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Evidence-Based Urgent Care

High-Yield Clinical Education • Practical Application

CLINICAL CHALLENGES:

- What are common causes of epistaxis?
- How do the history and examination of patients presenting with epistaxis guide management?
- What are the presentation differences between anterior and posterior epistaxis?
- How is an anterior nosebleed managed?
- Which patients require emergency intervention?

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Prior to beginning this activity, see "CME Information" on page 2.

Management of Epistaxis in the Urgent Care Setting

Abstract

Epistaxis, or bleeding from the nose, is a common presentation in the urgent care setting, and it can be distressing for patients. Although most cases resolve without complicated intervention, patients may seek medical care if bleeding is severe, refractory, or recurrent. Unusual conditions that present with epistaxis can be serious; therefore, the urgent care clinician should be familiar with the wide differential diagnosis to aid in distinguishing between the benign causes of epistaxis and those that require referral to the emergency department. This review discusses the various etiologies of epistaxis, along with evaluation and management recommendations for patients with epistaxis.

EB MEDICINE

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Needs Assessment: The need for this educational activity was determined by a practice gap analysis; a survey of medical staff; review of morbidity and mortality data from the CDC, AHA, NCHS, and ACEP; and evaluation responses from prior educational activities for urgent care and emergency medicine physicians.

Target Audience: This internet enduring material is designed for physicians, physician assistants, nurse practitioners, and residents in the urgent care and family practice settings.

Goals: Upon completion of this activity, you should be able to: (1) identify areas in practice that require modification to be consistent with current evidence in order to improve competence and performance; (2) develop strategies to accurately diagnose and treat both common and critical urgent care presentations; and (3) demonstrate informed medical decision-making based on the strongest clinical evidence.

CME Objectives: Upon completion of this activity, learners should be able to: (1) review and perform a relevant history and physical examination of patients presenting with epistaxis; (2) identify sources of anterior and posterior epistaxis and how they commonly present; (3) manage an anterior nosebleed and recognize when referral to the emergency department is indicated; and (4) identify when it is appropriate to attempt anterior nasal packing.

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QUICK READ

Points & Pearls

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Management of Epistaxis in the Urgent Care Setting

Points

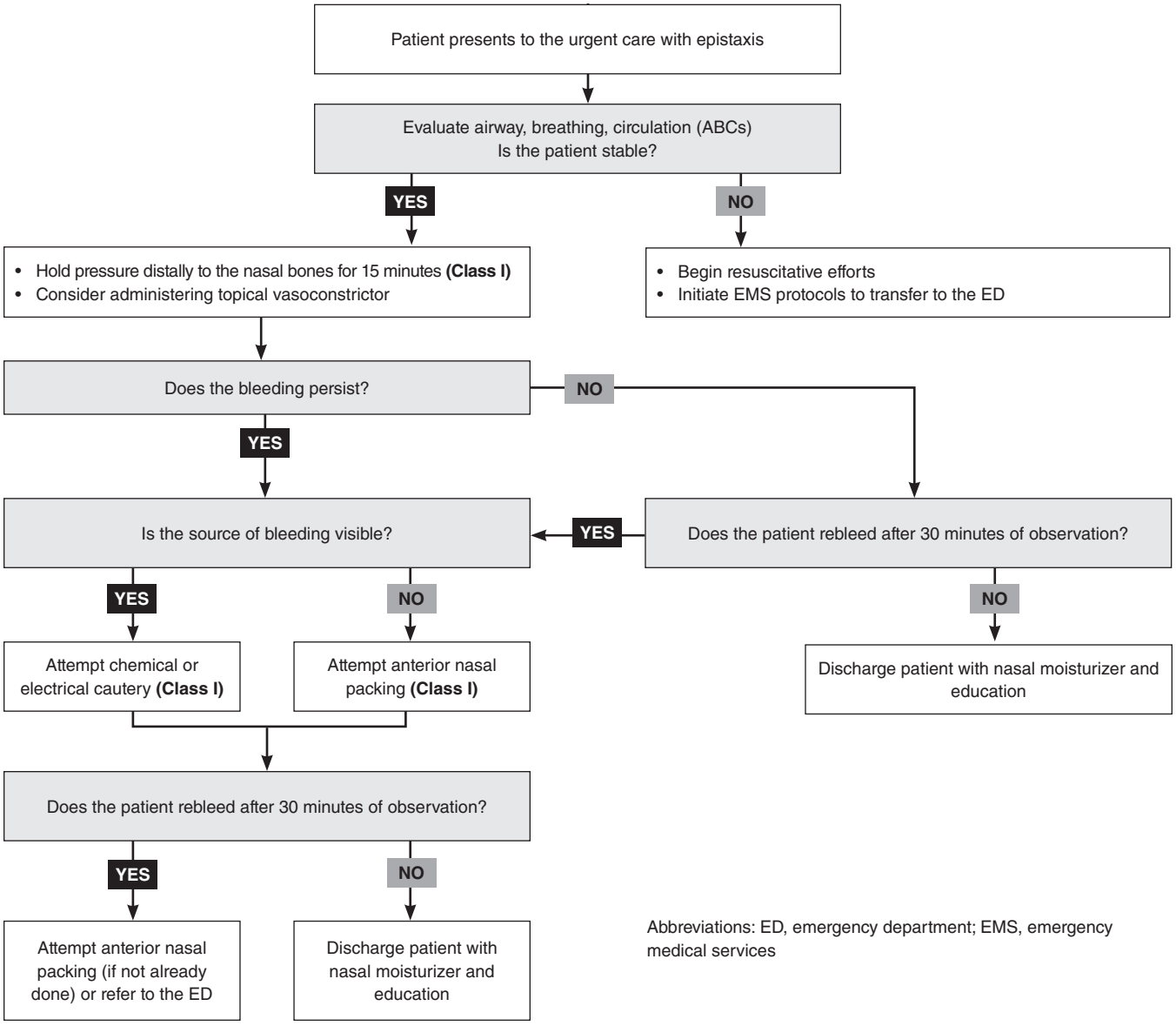
- Epistaxis is a common presenting condition in the urgent care. It is more commonly seen in patients aged <10 years or >70 years old.
- The etiology and differential diagnosis of epistaxis are very broad. Kiesselbach plexus is a common source of anterior bleeds. Trauma, digital manipulation, and foreign body are common causes of epistaxis.
- Initial evaluation begins by assessing airway compromise, hemodynamic instability, or respiratory distress, followed by determining volume of blood loss.
- The use of personal protective equipment, such as gloves, face mask, and eye protection, is recommended when evaluating patients with epistaxis. A nasal speculum and headlamp are often helpful during physical examination.
- Since clots perpetuate local bleeding via fibrinolysis, have the patient blow their nose and then apply firm compression with bidigital pressure distal to the nasal bones for 15 uninterrupted minutes. The patient should be leaning forward to avoid swallowing blood.
- Intranasal vasoconstrictors (eg, phenylephrine 0.25% or oxymetazoline 0.05%) or topical nasal decongestants can be used to control active bleeding that does not resolve with sustained pressure.
- Most epistaxis cases will resolve with conservative treatment.
- Anterior septal bleeds that can be visualized but do not respond to compression or nasal decongestants can be effectively treated with chemical or electrical cautery.
- Certain situations may predispose a patient to epistaxis: pregnancy, von Willebrand disease, hereditary hemorrhagic telangiectasias, medical anticoagulation, injury, and presence of a foreign body. Many of these cases will require advanced interventions with higher level care or management by an otolaryngology specialist.
- Only clinicians experienced with posterior nasal packing experience should attempt this procedure, as complications of nasal packing can be serious.
- Emergency department referral should be initiated if bleeding cannot be controlled in the urgent care setting or if the patient has unstable vital signs, significant head or facial trauma, concern for posterior epistaxis, or social and safety concerns of abuse.

Pearls

- Urgent care management of epistaxis begins with conservative measures and then progresses to more invasive treatments: compression, topical decongestant, chemical or electrical cautery, nasal packing (with training), and then referral to the emergency department.
- For patients with first-time nosebleeds or bleeding that resolves with pressure, there is very low utility in performing diagnostic or laboratory studies.
- Observation of patients for at least 30 minutes after initial treatment is crucial due to the risk of rebleeding.
- Viscous mucosal moisturizing agents such as saline gel and petroleum jelly are more effective than aerosolized sprays in creating a barrier for inflamed mucosal tissue to prevent further episodes of epistaxis.
- Prophylactic antibiotics are unnecessary after nasal packing placement.

Clinical Pathway for Urgent Care Management of Epistaxis

Click or scan for interactive pathway



Abbreviations: ED, emergency department; EMS, emergency medical services

Class of Evidence Definitions

Each action in the clinical pathways section of *Evidence-Based Urgent Care* receives a score based on the following definitions.

Class I
- Always acceptable, safe
- Definitely useful
- Proven in both efficacy and effectiveness

Level of Evidence:
- One or more large prospective studies are present (with rare exceptions)
- High-quality meta-analyses
- Study results consistently positive and compelling

Class II
- Safe, acceptable
- Probably useful

Level of Evidence:
- Generally higher levels of evidence
- Nonrandomized or retrospective studies: historic, cohort, or case control studies
- Less robust randomized controlled trials
- Results consistently positive

Class III
- May be acceptable
- Possibly useful
- Considered optional or alternative treatments

Level of Evidence:
- Generally lower or intermediate levels of evidence
- Case series, animal studies, consensus panels
- Occasionally positive results

Indeterminate
- Continuing area of research
- No recommendations until further research

Level of Evidence:
- Evidence not available
- Higher studies in progress
- Results inconsistent, contradictory
- Results not compelling

Case Presentations

CASE 1

A 75-year-old man who has a history of recurrent pulmonary emboli and is currently taking warfarin presents with significant bleeding from the left nostril…

- The patient states the bleeding started spontaneously earlier in the day as he was watching television. He denies any history of recurrent nosebleeds.
- He states he has not put anything in his nose such as nasal sprays, saline rinses, or his fingers. He denies any recent trauma or injury.
- It is currently summer.
- He has not missed any doses of his medications and has not been on any new medications recently. He denies any new changes to his diet.
- He attempted to hold pressure on his nose at home, which did not abate the bleeding.
- He denies light headedness or dizziness.
- You wonder if this patient should be referred to the ED…

CASE 2

A 9-year-old girl presents to urgent care with her mother due to recurrent nosebleeds…

- The patient's mother states the patient has had nosebleeds several times lately. The bleeding today was concerning to the patient's mother because this was the sixth nosebleed the patient has had in the past 2 weeks.
- The patient is typically able to resolve the bleeding on her own by holding pressure.
- The patient does not have a history of recurrent nosebleeds or any recent trauma.
- Should this patient be seen by an otolaryngologist?

CASE 3

A 1-year-old infant presents to urgent care with his mother due to a nosebleed this morning…

- The patient's mother states the patient sometimes has nosebleeds that typically self-resolve.
- The mother attributes the previous nosebleeds to dry air in the home, and she has been running a humidifier.
- The patient's mother states today the patient accidentally rolled off the couch and then started to bleed from his nose. He did not have any loss of consciousness and cried immediately.
- The patient appears irritable.
- What additional history and physical examination findings should you be looking for?

■ Introduction

Bleeding from the nose, or epistaxis, is a common presenting complaint within the urgent care and emergency department (ED) settings. Previous studies have suggested that up to 60% of the general population will experience a nosebleed at least once, and 6% will seek medical attention for it.[1-3] One in 200 ED visits are due to epistaxis. Visits for epistaxis occur more commonly during the winter.[1] Frequency of visits may be inversely correlated with levels of ambient humidity.[4] There is a bimodal age distribution, affecting children aged <10 years and adults aged 70 to 79 years more commonly. Patients aged >70 years experiencing epistaxis are 3 times more likely to seek medical attention than children.[3] Individuals aged >50 years represent 40% of epistaxis cases requiring medical attention and are also more likely to have more serious bleeds.[5] Over 90% of cases are due to bleeds from the anterior nasal circulation.[2]

■ Etiology and Pathophysiology

The nose is highly vascularized and contains multiple anastomoses from branches of the external and internal carotid arteries. **(See Figure 1 on page 6.)** Epistaxis occurs as anterior or posterior bleeding, and determining this guides management. Kiesselbach plexus is an anastomosis of numerous blood vessels and is a common source of anterior bleeds, which typically occur along the anterior nasal septum.[3] Posterior bleeds frequently arise from the sphenopalatine artery and terminal branches of the maxillary artery.[3]

Trauma to the nasal mucosa is a common identifiable cause of epistaxis, accounting for 17% of ED visits due to epistaxis.[3] Among children, the most common causes of epistaxis are digital manipulation or foreign bodies placed within the nose.[3] In adults, local trauma can be due to facial injuries, septal perforation from intranasal cocaine use, and digital manipulation.

Additionally, environmental factors are associated with increased risk of epistaxis. Several studies have

found associations between the incidence of epistaxis and atmospheric conditions such as air temperature, relative humidity, and wind speed.[6] A study in South Korea found a significant correlation with particulate matter 10, which is a measure of atmospheric pollution, and hospital presentations for epistaxis.[6]

■ Differential Diagnosis

Epistaxis is readily identifiable on physical examination or by patient history. The differential for epistaxis breaks down into anterior or posterior bleeds. Posterior bleeds predominantly occur in adults, whereas anterior bleeds can occur at any age.[3] Additionally, the underlying cause of epistaxis has a wide differential. **(See Table 1.)** Causes of epistaxis include vascular abnormalities, metabolic derangements, autoimmune disorders, drug side effects, malignancy and tumors, inflammation, hematologic disorders, atmospheric conditions, congenital abnormalities, and idiopathic causes.[3]

■ Urgent Care Evaluation

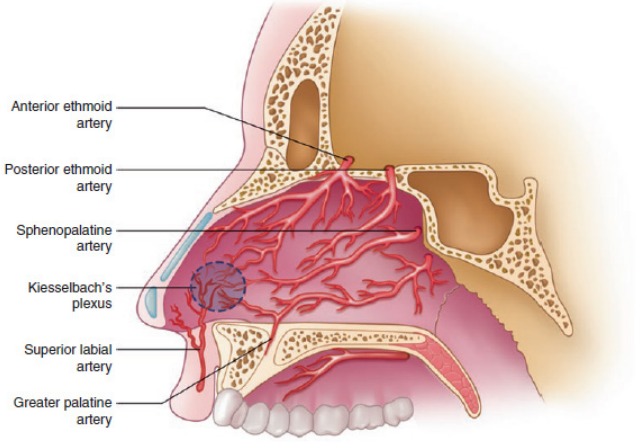
The initial priority is to assess for potentially life-threatening causes of epistaxis such as severe head injury.[3] Evaluation begins by assessing for airway compromise, hemodynamic instability, or respiratory distress.[3,7] These may occur with large volume bleeding.[7] Although life-threatening bleeding is rare, if there is concern for an unstable patient, airway, breathing, and circulation (ABCs) should be expeditiously addressed.[3] Large bore intravenous (IV) access should be obtained quickly, and the need for emergent airway management should be assessed. Immediate referral for emergency evaluation should be initiated if there is any concern for airway obstruction.

A focused history can assess any precipitating factors such as trauma or intranasal medication use. Identifying pertinent medical history (eg, bleeding disorders, cancers, or hypertension) is also important.[7,8] Reviewing current or recent medications may identify any drugs that can predispose the patient to bleeding such as anticoagulant use.[3,8] Recurrent nosebleeds without an obvious precipitating factor may be due to an underlying systemic etiology.[7]

Personal protective equipment use is recommended when evaluating patients with epistaxis.[8] The clinician should wear gloves, a face mask, eye protection, and have a nasal speculum or otoscope with an otoscope tip if a nasal speculum is unavailable.[3] A headlamp or other external light source is often necessary.

Prior to examination, the patient should attempt to clear the nasal passage of clots, which can be accomplished by blowing their nose. If clots have become hardened and difficult to dislodge, saline spray can be administered. Using a nasal speculum, examine the anterior nasal septum and the lateral

Figure 1. Vascular Supply to the Nasal Septum



Source: Mahon BM, Desai BK. (2016). Epistaxis Control. In: Ganti, L. (eds), *Atlas of Emergency Medicine Procedures*. Springer Nature, New York, NY. Used with permission.

Table 1. Etiology and Differential Diagnosis of Epistaxis

Local

Inflammatory
- Chronic sinusitis
- Rhinitis
- Granulomatous disease
- Viral illness
- Pyogenic granuloma
- Environmental irritants/ pollution/atmospheric conditions

Structural
- Septal deviation or perforation
- Congenital abnormalities
- Vascular malformation or telangiectasia

Traumatic
- Foreign body
- Nose picking
- Nasal fracture/severe head injury
- Cocaine/drug use
- Drug side effects
- Nasal oxygen or intubation
- Surgical procedure
- Intranasal steroid sprays/nasal medications

Malignancy
- Tumors
- Vascular malformations

Systemic

Hematologic
- Anticoagulants
- Coagulopathy
- Hemophilia and other blood disorders
- Thrombocytopenia
- Leukemia

Metabolic
- Vitamin deficiencies (A, C, D, E, K)
- Liver disease
- Platelet disfunction
- Hypertension
- Autoimmune disorders

Pharmacologic
- Medications: aspirin, anticoagulants, nonsteroidal anti-inflammatory drugs

Idiopathic causes

walls carefully for any evidence of active bleeding, scabs, or dry areas. If an anterior source of bleeding cannot be identified or if there is bleeding from both nares, a posterior bleed may be present. Additionally, a significant amount of blood visualized within the posterior oropharynx can also be suggestive of a posterior bleed.[3,9]

A more thorough examination may yield clues to the cause of the bleeding. Bruising of various ages, particularly in children, the elderly, and other vulnerable patient populations may suggest abuse.[10] Other areas of mucocutaneous bleeding, such as petechiae, gingival bleeding, gastrointestinal bleeding, or genitourinary bleeding, can be signs of underlying platelet disorders.

If the history is suggestive of nasal trauma, a focused examination should be performed to assess the extent of injuries. Nasal deformities or lacerations are often visualized easily.[11] Palpation may reveal step-offs (palpable abnormal depressions within the bone), crepitus, or tenderness.[11] The internal nasal passageways should be evaluated for septal hematoma or cerebrospinal fluid (CSF) rhinorrhea.[11] Septal hematoma may cause septal cartilage avascular necrosis and therefore needs to be drained immediately. If there is concern for CSF rhinorrhea, the patient will require transfer to the ED due to the possibility of more significant intracranial injury. To assess nasal drainage for possible CSF, a "halo" test can be performed. This is done by placing a sample of the nasal fluid on a piece of filter paper or a white sheet. Separation of the fluid leaving a bloody center surrounded by a halo of clear fluid can be indicative of a CSF leak.[11]

Diagnostic Studies

Uncomplicated cases of epistaxis do not require diagnostic testing. In patients on warfarin, an international normalized ratio (INR) should be obtained.[8,12] Also known as the prothrombin time test, an INR is a blood test that measures how long it takes for blood to clot. Point-of-care testing to assess the levels of anticoagulants is unlikely to be available in the urgent care setting. Patients on direct oral anticoagulants or a heparin product should have renal function, age, and weight assessed to ensure appropriate dose.[12] Patients who are on platelet inhibitors should have a complete blood count (CBC) obtained as well. If there is concern for an underlying hematological disorder, a CBC, INR, and activated partial thromboplastin time should be drawn. Imaging is unnecessary to diagnose an uncomplicated nasal fracture.[11]

Nasal radiographs have not been shown to change the management of uncomplicated nasal fractures[13] and are also susceptible to high false negative and false positive rates. In patients with complex nasal injuries or concern for additional facial fractures, a maxillofacial computed tomography (CT) scan should be done to further characterize injuries.[11] Since CT imaging is not typically available at urgent care centers, these patients should be evaluated in the ED after initial stabilization, as urgent consultation with an oral maxillofacial surgeon is often necessary.

If there is concern for CSF rhinorrhea on examination, the fluid can be tested for glucose or beta-2 transferrin.[11] These patients should be evaluated in the ED, as beta-2 transferrin testing is unlikely to be available in the urgent care setting.

Treatment

Management of epistaxis in the urgent care setting begins with conservative measures to limit bleeding, then escalates to more invasive methods to achieve hemostasis.[2] Initial treatment includes pinching the nose just distal to the nasal bones over the cartilage for 15 consecutive minutes using 2 fingers or a nasal clip.[2,8] The patient should be seated and leaning forward with the head tilted forward while doing this. If a nasal clip is unavailable, one can be fashioned using tongue depressors taped together.[2] **(See Figure 2 on page 8.)**

Anterior Epistaxis

For bleeding that persists after compressive therapy, topical nasal decongestants such as oxymetazoline or phenylephrine can be used. If available, an alpha-1A adrenoceptor agonist spray can stop bleeding due to its vasoconstricting ability and thus may avoid the need for anterior nasal packing.[14] Topical decongestants have been found to be effective and can be used in conjunction with other forms of treatment such as cautery or nasal packing. Topical treatments can be applied using sprays or by packing the nasal passage using cotton balls soaked in the decongestant or epinephrine.

If the source of bleeding is visible, epistaxis can usually be effectively treated using chemical or electrical cautery.[3,5] Cautery is more likely to be successful in treating epistaxis compared to nasal packing, with success rates up to 80%.[3,15] Cautery is also associated with lower pain scores than nasal packing.[3] Prior to cauterization, a local anesthetic is applied by soaking a cotton ball in the anesthetizing agent such as a 1% or 2% solution of lidocaine, then applying this to the area of bleeding. Aerosolized local anesthetics can also be used.[14] Chemical cautery is typically done using silver nitrate. To perform silver nitrate cautery, touch the silver nitrate-tipped applicator to the visualized source of bleeding. Electrical cauterization may have a lower failure rate compared to chemical cautery.[14] Cautery should not be performed bilaterally due to the risk of septal perforation.[3] Blind cauterization should be avoided

due to an increased risk of ulceration or destruction of the nasal septum.[14]

If cautery or conservative treatments do not control bleeding, or if the source of bleeding cannot be visualized, nasal packing can then be attempted.[3,9] Nasal packing remains a first-line approach to epistaxis, although there is emerging evidence that it is less effective and associated with higher admission rates compared to endoscopic electrocoagulation-based management of epistaxis.[5] Contraindications to nasal packing include basilar skull fractures, as well as facial and nasal bone fractures.[14] Nasal packing is frequently done using nasal tampons. There are several commercially available products that are easy to use.[3,16,17] **(See Figure 3.)** If a commercial product is unavailable, nasal packing can be done using gauze soaked in a lubricant or antibiotic ointment.[3] **(See Figure 4 on page 9.)** Dissolvable commercial nasal packs are made from carboxymethyl cellulose, which is derived from plants, or a hemostatic matrix made from gelatin and human thrombin. Nasal packs should be lubricated prior to insertion. Carefully read manufacturer directions, as the manufacturer may specify that a product needs to be soaked in saline prior to use.

Complications of nasal packing can sometimes be serious. Rarely, fatal asphyxiation can occur due to posterior dislodging of the nasal packing.[8,9] This can be prevented by affixing the nasal packing to the patient's face using adhesive tape.[8] **(See Figure 5 on page 9.)** Staphylococcal toxic shock syndrome has also been reported within the literature, although the risk is extremely low.[8,9] The risk for an anaphylactic reaction from an antibiotic is higher than the risk of toxic shock syndrome.[9] Additional adverse effects of nasal packing include pain, mucosal necrosis, eustachian tube dysfunction, and decompensation of pre-existing sleep apnea.[8] Nasal packing should be removed within 48 hours either at the urgent care or by an otolaryngologist if close follow-up can be arranged. Oral antibiotics are not recommended.

Posterior Epistaxis

If there continues to be bleeding around the nasal packing or if bleeding is seen in the posterior oropharynx after anterior packing placement, a posterior bleed should be considered. It is usually difficult to visualize the site of bleeding. If this is the case, an otolaryngologist should be urgently consulted, or the patient should be referred to the ED, as posterior bleeds are more likely to require aggressive intervention.[3]

One study had a 75% success rate in controlling posterior epistaxis using oxymetazoline spray. In this study, patients were given 4 to 6 sprays in each nostril initially and then 2 sprays every 6 hours for 1

Figure 2. Homemade Nasal Clip

Reprinted from *Annals of Emergency Medicine,* 81:2. Gottlieb M, Long B. Managing epistaxis, pp. 234-240. Copyright 2023, with permission from Elsevier.

Figure 3. Example of Commercial Nasal Pack

Source: Mahon BM, Desai BK. (2016). Epistaxis Control. In: Ganti L. (eds). *Atlas of Emergency Medicine Procedures.* Springer Nature, New York, NY. Used with permission.

to 3 days. The strength of the oxymetazoline spray was not specified in this study.[12] In posterior bleeds, surgical intervention is significantly more effective than nasal packing in controlling bleeding.[5] Posterior bleeds can be controlled by posterior nasal packing; however, this is painful, may require procedural sedation or narcotics for pain control, and should be performed by a clinician trained in this procedure. If the patient requires transfer to the ED, obtain IV access and closely monitor vital signs. Reassess the ABCs, IV fluid replacement as needed, and initiate basic life support if the patient becomes unstable.

■ Special Populations

Patients With Hypertension

An association with epistaxis in patients with hypertension is controversial. In a retrospective cohort study, patients with a history of hypertension were more likely to need ED visits and require posterior nasal packing compared to patients without hypertension.[18] This association may be due to chronic vascular damage caused by hypertension, as degenerative fibrous changes of nasal vessels have been observed in patients with hypertension.[18] However, other studies have not been able to show hypertension causes epistaxis.[8] Patients who are significantly hypertensive on presentation (≥180/120 mm Hg with repeated measurements) should have their blood pressure lowered with oral medication over a 24- to 48-hour period, if they are otherwise asymptomatic.[8]

Pregnant Patients

Epistaxis is more likely to occur in pregnancy due to increased nasal vascular congestion and altered nasal airflow. Management of the pregnant patient is similar to nonpregnant patients. Most nosebleeds resolve with external pressure. Cautery and nasal packing can be used as well.[19]

Patients With Certain Disorders

Patients presenting with a history of frequent nosebleeds or profuse bleeding episodes lasting >10 minutes may have a bleeding disorder, such as von Willebrand disease (VWD), which is the most common inherited bleeding disorder.[20] These patients often have a history of easy bruising, mucosal bleeding, heavy menstrual bleeding, and postsurgical or post-traumatic bleeding.[20] If the patient's presentation and history are suggestive of VWD, specialist referral should be made.

Hereditary hemorrhagic telangiectasias (HHT) is also a consideration.[14] HHT is an autosomal-dominant, inherited vascular disease. It is also known as Rendu-Osler-Weber syndrome.[21] HHT causes telangiectasias and arteriovenous malformations throughout the body including the gastrointestinal tract, lung, liver, brain, and mucus membranes. Spontaneous epistaxis is the most common symptom and occurs in more than 90% of patients with HHT.[21,22] It is also the leading cause of morbidity in these patients.[22] Pharmaceutical interventions may

Figure 4. Gauze Method of Nasal Packing

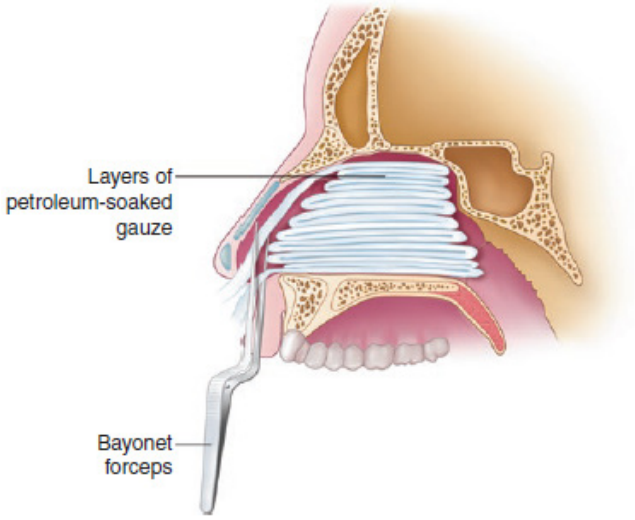


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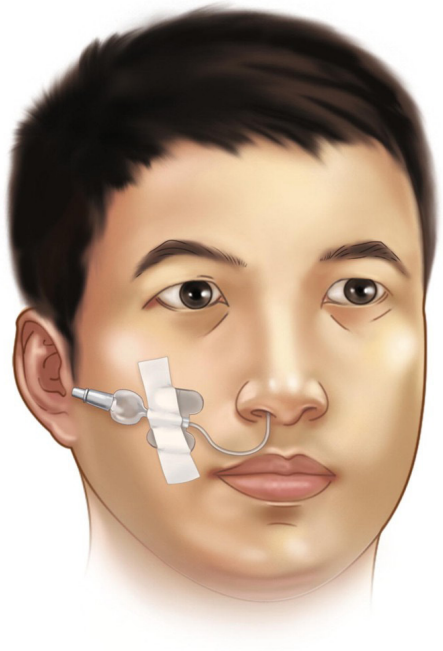
Figure 5. Nasal Packing in Place



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prevent recurrence of bleeding. One meta-analysis indicated topical propranolol gel was effective in reducing symptoms.[23] Timolol may also be effective in reducing symptoms.[21,22] The efficacy of beta-blockers in reducing recurrent epistaxis in HHT is thought to be due to a combination of factors including vasoconstriction, impairing the ability of new blood vessel formation, and reducing migration of endothelial cells.[22]

Patients Taking Anticoagulants

There are special considerations for patients taking anticoagulants. Patients who are on warfarin should have their INR checked to ensure they are within therapeutic range. Most patients on warfarin will have a therapeutic INR range of 2.0 to 3.0, although certain populations may have a higher or lower therapeutic range. For example, patients with prosthetic heart valves will typically have a therapeutic INR range of 2.5 to 3.5. Drug interactions and lifestyle changes should also be assessed, as they may alter INR levels. If INR is therapeutic and epistaxis can be self-managed, then continuing warfarin is recommended as there appears to be no increase in bleeding complications with warfarin therapy.[12] The patient's medication list should be reviewed due to potential drug interactions.

Bleeding may be more difficult to resolve in patients taking anticoagulants, and they may be more likely to need ED referral. In patients who are taking other types of anticoagulants, additional laboratory testing may be needed, which is discussed in detail under "Diagnostic Studies."

Nasal Injuries

Patients with nasal injuries can have closed reduction attempted if presentation is within a few hours. This should only be done by a clinician experienced in doing such a procedure, most likely an otolaryngologist. Closed reduction should not be attempted once edema has set in and can be deferred until follow-up with an otolaryngologist within 5 to 7 days.[11] If closed reduction is not attempted, the patient should be counseled on the use of ice and head elevation to minimize edema.

Analgesic medications should be reviewed with the patient. Antibiotics should be prescribed for open fractures. Urgent otolaryngology evaluation is indicated for delayed presentation, comminuted facial fractures, untreated septal hematoma or abscess, persistent epistaxis, nasal obstruction, or CSF leak.

Foreign Bodies

Patients presenting with nasal foreign bodies can be managed in several ways. Using positive pressure is a noninvasive way of dislodging foreign bodies. To accomplish this, the patient is instructed to occlude the nare that does not have the foreign body, then exhale as forcefully as possible with the mouth closed. If the foreign body is visualized within the anterior nare, mechanical extraction can be attempted, often with the use of hooks or forceps. Forceps may be more effective in removing soft or irregularly shaped foreign bodies, and hooks may be more effective in removing hard or spherical foreign bodies.[24]

■ Controversies/Cutting Edge

Tranexamic Acid

The use of tranexamic acid as an adjunctive therapy for epistaxis is controversial. A few studies have shown that oral tranexamic acid may reduce the risk of rebleeding compared to placebo or no treatment, and topical tranexamic acid may be more effective in controlling bleeding within the first 10 minutes after application.[23]

Prophylactic Antibiotics

The use of prophylactic antibiotics for anterior nasal packing also remains controversial.[25] One meta-analysis found the number needed to treat to prevent 1 clinically significant infection was 571.[26] One British study found no significant differences between using systemic antibiotics and topical antibiotics in patients with anterior nasal packing, in terms of symptom scores (pain, discharge, crusting).[25] If nasal packing is necessary, deferring antibiotic therapy is recommended given the lack of benefit.

■ Disposition

For anterior bleeds, the patient should be observed for 30 minutes after bleeding is controlled. If the bleeding does not restart during this time and the patient remains hemodynamically stable, they can be discharged home with primary care or otolaryngology follow-up.[8] If epistaxis does not resolve with pressure, cauterization, topical remedies, or nasal packing, the patient should be referred to the ED.[12]

If anterior nasal packing was placed, the nasal packing will eventually need to be removed unless a dissolvable pack was used. Packing removal times vary widely within the literature.[16] Some studies have shown packing removal at 12 hours to be as effective as removal at 24 hours, while other studies have reported an association between treatment failure and shorter packing durations.[14,16] Nasal packing durations beyond 3 to 5 days have not been shown to significantly impact rebleeding rates.[16]

After bleeding is controlled, preventative measures should be reviewed with the patient. These include avoiding nose picking and keeping nasal mucosa hydrated, which can be accomplished with the use of humidifiers or saline nasal gels.[12] Verbal education supplemented by written information

can significantly increase patients' recall and understanding of self-management techniques.

If there is concern for posterior epistaxis, the patient should be referred to the ED after initial resuscitation efforts due to the increased risk for severe bleeding and increased likelihood for more invasive surgical procedures such as arterial ligation or embolization.[12]

Summary

Epistaxis is common in the general population and can be divided into anterior or posterior bleeds, depending on where the bleeding originates. The source of bleeding most commonly arises from Kiesselbach plexus. Anterior bleeds make up the majority of epistaxis presentations. The first step in evaluating epistaxis is to assess ABCs. A thorough history and physical examination may provide clues to underlying conditions that may cause bleeding. An INR should be obtained in patients on warfarin. Plain radiographs for uncomplicated nasal fractures do not typically change management and have high false positive and false negative rates.

Most epistaxis cases will resolve with conservative therapies. Simple pressure just below the nasal bones can be used to control most bleeds. Topical remedies may effectively control bleeding, particularly in pediatric patients. Chemical or electrical cautery is highly effective in resolving epistaxis if the source of the bleeding is visualized. Anterior nasal packing can be an option if other forms of treatment fail or if the source of the bleeding is not visualized. Prophylactic antibiotics have not been proven to provide benefit after placing anterior nasal packing and are therefore not recommended.

Observation of patients for at least 30 minutes after initial treatment is crucial due to the risk of rebleeding. Patients should be referred to the ED if the bleeding cannot be controlled in the urgent care setting. Additional reasons for ED referral include unstable vital signs, significant head or facial trauma, concern for posterior epistaxis, or social and safety concerns that cannot be adequately addressed in an ambulatory clinic (eg, suspected child abuse).

5 Things That Will Change Your Practice

1. Progress from least invasive to more invasive methods to control bleeding.
2. If holding pressure just distal to the nasal bridge does not control bleeding, have the patient attempt to clear obstructive clots from their nasal passages and then apply topical medications such as antiseptic ointments or vasoconstrictive sprays. If the source of bleeding is visualized, cautery is preferred over packing.
3. Anticoagulation therapy should not be stopped in patients on blood thinners unless bleeding from epistaxis is considered life-threatening and hemodynamic instability is developing.
4. Antibiotics are likely unnecessary after anterior packing placement.
5. Consider otolaryngology referral in stable patients with recurrent nosebleeds due to the possibility of underlying coagulopathy or HHTs.

Risk Management Pitfalls to Avoid in the Urgent Care Management of Epistaxis

1. **"The bleeding should have stopped by now…right?"** Holding pressure continuously for 15 minutes is adequate treatment for most nosebleeds in a stable patient. Frequently, patients and clinicians do not hold pressure for long enough. When holding pressure, patients should be counseled not to tilt their head back. Instead, they should sit down, lean forward, and tilt their head forward.

2. **"Your nose is bleeding? That's all I need to know."** In the setting of recurrent nosebleeds, a detailed history and physical examination should be performed to assess for bruising or other sources of bleeding that may help determine an underlying etiology.

3. **"The bleeding stopped, so I told the patient she can go home."** Observe patients for at least 30 minutes after hemostasis is achieved, as recurrent bleeding can happen.

4. **"I didn't do a neurological examination because I was trying to get the nosebleed to stop."** In the setting of trauma, failure to do a thorough physical examination can result in the clinician missing signs of more significant trauma.

5. **"I didn't know he was on blood thinners."** If the patient is on warfarin, an INR should be obtained due to the possibility of a supratherapeutic level. For other anticoagulants, refer to the "Diagnostic Studies" section for additional testing. It is always important to review what medications the patient is currently taking, as medications can cause or predispose patients to nosebleeds.

Case Conclusions

CASE 1

For the 75-year-old man who was on warfarin for a history of recurrent pulmonary emboli and had significant bleeding from the left nostril...

The patient's INR was within his target range. The source of bleeding could not be visualized and did not resolve with pressure. Oxymetazoline spray was applied after the patient cleared clots from his nasal passages by blowing his nose. Nasal packing was then attempted, which stopped the bleeding, and he was observed for 30 minutes without recurrence of epistaxis. An ENT appointment was made for him in 2 days for re-evaluation and packing removal. This patient did not need to be directed to the ED, as the bleeding did not recur during the observation period. He was counseled on strict ED precautions should the bleeding recur after discharge from urgent care.

CASE 2

For the 9-year-old girl with recurrent nosebleeds...

The child's bleeding improved with holding pressure. The child's parents were counseled on using saline nasal spray and using a humidifier at home to help reduce recurrence. The parents and the patient were also counseled to avoid digital trauma. They were recommended to make an ENT appointment, especially if there continued to be recurrent epistaxis despite using the saline nasal spray as directed.

CASE 3

For the 1-year-old boy with repeated nosebleeds...

This infant had repeated episodes of epistaxis. On examination, his epistaxis appeared to have resolved; however, bodily bruising of various stages was noted. The child appeared to be neurologically intact and acting age appropriately. No other signs of trauma were identified on examination. The patient was sent to the ED with a representative from child protective services via ambulance due to concern for child abuse and the need for additional tests. The patient's arrival in the ED was confirmed by the provider. A child protective services report was made in urgent care.

6. **"I tried to do a posterior packing, but it just kept bleeding."** Only clinicians familiar with managing posterior bleeds and posterior packing should attempt to do posterior packing. If there is concern for a posterior bleed, the patient should be evaluated in the ED.

7. **"I thought the ED would make the Child Protective Services report."** If there is concern for abuse of a vulnerable patient, such as a child or an individual with cognitive impairment, the urgent care clinician should make a report with protective services rather than assuming it will be done by the primary care provider or ED clinician.

■ Time- and Cost-Effective Strategies

In general, less invasive methods of controlling bleeding are typically faster to perform, preferred by patients, and cost less money. One Canadian retrospective review found nasal clamps had a lower associated cost than silver nitrate, petroleum jelly, or a nasal packing sponge in the hospital treatment of anterior epistaxis.[27] In this study, the nasal packing sponge was more expensive than other nonpacking alternatives, excluding surgery.

■ Critical Appraisal of the Literature

A literature search was performed on PubMed using the search terms: *epistaxis*, *nosebleeds*, *hereditary hemorrhagic telangiectasias*, *bleeding disorders*, *nasal packing*, and *nasal trauma*. Additionally, the Cochrane Database of Systematic Reviews was also utilized using the search terms *epistaxis*, *nosebleeds*, and *nasal packing*. Excluded articles include those referencing epistaxis after nasal surgery. Abstracts and articles were reviewed. Clinical practice guidelines were reviewed from the American Academy of Otolaryngology – Head and Neck Surgery and the American Academy of Family Physicians.

The quality of studies within the literature for this topic varies widely. Most studies were conducted within the hospital, otolaryngology, or family practice settings.

References

Evidence-based medicine requires a critical appraisal of the literature based upon study methodology and number of subjects. Not all references are equally robust. The findings of a large, prospective, randomized, and blinded trial should carry more weight than a case report.

To help the reader judge the strength of each reference, pertinent information about the study, such as the type of study and the number of patients in the study is included in bold type following the references, where available. The most informative references cited in this paper, as determined by the authors, are noted by an asterisk (*) next to the number of the reference.

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KidBits: Epistaxis in Children

Epistaxis is a common pediatric problem, and it is stressful for caregivers and the children who experience it. Most cases of epistaxis in children are self-limiting and do not require medical attention; however, parents may seek urgent care treatment for their child if bleeding is severe, frequent, or takes a long time to resolve. Since most patients (93.5%) have uncomplicated anterior epistaxis, this is the primary focus of this review.[1]

■ Etiology, Pathophysiology, and Differential Diagnosis

Nosebleeds peak bimodally for children aged <10 years and in adults >70 years.[2] It is rare in children aged <2 years, and presentation in children of this age should prompt consideration of child abuse, accidental trauma, foreign bodies, and underlying systemic disease.[3] Recurrent epistaxis is less common in persons aged >14 years, and many children outgrow this problem.[4]

Epistaxis in children most often arises from the anterior part of the septum in the Kiesselbach plexus. Risk factors associated with nosebleeds include local inflammation, mucosal irritation, and digital trauma, but other conditions may cause recurrent epistaxis. **(See Table 1.)** Studies suggest that approximately 5% of pediatric patients with recurrent epistaxis may have a bleeding disorder such as von Willebrand disease or hereditary hemorrhagic telangiectasia (HHT).[5]

Table 1. Differential Diagnosis of Epistaxis in Children

Traumatic
- Digital manipulation
- Fracture or contusion of the nose
- Foreign body in the nose
- Iatrogenic (postoperative trauma or nasogastric tube)
- Child maltreatment

Hematological
- Von Willebrand disease
- Thrombocytopenia, including from hematologic malignancy
- Hemophilia A and B

Structural
- Septal perforation
- Arteriovenous malformation
- Hereditary hemorrhagic telangiectasia/Osler-Weber-Rendu disease

Drug Related
- Anticoagulants and antiplatelet drugs, including nonsteroidal anti-inflammatory drugs
- Corticosteroid nasal spray
- Solvent inhalation (huffing)

Inflammation
- Allergic rhinitis
- Chronic *Staphylococcus aureus* colonization
- Nasal vestibulitis

Neoplastic
- Juvenile nasopharyngeal angiofibroma

Environmental
- Dry cold air inhalation
- Chronic administration of dry oxygen
- Mucosal dryness

■ Urgent Care Evaluation

Initial Presentation

Although mortality is rare from epistaxis, the patient should be hemodynamically stable, have little to no airway compromise, and free from respiratory distress. Patients with large volume bleeding or bleeding that does not slow after initial attempts should be referred for emergency evaluation immediately. In these cases, IV access should be obtained quickly, and EMS transfer protocol should be initiated.

History

A focused history will identify pertinent medical conditions, current or recent medications, or recent falls or injuries. Be sure to inquire about volume and duration of the nosebleed, how it resolved, if there have been multiple episodes, or if there has been bleeding from the gums. Asking the following questions of the child and caregiver can help determine cause:

1. Have you picked your nose recently?
2. Did you put anything in your nose? Have you sprayed or dripped anything in your nose?
3. Did you have a fall or an accident? How long ago did this happen?
4. Have you had recent nasal surgery?
5. Do you have a family history of easy bruising, prolonged bleeding, or a bleeding disorder?
6. Have you had any recent surgeries or started a new medication?

Physical Examination

Physical examination of pediatric patients with epistaxis begins with an attempt to determine the location of bleeding. A nasal vasoconstrictor (eg, oxymetazoline) or antiseptic cream containing chlorhexidine hydrochloride plus neomycin sulfate can be used in children aged >6 years to minimize bleeding for examination purposes.[4,6] Topical lidocaine can be helpful in cases in which the child is in pain; occasionally, a sedative medication such as midazolam may be required for anxious or uncooperative patients.

A nasal speculum and external light source are useful tools to assess the Kiesselbach plexus,

septum, turbinates, and lateral walls. The urgent care clinician should note the location of bleeding (if it can be determined), presence of a foreign body, signs of trauma, or any unusual mass or features.

■ Diagnostic Studies

There is very little utility in performing laboratory or radiological studies in most uncomplicated pediatric cases. When cases are refractory (bleeding lasting >30 minutes) or the patient appears pale or in shock, a complete blood count and clotting studies can be obtained. In more complicated cases where additional laboratory tests need to be performed, if there is concern for a foreign body that cannot be seen on direct visualization, or if surgery is necessary, the patient should be referred to the emergency department.

■ Treatment

Over 90% of pediatric patients require nothing more than basic anterior epistaxis control. For active bleeding upon presentation, the approach is the same for adults and children. Determine the source of the bleeding first. Clots perpetuate local bleeding via fibrinolysis, and removal improves visualization of localized bleeding.[6,7] Remove clots from the nasal cavity by asking the patient to blow their nose (if age appropriate) or suctioning gently with a bulb in younger children. It is most effective to apply firm compression with manual pinching placed on the bilateral nares, below the nasal bones, for at least 5 minutes uninterrupted.[8] Have the patient bend their head forward to avoid swallowing blood.[8]

If bleeding does not stop, administration of local decongestants with vasoconstricting effects is the next step of management. **(See Table 2.)** Patients who achieve resolution of epistaxis with compression and topical agent treatment can be discharged with nasal moisturizers such as water-based saline gel or petroleum jelly.

Patients with a history of bleeding disorders or being on anticoagulant therapy require referral and consultation with hematology for appropriate management. Nonaccidental trauma or a significant underlying bleeding disorder should be foremost in mind for any child aged <2 years presenting with epistaxis. The possibility of juvenile nasopharyngeal angiofibroma in teen boys with frequent or excessive nosebleeds must not be missed.

In children with recurrent epistaxis, using antiseptic nasal cream can effectively treat and may reduce recurrence of nasal bleeding.[15] The bactericidal activity of the antiseptic nasal cream limits crusting that can lead to further bleeding. Application of a decongestant can also be helpful. Nasal cautery can be used if bleeding continues.[15]

■ Summary

Epistaxis in children is generally resolved with simple measures, although nosebleeds are concerning to parents and the child. Family education and future guidance are the most effective ways to prevent further urgent care visits.

Acknowledgement: This KidBits section was adapted from: Bansal BB, Kambala S, Nesiama J. Acute Epistaxis: A Comprehensive Overview in the Acute Care Setting. *Ped Emer Med Pract.* 2024; 21(6):1-28. Used with permission of EB Medicine.

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Table 2. Treatment Approach to Pediatric Epistaxis in Urgent Care[a]

Visualization and Compressive Therapy

- Determine the source of bleeding; remove clots if needed
- Apply firm pressure to bilateral nares with patient bent forward for 5 to 15 minutes to slow bleeding

Topical Medication Options[b]

- Oxymetazoline[9]: Safe in pediatric population
- Phenylephrine: Use low concentration (0.125%) in pediatric population
- Topical tranexamic acid: Better than other agents in stopping bleeding in the first 10 minutes[10,11]
- Aminocaprioic acid: Older agent, still useful

[a]Epistaxis that does not respond to these measures will likely require emergency department procedures (eg, cautery, nasal packing or balloon catheter, or surgical intervention).
[b]Use topical medication if bleeding does not stop.

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Epistaxis is a common presentation in urgent care, varying from minor to potentially life-threatening cases. It is typically coded under ICD-10-CM code R04.0 (Epistaxis). When coding, it is important to identify any underlying causes, such as trauma, hypertension, or coagulopathy, whenever possible. Accurate documentation is key, not only for proper reimbursement but also for reflecting the severity and complexity of the condition, which influences treatment strategies and outcomes.

Problems Addressed

For patients presenting with epistaxis, thorough documentation is essential. This should include a detailed history, including the duration, severity of bleeding, and any previous episodes. Note potential triggers such as trauma, respiratory infections, or medication use (eg, anticoagulants, antiplatelet drugs). Assess and document the patient's hemodynamic stability and evaluate for nasal obstruction or signs of serious underlying conditions, like nasal tumors or systemic disease. Additionally, a comprehensive examination of the nasal cavity, noting the bleeding site (anterior vs posterior), is important, as it impacts management decisions.

Box 1. Problems Addressed Definitions for Acute Illness*

Acute uncomplicated illness

- New or recent illness
- Little or no risk of mortality with treatment
- Low risk of morbidity with treatment
- Full recovery expected
- No functional impairment expected
- Can have systemic general symptoms (eg, body aches, fatigue)
- An illness that would usually be self-limited or minor but is not resolving as expected

Acute illness with systemic symptoms

- Systemic symptoms are present
- Systemic symptoms are not general but may be limited to a single body system
- High risk of morbidity without treatment

Undiagnosed new problem with uncertain prognosis

- No definitive diagnosis can be made during the visit
- Additional evaluation is required for diagnosis
- *Potential* for high risk of morbidity without treatment

*Based on data from: American Medical Association. *CPT® Evaluation and Management (E/M) Code and Guideline Changes.* Accessed June 10, 2024. Available at: https://www.ama-assn.org/system/files/2023-e-m-descriptors-guidelines.pdf

Based on the clinical presentation, epistaxis could range from an *acute uncomplicated illness,* to an *acute illness with systemic symptoms,* or an *undiagnosed new problem with uncertain prognosis.* **See Box 1 for definitions.**

Complexity of Data

The complexity of data reviewed in epistaxis cases may involve evaluating the patient's laboratory results, external notes reviewed, independent historian, and/or discussion of management. For patients with recurrent or severe epistaxis, it might be necessary to review coagulation studies, complete blood count, or even imaging studies (eg, a computed tomography scan of the sinuses) if structural abnormalities are suspected. Documenting the rationale for ordering these tests, the results, and their influence on the clinical decision-making process is vital. For instance, an abnormal coagulation profile might prompt adjustment of anticoagulant therapy or referral to a hematologist. This level of data review adds complexity to the encounter and should be clearly reflected in the documentation.

Risk of Patient Management

The management of epistaxis can range from conservative care to more aggressive interventions, depending on the severity. Mild cases may resolve with simple measures, while more severe instances may require nasal packing, cauterization, or surgical intervention. The decision-making process for more invasive treatments, such as packing or referral for emergency care, must be clearly documented, especially in patients with comorbidities such as uncontrolled hypertension or anticoagulant use, as these patients are at greater risk for complications. This ensures that the level of risk is accurately captured and can be appropriately coded.

Coding Challenge: Epistaxis in Urgent Care

Determine the correct service code for this urgent care presentation of epistaxis:

PRESENTATION

A 67-year-old established male patient presents to urgent care with a chief complaint of a nosebleed. The nosebleed started approximately 6 hours ago while he was sitting at home watching television. He attempted to stop the bleeding by applying pressure, but this was unsuccessful. He reports a history of previous nosebleeds, which are usually controlled with direct pressure. He denies any recent trauma or known injuries. Additionally, he reports no chest pain, dyspnea, dizziness, fatigue, recent upper respiratory infection, or headache. His medical history includes hypertension and pulmonary embolism.

Past Medical History

- Hypertension (2002)
- Pulmonary embolism (2009, 2017)

Current Medications

- Amlodipine, 5 mg once daily
- Warfarin, 5 mg once daily

Drug Allergies

- Penicillin, which causes a rash

OBJECTIVE

- BP: 131/83 mm Hg
- HR: 109 beats/min, regular
- RR: 16 breaths/min
- Temp: 98.9°F
- SpO_2: 96%
- Height: 6′ 0″
- Weight: 181 lbs
- General appearance: Alert and oriented x 3, sitting on exam table, no acute respiratory distress, holding a bloody towel to his nose

HEENT:

- PERRLA, no scleral icterus, conjunctiva without erythema
- Oropharynx clear, no erythema or exudates, and no blood in the posterior oropharynx
- TMs clear without erythema

Neck:

- Nontender cervical adenopathy bilaterally, no JVD or masses

Lungs:

- CTAB, no rales, rhonchi, or wheezing
- Heart: Tachycardic rate without murmur
- Skin: Warm and dry, good skin turgor; no rash or petechiae on the extremities

Clinic Orders:

- Point-of-care CBC is within normal limits
- Urgent referral to ENT
- Initial treatment involved holding pressure to the nose for 10 minutes, which was unsuccessful. A cotton ball saturated with oxymetazoline was then applied, and after 30 minutes, the bleeding stopped.
- I consulted his primary care provider, Dr. Williams, who will see him tomorrow for PT/INR blood work. I also spoke with Dr. Anderson (ENT), who agrees with the current treatment and will see the patient in her office tomorrow morning.

ASSESSMENT

- Epistaxis
- History of pulmonary embolism
- Long-term anticoagulant use

ASSESSMENT

We discussed the CBC results. I reinforced instructions on what to do if his symptoms return. If the bleeding recurs and he is unable to control it, he is to go to the emergency department for further evaluation. He was instructed to call with any questions or concerns. He will follow up tomorrow with both the ENT specialist and his primary care provider. He is to continue his warfarin as directed and will have blood work for PT/INR tomorrow.

What is the appropriate E/M code for this encounter?

Consider this patient encounter using a simplified Elements of Medical Decision Making table to find the appropriate level of service. **(See Box 2, page 19.)**

Abbreviations: BP, blood pressure; CBC, complete blood count; CTAB, clear to auscultation bilaterally; E/M, evaluation and management; ENT, otolaryngologist; HEENT, head, eyes, ears, nose, throat; HR, heart rate; JVD, jugular vein distention; PERRLA, pupils equal, round, and reactive to light and accommodation; POC, point of care; PT/INR; prothrombin time/international normalized ratio; RR, respiratory rate; SpO_2, peripheral capillary oxygen saturation; Temp, temperature; TM, tympanic membrane.

Number and Complexity of Problems Addressed

This 67-year-old man presents with epistaxis. While his vital signs are stable, he is tachycardic. His medical history includes 2 instances of pulmonary embolism, and he is on warfarin. Depending on the patient's presentation, this case could be classified as 1 chronic illness with exacerbation, an acute illness with systemic symptoms, or an acute uncomplicated illness. In some instances, it could be considered an acute illness that poses a threat to life or bodily function. In this scenario, the patient would likely meet the criteria for an acute uncomplicated illness, which corresponds to a Low, Level 3 for this category.

Amount and/or Complexity of Data to be Reviewed and Analyzed

The clinician consulted with both the patient's primary care physician and an otolaryngologist regarding management. This consultation meets the criteria for a Moderate, Level 4 complexity of data.

Risk of Complications and/or Morbidity or Mortality of Patient Management

The patient was not prescribed any new medications. He was advised to continue warfarin at the current dose, and an urgent referral to otolaryngology was placed. This corresponds to a Moderate, Level 4 risk of patient management.

Two of the 3 elements of medical decision making must be met or exceeded when choosing the overall level of service. Level 4 criteria were met in 2 categories (Complexity of Data and Risk of Patient Management), so the correct E/M code is **99214**.

Box 2. Simplified Elements of Medical Decision Making

MDM Level*	Problems Addressed	Complexity of Data	Risk of Patient Management	E/M Service Codes
Level 2: Straightforward	• Minor/self-limited	• Minimal/none	• Minimal risk of morbidity	• 99202 (new) • 99212 (established)
Level 3: Low	• ≥1 minor/self-limited problem • 1 stable chronic illness • 1 acute, uncomplicated illness • 1 acute, uncomplicated injury	At least 1 of these: • 2 data sources (eg, ordering or reviewing tests) • Independent historian	• Low risk of morbidity • Example: Over-the-counter medication management	• 99203 (new) • 99213 (established)
Level 4: Moderate	• ≥1 chronic illnesses with exacerbation/progression/treatment side effects • 1 acute, complicated injury • ≥2 stable chronic illnesses • 1 undiagnosed new problem • 1 acute illness with systemic symptoms	At least 1 of these: • 3 data sources (eg, ordering or reviewing tests); can include independent historian • Independent interpretation of test results • Discussion of management or test interpretation	• Moderate risk of morbidity • Examples: Prescription drug management; significant social determinants of health	• 99204 (new) • 99214 (established)
Level 5: High	• ≥1 chronic illnesses with **severe** exacerbation/progression/treatment side effects • Illness or injury that threatens life or bodily function	At least 2 of these: • 3 data sources (eg, ordering or reviewing tests); can include independent historian • Independent interpretation of test results • Discussion of management or test interpretation	• High risk/severe without emergent treatment	• 99205 (new) • 99215 (established)

*Level is determined by meeting or exceeding 2 out of 3 elements of medical decision making.
Abbreviations: E/M, evaluation and management; MDM, medical decision making.
Based on data from: American Medical Association. *Evaluation and Management (E/M) Services Guidelines.* 2023.

■ CME Questions

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1. **A 40-year-old woman is brought into urgent care by her spouse with profuse bleeding from her nose. The patient became unresponsive on the drive over to urgent care. What is your first step?**
   a. Hold pressure to the nose.
   b. Assess airway, breathing, circulation.
   c. Obtain IV access.
   d. Obtain a history from the patient's spouse.

2. **Which of the following should be done first for an anterior bleed that can be visualized?**
   a. Anterior nasal packing
   b. Chemical cautery
   c. Referral to the ED
   d. Compressive therapy (pressure over the nasal cartilage for at least 15 minutes)

3. **A 20-year-old man presents with recurrent nosebleeds. He is having active bleeding on presentation. Holding pressure and chemical cautery are attempted, but bleeding persists. What is the appropriate next step in management?**
   a. Anterior nasal packing
   b. Obtain INR
   c. Refer to an otolaryngologist
   d. Refer to the ED

4. **A 33-year-old man presents with epistaxis after being punched in the face 30 minutes ago. He has mild bruising and swelling to the bridge of the nose. Extraocular movements are intact. No additional injuries are noted. He denies any medication use. What is the appropriate next step in management?**
   a. Nasal bone x-rays
   b. INR
   c. Posterior nasal packing
   d. No further testing or treatment are needed

5. **If you are unable to control epistaxis despite holding pressure, cauterization, and anterior packing attempts, what should your next step be?**
   a. Administer tranexamic acid
   b. Obtain nasal x-rays
   c. Refer to the ED
   d. Obtain coagulation studies

6. **Which of the following should be suspected in a presentation of epistaxis in association with frequent or easy bruising?**
   a. Von Willebrand disease
   b. Changes in atmospheric conditions
   c. Digital trauma
   d. Hypertensive emergency

7. **Cauterization should not be performed bilaterally due to an increased risk of which of the following?**
   a. Infection
   b. Septal perforation
   c. Vasovagal syncope
   d. Anosmia

8. **What is a common source of anterior nosebleeds?**
   a. Sphenopalatine artery
   b. Terminal branches of the maxillary artery
   c. Kiesselbach plexus
   d. Dorsal lingual artery

9. **A 45-year-old woman presents with significant bleeding from her left nares, which started earlier in the day. She is on warfarin for a history of pulmonary emboli. Which of the following diagnostic studies should be obtained?**
   a. CBC
   b. INR
   c. Beta-2 transferrin test
   d. Serum ferritin and iron levels

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