding symptoms or diagnosed disorder
  - Useful in identifying children with a bleeding diathesis
- Unilateral foul-smelling discharge from the nose in a young child
  - May indicate a retained foreign body
- Unilateral progressive obstruction
  - Suggests a mass

**Look for:**

- Evidence of shock if bleeding is profuse
  - Tachycardia or prolonged capillary refill time
- Source of any active bleeding
- Obstructing mass, or foreign body
- Petechiae / ecchymoses
- Lymphadenopathy and hepatomegaly / splenomegaly in the unwell child

## Differential Diagnosis / Conditions

**Local causes**

- Trauma
  - From nose picking or rubbing
    - Accounts for most cases of epistaxis in children
    - Particularly in association with inflammation caused by infection or allergy
  - Blunt external trauma
    - Generally acute and self-limiting
    - Should prompt evaluation for fractures of the facial bones, and an anterior septal haematoma

        - In infants consider Non-Accidental Injury
            - See When to suspect child maltreatment [NICE clinical guideline CG89]
- Foreign body
    - Occasional cause of epistaxis in toddlers
    - Often results in unilateral bleeding accompanied by foul-smelling or bloody discharge from the nose
- Upper respiratory tract infection and allergic rhinitis
    - Resultant rhinorrhoea leads to digital manipulation or forceful sneezing and nose blowing
    - Vascular congestion and mucosal irritation promote easy injury to the blood vessels of the anterior septum
    - Association in children of positive allergy skin tests and recurrent epistaxis
- Low environmental humidity, especially in winter months
- Deviated nasal septum
    - Can contribute to recurrent epistaxis by causing a change in normal airflow
        - Leading to mucosal drying and irritation
- Intranasal drugs
    - Topical agents that can cause nasal dryness (eg, corticosteroids, antihistamines)
    - Illicit substances (eg, cocaine)
- Neoplasms
    - Uncommon in children but should be considered in certain circumstances
    - Polyps in children are usually associated with cystic fibrosis
    - Juvenile nasopharyngeal angiofibroma
        - Benign vascular tumour originating in the lateral nasopharynx
        - Occurs only in male adolescents because of its hormonal sensitivity
        - Recurrent epistaxis is the most frequently presenting symptom
        - Unilateral progressive obstruction or discharge are clues to the diagnosis
    - Rhabdomyosarcoma of the nasal cavity or nasopharynx
        - A rare malignant cause of severe episodic epistaxis
        - May be associated with signs of eustachian tube dysfunction, such as unilateral middle ear effusion
    - Nasal haemangioma
        - Rare
        - Should be considered in infants
    - Nasopharyngeal carcinoma
        - Extremely uncommon but is a serious disease in children
        - Epistaxis is the presenting symptom in approximately 50% of children
        - Nearly always accompanied by a neck mass or neck pain

  - For unexplained bleeding or persistent unexplained neck lump, see Suspected cancer: recognition and referral [NICE guideline NG12]

**Systemic causes**

- Should be considered whenever nosebleeds are recurrent or persistent in the absence of any obvious local cause
- Haematological disorders (congenital or acquired)
  - Frequency, duration, amount, age at onset, and bilateral epistaxis
    - Used to determine which patients should be evaluated for an underlying bleeding disorder
  - Platelet disorders
  - Coagulation defects
  - Thrombocytopenia
    - Almost always accompanied by petechiae or ecchymoses
    - Idiopathic thrombocytopenic purpura
      - The most common cause of isolated thrombocytopenia in otherwise healthy children
      - Presents as acute mucosal haemorrhage, often epistaxis, in 30% of patients
      - Bleeding is rarely severe
    - Drug induced
      - Chemotherapeutic agents
      - Other drugs that result in bone marrow suppression (eg, anticonvulsants).
  - Leukaemia
    - Epistaxis is rarely the first symptom
    - Should be considered in a child who looks unwell with epistaxis
      - Especially with fever, pallor, lymphadenopathy, or hepatomegaly / splenomegaly
  - Platelet dysfunction from aspirin or NSAIDs can predispose the individual to epistaxis
  - Bernard–Soulier syndrome
    - Disorder of platelet aggregation
    - Occasional diagnosis in children evaluated for isolated epistaxis
  - Primary coagulation defects
    - May result in persistent and longstanding epistaxis
    - Positive family history is often present.
    - Up to one-third of children with isolated recurrent epistaxis have a diagnosable coagulopathy

        - von Willebrand's disease (VWD)
            - Most commonly identified inherited coagulopathy
            - 60% of patients have recurrent epistaxis
            - Other mucosal bleeding is also common in older children and adolescents
                - Menorrhagia
                - After surgery
                - After dental extraction
        - Haemophilia
            - Much less common than VWD
            - Mild deficiency of several coagulation factors may cause isolated epistaxis (Factor VII, VIII, IX, or XI)
    - Acquired coagulopathies
        - Unlike adults, rare cause of epistaxis in children
        - Include various liver diseases (eg, chronic active hepatitis) with consequent depletion of clotting factors
        - An acquired form of VWD has been described in children receiving valproic acid
- Vascular abnormalities
    - Osler–Weber–Rendu disease (hereditary haemorrhagic telangiectasia)
        - Autosomal-dominant disorder of the blood vessel walls
        - Characterised by the progressive development of cutaneous and mucosal telangiectasias
    - Juvenile angiofibroma
        - Affects adolescent boys
        - Nasopharyngeal mass may be visible when examining the oropharynx

## Investigations

To be undertaken by non-specialist practitioners (eg, General Practitioner (GP) Team) or specialist practitioners (eg, Paediatric Ear, Nose and Throat (ENT) Team):

- Full blood count
    - Always indicated in the presence of petechiae or unusual ecchymoses
    - Rules out thrombocytopenia
    - Helps to rule out leukaemia in an ill child with:
        - Pallor
        - Fever
        - Lymphadenopathy
        - Hepatomegaly / splenomegaly

- Prothrombin time and partial thromboplastin time
  - Useful as initial screening tests for VWD
    - Results may be within the normal range in some patients with VWD
    - Further evaluation with von Willebrand factor studies may be necessary

To be undertaken by specialist practitioners (eg, Paediatric ENT Team):

- Identifying the source of posterior bleeding using a flexible fibreoptic nasopharyngoscope
  - For younger children an examination under anaesthetic may be needed with nasal cautery to any obvious vessels
  - Endoscopic visualisation may also reveal such causes as foreign bodies, tumours, or sinusitis
  - In older, more co-operative patients, a flexible nasendoscopy may be used

## Treatment Approach

To be undertaken by non-specialist practitioners (eg, GP Team):

- Acute management of persistent bleeding
  - Apply pressure by pinching the nostrils without interruption for 5–10 minutes
  - The child should sit up with the head bent forward slightly
    - This minimises blood dripping posteriorly and being swallowed
    - Swallowing blood can cause nausea and haematemesis
  - To promote vasoconstriction some providers suggest placement of ice packs on the:
    - Forehead
    - Bridge of the nose
    - Nape of the neck
    - Or upper lip
  - May have to be continued by ENT team if initial measures are unsuccessful
- Long-term preventive treatment of recurrent epistaxis
  - Including evaluation and treatment of underlying causes
- Preventive measures:
  - In a dry environment
    - Normal saline nasal spray 4–5 times a day to humidify the nasal cavity
    - Home humidifier
      - Increased moisture helps to prevent the accumulation of crusts (often the impetus for nose picking) and keeps scabs soft, allowing them to stay in place longer, promoting healing

To be undertaken by specialist practitioners (eg, Paediatric ENT Team):

- Cauterisation of a posterior bleeding site can be performed under general anaesthesia
  - Posterior packing can be done with gauze or even urinary catheter balloons
    - Other types of packing include premade nasal tampons or balloons
- Once an acute episode of epistaxis has resolved:
  - Look for predisposing factors or causes
  - Implement respective preventive strategies or specific management
  - If allergic rhinitis is a factor:
    - Appropriate testing and medical management are indicated
    - Treat with inhaled topical nasal corticosteroids
  - For sinusitis, oral antibiotics are prescribed
- Management of recurrent nosebleeds
  - Common interventions for less severe cases include:
    - Cautery with silver nitrate
    - Antibiotic nasal creams
    - Nasal saline spray
    - Coating of the interior nose with ointments, such as petroleum jelly
  - Evidence for these treatments is lacking (see Cochrane review of interventions for recurrent idiopathic epistaxis in children (< 16 years); 2012)

## When to Refer

Refer urgently to specialist practitioners (eg, Emergency Department / Paediatric ENT Team(s)) if:

- Profuse, uncontrollable bleeding
- Inability to locate source of bleeding
- Posterior bleeding
- Packing is required
- Severe, persistent, or recurrent bleeding
- Retained foreign body

Escalate care to Paediatric ENT and / or Haematology Team(s) if:

- Recurrence of bleeding after initial ED intervention
- Recurrent epistaxis
- Structural lesions (eg, granulomas, tumours, polyps)
  - Abnormal coagulation laboratory profile
  - Bleeding from more than one site, based on history or physical examination
  - Bleeding that required blood transfusion or iron therapy
  - Family history of coagulopathy

### When to Admit

- Admit to hospital patients with evidence of airway compromise or haemodynamic instability on presentation

Follow-up if:

- Posterior nasal packing in place
  - Must be monitored in an intensive care unit for airway obstruction and respiratory compromise

## 'Safety Netting' Advice

- Educate parents and carers about the home management of an acute nosebleed
- Advise parents and carers to seek medical attention if bleeding persists despite first aid measures
- Advise preventative measures

## Patient / Carer Information

***Please note: whilst these resources have been developed to a high standard they may not be specific to children.***

- Nosebleed (Web page), the NHS website
- Nosebleed (epistaxis) (Web Page), Patient

## Resources

### National Clinical Guidance

When to suspect child maltreatment (Web page), NICE clinical guideline CG89, National Institute for Health and Care Excellence.

Suspected cancer: recognition and referral (Web page). NICE clinical guidance NG12. National Institute for Health and Care Excellence.

### Suggested Resources

***Please note: these resources include links to external websites. These resources may not have national accreditation and therefore PCO UK cannot guarantee the accuracy of the content.***

Epistaxis (nosebleeds) (Web page), NICE clinical knowledge summary, National Institute for Health and Care Excellence.

Burton MJ, Dorée CJ. Interventions for recurrent idiopathic epistaxis (nosebleeds) in children. Cochrane Database Syst Rev 2004;(1):CD004461. [PubMed]

Qureishi A, Burton MJ. Interventions for recurrent idiopathic epistaxis (nosebleeds) in children. Cochrane Database Syst Rev 2012 (12);9. [Cochrane Library]

Manning S, Culbertson M Jr. Epistaxis. In: Bluestone C, ed. Pediatric Otolaryngology. 4th edn. Philadelphia: Saunders; 2003: 925–931.

Sandoval C, Dong S, Visintainer P, et al. Clinical and laboratory features of 178 children with recurrent epistaxis. J Pediatr Hematol Oncol 2002;24(1):47–49. [PubMed]

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