



Treatment in Schools for Respiratory Conditions

Ben Tippets, DO MPH
Pediatric Pulmonologist
St Lukes Children's Hospital
March 12, 2025

Please keep in mind that your School District policies and Health Services procedures, medication administration protocols, process guidelines, remain the guiding principles to your practice.

None of the planners or presenters for this educational activity have relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.



I have no relevant financial obligations to
disclose

There are 5 ideas that I want to cover in this lecture



Chronic respiratory disease including tracheostomy



Asthma



Cough – both acute and chronic



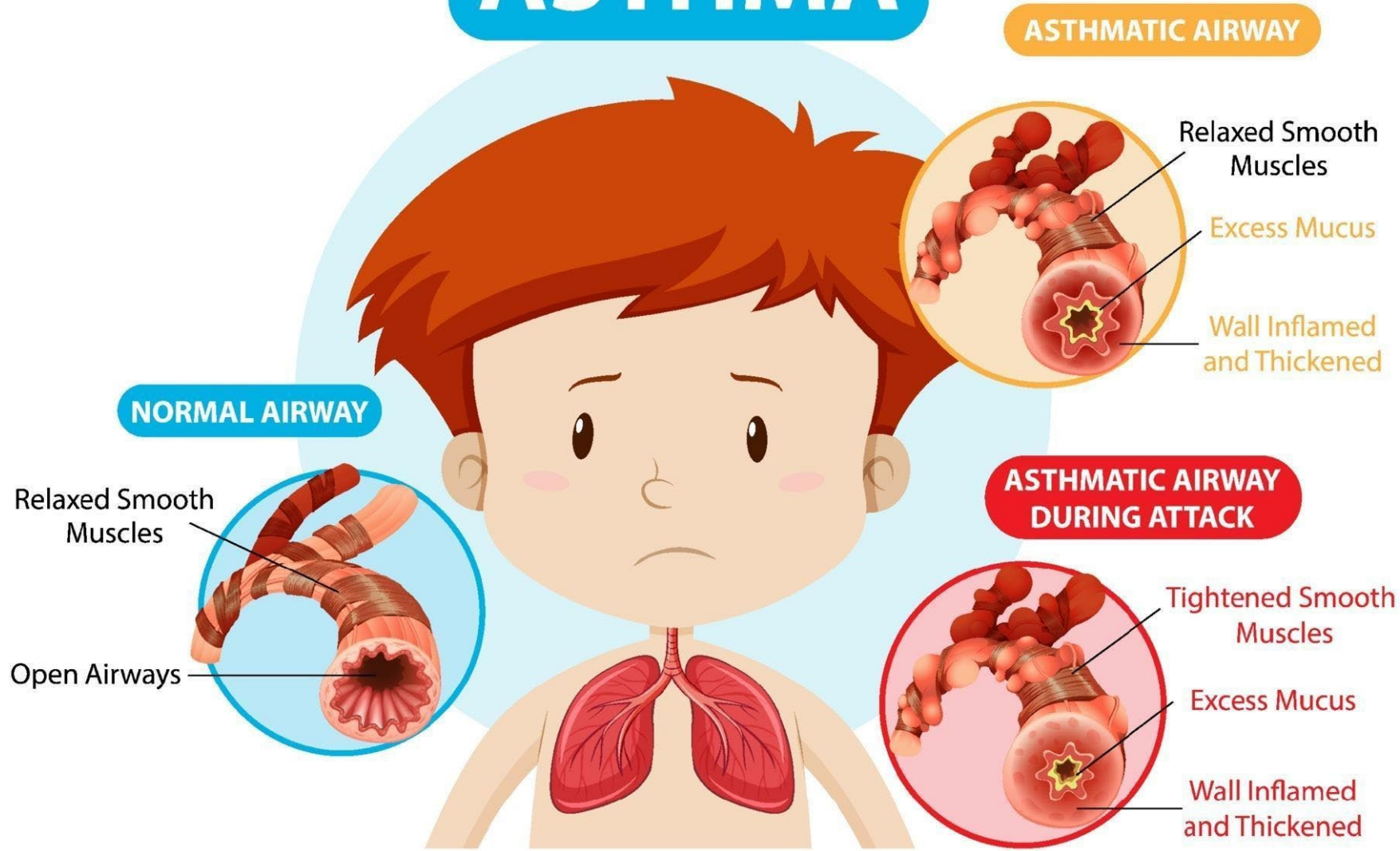
Shortness of breath



Hypoxia

I would like to make this talk as interactive as we can. So, please if you have a question, type it in the comment box and I will address them as we go along.

ASTHMA



NORMAL AIRWAY

Relaxed Smooth Muscles

Open Airways

ASTHMATIC AIRWAY

Relaxed Smooth Muscles

Excess Mucus

Wall Inflamed and Thickened

ASTHMATIC AIRWAY DURING ATTACK

Tightened Smooth Muscles

Excess Mucus

Wall Inflamed and Thickened

Asthma

Controller Medication



Rescue Medication



Asthma Action Plan

Name	Date
Doctor	Medical Record #
Doctor's Office Phone #: Day	Night/Weekend
Emergency Contact	
Doctor's Signature	



The Colors of a traffic light will help you use your asthma medicines.

Green means Go Zone!
Use preventive medicine.

Yellow Means Caution Zone!
Add quick-relief medicine.

Red means Danger Zone!
Get help from a doctor.

Personal Best Peak Flow _____

GO

You have *all* of these:

- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work and play

Peak flow from _____
to _____

CAUTION

You have *any* of these:

- First signs of a cold
- Exposure to known trigger
- Cough
 - Mild wheeze
- Tight chest
 - Coughing at night

Peak flow from _____
to _____

DANGER

Your asthma is getting worse fast:

- Medicine is not helping
- Breathing is hard and fast
- Nose opens wide
- Ribs show
- Can't talk well

Peak flow
reading below

Use these daily preventive anti-inflammatory medicines:

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

For asthma with exercise, take:

--	--

Continue with green zone medicine and add:

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

CALL YOUR PRIMARY CARE PROVIDER.

Take these medicines and call your doctor now.

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

GET HELP FROM A DOCTOR NOW! Do not be afraid of causing a fuss. Your doctor will want to see you right away. It's important! If you cannot contact your doctor, go directly to the emergency room. DO NOT WAIT.

Make an appointment with your primary care provider within two days of an ER visit or hospitalization.

Asthma Action Plan – Green Zone

GO

You have *all* of these:

- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work and play

Peak flow from _____
to _____

Use these daily preventive anti-inflammatory medicines:

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

For asthma with exercise, take:

--	--	--

Asthma Action Plan – Yellow Zone

CAUTION

You have *any* of these:

- First signs of a cold
- Exposure to known trigger
- Cough
 - Mild wheeze
- Tight chest
 - Coughing at night

Peak flow from _____
to _____

Continue with green zone medicine and add:

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

CALL YOUR PRIMARY CARE PROVIDER.

Asthma Action Plan – Red Zone

DANGER

Your asthma is getting worse fast:

- Medicine is not helping
- Breathing is hard and fast
- Nose opens wide
- Ribs show
- Can't talk well

Peak flow
reading below

Take these medicines and call your doctor now.

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

GET HELP FROM A DOCTOR NOW! Do not be afraid of causing a fuss. Your doctor will want to see you right away. It's important! If you cannot contact your doctor, go directly to the emergency room. **DO NOT WAIT.**

Make an appointment with your primary care provider within two days of an ER visit or hospitalization.

Peak Flow Meter

- Determine your personal best values.
 - Green Zone is 80-100%
 - Yellow Zone is 50-80%
 - Red Zone is <50%



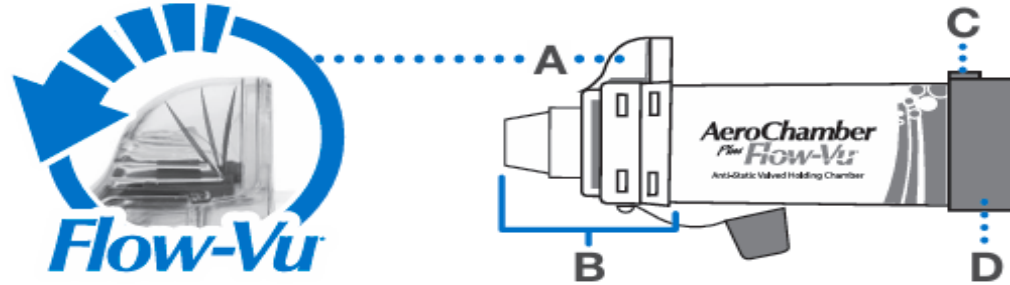
Nebulizer vs Inhaler





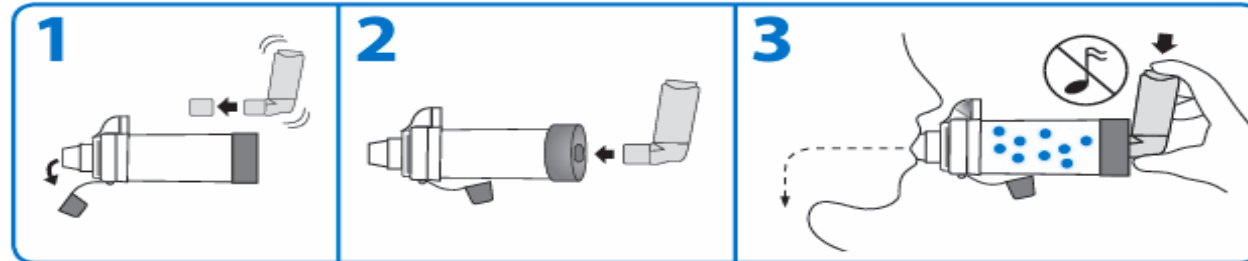
Inhaler and Valve Holding Chamber

Spacer Use - Technique



HOW TO USE YOUR CHAMBER

For preparation of the inhaler, follow the instructions supplied with the inhaler.



1 Remove caps from the inhaler and mouthpiece chamber. Shake the inhaler immediately before use as per the instructions supplied with it.

2 Insert the inhaler into the backpiece of the chamber. Put mouthpiece into mouth and close your lips around it to ensure an effective seal.

3 Exhale then press the inhaler once at the beginning of a slow inhalation. Inhale slowly and deeply through the chamber until a full breath has been taken. Hold your breath for 5-10 seconds before exhaling. **OR** Exhale and press the inhaler once at the beginning of a slow inhalation. Breathe in and out through the chamber for 2-3 breaths keeping lips sealed around chamber mouthpiece.

Pre and Post Albuterol

What should you do before you give Albuterol

- Auscultation – Polyphonic Wheezing, decreased air movement, prolonged expiratory phase
- Makes sure that there is medication in the Albuterol Cannister
- Use a spacer – use correct technique

What should you do after you give Albuterol

- Repeat auscultation – Wheezing, Air movement. Listen about 5-10 minutes after giving Albuterol.
- Instructions on when to give Albuterol again.

Chronic Respiratory Disease

Tracheostomy Dependent

Cerebral Palsy

- Dysphagia
- Chronic Aspiration
- Airway obstruction

Cystic Fibrosis

Tracheostomy

- Reasons for tracheostomy
 - Airway obstruction
 - Need for a home ventilator
 - Recurrent infection
 - Need for suctioning/airway clearance



Tracheostomy Tube – Types



Cuffed tracheostomy tube



Uncuffed tracheostomy tube

Tracheostomy Care

Suctioning



Insertion





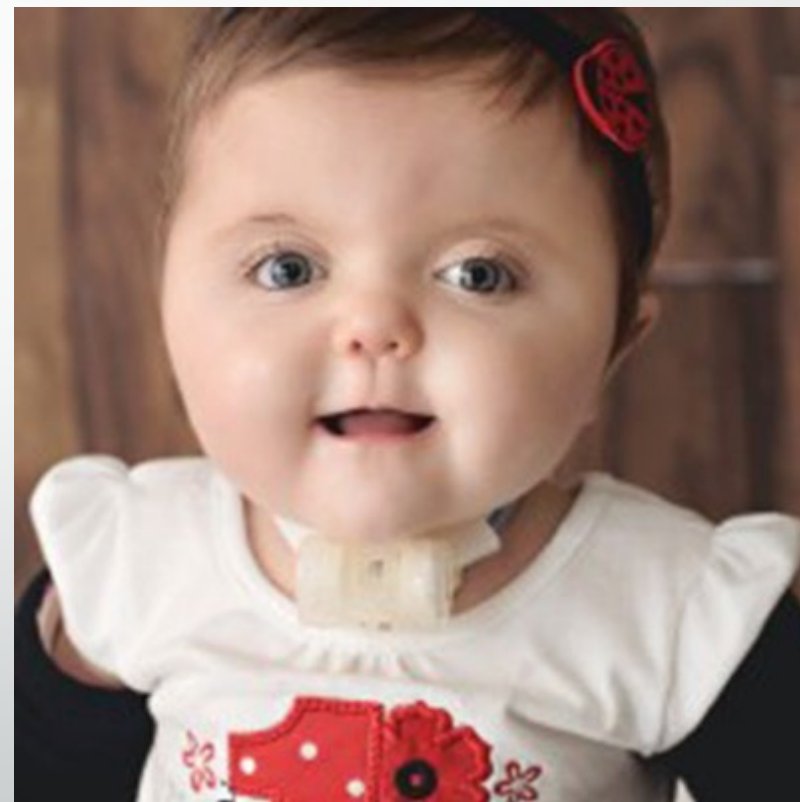
Tracheostomy Care – Trach Ties

The ties should be loose enough that you can put 1-2 fingers under the trach tie.

Tracheostomy – What can you put on them

Speaking Valve

HME (Heat Moisture Exchange)



Cough Assist Machine



Airway Clearance - Vest





Cough

Cough

One of the most common symptoms that you will see at school.



Question

What is causing it?

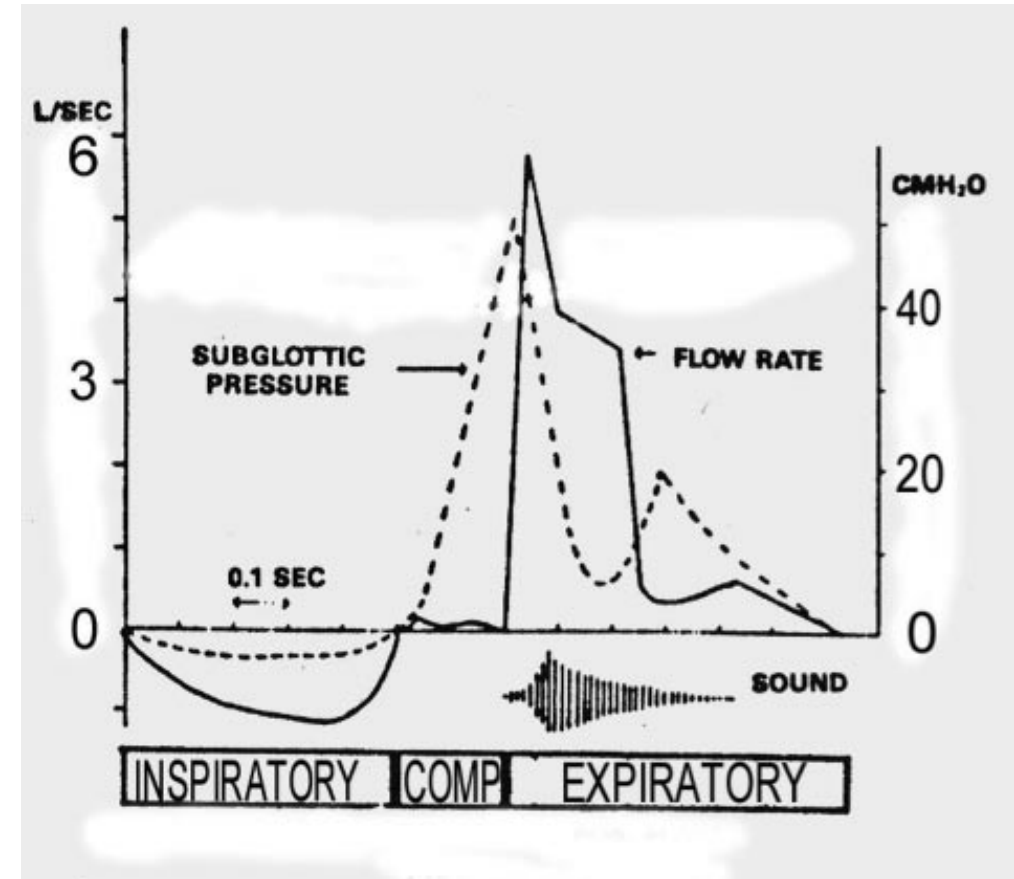
Is it infectious?

Is it annoying?

What can we do about it?

Basics of Cough

- 3 Phases of Cough
 - Inspiratory
 - Compressive
 - Expiratory

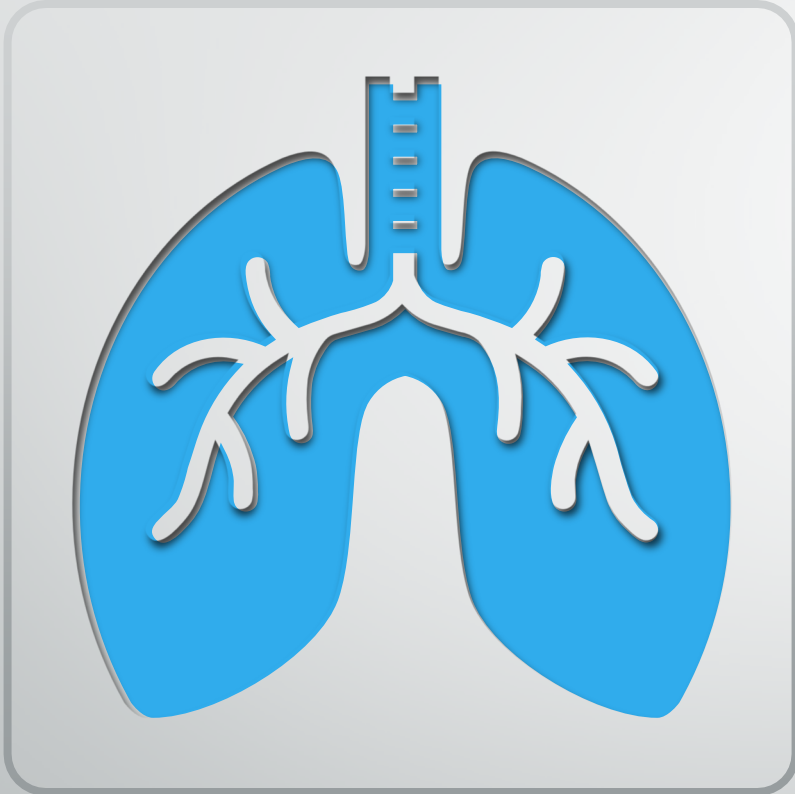




Misty Flow

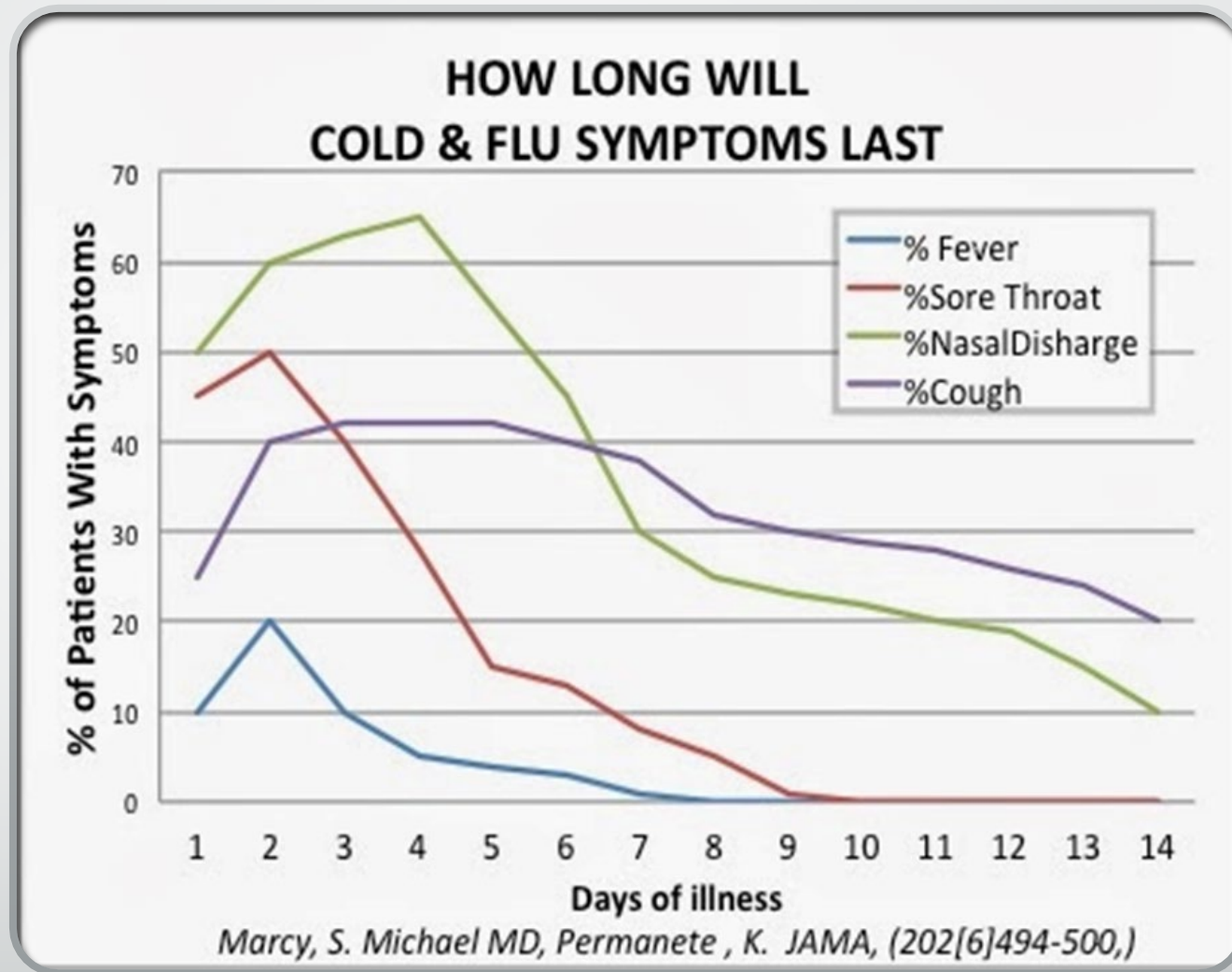
Acute Cough

Acute Cough



- Cough that is present for less than 3 weeks
 - By definition are self limited
 - Common causes
 - Viral rhinosinusitis
 - Acute Bronchitis – Less than 10% involved a bacterial infection
 - Acute Sinusitis
 - Allergic or irritant rhinitis
 - Pertussis

Symptom timeline for an Acute Viral Respiratory Infection



Acute Cough

- What do you do about it at school?
 - Albuterol
 - Reassurance
 - OTC medications
 - Call the parents?



Chronic Cough

How long is too long?

Chronic Cough - Definition

There is no standard definition in the pediatric population.

- Most often definition is a cough that lasts longer than 4 weeks (but ranges from 4-8 weeks).

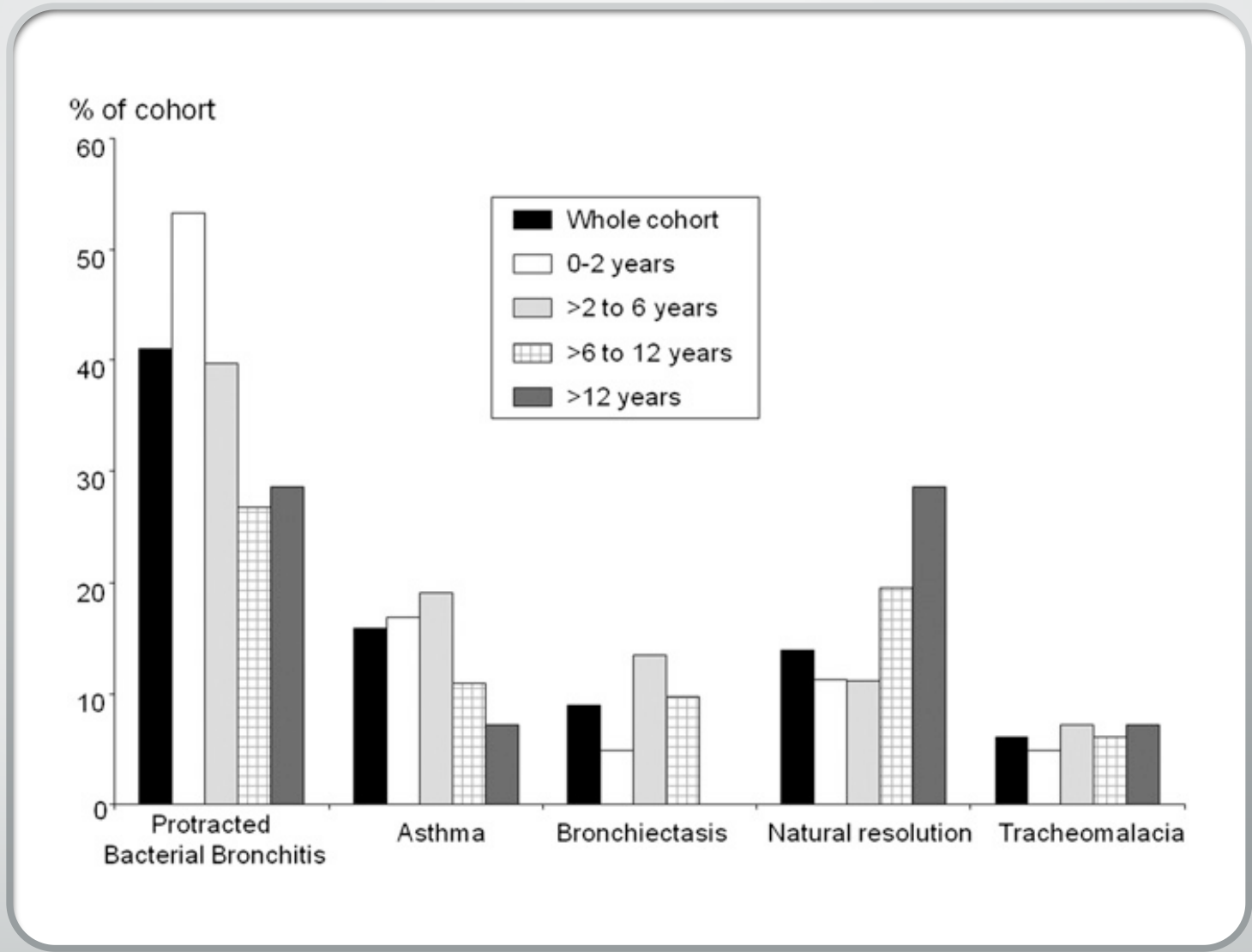
In adults the standard definition is a cough that lasts longer than 8 weeks.

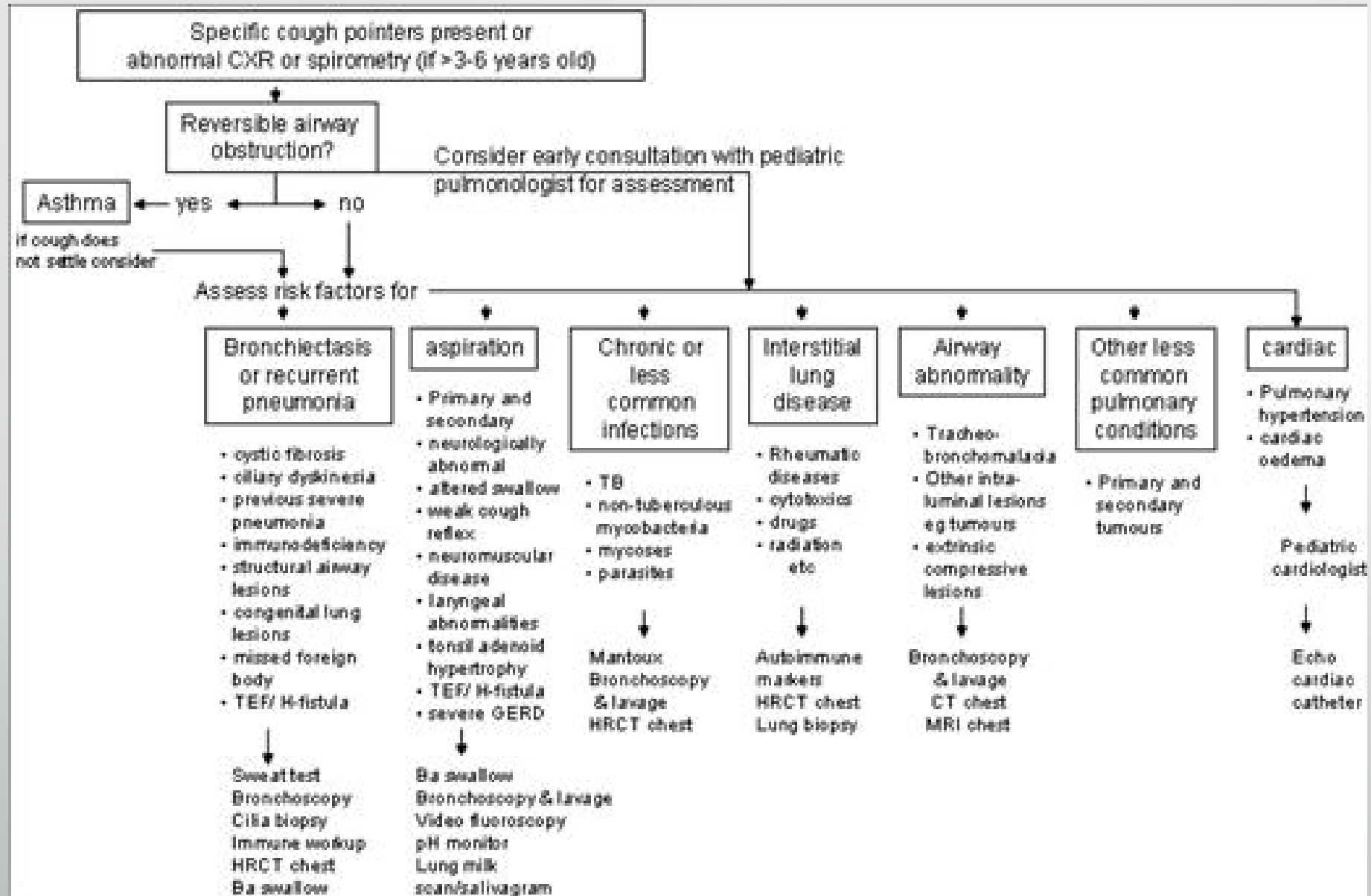
Morbidity of Chronic Cough

- 190 children referred for cough in Brisbane Australia
 - >80% had had 5 or more unsuccessful physician visits.
 - 53% had >10 visits
 - Median age was 2.6 years
 - Significant impact on school attendance and sleep.
 - Parental reports of increased stress, frustration, inability to cope with their child's symptoms, decreased sleep

Marchant – Chest 134:303-309, 2008

Most common Causes of Chronic Cough





Shortness of Breath

- Can categorize into respiratory and non respiratory
 - Respiratory – including asthma, infection, foreign body, trauma
 - Non-Respiratory – cardiac, vocal cord dysfunction, psychogenic, deconditioning
- Response and treatment is based on the timing and progression/resolution of symptoms

Hypoxia

- 5 basic reasons for hypoxia
 - VQ mismatch
 - Diffusion Impairment
 - Shunt Physiology
 - Hypoventilation
 - Low oxygen concentration
- Pulse Oximeters



Questions?

A decorative graphic in the bottom right corner of the slide, consisting of several overlapping, parallel lines in shades of blue and grey, creating a sense of depth and movement.