

Asthma Update

GP Presentation Sept 2018
Department of Paediatrics
Blue Mountains District Hospital

Objectives

Most of us know what is asthma, what it looks like and how to manage it.
Most of us know how to conduct a respiratory assessment –
And judge a person's level of breathing difficulty.
Asthma is a bit boring.
So lets go through a case...
perhaps highlighting some controversies...



Ms AB

21 months old girl, presenting with increased respiratory distress. She had coryzal symptoms for 24 hours, no history of fevers. She developed SOB overnight and came to hospital in the morning. From 5am to 10am she has been having Ventolin 4 puffs every 30 minutes at home.

Past History:

3 episodes of respiratory illness in the last 12 months with wheeze associated.

Last two occasions, she has been managed with ventolin (MDI/spacer) managed by the GP and not gone to hospital.

History of eczema and nut allergy.

Parents are non-smokers.

Immunised, no drug allergies.

On Arrival:

Triage:

Pale and lethargic, severe WOB, wheezy
Triage cat 1, taken to ED resus bay.

Examination:

RR 60, HR 180, SaO₂ 88% RA, Temp 37.8
Lots of chest recession, tracheal tug, subcostal recession
Bilateral reduced air entry, soft wheeze, grunt
Prolonged expiratory phase
ENT ?who knows.

Assessment:

Viral induced wheeze, ?Asthma

Initial Management:

- ?Oxygen
- ?Ventolin,
- ?Atrovent
- ?Atrovent/Ventolin
- ?Steroids (Which)
- ?IV Magnesium
- ?IV Salbutamol
- ?IV Aminophylline
- ?Antibiotics
- ?Respiratory support ...invasive/non-invasive?
- ?Investigations?

Initial Management:

Oxygen by facemask.

Nebulised Ventolin/Atrovent given continuously

IV inserted, VBG collected (+other blood tests)

IV Methylprednisolone 2mg/kg

IV Magnesium

Chest xray.

Progress:

RR improved to 45

HR increased to 220

SaO₂ increased to 95% with oxygen

Chest air entry improved, but she was still wheezing.

Test results came back.

VBG:

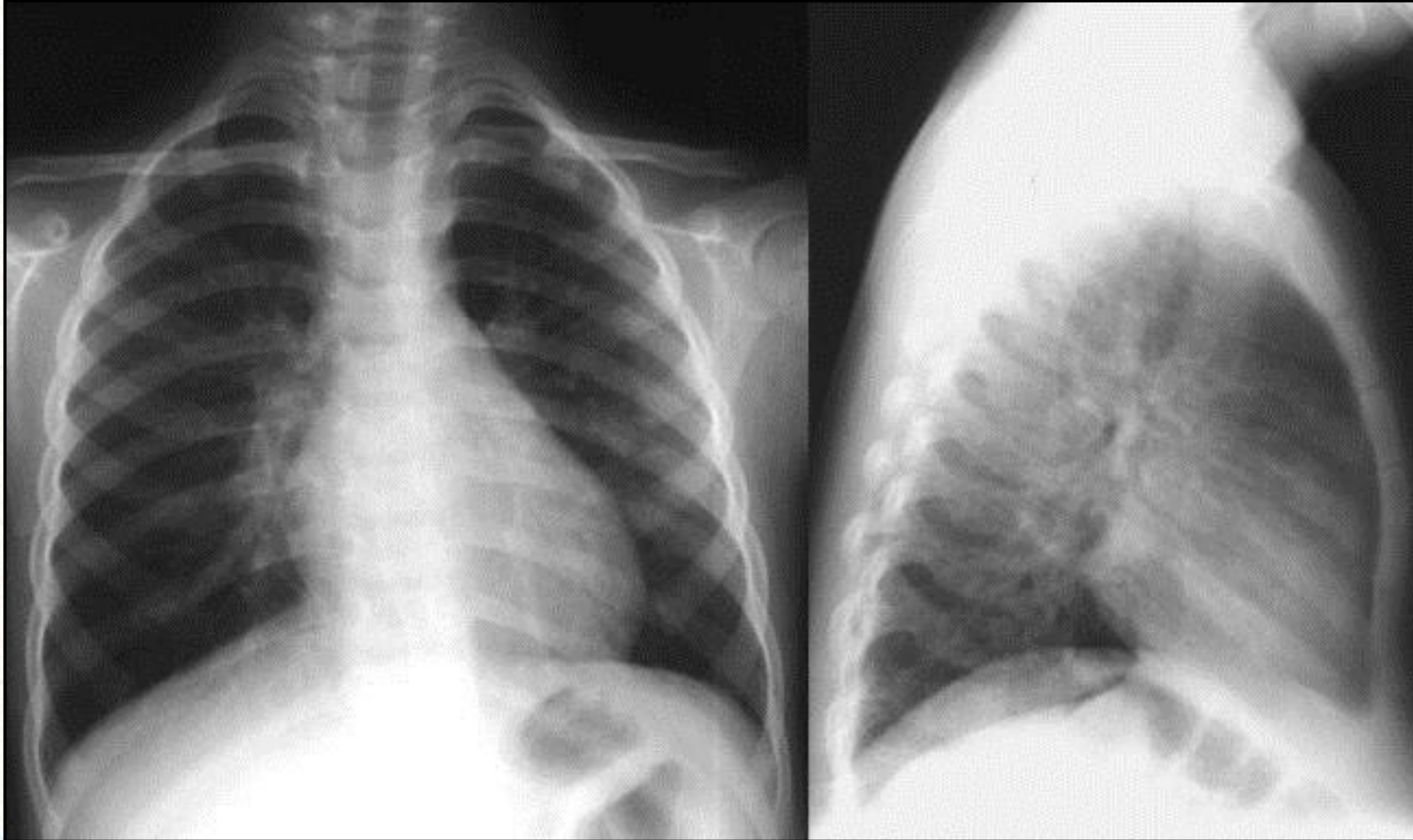
Option 1:

pH 7.02, PCO₂ 86, BE-4

Option 2:

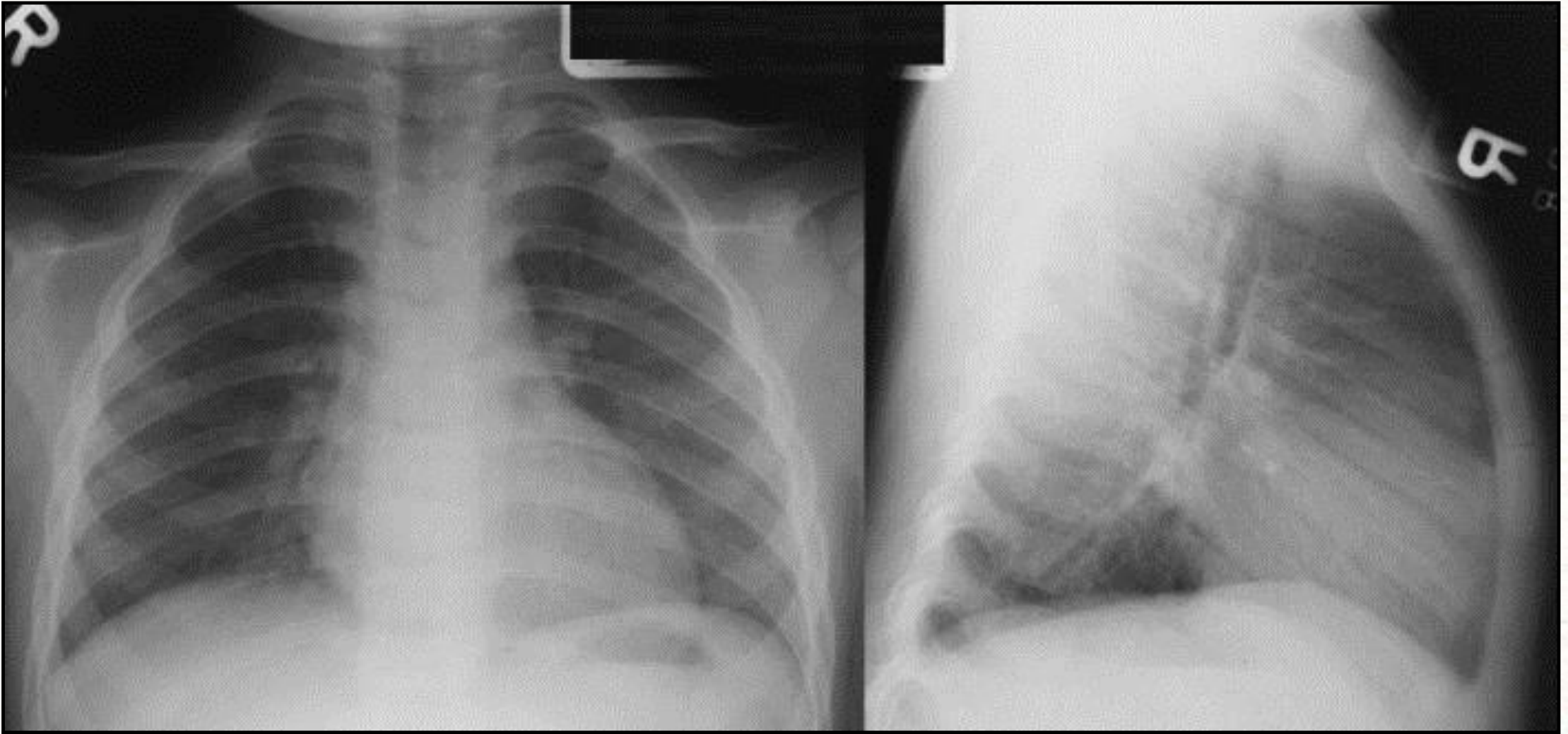
pH 7.02, PCO₂ 25, BE -6

Chest Xray: (option 1)



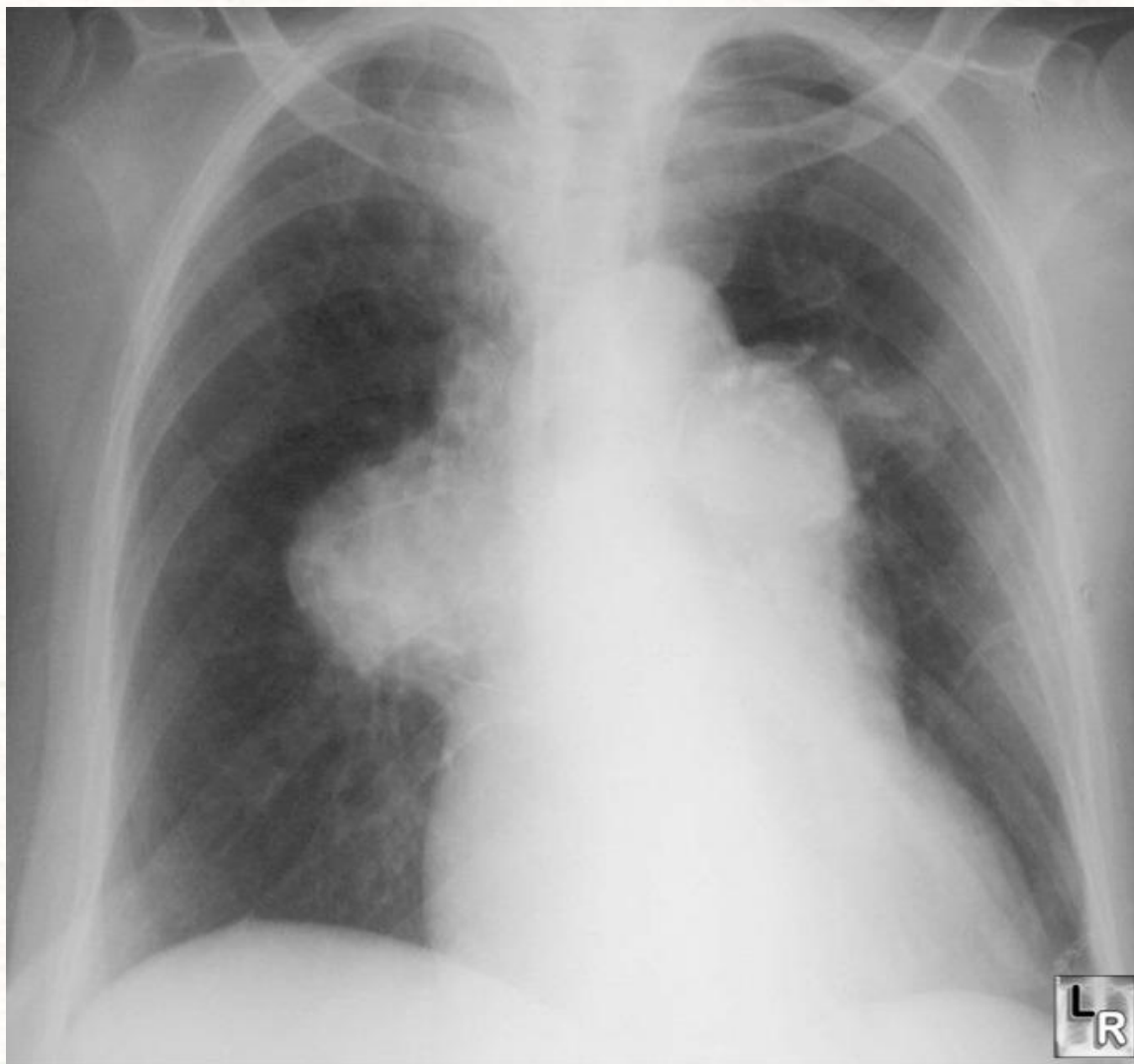
Chest Xray

(option 2)



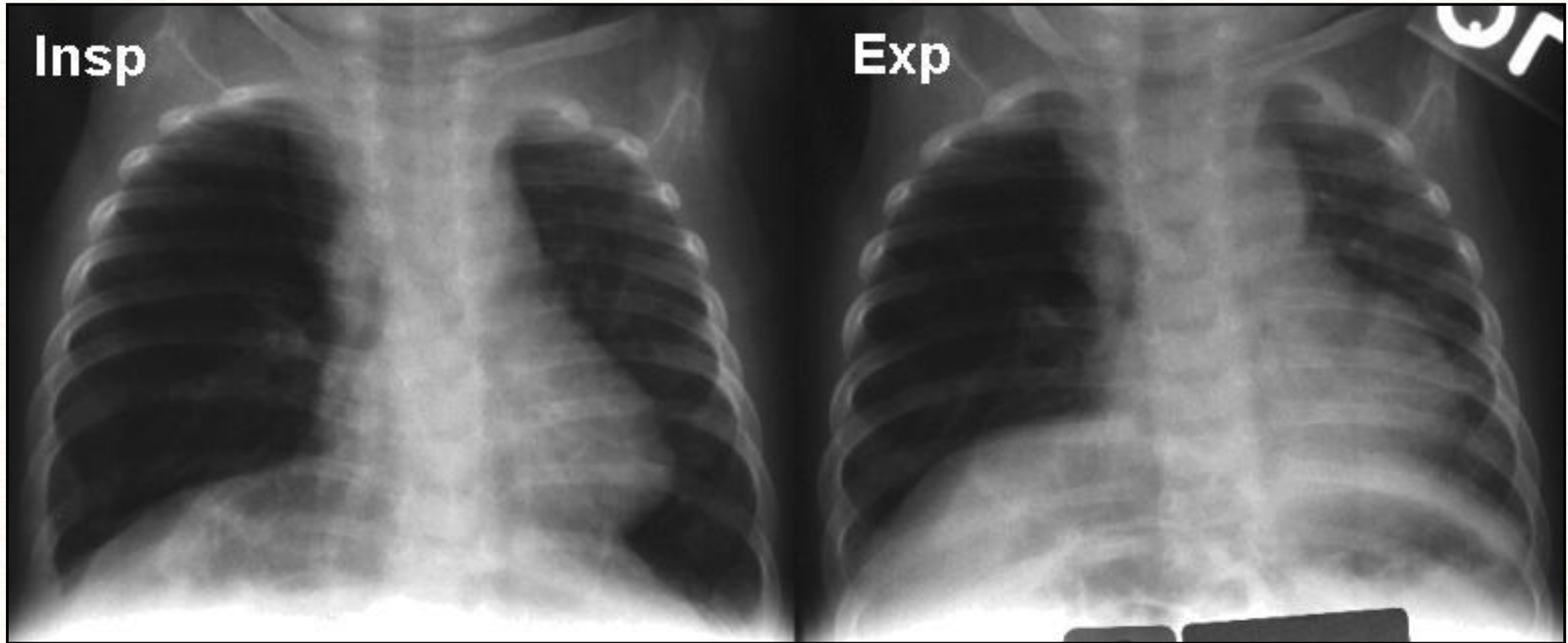
Chest Xray

(option 3)



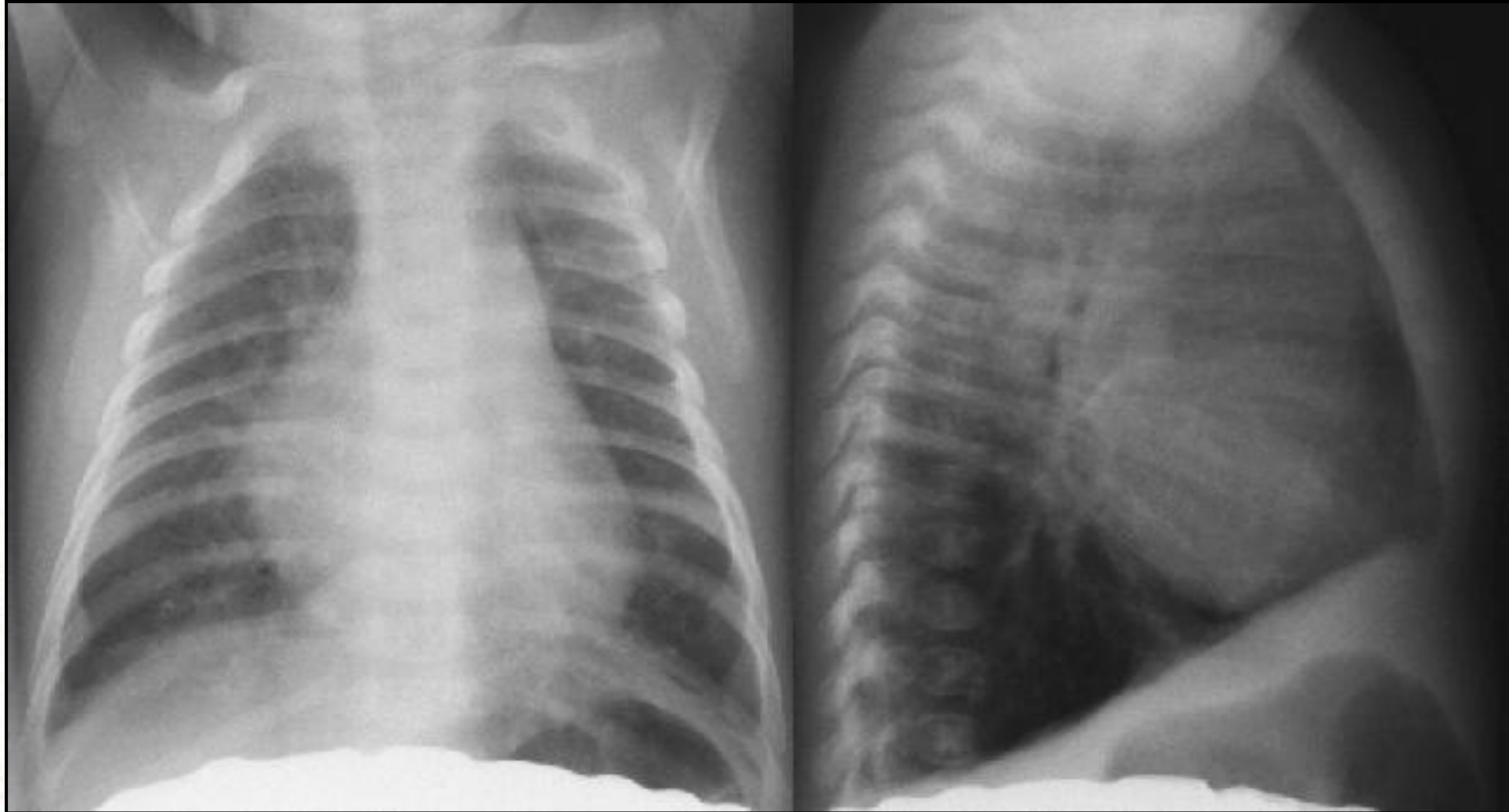
Chest Xray

(option 4)



Chest Xray

(option 5)



VBG:

Option 1

Acute respiratory acidosis
Respiratory insufficiency
Prepare to support her
respiration
Call for emergency support

Option 2

Respiratory sufficiency
Salbutamol overdose -
Drop Ventolin dosing
Continue all other treatments

Chest Xrays:

Option 1: chest hyper-expansion, no other changes

Option 2: Poor inspiratory film otherwise normal

Option 3: Pulmonary hypertension, oligoemic lung fields

Option 4: Air trapping RML – possible inhaled FB

Option 5: Early cardiomegaly, plethoric lung fields.

Patient had VBG (option 1) and CXR (option 1).

Differential Diagnosis:

Viral associated wheezing
(child has severe respiratory difficulty)

Viral pneumonitis
(CXR shows only hyper-expansion)

Atypical Pneumonitis
(CXR no focal changes)

Inhaled FB
(Hyper-expansion is not localised)

Asthma + viral trigger
(Significant response to treatment)

Progress:

NETS transfer requested.

Child improved while NETS were in transit.

Transferred to CHW.

Continued Ventolin/oxygen for 5 days.

Prednisolone 5 days.

Asthma education and home AMP.

Why Asthma?

Recurrent episodes of respiratory distress and wheeze.

To identify the problem as asthma,
means one needs to consider ongoing management.

Utilise the 5 point asthma plan.

Consider a preventer.

Questions:

What was the severity of this attack?

Who would prescribe a preventer?

What are the options if you do so?

Who would provide a home asthma management plan?



Preventers:

Infrequent Episodic/Mild Attacks:

No preventer

Provide home AMP

Regular review

Frequent Episodic/Moderate Attacks:

Consider non-steroidal preventer

Home AMP

Regular review

Eg:

Singulair/

Intal Forte

Combination Treatments:

Insufficient control with moderate dose ICS:

Consider Specialist Consultation

Eg:

Seretide/Symbicort

Chronic Persistent/Severe Intermittent Attacks:

Inhaled Steroids

Moderate dose:

Home AMP

Regular Review

Eg:

Flixotide

Micronised Beclomethasone (QVAR)

Pulmicort

My Asthma Plan	
When my asthma is WELL CONTROLLED - No regular wheeze, or cough or chest tightness at night time, on waking or during the day - Able to take part in normal physical activity without wheeze, cough or chest tightness - Need reliever medication less than three times a week (except if it is used before exercise) - Peak Flow* above What should I do? Continue my usual treatment as follows: Preventer Reliever Combination Medication Always carry my reliever puffer	When my asthma is GETTING WORSE - At the first sign of worsening asthma symptoms associated with a cold - Waking from sleep due to coughing, wheezing or chest tightness - Using reliever puffer more than 3 times a week (not including before exercise) - Peak Flow* between and What should I do? Increase my treatment as follows: See my doctor to talk about my asthma getting worse
When my asthma is SEVERE - Need reliever puffer every 3 hours or more often - Increasing wheezing, coughing, chest tightness - Difficulty with normal activity - Waking each night and most mornings with wheezing, coughing or chest tightness - Feel that asthma is out of control - Peak Flow* between and What should I do? Start oral prednisolone (or other steroid) and increase my treatment as follows: See my doctor for advice	How to recognise LIFE-THREATENING ASTHMA Dial 000 for an ambulance and/or 112 from a mobile phone if you have any of the following danger signs: - extreme difficulty breathing - little or no improvement from reliever puffer - lips turn blue and follow the Asthma First Aid Plan below while waiting for ambulance to arrive. A serious asthma attack is also indicated by: - symptoms getting worse quickly - severe shortness of breath or difficulty in speaking - you are feeling frightened or panicked - Peak Flow* below If any of these occur, follow the Asthma First Aid Plan below. Asthma First Aid Plan - Sit upright and stay calm. - Take 4 separate puffs of a reliever puffer (one puff at a time) via a spacer device. Just use the puffer on its own if you don't have a spacer. Take 4 breaths from the spacer after each puff. - Wait 4 minutes. If there is no improvement, take another 4 puffs. - If little or no improvement CALL AN AMBULANCE IMMEDIATELY (DIAL 000 and/or 112 from mobile phone) and state that you are having an asthma attack. Keep taking 4 puffs every 4 minutes until the ambulance arrives. See your doctor immediately after a serious asthma attack.
Dr name: _____ Ph: _____ Signature: _____ Parent/Carer: _____ Ph: _____	

Asthma Home Management Plan (Completed)

My Asthma Plan		How to recognise LIFE-THREATENING ASTHMA	
When my asthma is WELL CONTROLLED - No regular wheeze, or cough or chest tightness at night time, on waking or during the day - Able to take part in normal physical activity without wheeze, cough or chest tightness - Need reliever medication less than three times a week (except if it is used before exercise) - Peak Flow* above 8	When my asthma is GETTING WORSE - At the first sign of worsening asthma symptoms associated with a cold - Waking from sleep due to coughing, wheezing or chest tightness - Using reliever puffer more than 3 times a week (not including before exercise) - Peak Flow* between 8 and 12	4 If little or no improvement CALL AN AMBULANCE IMMEDIATELY (DIAL 000 and/or 112 from mobile phone) and state that you are having an asthma attack. Keep taking 4 puffs every 4 minutes until the ambulance arrives.	
What should I do? Continue my usual treatment as follows: Preventer flixotide 50mcg 3puff 2/d. (MDI & spacer + mask) Reliever Ventolin 2-4 puff. as needed. ← Combination Medication NA. Always carry my reliever puffer	What should I do? Increase my treatment as follows: 1. Continue flixotide at the same dose at all times 2. ↑ Ventolin 4 puff 4 per day 3. See doctor for a check. 4. If better after 2-3d return, well now See my doctor to talk about my asthma getting worse		What should I do? Start oral prednisolone (or other steroid) and increase my treatment as follows: 1. ↑ Ventolin 6 puff 3-4 hourly 2. See doctor consider starting prednisolone. 3. If at any time the Ventolin is not lasting 3hr go to hospital 4. Otherwise if better after 2-3d return, well now See my doctor for advice & midday
Dr name: _____ Ph _____ Signature: _____ Parent/Carer _____ Ph _____	Dr name: _____ Ph _____ Signature: _____ Parent/Carer _____ Ph _____		

SEVERITY ASSESSED AS LIFE-THREATENING ACUTE ASTHMA

Any of these findings:

- drowsy
- collapsed
- exhausted
- cyanotic
- poor respiratory effort
- soft/absent breath sounds
- oxygen saturation <90%

GIVE SALBUTAMOL VIA CONTINUOUS NEBULISATION

CHILDREN 0-5 YEARS

Salbutamol 2 x 2.5 mg nebules at a time
Use oxygen to drive nebuliser*
Maintain SaO₂ 95% or higher

CHILDREN 6-12 YEARS

Salbutamol 2 x 5 mg nebules at a time
Use oxygen to drive nebuliser*
Maintain SaO₂ 95% or higher

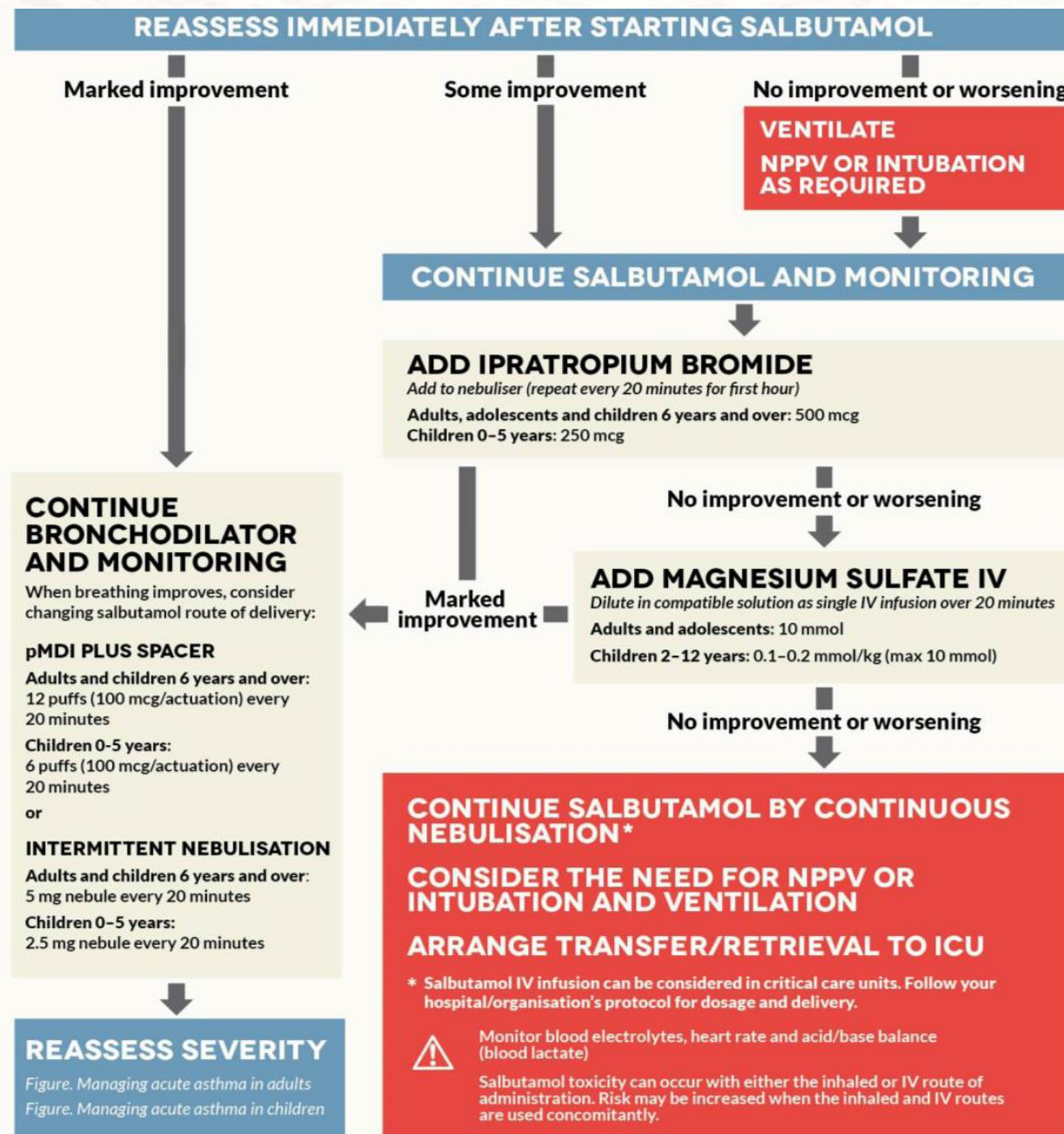
ADULTS AND ADOLESCENTS

Salbutamol 2 x 5 mg nebules at a time
Use oxygen to drive nebuliser*
Titrate oxygen to target SaO₂ ≥92%

*Piped oxygen or oxygen cylinder fitted with a high-flow regulator (6 L/min)

ARRANGE IMMEDIATE TRANSFER TO HIGHER-LEVEL CARE AREA NOTIFY SENIOR STAFF

REASSESS IMMEDIATELY AFTER STARTING SALBUTAMOL



The Asthma Foundation 5 Point Plan:

1. Assess/diagnose asthma/exclude other respiratory conditions
 2. Maximise lung function
 3. Identify trigger factors
 4. Family education/Patient education (especially those adolescents)
 5. Ongoing review.
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Asthma Controversies (Summary)

Asthma presentations in infants and toddlers

Limited evidence to guide choices in the management of acute asthma, apart from inhaled ventolin and systemic steroids.

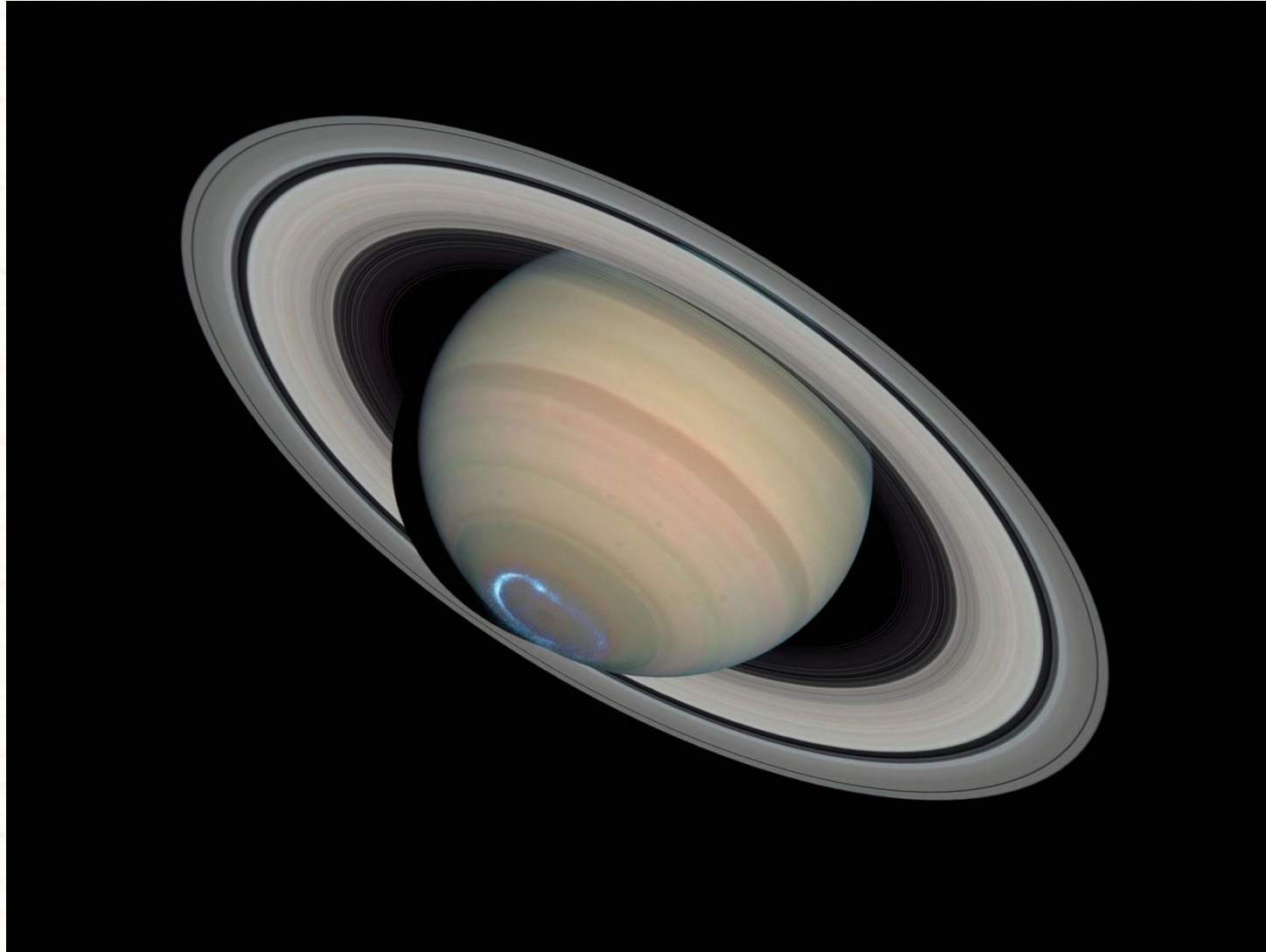
Non invasive respiratory support
(CPAP, high flow Nasal Prong Oxygen, BiPAP)

Preventer prescribing.

Asthma as a chronic disease.



Questions:



Intravenous beta₂-agonists versus intravenous aminophylline for acute asthma

Review Intervention

Andrew H Travers, Arthur P Jones, Carlos A Camargo Jr, Stephen J Milan , Brian H Rowe

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[See clinical summaries based on this review](#)

Authors' conclusions

Implications for practice

The relative clinical benefits of IV beta₂-agonists and IV aminophylline for the treatment of acute asthma in the paediatric and adult population remains unclear since too few clinical trials were available and it is recommended that these data should be viewed carefully alongside the conclusions from separate Cochrane reviews comparing IV beta₂-agonists plus inhaled beta₂-agonists versus inhaled beta₂-agonists alone ([Travers 2012](#)) and IV aminophylline plus inhaled beta₂-agonists versus inhaled beta₂-agonists alone ([Nair 2012](#)). Clinicians must be aware that use of these agents is associated with increased risk of adverse events that must be considered in light of the lack of evidence of efficacy. In addition, clinicians must be aware that the majority of these studies were not conducted in the era of current asthma standards and that many did not have appropriate run-in therapies prior to study drug administration. Current guidelines, such as those of the BTS, recommend high-dose inhaled bronchodilators with systemic corticosteroids as the first-line therapy.