

# Truth or Consequences from the Nose Bleed Seats

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## Disclosures

- I have no Disclosures

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## Learning Objectives

- Analyze the causes of epistaxis and discuss when further investigation is needed to identify possible bleeding disorder or to make specialty referrals
- Discuss the treatment options for common nose bleeds as well as individual treatment options
- Understand the consequences of frequent heavy nose bleeding and identify the management and follow up needed for these children

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## Prevalence

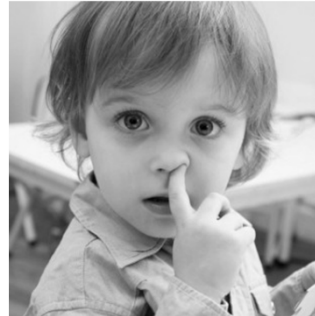
- 30 % of children under age 5 years
- 56% of children ages 6-10 years
- ½ of all adults with nose bleeds had bleeding issues as children

From: Messner, A. H. (May 2020). Causes of epistaxis in children. *Uptodate*

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## Common Causes

- Digital manipulation
- Mucosal dryness
- Trauma
- Allergic manifestations



From: Messner, A. H. (May 2020). Causes of epistaxis in children. *Uptodate*

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## When to worry

- When:
  - Daily frequency less of an issue than how long nosebleed continues
  - Worrisome when -> Lasts > 20 minutes when using proper technique
  - Unprovoked, (i.e. sitting quietly) vs. occurs after vigorous outdoor play
  - Family hx of first degree relative with bleeding issues
  - Child is < 2yrs of age or occurs with other bleeding/bruising problems
- Note: Wound healing may take 3 days for closure of initial nasal injury site. If recurs nightly, may be when child unconsciously rubs nose

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## Why worry

- Why:
  - Although rarely life threatening, nose bleeds can lead to anemia, exclusion from activities, significant parental worry
  - Early identification of underlying cause of recurrent nose bleeds can lead to better anticipatory guidance and plan for care
- Note: Positive family hx of bleeding disorder is leading indicator of possible hereditary cause

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## Differential diagnoses

### Anatomical variations

- Highly vascular structure
- Nasal mucosa offers little anatomical support for the vessels
- Any factor that increases congestion, drying or irritation of the mucosa can increase the likelihood of bleeding

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## Differential diagnoses

- Bleeding disorder
  - Inherited disorder vs. acquired and self-limiting disorder
  - Inherited disorders must be considered when the issue is recurrent, frequent, spontaneous, and prolonged or difficult to control
  - Acquired and self-limiting disorders are more likely when there is significant accompanying bruising or other bleeding as seen in autoimmune thrombocytopenia following recent viral illness
  - A reliable family history is the **best indicator** for inherited disorders

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## Differential diagnoses

- Neoplasm
  - Most common neoplasm in children is leukemia which can be a systemic cause
- Pancytopenia
  - Indicated by low WBC, Hgb and platelet count
  - This finding requires urgent referral to Hematology /Oncology center (same day referral and evaluation)

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## Diagnostic Workup

- CBC
- PT/PTT
- Factor VIII and IX activity
- Von Willebrand multimeres
  - Hematology provider will repeat and verify at standardized laboratories if referred

From: Messner, A. H. (February 2020). Evaluation of epistaxis in children. *Uptodate*

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## Interpreting the results of the workup

### CBC

- Normocytic anemia (low hgb. for age with normal MCV and low RBC) = prob blood loss issues
- Microcytic anemia (low hgb. for age with low MCV and normal RBC) = prob iron deficiency
- Microcytic anemia (low hgb. for age with low MCV and low RBC) = prob iron deficiency and blood loss issues
- Microcytic anemia (low hgb. with hi RBC and low MCV) = possible thalassemia

Note: Remember some labs may not have normal ranges for the various ages of children

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## Interpreting the results of the workup

### CBC

- Thrombocytopenia = platelet ct. < 150,000 indicates diagnosis
  - Usually minimal bleeding if platelet ct. > 50,000
  - Autoimmune thrombocytopenia very common with platelet ct. < 10,000 or active bleeding, requiring treatment and Hematology consult
- Pancytopenia = low WBC, anemia, and thrombocytopenia
  - Always requires hematology consult & evaluation before treatment
  - Differential diagnoses include:
    - Leukemia
    - Aplastic anemia,
    - Vitamin B12 deficiency

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## Interpreting the results of the workup

Coagulation studies are screening for the overall ability to make a blood clot in a test tube. There are usually no range differences for children vs. adults

- Protine (PT) – prolonged PT can be a clue to Factor VII deficiency and merits a hematology referral
- Activated Partial thromboplastin time (aPTT) – prolonged PTT can be a clue to other factor deficiencies such as Factor VIII and IX and merits a hematology referral
- Both prolonged PT and PTT need further investigation for common coagulation pathway diagnoses and merit a hematology referral

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## Interpreting the results of the workup

von Willebrand panel with multimeres

- Many labs will do this test, but it is very sensitive and can be affected by factors such as sample handling, age of child, hormone status of the child at the time of blood drawn
- The Hematology Center or other tertiary center will have a standardized lab and usually requires 2 abnormal panels from the same lab to verify the diagnosis as this is a life-long diagnosis
- Referral is merited for abnormal results

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## Hereditary Causes

- Positive family hx of bleeding
  - Von Willebrand disease Type 1

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## Hereditary Causes

- Mild Hemophilia A or B
  - Mild is > 5% factor (normal is 50-150% in most labs)
  - Moderate 1-5%
  - Severe < 1%

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## Hereditary Causes

- Rare bleeding diathesis such as Factor VII deficiency or Factor XIII deficiency

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## Possible Causes

- **Neoplasms**
  - Findings of pancytopenia requires immediate referral for diagnosis & treatment

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## Treatments-Proper nosebleed care

- Lean forward
- Pinch nose for minimum 5 minutes
- Breathe through mouth
- Suck ice or popsicle if available



**Note:** Use disposable towels or red or brown towel if available

From: Tunkel, D. E., Anne, S., Payne, S. C. et al. (2020). Clinical practice guideline: Nosebleed (epistaxis). *Otolaryngology Head and Neck Surgery*, 162, S1.

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## Common treatments for nosebleeds

### If associated with Nasal Allergies:

- Avoid exposure
  - Minimize the exposure to the known allergen to reduce the risk of inflammation
- Antihistamine use
  - Over the counter medications are fine and can reduce the stimulus that dilates vasculature which then is more fragile and easier to injure

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## Common treatments for nosebleeds

### If associated with Nasal Allergies:

- Apply ointment to moisturize nares
  - Can use any OTC product such as Vaseline or simple petroleum product or antibiotic ointment
  - Goal is to moisturize nasal opening and allow allergens to “stick” to ointment rather than travel up nasal passages and cause inflammation
  - Apply just inside nares 1-2 times a day depending on activity

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## Common treatments for nosebleeds

### If associated with Nasal Allergies:

- Digital manipulation or trauma issues
  - Focus on
    - Family education
    - health history of trauma

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## Common treatments for nosebleeds

### Anatomical issue with recurrent nasal bleeding requires:

- ENT referral for assisting with cautery
  - This can be curative in many patients
  - If bleeding continues after the procedure, then Hematology referral for coagulation work up is warranted

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## Summary

All bleeding concerns should be investigated

- If bleeding disorder identified:
  - Avoid NSAIDs which interfere with platelet aggregation and, therefore, add another element of abnormality to the clotting cascade
  - Acetaminophen products recommended for use
  - Consult provider before procedures including dentist visits to avoid prolonged bleeding after a procedure

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Thank you

Questions?

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