





# Paediatrics: Respiratory Disease

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- \* What do you see?
- \* What are you going to do first?
- \* Priorities?
- \* What are you going to do next?
- \* What respiratory diseases are there?

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# Contents

- \* Initial Approach

- \* Upper Respiratory Illness

  - \* Throat

  - \* Ear

  - \* Stridor

- \* Lower Airways

  - \* Bronchiolitis

  - \* Asthma

- \* Lungs

  - \* Pneumonia

  - \* Cardiac







# Introduction

Common 30-40% admissions

167 Deaths in 2002

Think of non-respiratory causes  
(DKA, CNS, poisoning, cardiac.  
shock)





# Upper Respiratory

- \* Foreign Bodies
- \* Tonsillitis
- \* Otitis Media & Externa
- \* Croup
- \* Epiglottitis







# Foreign Bodies

Toddlers

Sudden onset stridor, ?small toys

Recurrent chest infections

CXR

May need bronchoscopy



# Foreign Bodies

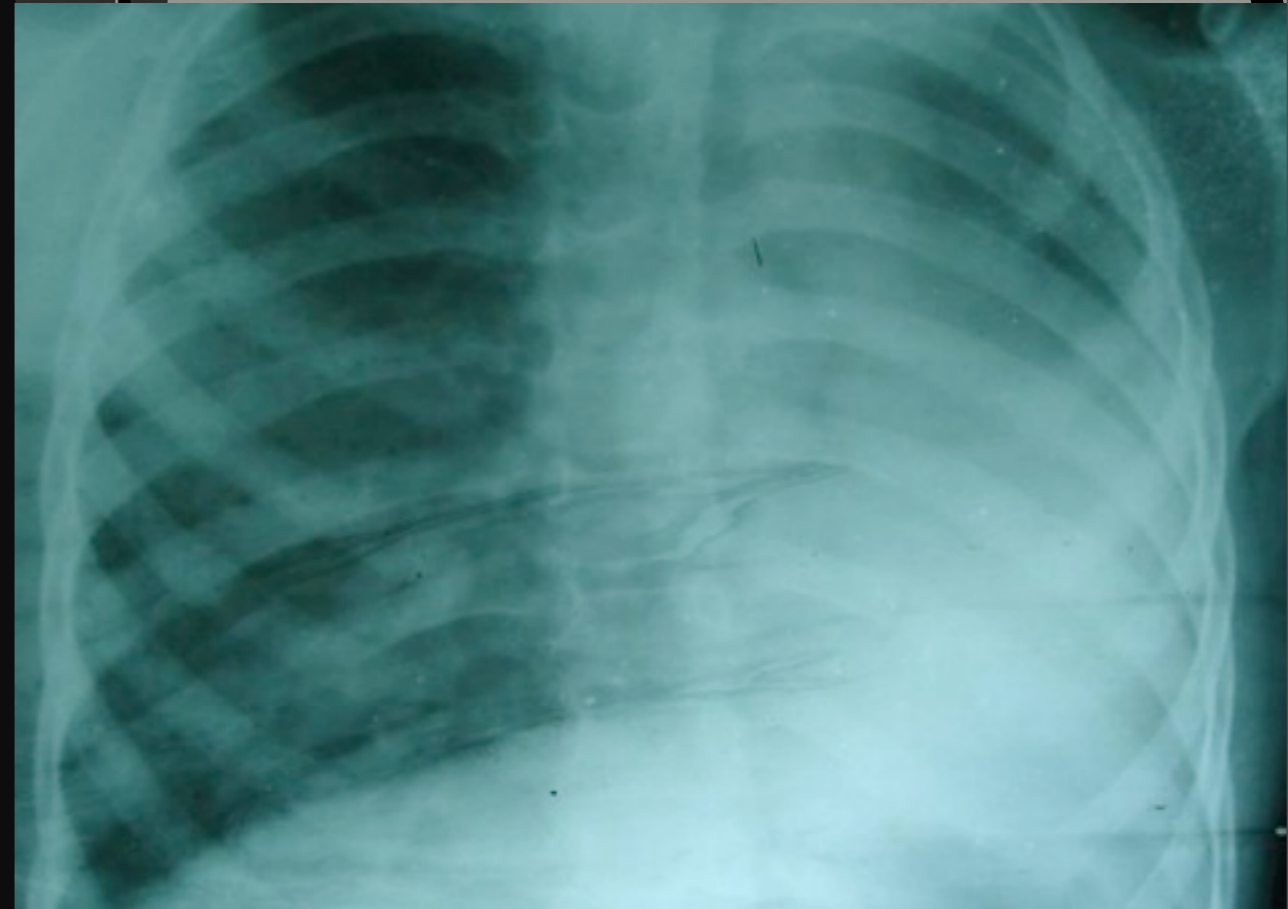
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# Foreign Bodies

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CXR

May need bronchoscopy

ID No. :  
Sex : Age :  
D.O.Birth :  
23/09/2006  
10:46:11  
SCV-----11

Name :



Comment :

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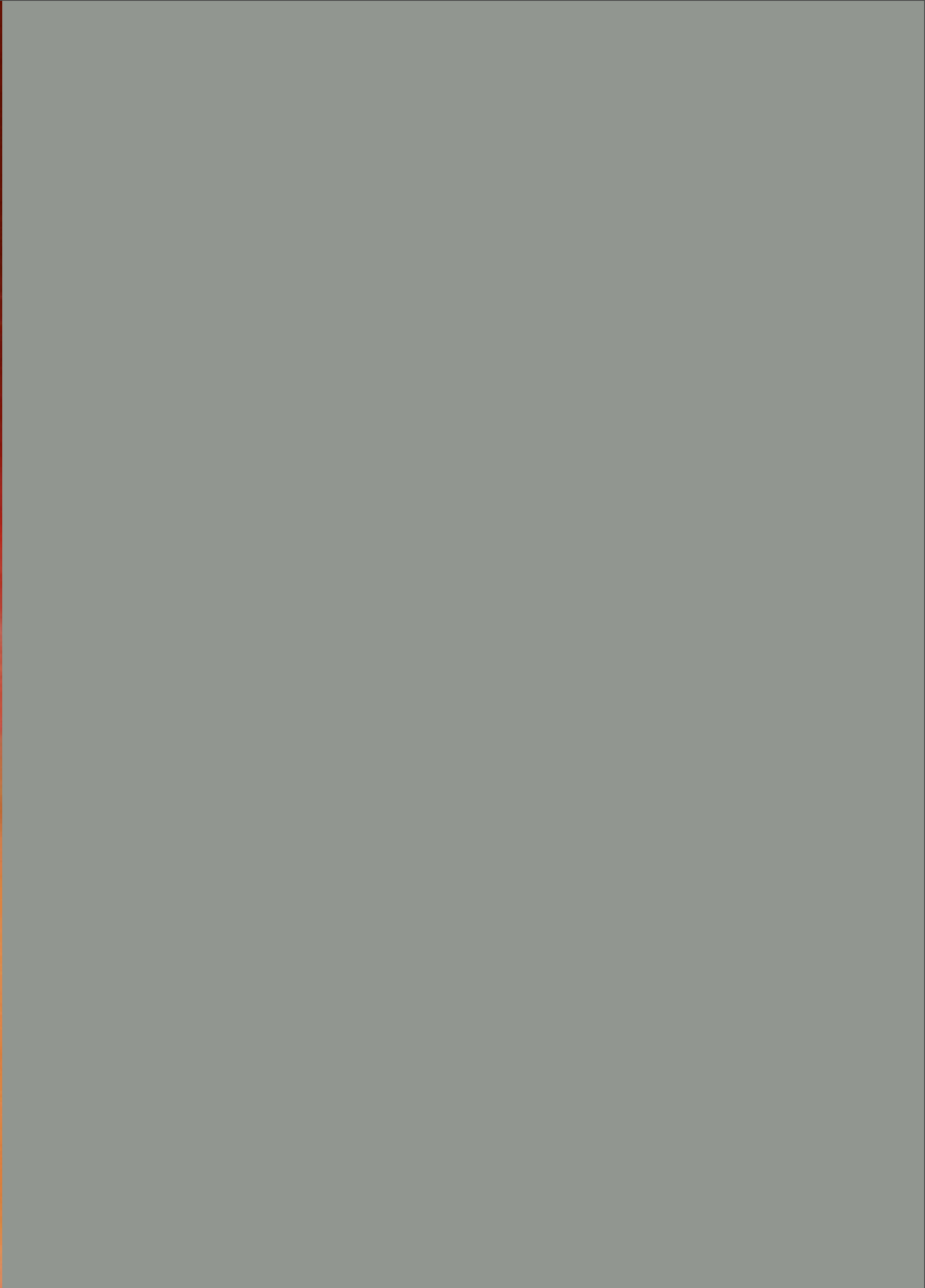
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# Tonsillitis

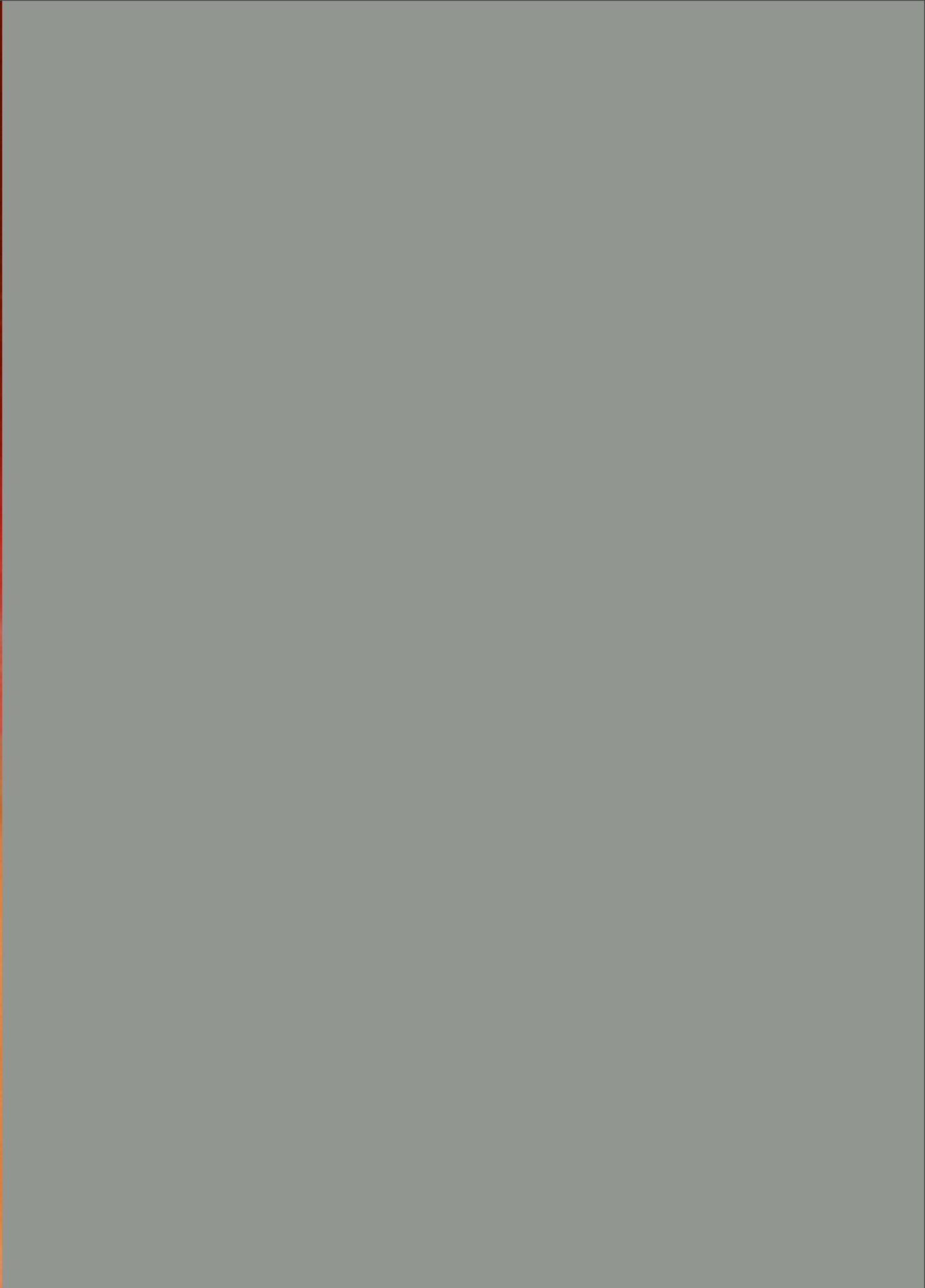
Sore throat, reduced eating,  
fever

?antibiotics, ?deferred script

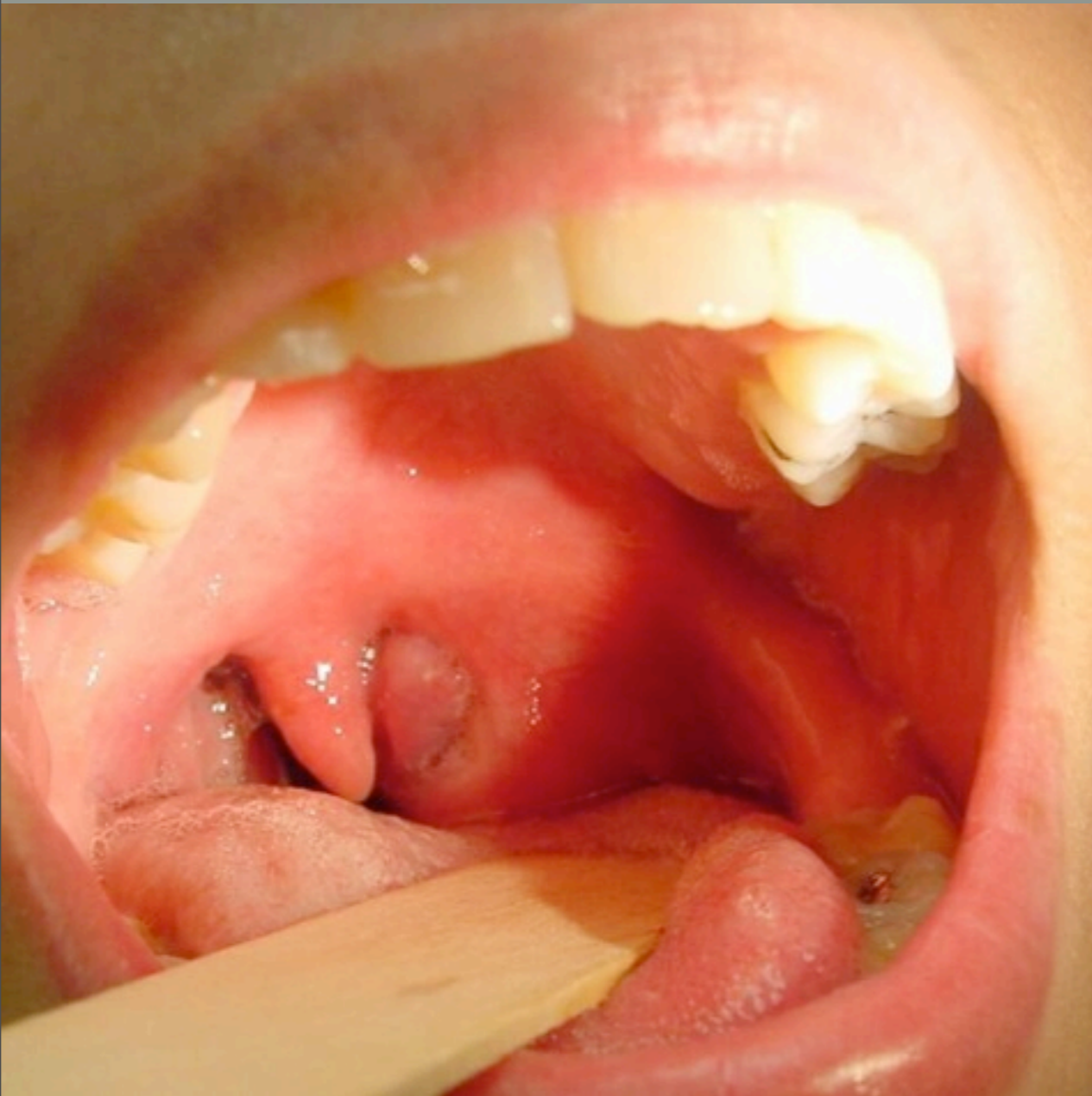
>50% viral

Not amoxicillin (rash)

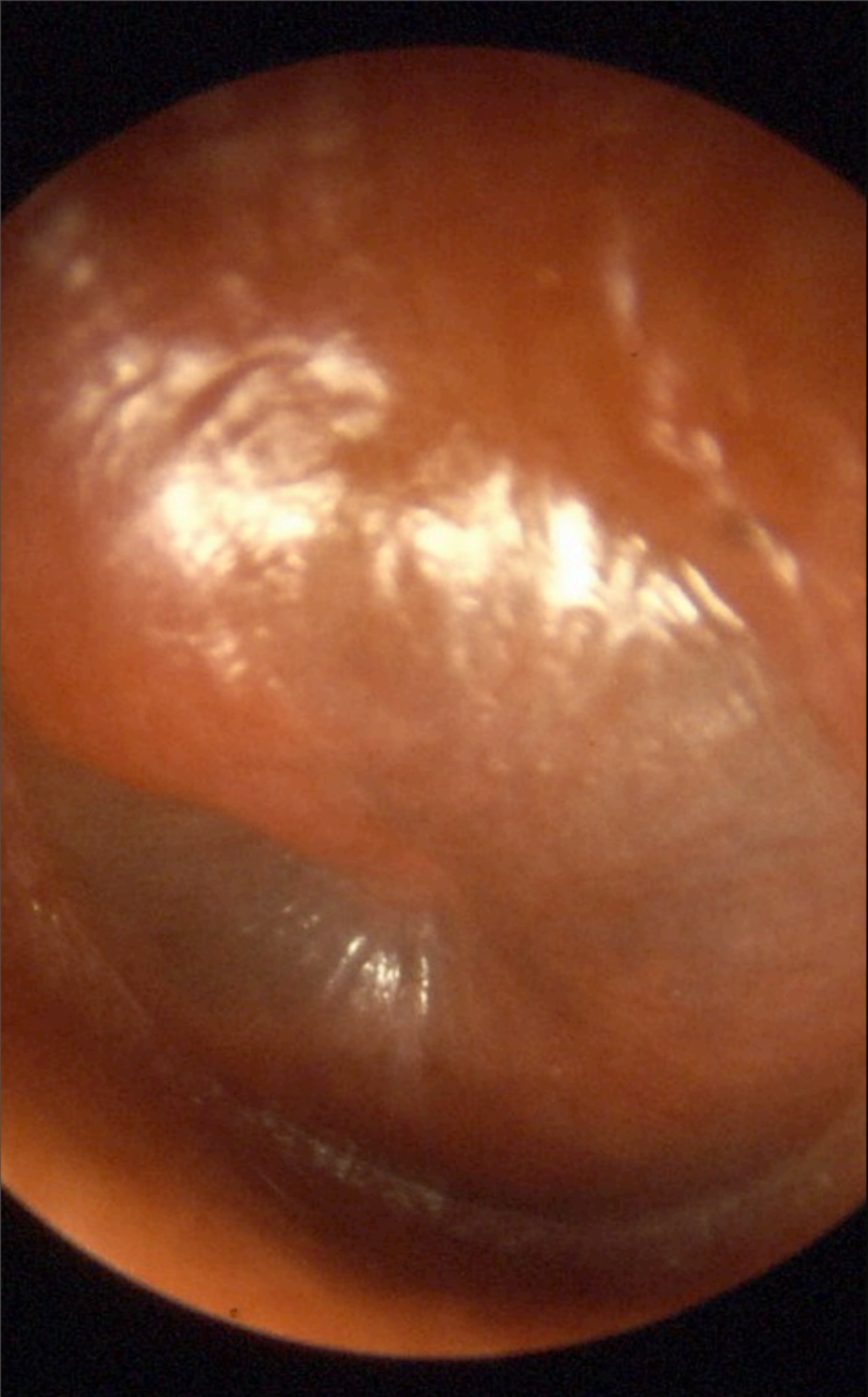
Check for peri-tonsillar abscess  
(trismus, pointing of soft palate)











# Otitis media

Fever in younger children

Ear ache, reduced hearing

Tragus is not tender

Antibiotics? (78% settle spontaneously)

Resolution with rupture

Pus discharge ?source: 0.3%  
ciprofloxacin 2dps tds







# Mastoiditis:

Fever, check for in all otitis media

Ref ENT









# Serous Otitis media

Non-infective, related to URTI

Reduced hearing, pain

If acute, no treatment

If chronic, grommets/Goodes  
tubes (GP ref to ENT)







# Otitis externa

Pain/itching, discharge, tragal tenderness

Secondary trauma: buds/swimming. Skin conditions.

Dry wicking: Cipro eye drops if pus/nil/  
steroids/otosporin/astringents

Ref if pointing abscess in canal

GP follow up







# Croup

- \* Viral LTB; parainfluenza, RSV, adeno
- \* Peak in second year, 6/12-5yrs
- \* Fever/coryza 1-3d then barking cough
- \* Fever  $<38.5$  usually
- \* Look for respiratory distress & stridor
- \* Worse early hours morning
- \* Mild: dexamethasone 0.15mg/kg or nebs budesonide 2mg
- \* Mod: above & reasses. ?observe O&A
- \* Severe: adrenaline 5ml 1:1000, budesonide neb.  $O_2$ , urgent referral







# Wesley Croup Score

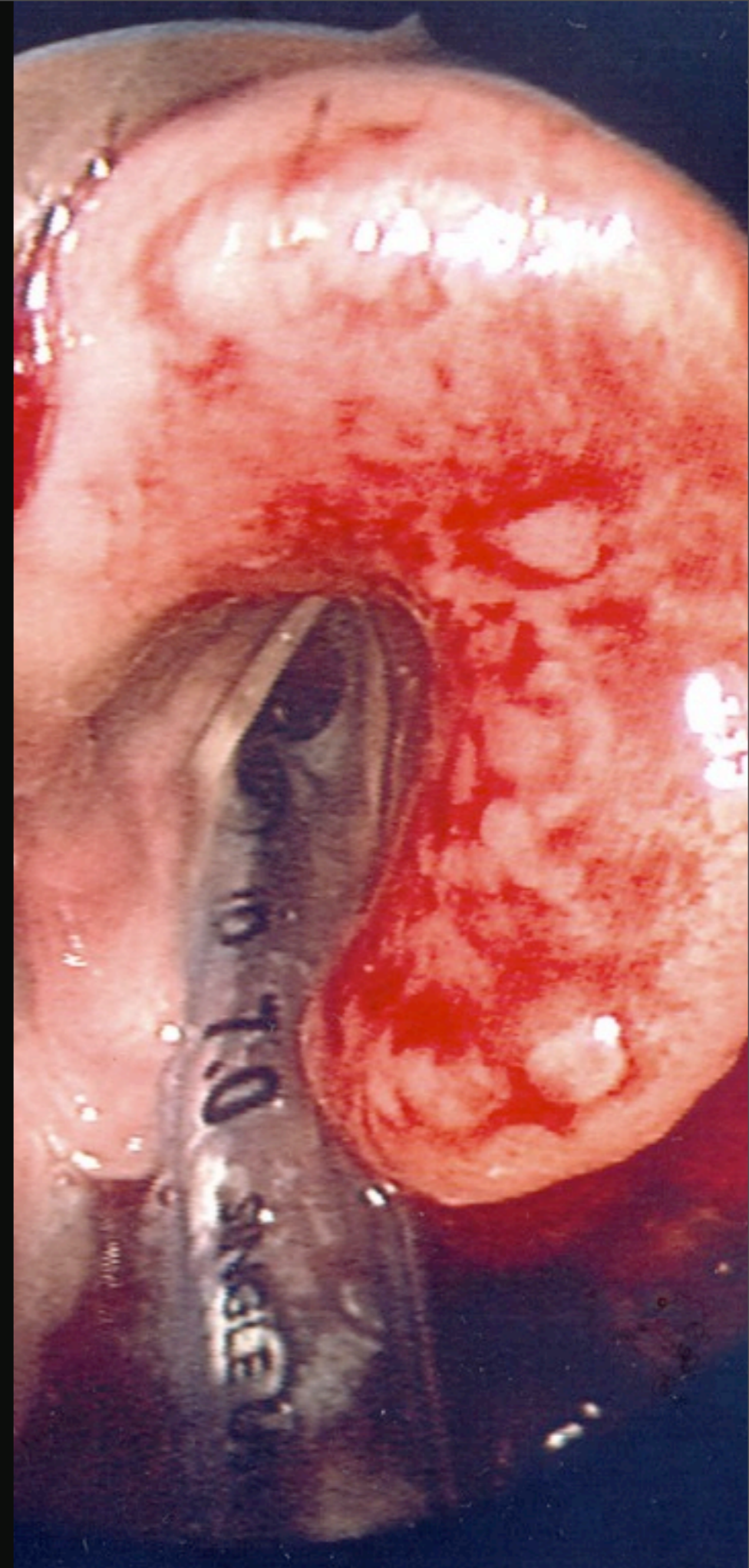
- ⊛ Stridor 0 = None 1 = When agitated 2 = At rest
- ⊛ Retractions 0 = None 1 = Mild 2 = Moderate 3 = Severe
- ⊛ Air Entry 0 = Normal 1 = Decreased 2 = Very decreased
- ⊛ Cyanosis 0 = None 4 = With agitation 5 = At rest
- ⊛ Level of Consciousness 0 = Normal 5 = Altered mental state
- ⊛ Score <2 - Mild      2-7- Moderate      >7- Severe





# Epiglottitis

- ⊛ *Haemophilus influenzae B*
- ⊛ Less common now
- ⊛ Any age, but more common 1-6yrs
- ⊛ Soft stridor, high fever, drooling and sitting forward. Don't lie down
- ⊛ Don't intervene without ENT/anaesthetic seniors
- ⊛ Needs cultures, IV fluids, O<sub>2</sub>, cefotaxime/ceftriaxone
- ⊛ Intubation







## Comparison of the Clinical Features of Croup and Epiglottitis

Feature	Croup	Epiglottitis
Onset	Over days	Over hours
Preceding Cough	Yes	No
Cough	Severe, barking	Absent or slight
Able to Drink	Yes	No
Drooling Saliva	No	Yes
Appearance	Unwell	Toxic, very ill
Fever	<38.5	>38.5
Stridor	Harsh, rasping	Soft
Voice	Hoarse	Reluctant to speak, muffled

**Don't examine stridulous patient with tongue depressor etc except in resus with facilities for immediate airway intervention (senior)**







# Lower Airways

- \* Asthma
- \* Bronchiolitis





# Asthma

See Asthma lecture

Follow BTS guidelines

Recognise life threatening features early  
and call for urgent help

Be aggressive









# Management of acute asthma in children in A&E

Age 2-5 years

Age > 5 years

## ASSESS ASTHMA SEVERITY

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### Moderate exacerbation

- SpO<sub>2</sub> ≥92%
- No clinical features of severe asthma

**NB: If a patient has signs and symptoms across categories, always treat according to their most severe features**

### Severe exacerbation

- SpO<sub>2</sub> <92%
- Too breathless to talk or eat
- Heart rate > 130/min
- Respiratory rate >50/min
- Use of accessory neck muscles

### Life threatening asthma

- SpO<sub>2</sub> <92%
- Silent chest
- Poor respiratory effort
- Agitation
- Altered consciousness
- Cyanosis

- β<sub>2</sub> agonist 2-10 puffs via spacer ± facemask
- Reassess after 15 minutes

- Give nebulised β<sub>2</sub> agonist: salbutamol 2.5 mg or terbutaline 5 mg with oxygen as driving gas
- Continue O<sub>2</sub> via face mask/nasal prongs
- Give soluble prednisolone 20 mg or IV hydrocortisone 50 mg

### RESPONDING

- Continue inhaled β<sub>2</sub> agonist 1-4 hourly
- Give soluble oral prednisolone 20 mg

### NOT RESPONDING

- Repeat inhaled β<sub>2</sub> agonist
- Give soluble oral prednisolone 20 mg

### ARRANGE ADMISSION

(lower threshold if concern over social circumstances)

### DISCHARGE PLAN

- Continue β<sub>2</sub> agonist 4 hourly prn
- Consider prednisolone 20 mg daily for up to 3 days
- Advise to contact GP if not controlled on above treatment
- Provide a written asthma action plan
- Review regular treatment
- Check inhaler technique
- Arrange GP follow up

Arrange immediate transfer to PICU/HDU if poor response to treatment  
Admit all cases if features of severe exacerbation persist after initial treatment

### Moderate exacerbation

- SpO<sub>2</sub> ≥92%
- PEF ≥50% best or predicted
- No clinical features of severe asthma

**NB: If a patient has signs and symptoms across categories, always treat according to their most severe features**

### Severe exacerbation

- SpO<sub>2</sub> <92%
- PEF <50% best or predicted
- Heart rate > 120/min
- Respiratory rate >30/min
- Use of accessory neck muscles

### Life threatening asthma

- SpO<sub>2</sub> <92%
- PEF <33% best or predicted
- Silent chest
- Poor respiratory effort
- Altered consciousness
- Cyanosis

- β<sub>2</sub> agonist 2-10 puffs via spacer
- Reassess after 15 minutes

- Give nebulised β<sub>2</sub> agonist: salbutamol 2.5 mg or terbutaline 5 mg with oxygen as driving gas
- Continue O<sub>2</sub> via face mask/nasal prongs
- Give soluble prednisolone 30-40 mg or IV hydrocortisone 100 mg

### RESPONDING

- Continue inhaled β<sub>2</sub> agonist 1-4 hourly
- Add 30-40 mg soluble oral prednisolone

### NOT RESPONDING

- Repeat inhaled β<sub>2</sub> agonist
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### ARRANGE ADMISSION

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### DISCHARGE PLAN

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### IF LIFE THREATENING FEATURES PRESENT

Discuss with senior clinician, PICU team or paediatrician

Consider:

- Chest x-ray and blood gases
- Bolus IV salbutamol 15 mcg/kg of 200 mcg/ml solution over 10 minutes
- Repeat nebulised β<sub>2</sub> agonist
- Plus:**
- ipratropium bromide 0.25 mg nebulised

Arrange immediate transfer to PICU/HDU if poor response to treatment  
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# Bronchiolitis

- \* 10% all infants, 2-3% admitted
- \* 90% 1-9/12 and rare after 1 yr.
- \* Common in winter
- \* 75% caused by RSV
- \* Fever, runny nose, then cough and often wheeze, may have feeding difficulties
- \* May have recessions, wheeze, creps
- \* High risk: age <6/52, prems, congenital heart disease, chronic lung disease, immune deficiency





# Bronchiolitis

- \* ABC
- \* Keep nasal passages clear (suction)
- \* High flow O<sub>2</sub>, keep spO<sub>2</sub> >94%
- \* Maintain hydration/nutrition (?NG)
- \* Monitor high risk groups for apnoea
- \* If unwell may need intubation and ventilation (2%)
- \* No role for bronchodilators/steroids







# (Pneumonia

Wide spectrum of pathogens in children

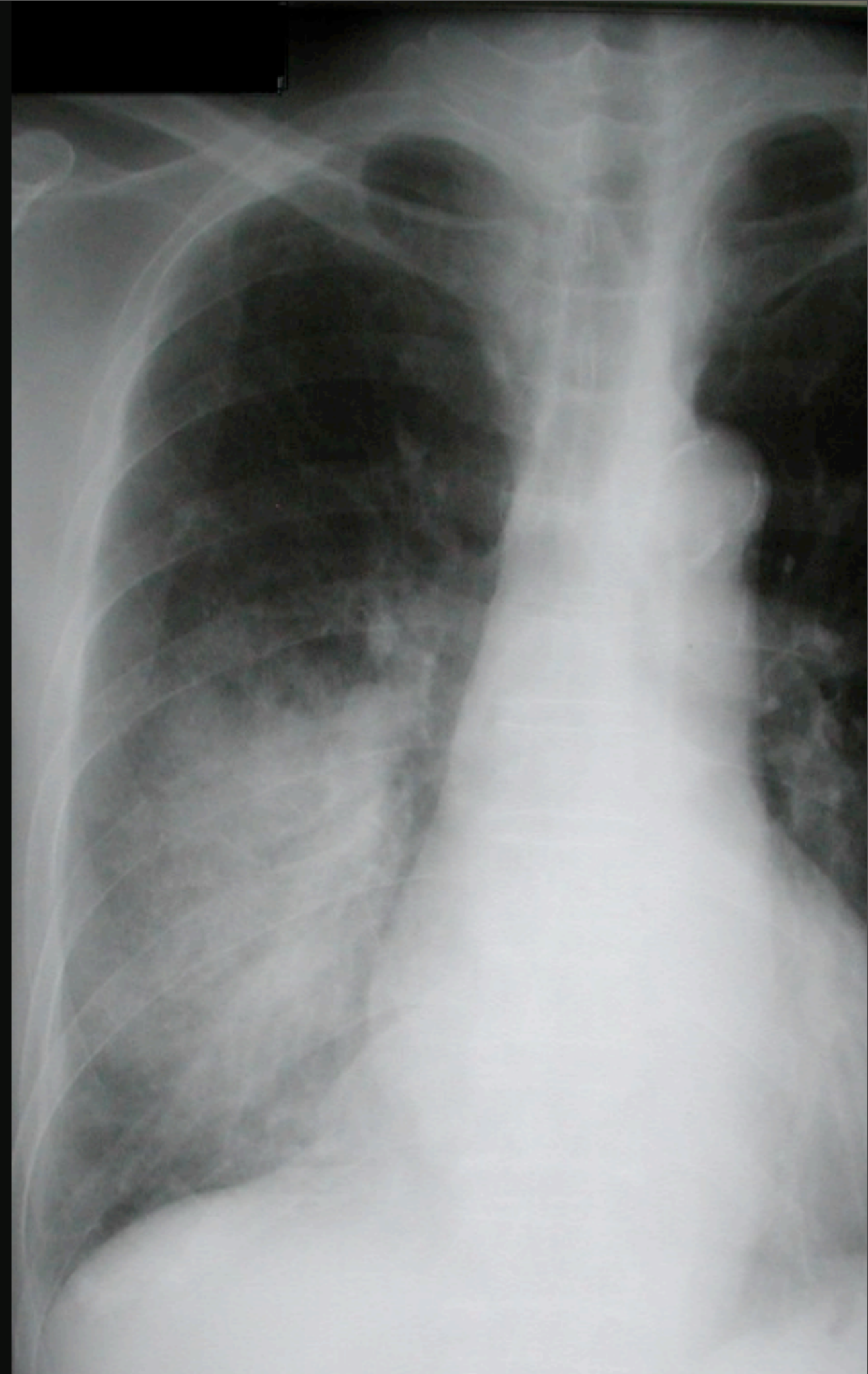
Fever, +/- cough

Tachypnoea, recessions

Septic, tachycardia, delayed CRT, poor colour, altered mentation etc

ABC's. O<sub>2</sub>, IV access, fluids if shocked (cf SIADH). Antibiotics depending on age

Cefuroxime if sick (cefotaxime if septic)







# Cardiac

- ⊗ Poor feeding, sweating, poor growth
- ⊗ Cyanosis not responding to O<sub>2</sub>
- ⊗ Tachy above 200
- ⊗ Liver enlargement
- ⊗ Known cardiac disease
- ⊗ Murmurs/Gallop
- ⊗ O<sub>2</sub>, furosemide 1mg/kg iv.
- ⊗ ?Duct dependant failure in first few days-  
Alprostadiol infusion (?after RSI)





**Questions?**



