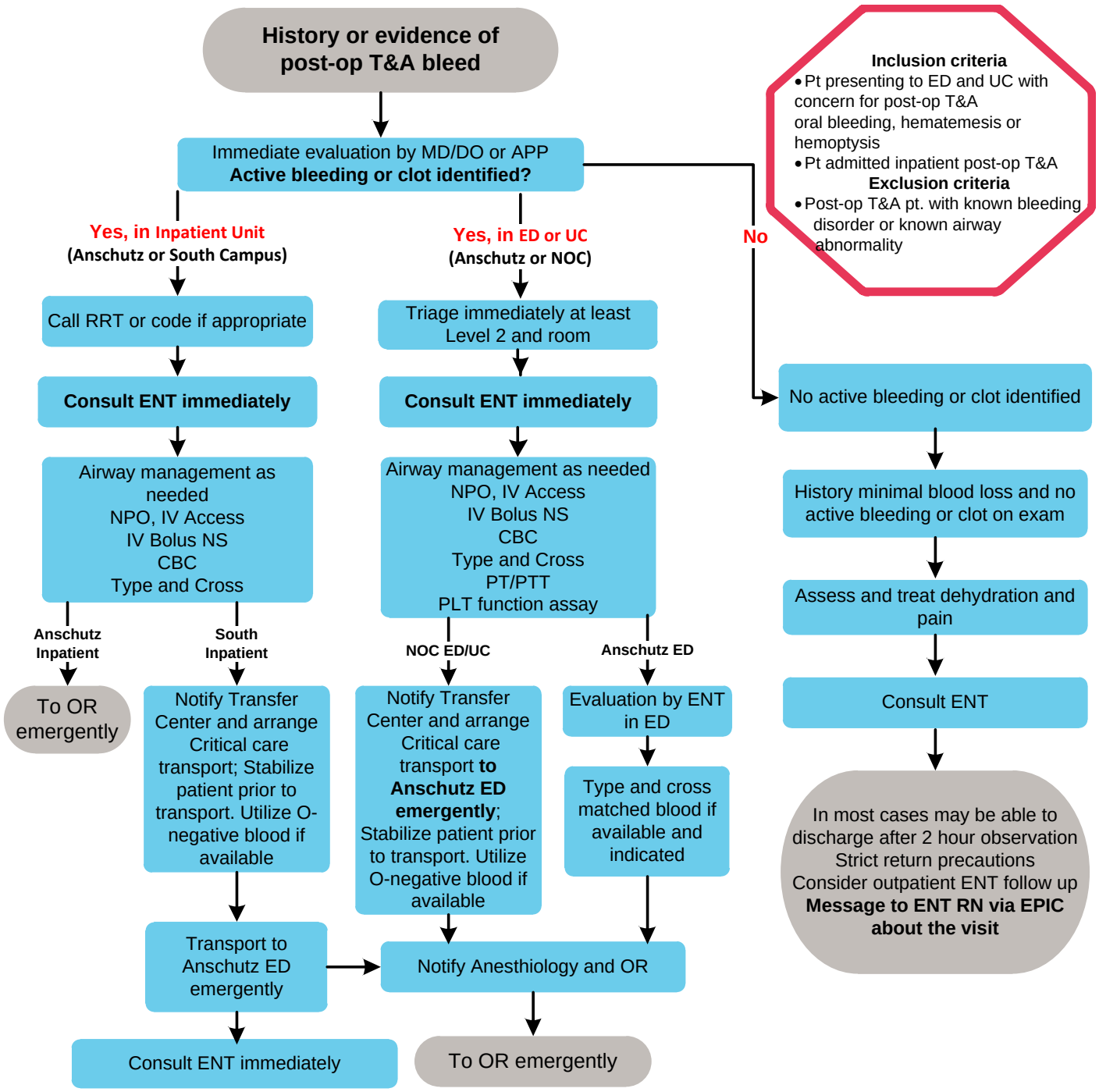
PEDIATRIC POST-OPERATIVE TONSILLECTOMY & ADENOIDECTOMY BLEED

A post-operative T&A bleed may be a true surgical emergency and require immediate ENT consultation and potential surgical intervention

ALGORITHM



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TARGET POPULATION

Inclusion Criteria

Intended for any patient who presents to ED/UC or admitted to Inpatient Unit and reports the following after a recent T&A:

- Bleeding from the mouth or nose
- Blood in vomit
- Production of bloody sputum

BACKGROUND | DEFINITIONS

The procedure to remove the tonsils is called a tonsillectomy while the excision of the adenoid is an adenoidectomy. Both procedures are often performed at the same time; hence the surgery is known as a tonsillectomy and adenoidectomy, or T&A. Tonsillectomy and/or Adenoidectomy (T&A) is one of the most common surgical procedures in the pediatric population. It is generally safe although there is an approximate 2-5% risk of post-operative bleeding which, in rare instances, can be life threatening.

Anatomy of Tonsils and Adenoid

The palatine tonsils are dense compact bodies of lymphoid tissue that are located in the lateral wall of the oropharynx, bounded by the palatoglossus muscle anteriorly and the palatopharyngeus and superior constrictor muscles posteriorly and laterally. The adenoid is a median mass of mucosa-associated lymphoid tissue situated in the roof and posterior wall of the nasopharynx. The arterial supply of the tonsils is derived from the following arteries: tonsillar, ascending pharyngeal, tonsillar branch of the facial, dorsal lingual branch of the lingual and ascending palatine branches of the facial artery. This anatomic relationship is associated with the potential for a rare but significant and potentially life-threatening post-operative T&A bleeding.

Anticipated Post-Op T & A Course

Within 24 hours a fibrin clot on the tonsillar fossae develops and by the fifth post-operative day, the fibrin clot has formed a thick layer. After approximately one week mucosa from the periphery of the wound begins to grow inward and the clot begins to separate from the underlying tissue. This process and time period correlates with the highest risk for bleeding. Complete wound healing is anticipated approximately two weeks post-op.

Common Post-Operative T & A Symptoms

- Throat pain: Duration 2 weeks
- Dehydration
- Ear pain: Duration 2 weeks
- Halitosis
- Weight loss
- Fever: low grade
- Bleeding: A very small amount of bleeding can occur between 6-8 days after surgery, when the scab sloughs off. This is typically a very small amount and stops in 2-3 minutes.

Post-Operative T & A Bleed Facts:

- Occurs in 2-5% of patients
- Primary bleed occurs less than 24 hours postoperatively
- Secondary bleed occurs greater than 24 hours postoperatively, usually 5-10 days, but seen up to 14 days
- Majority are self-limiting
- Sudden and severe hemorrhage is a known post-operative complication that may result in death.
- **Post-op T & A bleed may be a true surgical emergency and requires immediate ENT consultation and potential OR intervention.**
- Remain vigilant for an apparent small, self-limiting bleed ('heralding bleed') that precedes a larger bleed within the next 24 hours.

INITIAL EVALUATION AND CLINICAL MANAGEMENT

Inpatient Unit

- If indicated based on clinical assessment, please call a RRT or Code blue (if patient with hypotension or airway compromise). Please refer to RRT policy for details
- Proceed with initial assessment, vital signs, monitoring, initial clinical examination and patient stabilization as outlined below

Emergency Department (ED)/Urgent Care (UC) Initial Assessment

- Vital signs
- History regarding presentation
  - Document history of bleeding; timing post-surgery, quality, type and quantity
  - Hemoptysis
  - Hematemesis
  - Presence of blood on pillowcase or clothing
  - Excessive swallowing (may also be an indicator of ongoing bleeding in young children)
  - Presence of bleeding disorders or history of previous severe bleeding
- Triage ESI at least level 2
- Place in room immediately for clinical evaluation

- Keep patient upright and encourage them to spit blood into a bowl; document quantity
- Suction should be available if needed

Monitoring

- Vital signs per nursing protocol
- Cardiorespiratory monitoring for actively bleeding patients: increase VS documentation to every 5 minutes

Fluids, Electrolytes, and Nutrition

- Diet: nil per os (NPO) pending initial evaluation and plan of care
- Oral or IV rehydration based on clinical evaluation after provider assessment

Initial Clinical Examination

- Examine the patient's oropharynx for evidence of fresh and/or active bleeding or the presence of a clot
  - It is normal for the operative site to look yellow-white with some tissue sloughing after the operation
  - If active bleeding identified proceed to patient stabilization
  - Attempt to localize the source of bleeding; left or right, inferior or superior pole
- If no active bleeding is identified, look for an old bleeding point or a blood clot in the tonsillar fossae.

Patient Stabilization Post-Operative T & A Bleed

- Airway management as needed
- Rehydration - insert one large-bore IV catheters
- NPO
- IV fluid resuscitation
- Consider O-negative blood as needed (available at Anschutz, South and Parker)
- IV analgesia (no NSAIDs); titrate narcotic dose up as many patients have obstructive sleep apnea (OSA) and are at a risk for airway obstruction
- **ENT CONSULTATION:**
  - All patients who complain of fresh bleeding from the throat whether or not this has stopped when the patient arrives, and/or the presence of a clot, require ENT consultation
  - ENT will notify OR

TREATMENT

Post-Operative T & A Bleed: Presence of Active Bleeding, Clot or Hemodynamic Instability - Reference patient stabilization and algorithm

- Presence of a clot – call ENT, NPO, IV
- Consider patient to be critical if obvious bleeding and/or tachycardia hypotension
- **Use clinical judgment to consider RRT if appropriate for patients admitted to inpatient floor**
- **Must utilize critical care transport if transfer is necessary**

Potential post-operative T&A bleed - No active bleeding or clot identified

- Assess hydration and treat as indicated
- Assess pain and treat as indicated:
  - For mild to moderate pain use acetaminophen
  - For moderate to severe pain consider narcotic analgesia (oxycodone) for children ages 5 and up. Recommended dose is 0.05 mg/kg (max 5mg/dose).
  - Avoid: acetaminophen with codeine, aspirin, and NSAIDs (ibuprofen, naproxen, ketorolac).
- Consultation ENT
- Disposition decided in consultation with ENT (observation, transfer, admission or discharge)
- If discharged home, ensure adequate hydration and pain management. NOTE: Hydrogen peroxide gargles are no longer recommended for pain management.
- Strict return precautions and close monitoring for evidence of bleeding
- Consider ENT outpatient follow up as needed
- Message ENT RN via EPIC to notify of visit

LABORATORY STUDIES | IMAGING

Note: perform only if deemed necessary by ED/UC physician, hospitalist physician or ENT

- CBC
- Coagulation studies
- Type and cross
- Platelet function assay

THERAPEUTICS | PAIN MANAGEMENT

DO NOT USE:

- **Aspirin, ibuprofen** (Motrin® or Advil®), **ketorolac**, or **naproxen** (Aleve®) if there is any concern for a bleeding episode.
- **Codeine or codeine-containing products** (acetaminophen with codeine)

Discuss with ENT to determine preferred recommendations. Typically, acetaminophen and oxycodone are acceptable treatment options.

- Acetaminophen:
  - Do NOT prescribe hydrocodone/acetaminophen (Lortab®) concurrently with acetaminophen
  - 15 mg/kg/dose every 6 hours scheduled for the next 48 hours (max 650mg per dose)
  - Instruct patients/parents to dose acetaminophen based on the package information
- Oxycodone: used at a lower starting dose (than in traditional drug information resources) due to this specific patient population and the risks associated with this population.
  - 0.05 mg/kg/dose every 6 hours as needed; usual maximum dose = 5 mg

References

1. Isaacson, G. Tonsillectomy care for the pediatrician. *Pediatrics* 2012; 130:324-334.

2. Lewis, SR. *et al*. Nonsteroidal anti-inflammatory drugs and perioperative bleeding in paediatric tonsillectomy. *The Cochrane Library* 2013, Issue 7:1-86.

CLINICAL IMPROVEMENT TEAM MEMBERS

Irina Topoz, MD | Emergency Medicine
Jeremy Prager, MD | Otolaryngology
Lalit Bajaj, MD, MPH | Emergency Medicine
Kevin Poel, PharmD | Clinical Pharmacist
Kathryn Walsh, MD | Hospitalist
Sarah Nickels, PhD | Clinical Effectiveness

APPROVED BY

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APPROVED BY	 Lalit Bajaj, MD, MPH Medical Director, Clinical Effectiveness

REVIEW | REVISION SCHEDULE

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