

# Pediatric Pearls

## SRPC

Jock Murray

April 2019

# Case 1

## Sore Ear

- 9 y male

Cough and Runny nose x 1 week

Eating and drinking well

Not able to sleep due to right ear pain

T 38.6 P 100 BP 90/60 RR 16

# Case 1A



# Case 1A

## Acute Otitis Media



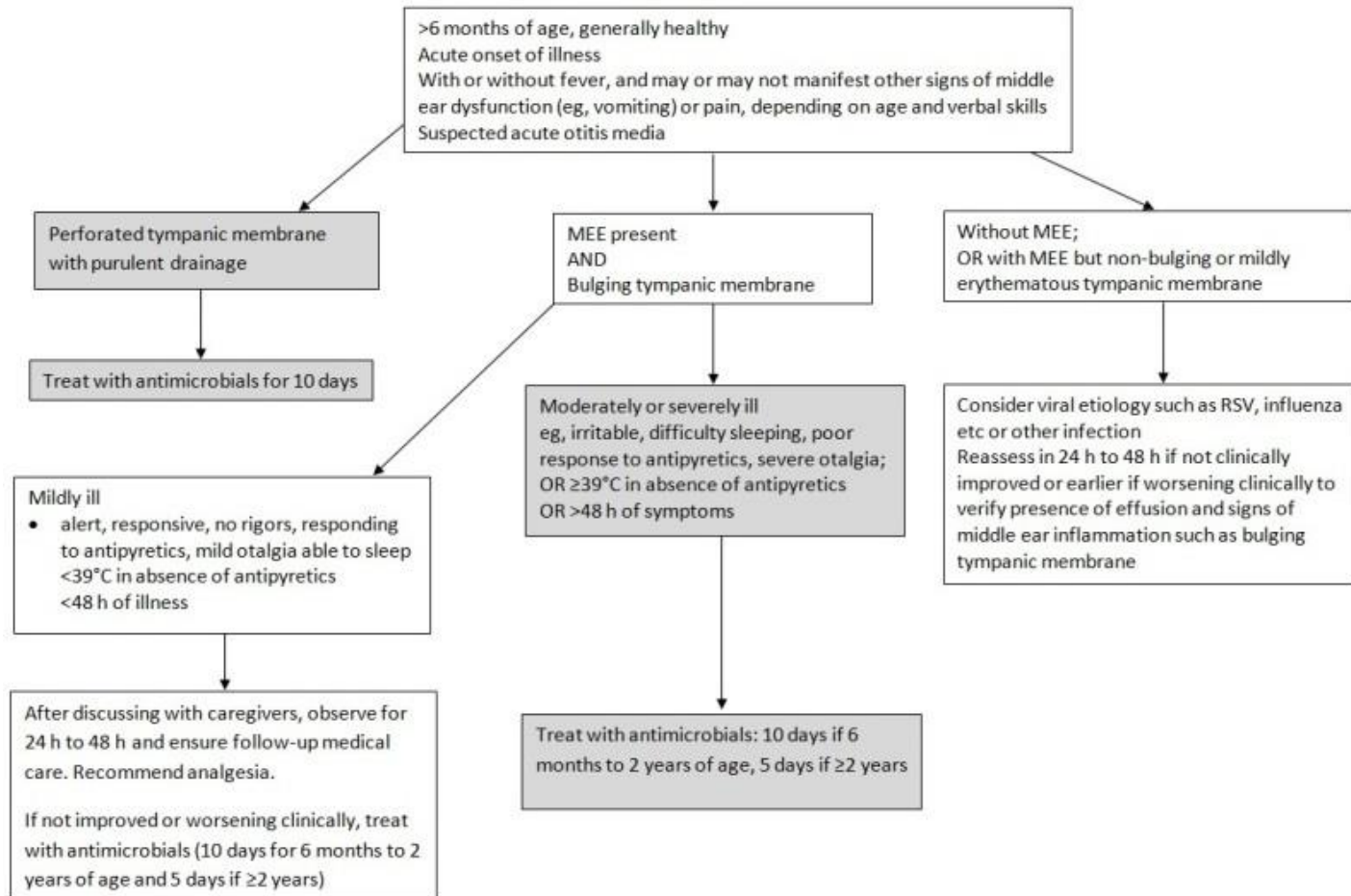
# Case 1A

- Treatment?

# Case 1A

- Treatment
  - Amoxicillin 90 mg/ Kg/24h po BID
  - Alternative Macrolide
  - Clarithromycin 15 mg/Kg/24h po BID
  - 10 days under 2years or 5 days if over 2 years
  - Pain relief
    - Acetaminophen 15mg/kg/dose q 4 h
    - or Ibuprofen 10mg/kg/dose q 6h
  - Ciprofloxacin Otic drops 2 drops BID if TM ruptured or Tube in addition to oral antibiotic

# Case 1A



In Summary, for those who took the antibiotics:

Benefits in NNT

- None had fewer serious complications
- None had less disease recurrence
- None had less pain after 24 hours
- 1 in 20 were helped (pain reduction after 24 hours-7 days)

Harms in NNT

- 1 in 9 were harmed (diarrhea)

View As: NNT %

Details for this Review

**Source:** Venekamp RP, Sanders S, Glasziou PP, Del Mar CB, Rovers MM. Antibiotics for acute otitis media in children. *Cochrane Database Syst Rev*. 2013 Jan 31;1:CD000219. doi: 10.1002/14651858.CD000219.pub3. Review. PubMed PMID: 23440776. Turck D, Bernet JP, Marx J, et al. Incidence and risk factors of oral antibiotic-associated diarrhea in an outpatient pediatric population. *J Pediatr Gastroenterol Nutr* 2003;37:22-26.

**Efficacy Endpoints:** Serious complications (mastoiditis, meningitis, hearing loss), disease recurrence, pain

**Harm Endpoints:** Adverse medication effects

**Narrative:** This review included 15 trials (n = 4199 children) of which 12 (n = 3317) compared antibiotics with placebo in patients with acute otitis media. Amoxicillin and penicillin were the most commonly used antibiotics, and the duration of therapy was typically in the range of 7 to 10 days. There was one documented case of mastoiditis in a penicillin-treated patient. Of interest to both physician and patient, 78% of patients in the placebo and treatment groups had complete recovery by 2 to 7 days, which speaks to the self-limited nature of this disease process.

Two trials compared immediate antibiotic administration with a "watchful waiting" approach, while two other trials compared it to the approach of administering a prescription to be filled if symptoms persisted beyond 48 hours. Pain scores were the same at 3 to 7 days for those patients given immediate antibiotics versus subjects allocated to the observational treatment strategies.

While adverse events like rashes and allergic reactions can be caused by antibiotic use, the most commonly reported side effect is diarrhea. The gastrointestinal harms reported in the Cochrane Review seem to substantially underestimate the true effect that antibiotics have in this regard, so harm rates are calculated using one of the best (and most widely cited) observational studies assessing the risk of antibiotic-associated diarrhea in a pediatric outpatient setting. In this prospective study, there were 650 subjects. The overall incidence of diarrhea was 11%, with a mean duration of illness of 4 days. Augmentin was the highest risk antibiotic, with an associated 23% diarrhea rate.

**Caveats:** These trials were all performed in high-income settings where complications from otitis media are relatively rare. There is limited data to guide treatment of this disease in a non-industrialized setting. The rather modest benefits realized by antibiotic usage seem to be most pronounced in those age < 2 years.

**Author:** Ashley Shreves, MD

**Published/Updated:** January 22, 2015

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# Case 1A

- NNT
- David Neuman
- NNT 20
- NNH 9
- No benefit

# Case 1A



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## Antibiotics for acute middle ear infection (acute otitis media) in children

Published:  
23 June 2015

Authors:  
Venekamp RP, Sanders SL,  
Glazidou PP, Del Mar CB, Rovers  
MM

Primary Review Group:  
Acute Respiratory Infections  
Group

See the full Review on  
the Cochrane Library

Print  
PDF  
Citation

### Review questions

This review compared 1) the clinical effectiveness and safety of antibiotics against placebo in children with an acute middle ear infection (acute otitis media (AOM)) and 2) the clinical effectiveness and safety of antibiotics against expectant observation (observational approaches in which prescriptions may or may not be provided) in children with AOM.

### Background

AOM is one of the most common infections in early infancy and childhood, causing pain and general symptoms of illness such as fever, irritability and problems feeding and sleeping. By three years of age, most children have had at least one AOM episode. Though AOM usually resolves without treatment, it is often treated with antibiotics.

### Study characteristics

The evidence in this review is current to 26 April 2015.

For the review of antibiotics against placebo we included 13 trials (3401 children aged between two months and 15 years) from high-income countries with generally low risk of bias. Three trials were performed in a general practice (GP) setting, six in an outpatient hospital setting and four in both settings.

For the review of antibiotics against expectant observation, five trials (1149 children) from high-income countries were eligible with low to moderate risk of bias. Two trials were performed in a GP setting and three in an outpatient hospital setting. Four trials (1007 children) reported outcome data that could be used for this review.

### Key results

We found that antibiotics were not very useful for most children with AOM; antibiotics did not decrease the number of children with pain at 24 hours (when 60% of children were better anyway), only slightly reduced the number of children with pain in the days following and did not reduce the number of children with late AOM recurrences and hearing loss (that can last several weeks) at three months compared with placebo. However, antibiotics did slightly reduce the number of children with perforations of the eardrum and AOM episodes in the initially uninfected ear compared with placebo. Results from an individual patient data meta-analysis including data from six high-quality trials (1643 children), which were also included as individual trials in our review, showed that antibiotics seem to be most beneficial in children younger than two years of age with infection in both ears and in children with both AOM and a discharging ear.

We found no difference between immediate antibiotics and expectant observational approaches in the number of children with pain three to seven days and 11 to 14 days after assessment. Furthermore, no differences in the number of children with hearing loss at four weeks, perforations of the eardrum and late AOM recurrences were observed between groups.

108

Who is talking about this article?



# Case 1A

- Cochrane review
- Very limited benefit for Antibiotics in
- Otitis Media

# Case 1B

- 9 y male

Cough and Runny nose x 1 week

Eating and drinking well

Not able to sleep due to right ear pain

T 38.6 P 100 BP 90/60 RR 16

# Case 1B



# Case 1B

## Serous Otitis Media



# Case 1B

- Treatment?

# Case 1B

- Treatment
  - Acetaminophen
  - Ibuprofen
  - Valsava
  - Nasal Steroid



# Case 2 A

## Sore Throat

- 12 y f
- Sore throat x 24 h still drinking
- Not SOB
- No cough
  
- T 39C P 110 BP 85/60 RR18

# Case 2A

## Sore Throat



# Case 2A

- Diagnosis?

# Case 2A

- Diagnosis
  - Step Throat

# Case 2A

## Sore Throat

Criteria	Points
Temperature >38° C	1
Absence of Cough	1
Swollen, Tender Anterior Cervical Nodes	1
Tonsillar Swelling or Exudate	1
Age	
3-14 Years	1
15-44 Years	0
45 Years or Older	-1

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Score	Risk of Streptococcal Infection <sup>8,9</sup>	Suggested Management
≤0	1%-2.5%	No Further Testing or Antibiotic
1	5%-10%	
2	11%-17%	Culture All; Antibiotics Only for Positive Culture Results
3	28%-35%	
≥4	51%-53%	Treat Empirically With Antibiotics and/or Culture

# Case 2A

- Treatment?

# Case 2A

- Treatment
  - Penecillin V 600mg po BID adult
  - Liquid not palatable
  - Amoxicillin 50mg/KG/24H
  - Acetaminophen 15mg/kg/dose
  - Ibuprofen 10mg/kg/dose

# Case 2A

The screenshot shows a web browser window displaying the American Family Physician (AFP) website. The browser's address bar shows 'aafp.org'. The website header includes the AFP logo and a search bar. Below the header, there are navigation links for 'Issues', 'AFP By Topic', 'Dept. Collections', 'CME Quiz', 'AFP Blog', and 'Favorites'. A 'Subscribe' button and 'Sign In or Join AAFP' link are also present.

The main content area features a navigation bar with '<< Previous article', 'Jul 1, 2014 Issue', and 'Next article >>'. The article title is 'Antibiotics for Sore Throat' by Jared J. Kocher, MD, and Thomas D. Selby, MD. The article is part of the 'Cochrane for Clinicians' series, with the subtitle 'PUTTING EVIDENCE INTO PRACTICE'. The article includes a 'Clinical Question', 'Evidence-Based Answer', and 'Practice Pointers' sections. The 'Evidence-Based Answer' section states that compared with placebo, antibiotics can shorten the duration of sore throat symptoms by about 16 hours and can reduce complications. The 'Practice Pointers' section notes that sore throat is commonly encountered in primary care, accounting for approximately 1.3% of outpatient visits, and is often treated with an antibiotic.

On the right side of the article, there is an advertisement for Benjamin F. Simmons III, MD, with the text 'I am the AAFP.' and a 'JOIN TODAY' button. Below the advertisement, there are sections for 'MORE IN AFP' (Editor's Collections, Upper Respiratory Tract Infections, Cochrane for Clinicians, Related Content, Pharyngitis/Sore Throat) and 'MORE IN PUBMED' (Citation, Related Articles). At the bottom right, there is a 'MOST RECENT ISSUE' section for May 1, 2017, with a 'Read the Issue' button.

At the bottom of the page, there is a small note: 'Although these data are compelling, the rates of the studies included in the review should be...'.



# Case 2A

- NNT Culture positive 3.7
- NNT culture negative 6.5
- NNT not cultures 14.4
  
- Resolution 16 hours earlier

# Case 2A

NNT - Yahoo Canada Search Results      the nnt.com      Antibiotics for Otitis Media - TheNNTTheNNT      Steroids for Pharyngitis - TheNNTTheNNT

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## Corticosteroids for Acute Pharyngitis

3 for pain relief

**In summary, for those who received the steroids:**

**Benefits in NNT**

- 1 in 3 were helped (pain improvement within 48 hours)
- None were helped (decreased recurrence)

**Harms in NNT**

- None were harmed (medication side effects)

View As: **NNT** %

**Details for this Review**   [Further References](#)

**Source:** Hayward G, Thompson MJ, Perera R, Glasziou PP, Del Mar CB, Heneghan CJ. Corticosteroids as standalone or add-on treatment for sore throat. *Cochrane Database Syst Rev.* 2012 Oct 17;10:CD008268. PMID: 23076943.

**Efficacy Endpoints:** Primary Endpoints: resolution of pain within 24 hours; resolution of pain within 48 hours; mean time to pain relief, mean time to resolution of pain Secondary Endpoints: recurrence/relapse rate

**Harm Endpoints:** Overall adverse events

**Narrative:** Sore throat is the primary complaint in roughly 12 million emergency room and primary care visits in the US annually.<sup>1</sup> Traditionally, symptomatic treatment often involves over-the-counter analgesics. Corticosteroids may provide additional benefit in reducing pain and other symptoms by inhibiting pharyngeal inflammation.<sup>4</sup>

The Cochrane review summarized here explored the efficacy and safety of steroid use in patients presenting with sore throat, defined as acute tonsillitis, pharyngitis, odynophagia or painful throat. The authors identified eight randomized controlled trials comparing antibiotics with and without corticosteroids. Overall, 743 subjects were analyzed, including 369 children and 374 adults. Of these, 330 (44%) were GABHS positive. Most trials found that steroids (prednisone 60 mg, dexamethasone up to 10 mg, or betamethasone 8 mg) shortened length of symptoms compared to placebo. Patients who received steroids had an increased likelihood of complete symptom resolution at 24 hours (39% vs. 12%), an effect that persisted at 48 hours (77% vs. 47% at 48 hours). Moreover, the addition of steroids shortened average time to pain relief by six hours and complete resolution by 14 hours.

Three studies looked at rate of recurrence and three looked at relapse, finding no statistically significant difference, while one study assessed adverse events and also found no difference.

**Caveats:** The trials included here are, in aggregate, relatively small, and compared different corticosteroids, given at different doses, using different routes of administration. Most of the trials used a single dose of dexamethasone, and in the trials that compared routes, there was no significant difference in symptoms between oral and intramuscular injection. In addition, seven of eight trials allowed but did not control for other analgesics. Antibiotics were co-administered with and without steroids, and two studies assessed the efficacy of steroids in the absence of antibiotics. As the majority of pharyngitis cases are viral in etiology and do not benefit significantly from antibiotics<sup>5</sup>, studies assessing the efficacy of steroids in the absence of antibiotics would be useful.

Finally, steroids in general are well tolerated, particularly with short term use, but there are known adverse effects such as hyperglycemia and mood changes.<sup>6</sup> While no harms were identified in this analysis, and although they may be rare, the trials included here were underpowered to detect adverse events.

Only two of the included studies focused on pediatric patients, and together yielded mixed results. In addition, there are reported cases in which steroids have masked acute leukemia in pediatric patients presenting with sore throat.<sup>7</sup> Thus, further study in children is warranted.

**Author:** Jonathan Fu, MD and Gary Green, MD

**Published/Updated:** January 25, 2015

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# Case 2A

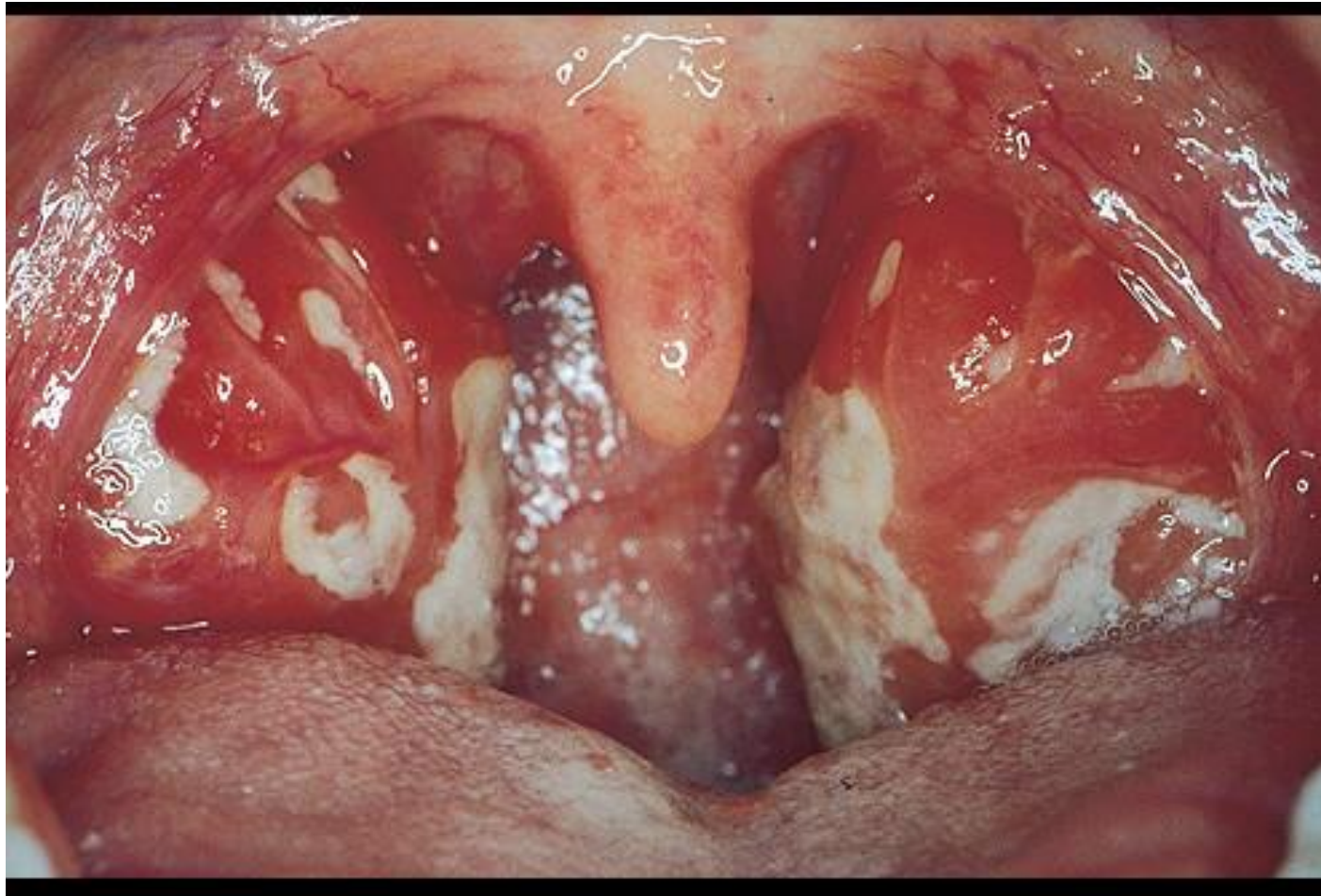
- NNT For Steroids in Pharyngitis = 3

# Case 2B

## Sore Throat

- 12 y f
- Sore throat x 24 h still drinking
- Not SOB
- No cough
- No drinking
- Severe pain
- Posterior chain adenopathy
- Hot potato voice

# Case 2B



# Case 2B

- Diagnosis

# Case 2B

- Diagnosis
  - Mononucleosis
    - Monospot or Epstein Barr Serology
- Treatment?

# Case 2B

- Diagnosis
  - Mononucleosis
    - Monospot or Epstein Barr Serology
- Treatment
  - Pain medication
  - Steroids (Dexamethasone 0.3mg/kg po) up to 16mg maximum



# Case 2B

- Disposition
- Avoid Abd trauma
- Recheck before return to sports
- Return if SOB or not drinking

# Case 2 C

## Sore Throat

- 12 y f
- Sore throat x 24 h still drinking
- Not SOB
- No cough
- Decreased Drinking looks unwell
  
- T 39C P 110 BP 85/60 RR18

# Case 2C



# Case 2 C

- Diagnosis?

# Case 2 C

- Diagnosis
  - Peritonsillar Abscess or Cellulitis
- Treatment?

# Case 2 C

- Diagnosis
  - Peritonsillar Abscess
- Treatment
  - IV Penicillin G or Clindamycin
  - IV steroids

# Case 2C

- Disposition?

# Case 2C

- Disposition
- Admit
- IV antibiotics
- Consult Otolaryngology



# Case 3D

- 07 year female
- Sore neck
- Fever
- Not drinking
- Dental caries
- Swollen anterior Neck
- T39 P 120 BP 95/60 RR22

# Case 2D





# Case 2D



# Case 3D

- Diagnosis?

# Case 3D

- Diagnosis
  - Cellulitis
  - Ludwig's Angina
- Treatment?

# Case 3D

- Ludwig's Angina Vs Cellulitis
  - Tongue raised in mouth
  - Trismus
  - Looks unwell

# Case 3D

- Diagnosis
  - Ludwig's Angina
- Treatment
  - IV antibiotics (clindamycin)
  - IV steroids
  - Consult Otolaryngology and or Oral Maxillofacial Surgery



# Case 3D

- Dispostion?

# Case 3C

- Disposition
  - Admit
  - IV antibiotics
  - Consult Oral Maxillofacial Surgery and/or Otolaryngology

# Case 4A

- 3 y male
- Cold x 3 days
- Fever, cough runny nose
- Awakes in middle of night with “barking Cough”
- T 38.5 P130 BP 90/50 RR 22
- Looks well

# Case 4A

- Differential for Stridour

# Case 4A

- Differential for Stridor
  - Croup
  - Foreign body
  - Laryngomalacia
  - Epiglottitis
  - Prevertebral abscess
  - Bacterial tracheitis

# Croup

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**Table 6: Westley Croup Scoring System**

---

<b>Stridor</b>	
None	0
Audible with stethoscope (at rest)	1
Audible without stethoscope (at rest)	2
<b>Retractions</b>	
None	0
Mild	1
Moderate	2
Severe	3
<b>Air entry</b>	
Normal	0
Decreased	1
Severely decreased	2
<b>Cyanosis</b>	
None	0
With agitation	1
At rest	2
<b>Level of consciousness</b>	
Normal	0
Altered	5

*Reprinted with permission from: Westley CR, Cotton EK, Brooks JG. Nebulized racemic epinephrine by IPPB for the treatment of croup. Am J Dis Child 1978;132:484-487.*

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# Case 4A

## Steeple Sign



# Case 4A





# Case 4A

- Croup

# Case 4A

- Treatment?
- Disposition?

# Case 4A

- Treatment?
- Dexamethasone 0.15-0.6 mg / Kg up to 12 mg
- Racemic Epinephrine 0.5mg mg nebulized

# Case 4A

- Dispositi
- Observe
- If requiri

## Croup

- Layngotracheobronchitis
  - Parainfluenza Virus 75 %
    - Parainfluenza
    - Influenza
    - RSV
    - Adenovirus
  - Age 6 months- 3 years
  - Male>Female
  - Winter months

ie

# Croup

## Croup

- Laryngotracheobronchitis
  - Parainfluenza Virus 75 %
    - Parainfluenza
    - Influenza
    - RSV
    - Adenovirus
  - Age 6 months- 3 years
  - Male>Female
  - Winter months

# Croup

- Fever
- Rhinorrhea
- Nasal Congestion
- Barking Cough
- Stridor
- Respiratory Distress
- Worse at night

# Case 4B

- Leave child with parent
- Portable lateral neck
- Call for help Otolaryngology and Anesthesia
- Avoid IV or other distressing interventions if possible

# Case 4B

- 3 y male
- Cold x 3 days
- Fever, cough runny nose
- Awakes in middle of night with “barking Cough”
- T 38.5 P130 BP 90/50 RR 22
- Looks unwell sitting forward and drooling
- Not drinking



# Case 4B

- Differential?

# Case 4B

- Differential?
- Croup
- Epiglottitis
- Tracheomalacia
- Prevertebral abscess
- Bacterial tracheitis

# Case 4B

- Approach?

# Croup

- Gradual onset of cold
- Mild fever, hoarseness, barking cough
- Sudden Stridor
- Dyspnea and Tachypnea

# Case 4B

- IV antibiotics if IV access
- IV Steroids if IV access

# Case 4B



# Case 4C

- 5 year Male
- Sore throat
- Fever
- Stridor
- Drooling not drinking
- T 39C P120 BP 95/60 RR24

Looks unwell

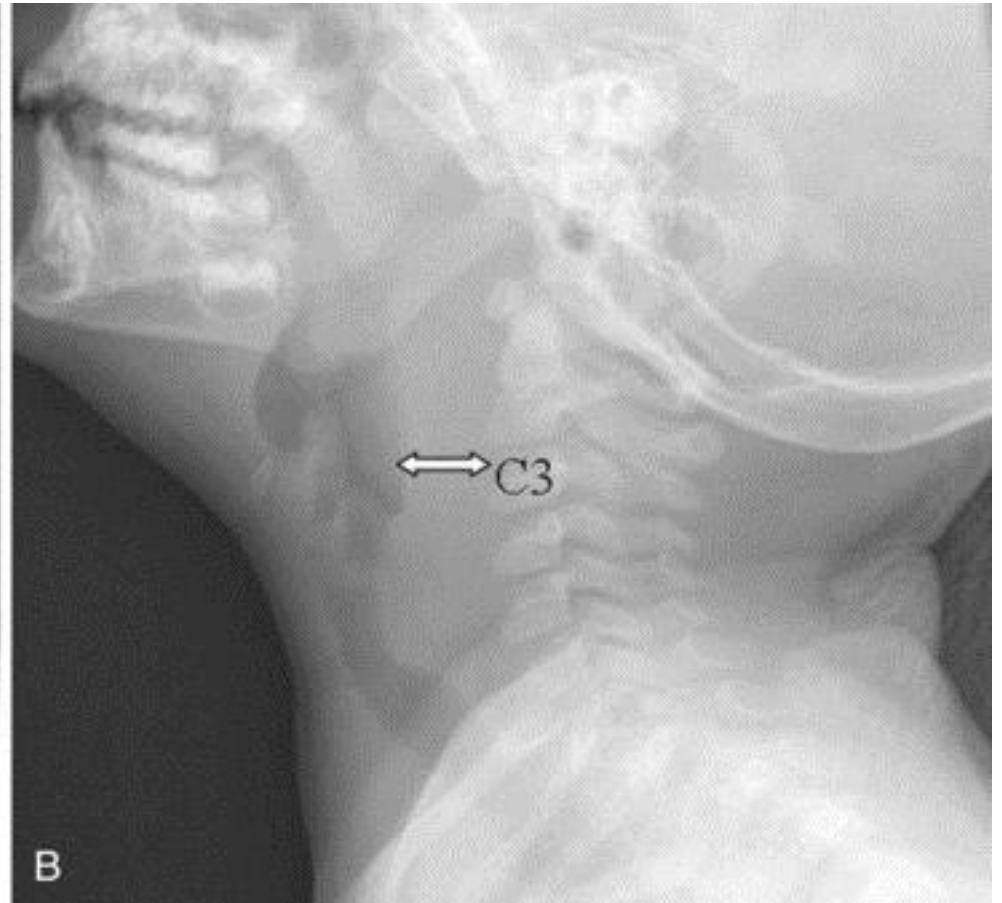
RESP no wheeze

# Case 4C





# Case 4C



# Case 4C

- Diagnosis?

# Case 4C

- Diagnosis
  - Retropharyngeal Abscess
- Treatment?

# Case 4C

- Diagnosis
  - Retorpharngeal Abcess
- Treatment
- Same approach as Epiglottitis

# Retropharyngeal Abscess

- Similar to Epiglottitis
- No Stridor
- Gradual onset
- Fever drooling
- Tripod position
- Respiratory Distress

# Retropharyngeal Abscess

- Presentation
- Same as epiglottitis
- Problem is posterior no anterior

# Case 4C

- Diagnosis
  - Retropharyngeal abscess
  - Leave with parent
  - Avoid IV
  - Otolaryngology and Anesthesia

# Case 4D

- 9 year male
- Cough runny nose x 1 week
- Fever
- Increased work of breathing
- Drooling – not drinking
- T39 C P 130 BP 95/60 RR 40
- Noisy breathing +/- stridor
- RESP no wheeze



# Case 4D



# Case 4D

- Diagnosis?

# Case 4D

- Diagnosis
  - Bacterial Tracheitis
- Treatment?

# Case 4D

- Diagnosis
  - Bacterial Tracheitis
- Treatment?

# Case 4D

- Diagnosis
  - Bacterial Tracheitis
- Treatment?
- Same as Epiglottitis and Retropharyngeal Abscess

# Case 4D



# CASE B,C and D

- Epiglottitis, Retropharyngeal abscess and Bacterial Tracheitis
  - if child is mordibund
    - then take control of airway
  - If child is mildly symptomatic
    - IV Antibiotics Clindamycin or Ceftriaxone if IV
    - Dexamethasone 0.3mg iv if IV
    - Consult Otolaryngology (immediately) and admit
  - If the child is distressed then limit intervention

# Case 5

- 10 y M
- 2 days post tonsilectomy
- Spitting up spots of blood
  
- Looks well
- T 36 P 100 BP 100/60 RR 18
- HEENT post surgical changes (white film)



# Case 5

- Diagnosis?

# Case 5

- Diagnosis
  - Post tonsilectomy Bleed
  - Treatment?

# Case 5

- Diagnosis
  - Post Tonsilectomy bleed
- Treatment
  - IV
  - Cross Match
  - Consult Otolaryngology

# Pediatric Airway

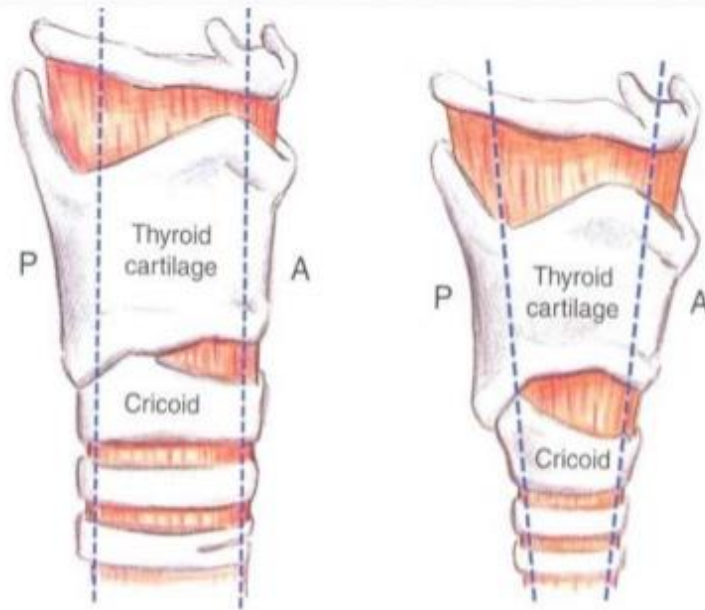
- Passive Flexion due to Large occiput
- Relatively large tongue
- Relatively large adenoids
- Floppy Epiglottitis
- Anterior Larynx

# Pediatric Airway

- Cricoid ring is the smallest diameter
- Narrow Tracheal diameter
- Short distance between tracheal rings
- Cartilage is more flexible
- Trachea is relatively short
- Narrow large airways

# Pediatric Airway

## The Pediatric Airway



# Pediatric Airway

- History
  - acute or gradual onset
  - Fever
  - Drooling
  - Voice changes
  - Difficulty swallowing
  - Cold Symptoms
  - Past Medical History

# Pediatric Airway

- Physical Exam
  - Appearance
    - Alertness
    - Muscle tone
    - Ability to cry or speak
  - Work of Breathing



# Pediatric Airway

- Circulation

- Pallor
- Cyanosis
- Mottling
- Cap Refill

- <http://youtu.be/Ksl7Z3iwyL8>

# Pediatric Airway

<https://youtu.be/-4OhWQ8Ppko>

# Pediatric Airway

- Respiratory Status
- Respiratory Rate
  - Newborn 30-60
  - 6 months 25-35
  - 1-3 years 20-30
  - 4-6 years 18-26
  - Adolescents 12-18

# Pediatric Airway

- Signs of Respiratory Distress
  - Increased Work of Breathing
    - Retractions
    - Nasal Flaring
    - Grunting
    - Head Bobbing

# Pediatric Airway

- Signs of Respiratory Distress
  - Altered Mental Status
    - Agitation
    - Irritability
    - Lethargy
    - Coma

# Pediatric Airway

- Signs of Respiratory Distress
  - Colour
    - Cyanosis
    - Pallor
  - Position
    - Sniffing position
    - Tripod position

# Pediatric Airway

- Signs of Respiratory Distress
  - Auscultation
    - Snoring
    - Stridor
    - Grunting
    - Wheezing (Rhonchi)
    - Rales(Crackles)

# Pediatric Airway

- Practical Points
- Anatomical differences
- Appearance is important
- Signs of Respiratory Distress
  - Increased Work of Breathing
  - Color
  - Position
  - Auscultation



# Pediatric Airway

- Upper Airway disease
  - Croup
  - Foreign Body
  - Epiglottitis
  - Bacterial Tracheitis
  - Retropharyngeal Abscess

# Pediatric Airway

- Lower Airway Disease
  - Pneumonia
  - Asthma
  - Foreign Body
  - Bronchiolitis

**Table 5: Comparison Of Infectious Upper Airway Emergencies**

	<b>Average Age</b>	<b>Common Etiology</b>	<b>Medications</b>
<b>Croup</b>	Six months to six years	Parainfluenzae	Dexamethasone +/- racemic epinephrine
<b>Bacterial Tracheitis</b>	Four to six years	S. aureus	Antibiotics IV
<b>RPA*</b>	Three years	GABHS#, S. aureus, anaerobes	Antibiotics IV
<b>PTA^</b>	Adolescence	GABHS#	Antibiotics PO vs. IV
<b>Epiglottitis</b>	Two to eight years	H. influenzae, Staphylococci, Streptococcus species	Antibiotics IV

\* Retropharyngeal abscess ^Peritonsillar abscess #Group A beta-hemolytic streptococcus

# Pediatric Airway

**TABLE 25-1 -- Differential diagnosis of upper airway infections in children**

	<b>Laryngotracheitis (viral croup)</b>	<b>Supraglottitis (epiglottitis)</b>	<b>Bacterial tracheitis</b>	<b>Retropharyngeal abscess</b>
Prodrome	URI symptoms	None or mild URI	URI symptoms	URI symptoms
Onset	Slow	Rapid	Rapid	Slow
Age	6 months–3 years	1–8 years	6 months–8 years	1–5 years
Fever	Variable or none	High	Usually high	Usually high
Hoarseness/barky cough	Yes	No	Yes	No
Dysphagia	No	Yes	Yes	Yes
Toxic appearance	No	Yes	Yes	Variable

URI— respiratory infection.

# Case 6

- 6 month old Male assessment He has 48 hours of fever  $>38.5^{\circ}\text{C}$ . There are no other symptoms and he looks well. The exam is normal. He has a unremarkable birth history and the clinical course to date. After careful history and Physical what what tests would you order or perform?
- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture

# Case 6B

A six week old infant female is brought to the ED by her parents. There is a fever of 38.5 C. Delivery was unremarkable. The infant was well until 48 hours ago. There are no other symptoms. After careful history and physical what tests would you order or perform?

- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture

# Case 6C

- A 24 day old male infant is brought to your ED by parents. He has had 24 hours of fever 38.5 C. The birth history is unremarkable. He looks well. After careful history and Physical. What tests would order or perform?
- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture

# Rochester Criteria VS Philadelphia protocol

**Reappraisal of Criteria Used to Predict Serious Bacterial  
Illness in Febrile Infants Less than 8 Weeks of Age**

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Gregory Garra, DO, Sandra J. Cunningham, MD, Ellen F. Crain, MD, PhD



- Both have been studied extensively
- Enable clinicians to identify young infants who do not need antibiotics or hospitalisation.
- Widely used in pediatric emergency departments.

**TABLE 1. The Rochester Criteria and the Philadelphia Protocol Low-risk Criteria**

Rochester Criteria	Philadelphia Protocol
Infant appears generally well	Infants >28 days old
Infant has been previously well	Infant Observation Score $\leq 10$ (range, 5 to 30)
Born at term ( $\geq 37$ weeks' gestation)	No recognizable bacterial infection on exam
Did not receive perinatal antimicrobial therapy	Laboratory values
Was not treated for unexplained hyperbilirubinemia	WBCs $< 15,000/\text{mm}^3$
Has not received and was not receiving antimicrobial agents	Band-to-neutrophil ratio $< 0.2$
Had not been previously hospitalized	WBCs $< 10/\text{mm}^3$ and few bacteria per high-power field on microscopic exam of spun urine
Had no chronic or underlying illness	WBCs $< 8/\text{mm}^3$ and a negative Gram stain in a nonbloody CSF specimen
Was not hospitalized longer than mother	No evidence of a discrete infiltrate on chest radiograph as determined by an attending physician
No evidence of skin, soft tissue, bone, joint, or ear infection	Stool smear negative for blood <i>and</i> few or no WBCs (for infants with diarrhea)
Laboratory values	
WBCs 5,000 to 15,000/ $\text{mm}^3$	
Absolute band count $\leq 1,500/\text{mm}^3$	
$\leq 10$ WBCs per high-power field on microscopic exam of spun urine	
$\leq 5$ WBCs per high-power field on microscopic exam of a stool smear (for infants with diarrhea)	

WBC = white blood cell; CSF = cerebrospinal fluid.

# Rochester vs. Philadelphia

- Main difference: No LP vs. LP
- Philadelphia specifies  $> 28$  days of age
- Rochester not specific to  $> 28$  days (but generally not used for under 28 days of age)

# Questions and Case 6A

- 6 month old Male assessment He has 48 hours of fever  $>38.5^{\circ}\text{C}$ . There are no other symptoms and he looks well. The exam is normal. He has a unremarkable birth history and the clinical course to date. After careful history and Physical what what tests would you order or perform?
- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture

# Questions and Answers 6A

- 6 month old Male assessment He has 48 hours of fever  $>38.5^{\circ}\text{C}$ . There are no other symptoms and he looks well. The exam is normal. He has a unremarkable birth history and the clinical course to date. After careful history and Physical what test would you order or perform?
- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- **D. Urine Culture**

# Questions and Case 6B

A six week old infant female is brought to the ED by her parents. Delivery was unremarkable. The infant was well until 48 hours ago. There are no other symptoms. After careful history and physical what would you order or do.?

- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture

# Questions and Answers Case 6B

A six week old infant female is brought to the ED by her parents. There is a fever of 38.5 C. Delivery was unremarkable. The infant was well until 48 hours ago. There are no other symptoms. After careful history and physical what would you order or do.?

- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture

# Questions and Case 6C

- A 24 day old male infant is brought to your ED by parents. He has had 24 hours of fever 38.5 C. The birth history is unremarkable. He looks well. After careful history and Physical. What tests would order or perform?
- A. CBC, Blood cultures and urine culture
- B. Lumbar puncture, CBC, Blood cultures and Urine culture.
- C. CBC
- D. Urine Culture



# Questions and Answers 6C

- A 24 day old male infant is brought to your ED by parents. He has had 24 hours of fever 38.5 C. The birth history is unremarkable. He looks well. After careful history and Physical. What tests would order or perform?
- A. CBC, Blood cultures and urine culture
- **B. Lumbar puncture, CBC, Blood cultures and Urine culture.**
- C. CBC
- D. Urine Culture
-

# Bottom Line

- Rely on Clinical acumen and Rochester criteria
- Philadelphia criteria not better and requires a LP (as does Boston Criteria).

# Case 7

- 6 year male presents with wheezing and known Asthma.
- HR 140 BP 90/60 RR48 O2 sat 88%
- Exam reveal moderate wheezing and intercostal indrawing.
- How do we assess how sick he is?
- How do we treat him?
- How do we decide if he is admitted?
- Does he need a CXR?

# Case 7

## Reliable Validated Measures of Pediatric Asthma

### Emergent & Urgent Care Asthma Clinical Score (PRAM)\*

Signs	0	1	2	3
Suprasternal Indrawing	absent		present	
Scalene Retractions	absent		present	
Wheezing	absent	expiratory only	inspiratory and expiratory	audible without stethoscope/ silent chest with minimal air entry
Air entry	normal	decreased at bases	widespread decrease	absent/ minimal
Oxygen saturation on room air	> 93%	90% - 93%	< 90%	

Severity Classification	PRAM CLINICAL Score
Mild	0 - 4
Moderate	5 - 8
Severe	9 - 12
Impending Respiratory Failure	12+ following lethargy, cyanosis, decreasing respiratory effort, and/or rising pCO <sub>2</sub>

\*Modified to adjust for higher altitude

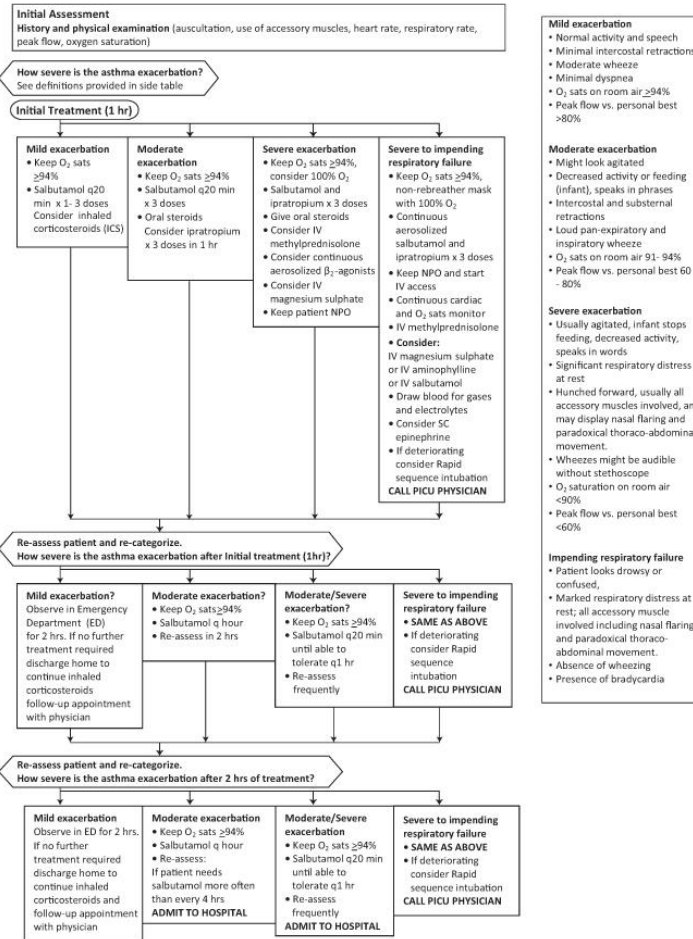
JUNE 2008

Chalut D, Ducharme F, Davis G. *Journal of Pediatrics* 2000;137:762-768

# CASE 7

- Salbutamol 100Ug via Inhaler and Aerochamber back to back x 3
- Ipratropium Bromide 17 ug 5puffs Q15 min x 3 over 1 hour
- Dexamthasone 0.3 mg/kg po
- Mg+ if being admitted 25-50mg/ kg over 20minutes maximun 2g .

# Case 7



# Case 7

- Discharge when wheezing and increased Work of Breathing (WOB) does not recur with no salbutamol for 2 hours.
- If needing salbutamol less than q2h then admit

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