Back to Basics: Asthma Updates and treatments

Presented by:

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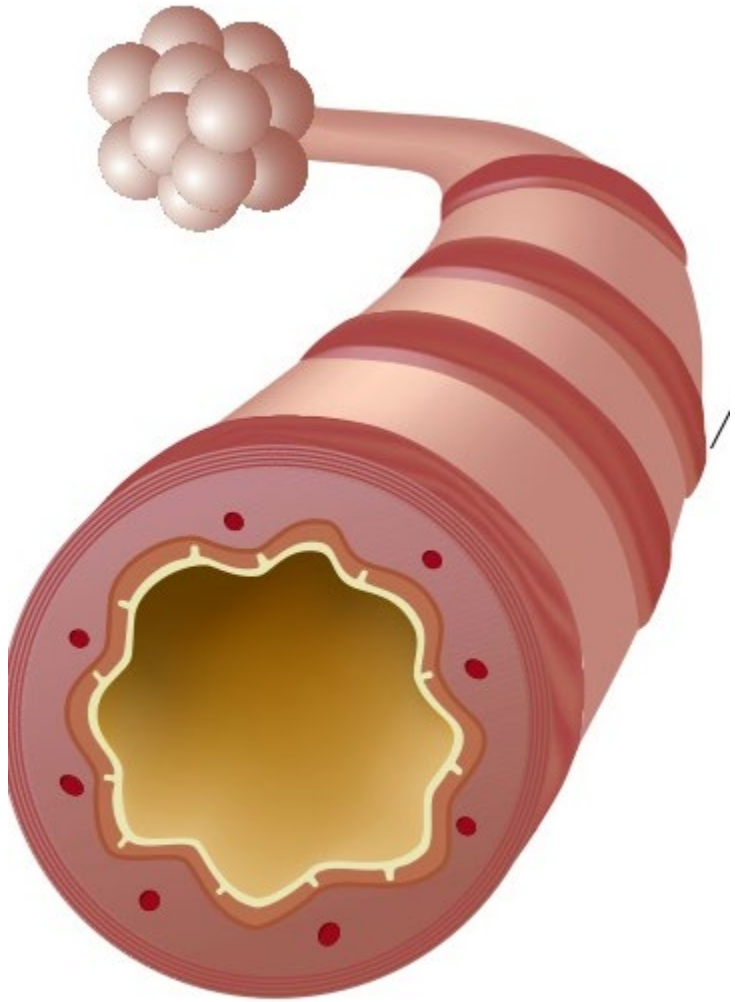
Disclosures

- None

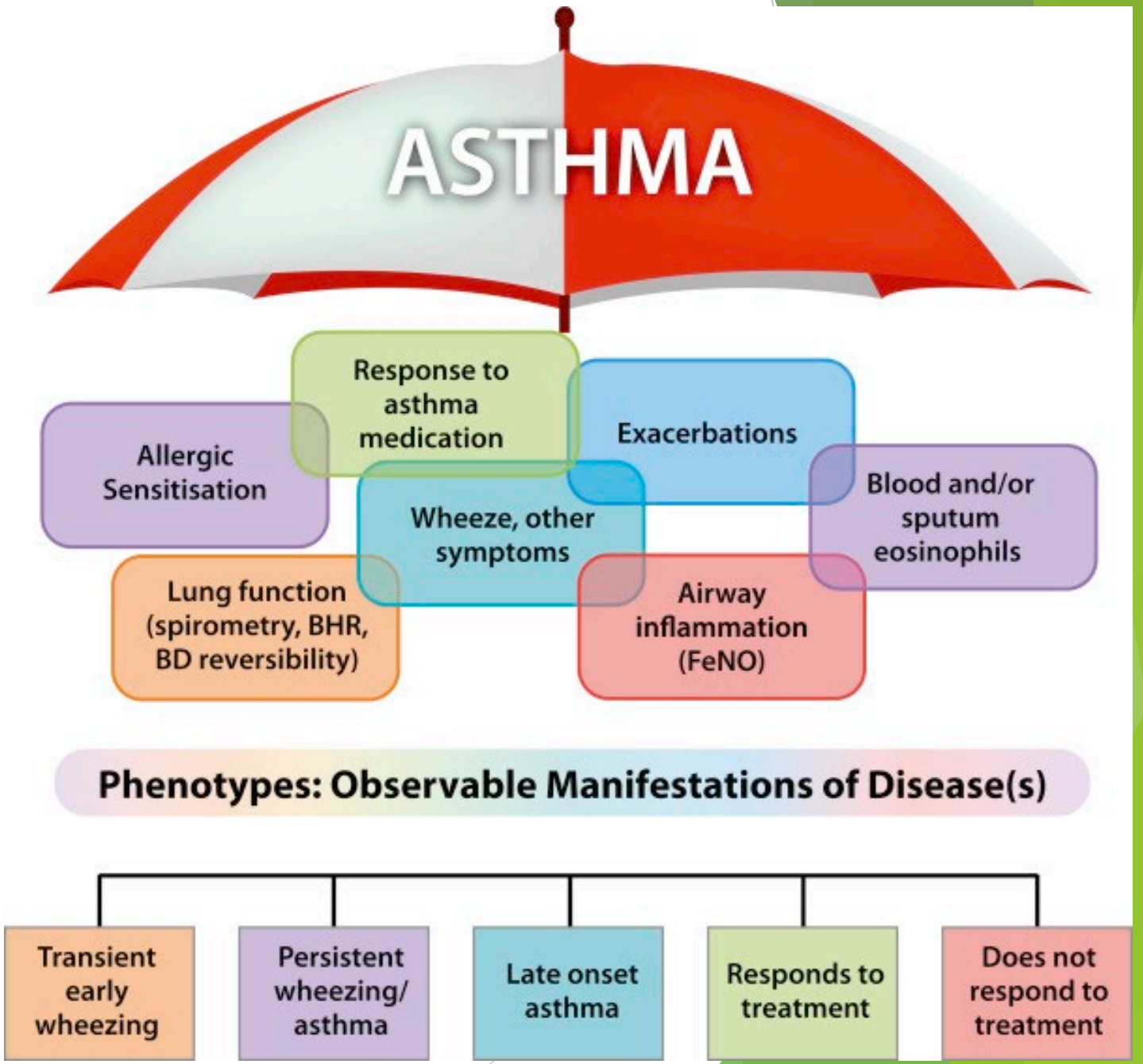
Objectives

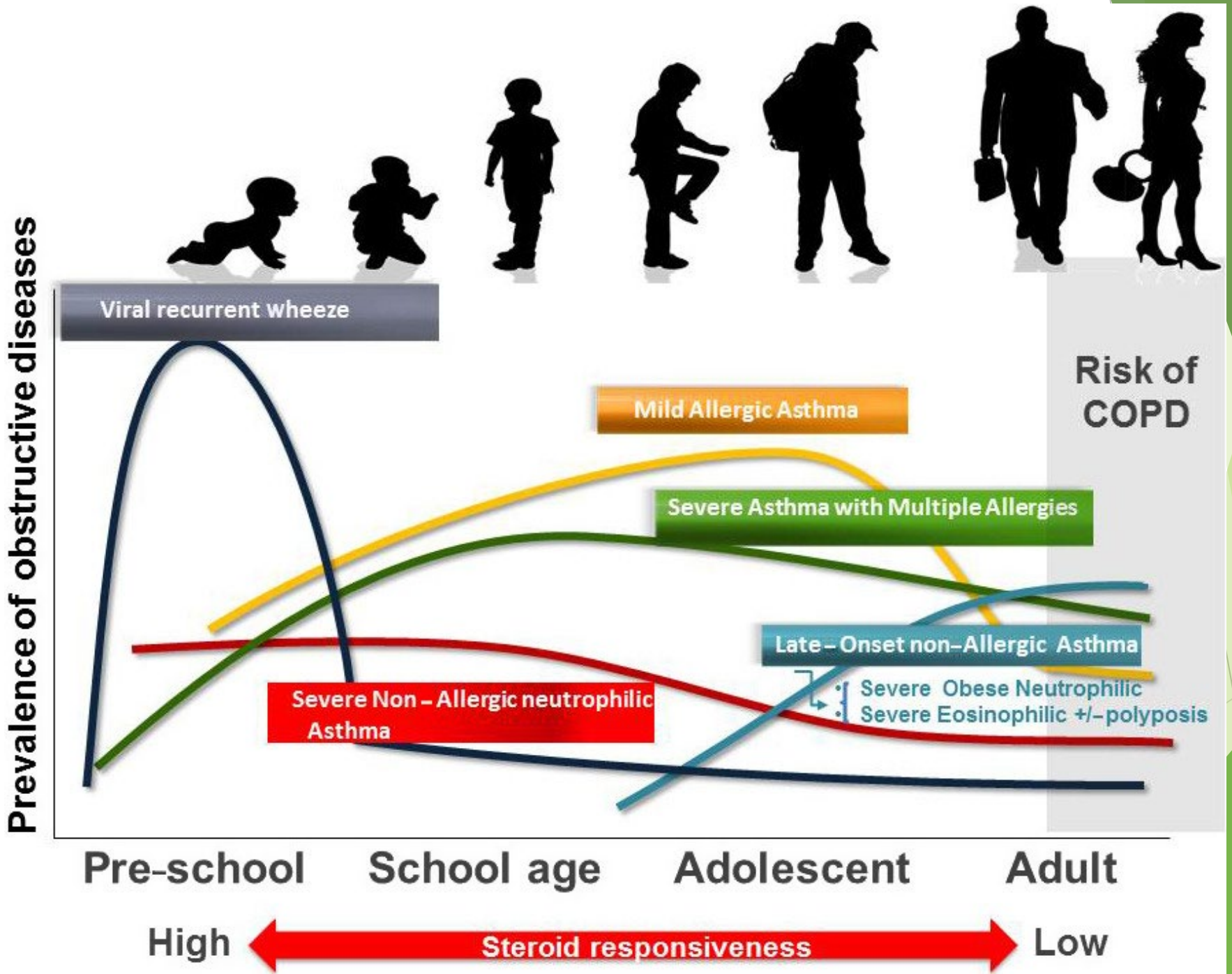
- Review asthma pathophysiology
- List medications and purpose
- Understand changes to guidelines
- What do I do with these? How to take your medications
- Who was missed- your role and how you can help
- Exacerbating factors at school
- The Asthma Action Plan



Normal airway

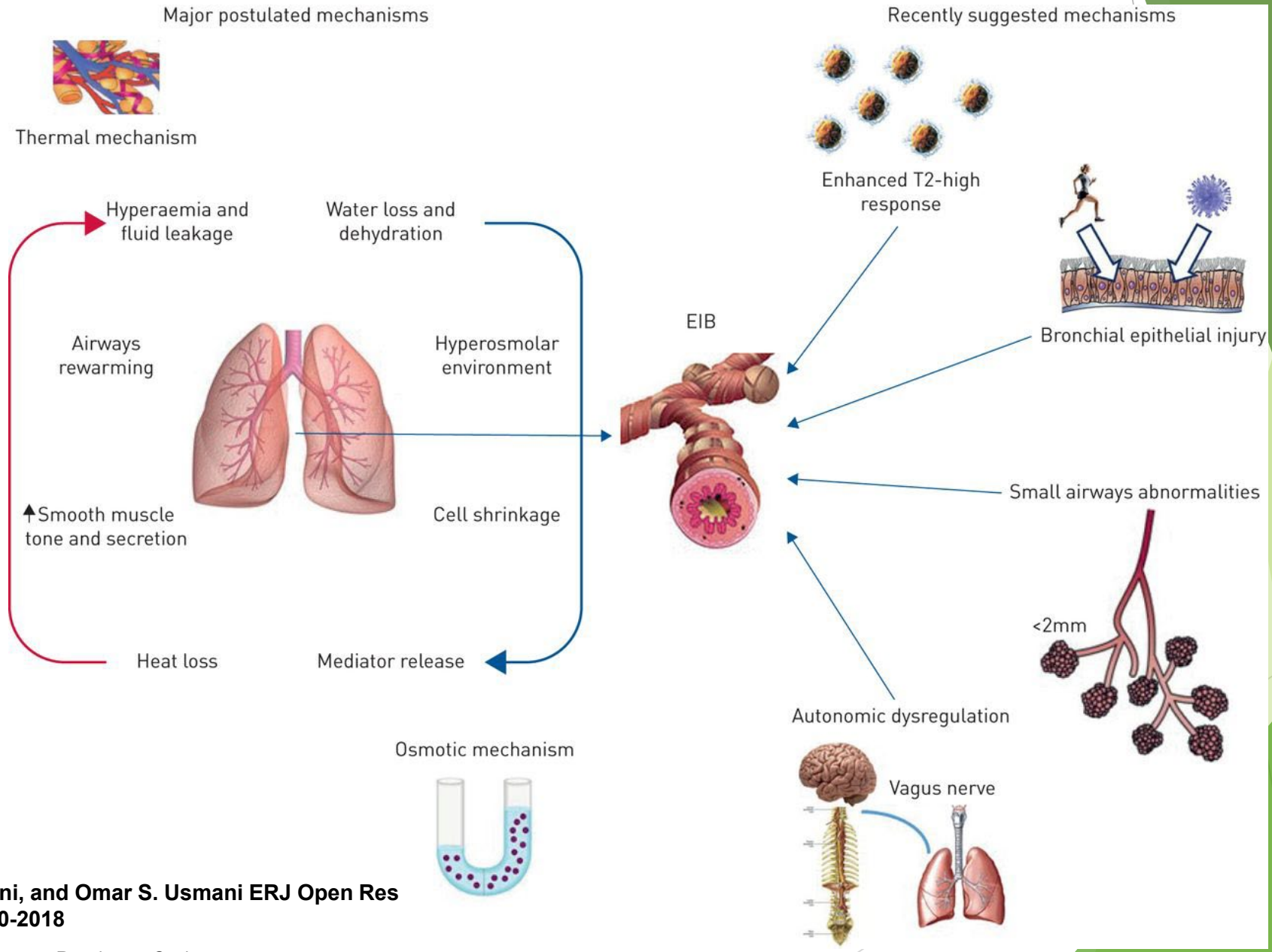
Asthma Phenotypes




Prevalence of obstructive diseases
Viral recurrent wheeze
Mild Allergic Asthma
Severe Asthma with Multiple Allergies
Late – Onset non–Allergic Asthma
Severe Obese Neutrophilic
Severe Eosinophilic +/– polyposis
Severe Non – Allergic neutrophilic Asthma
Risk of COPD
Pre-school
School age
Adolescent
Adult
High
Steroid responsiveness
Low

1
2
3
4
5
6
Hot Spots for Mites
1. Wall-to-wall carpeting
2. Upholstery
3. Drapes
4. Clutter
5. Moldy areas (plant soil)
6. Cushions

Pathophysiological mechanisms of exercise-induced bronchoconstriction (EIB).



Matteo Bonini, and Omar S. Usmani ERJ Open Res 2018;4:00010-2018

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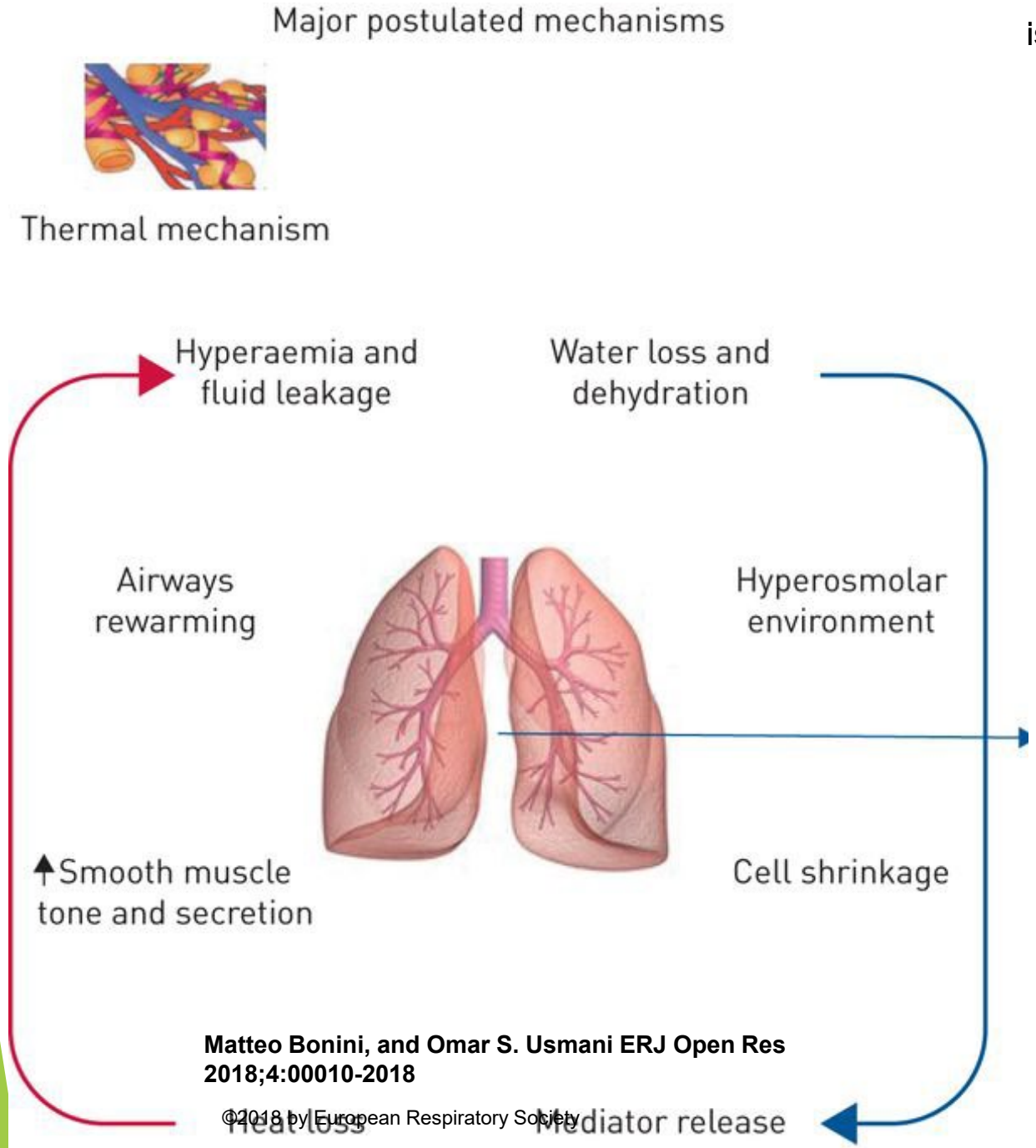
ise-induced bronchoconstriction (EIB).



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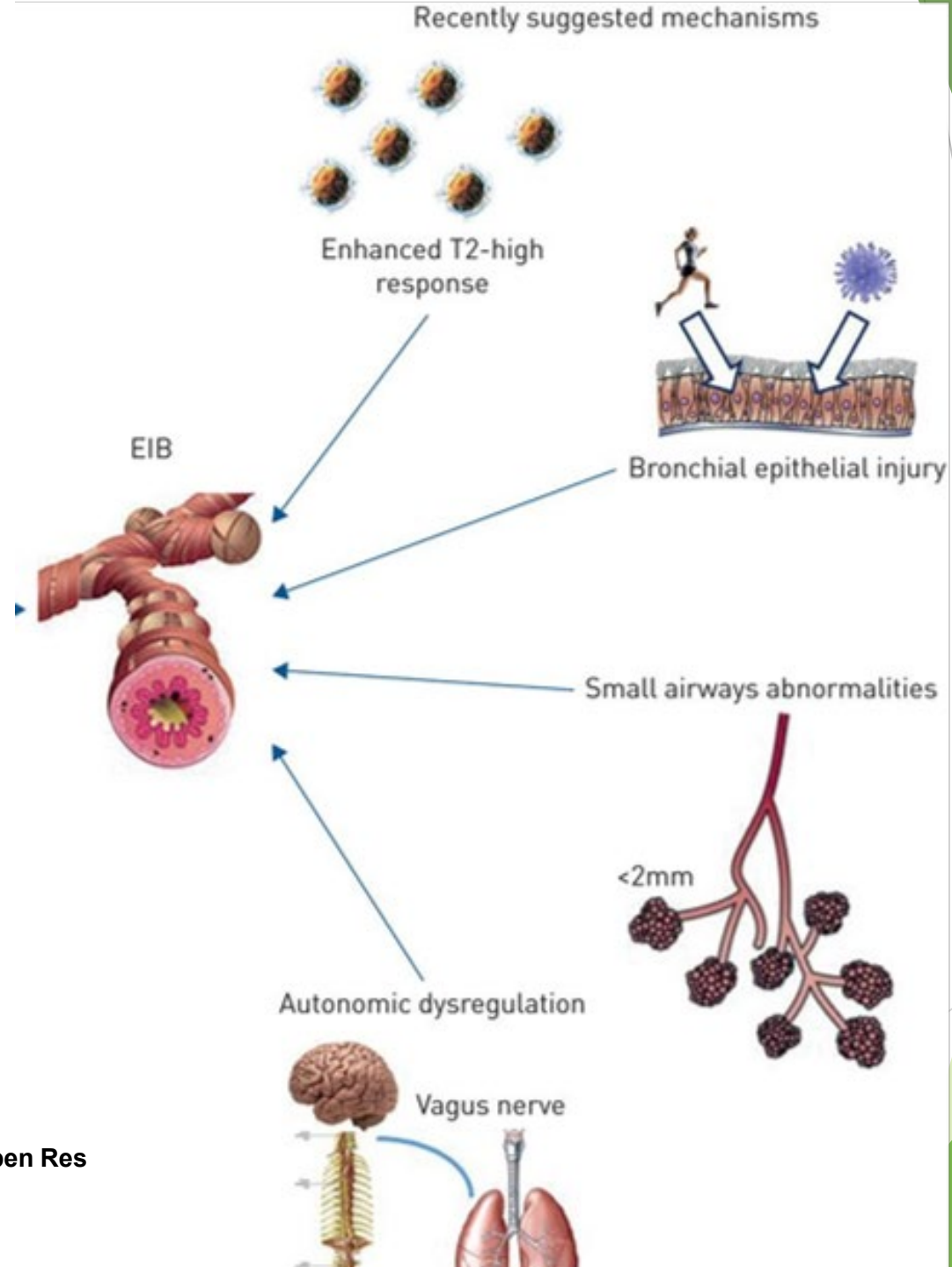

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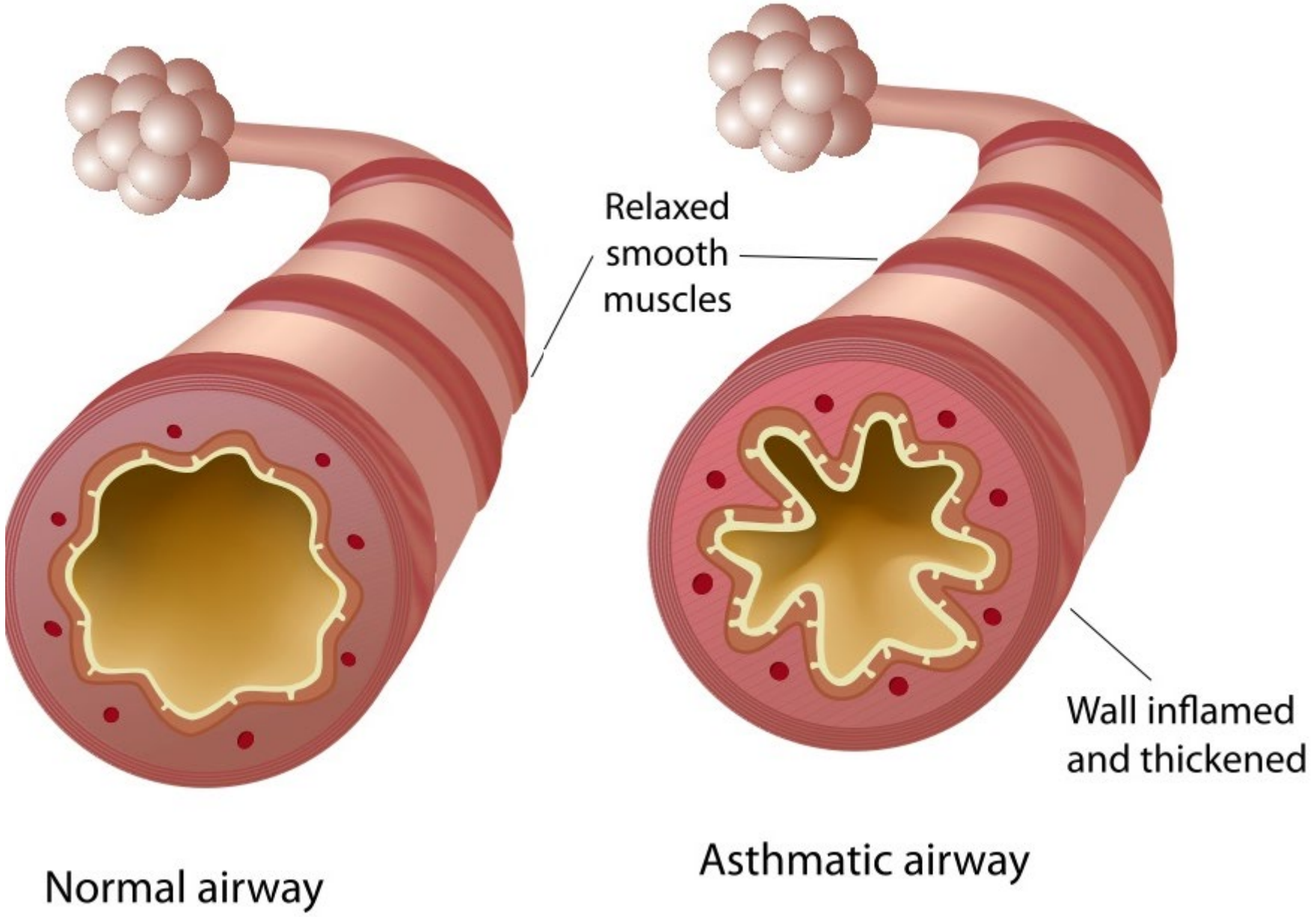
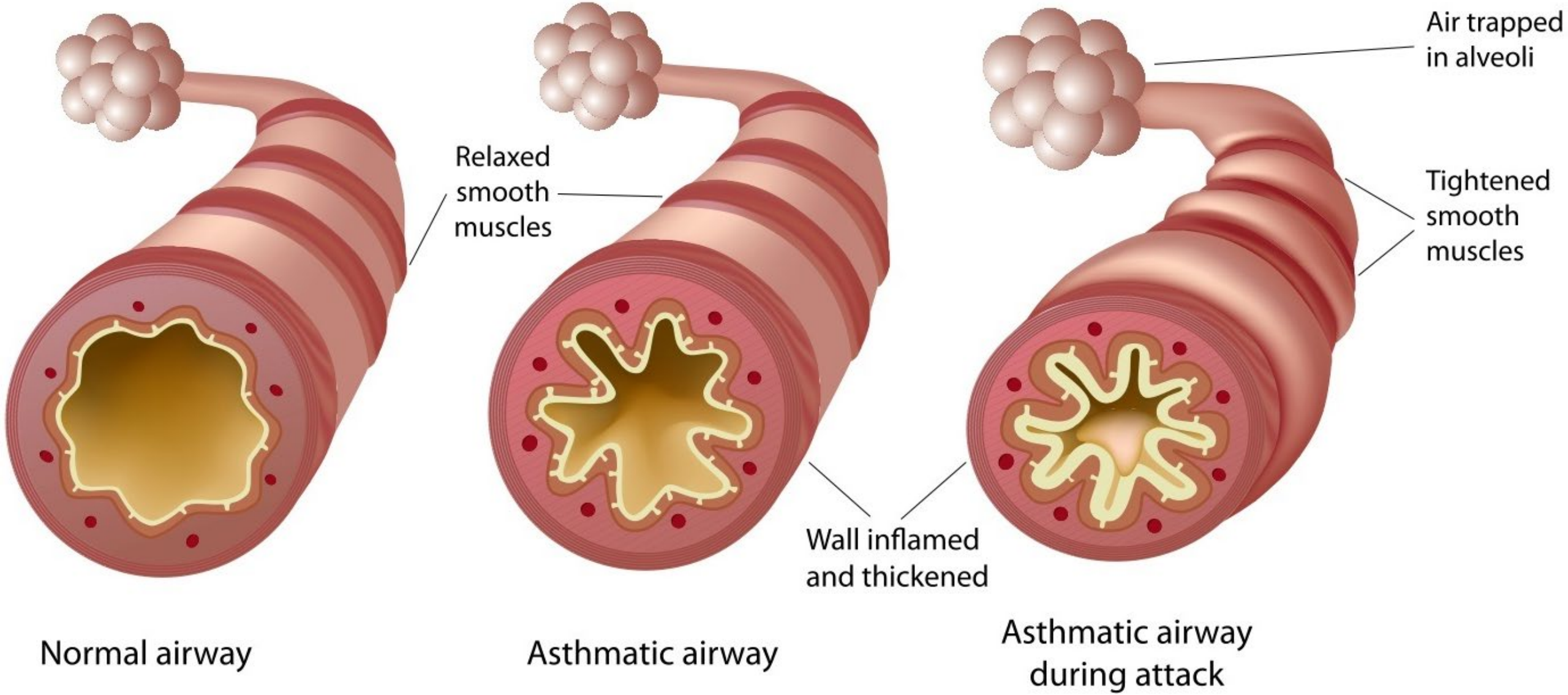

Relaxed
smooth
muscles
Wall inflamed
and thickened
Normal airway
Asthmatic airway


Relaxed
smooth
muscles
Air trapped
in alveoli
Tightened
smooth
muscles
Wall inflamed
and thickened
Normal airway
Asthmatic airway
Asthmatic airway
during attack

Asthma Attack

- Difficult to breath
- Coughing
- Wheezing
- Chest pain
- Retractions

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* Reactive Airway Disease- soap box

- Reactive airway disease is a term used by *some* healthcare providers to describe symptoms that *may* indicate the presence of a respiratory condition, such as asthma.
- "It's too soon to tell"
- "We need to get PFTs"

Acute remedies

Other interventions

- New recommendation- laba formoterol
- PO steroids
- IV Magnesium Sulfate
- IV bronchodilators- aminophyline, terbutaline

Chronic management

Albuterol is not a daily medication!
It is a RESCUE

ICS, LABA/ICS, LTRA, LAMA

Anti-histamine, Intranasal steroids, allergen avoidance

Changes to guidelines

- We used to use ICS alone therapy for persistent asthma, but new recommendations support using

- ICS- Formoterol

AGES 5–11 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

Treatment	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 5–11 Years				
	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA	Daily and PRN combination low-dose ICS-formoterol▲	Daily and PRN combination medium-dose ICS-formoterol▲	Daily high-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA + oral systemic corticosteroid and PRN SABA
Alternative		Daily LTRA,* or Cromolyn,* or Nedocromil,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LTRA,* or daily low-dose ICS +Theophylline,* and PRN SABA	Daily medium-dose ICS-LABA and PRN SABA or Daily medium-dose ICS + LTRA* or daily medium-dose ICS + Theophylline,* and PRN SABA	Daily high-dose ICS + LTRA* or daily high-dose ICS + Theophylline,* and PRN SABA	Daily high-dose ICS + LTRA* + oral systemic corticosteroid or daily high-dose ICS + Theophylline* + oral systemic corticosteroid, and PRN SABA
		Steps 2–4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy▲			Consider Omalizumab**▲	

Single Maintenance And Reliever Therapy

For steps 3/4: the preferred treatment is “SMART” used both daily and PRN

- Individuals with a severe exacerbation in the prior year are particularly good candidates for SMART to reduce exacerbations.
- In individuals taking ICS-salmeterol as maintenance therapy do not use ICS-formoterol as reliever therapy
- Individuals whose asthma is uncontrolled on maintenance ICS-LABA with SABA as quick-relief therapy should receive the preferred SMART if possible before moving to a higher step of therapy.

The preferred option includes the use of ICS-formoterol 1 to 2 puffs as needed up to a maximum total daily maintenance and rescue dose of 8 puffs (36 mcg) (or q6hrs)

Steps 5 and 6: Consider a biologic

AGES 12+ YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

Treatment	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 12+ Years				
	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6 ■
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA or PRN concomitant ICS and SABA▲	Daily and PRN combination low-dose ICS-formoterol▲	Daily and PRN combination medium-dose ICS-formoterol▲	Daily medium-high dose ICS-LABA + LAMA and PRN SABA▲	Daily high-dose ICS-LABA + oral systemic corticosteroids + PRN SABA
Alternative		Daily LTRA* and PRN SABA or Cromolyn,* or Nedocromil,* or Zileuton,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LAMA,▲ or daily low-dose ICS + LTRA,* and PRN SABA or Daily low-dose ICS + Theophylline* or Zileuton,* and PRN SABA	Daily medium-dose ICS-LABA or daily medium-dose ICS + LAMA, and PRN SABA▲ or Daily medium-dose ICS + LTRA,* or daily medium-dose ICS + Theophylline,* or daily medium-dose ICS + Zileuton,* and PRN SABA	Daily medium-high dose ICS-LABA or daily high-dose ICS + LTRA,* and PRN SABA	
		Steps 2–4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy▲			Consider adding Asthma Biologics (e.g., anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13)**	

Respiratory Treatments

2017

Allergy & Asthma Network

American College of Allergy, Asthma & Immunology

Allergy & Asthma Network is a national nonprofit organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.

Learn More at

AllergyAsthmaNetwork.org
800.878.4403

123 = DOSE INDICATOR ★ = BUILT-IN SPACER G = GENERIC AVAILABLE DISEASE STATES: A = ASTHMA C = COPD

Short-acting beta$_2$-agonist bronchodilators
relax tight muscles in airways and offer quick relief of symptoms such as coughing, wheezing and shortness of breath for 3-6 hours

- **ProAir® HFA** — albuterol sulfate — 123 A
- **ProAir® RespiClick** — albuterol sulfate inhalation powder — 123 A
- **Proventil® HFA** — albuterol sulfate — A
- **Ventolin® HFA** — albuterol sulfate — 123 A
- **Xopenex HFA®** — levalbuterol tartrate — A G

Long-acting beta$_2$-agonist bronchodilators
relax tight muscles in airways and offer lasting relief of symptoms such as coughing, wheezing and shortness of breath for at least 12 hours

- **Arcapta™ Neohaler™** — indacaterol inhalation powder — C
- **Serevent® Diskus®** — salmeterol xinafoate inhalation powder — 123 A C
- **Striverdi® Respimat®** — olodaterol hydrochloride — 123 C

Inhaled corticosteroids
reduce and prevent swelling of airway tissue; they do not relieve sudden symptoms of coughing, wheezing or shortness of breath

- **Aerospan®** — 80 mcg — flunisolide — ★ A
- **Alvesco® HFA** — 80 mcg, 160 mcg — ciclesonide — 123 A
- **Arnuity® Ellipta®** — 100 mcg, 200 mcg — fluticasone furoate inhalation powder — 123 A
- **Asmanex® HFA** — mometasone furoate — 123 A
- **Asmanex® Twisthaler®** — 110 mcg, 220 mcg — mometasone furoate inhalation powder — 123 A
- **Flovent® Diskus®** — 50 mcg, 100 mcg, 250 mcg — fluticasone propionate inhalation powder — 123 A
- **Flovent® HFA** — 44 mcg, 110 mcg, 220 mcg — fluticasone propionate — 123 A
- **Pulmicort Flexhaler®** — 90 mcg, 180 mcg — budesonide inhalation powder — 123 A
- **QVAR® Redihaler™** — 40 mcg, 80 mcg — beclomethasone dipropionate — 123 A C

Combination medications
contain both inhaled corticosteroid and long-acting beta$_2$-agonist (LABA)

- **Advair Diskus®** — 100/50, 250/50, 500/50 — fluticasone propionate and salmeterol inhalation powder — 123 A C G
- **Advair® HFA** — 45/21, 115/21, 230/21 — fluticasone propionate and salmeterol xinafoate — 123 A
- **AirDuo™ RespiClick®** — 55/14 mcg, 113/14 mcg, 232/14 mcg — fluticasone propionate and salmeterol inhalation powder — 123 A G
- **Breo® Ellipta®** — 100/25 mcg, 200/25 mcg — fluticasone furoate and vilanterol inhalation powder — 123 A C
- **Dulera®** — 100/5, 200/5 — mometasone furoate and formoterol fumarate dihydrate — 123 A
- **Symbicort® (HFA)** — 80/4.5, 160/4.5 — budesonide and formoterol fumarate dihydrate — 123 A C

Combination medications
contain both long-acting muscarinic antagonist (LAMA) and long-acting beta$_2$-agonist (LABA)

- **Anoro® Ellipta®** — 62.5 mcg/25 mcg — umeclidinium and vilanterol inhalation powder — 123 C
- **Bevespi Aerosphere®** — 9 mcg/4.8mcg — glycopyrrolate and formoterol fumarate inhalation aerosol — 123 C
- **Stiolto™ Respimat®** — 2.5 mcg/2.5 mcg — tiotropium bromide and olodaterol — 123 C
- **Utibron™ Neohaler®** — 27.5 mcg/15.6 mcg — indacaterol and glycopyrrolate inhalation powder — C

Muscaranic antagonist (anticholinergic) bronchodilators
relieve cough, sputum production, wheeze and chest tightness associated with chronic lung diseases

Short-acting
- **Atrovent® HFA** — ipratropium bromide — 123 C

Long-acting
- **Seebri™ Neohaler®** — glycopyrrolate inhalation powder — C
- **Incruse® Ellipta®** — umeclidinium inhalation powder — 123 C
- **Spiriva® HandiHaler®** — tiotropium bromide inhalation powder — C
- **Spiriva® Respimat®** — tiotropium bromide — 123 A C
- **Tudorza™ Pressair™** — aclidinium bromide inhalation powder — 123 C

Combination
muscarinic antagonist and beta$_2$-agonist

Short-acting
- **Combivent® Respimat®** — ipratropium bromide and albuterol — 123 C

Severe asthma treatments

- **Cinqair** — reslizumab — A
- **Nucala** — mepolizumab — A
- **Xolair** — omalizumab — A
- **Bronchial Thermoplasty** — A minimally invasive procedure that uses mild heat to reduce airway smooth muscle, leading to fewer severe asthma flares, ER visits, and days lost from activities. www.btforasthma.com — A

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Respiratory Treatments

2020

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CHEST FOUNDATION

1|2|3 = DOSE INDICATOR G = GENERIC AVAILABLE DISEASE STATES: A = ASTHMA C = COPD

Allergy & Asthma Network is a national nonprofit organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.

SHORT-ACTING BETA$_2$-AGONIST BRONCHODILATORS

relax tight muscles in airways and offer quick relief of symptoms such as coughing, wheezing and shortness of breath for 3-6 hours

- **ProAir® Digihaler™** — 117 mcg — albuterol sulfate — 1|2|3 A
- **ProAir® HFA** — 100 mcg — albuterol sulfate — 1|2|3 A G
- **ProAir RespiClick®** — 117 mcg — albuterol sulfate inhalation powder — 1|2|3 A
- **Proventil® HFA** — 120 mcg — albuterol sulfate — 1|2|3 A
- **Ventolin® HFA** — 90 mcg — albuterol sulfate — 1|2|3 A G
- **Xopenex HFA®** — 59 mcg — levalbuterol tartrate — A G

LONG-ACTING BETA$_2$-AGONIST BRONCHODILATORS

relax tight muscles in airways and offer lasting relief of symptoms such as coughing, wheezing and shortness of breath for at least 12 hours

- **Arcapta™ Neohaler™** — 75 mcg — indacaterol inhalation powder — C
- **Serevent® Diskus®** — 50 mcg — salmeterol xinafoate inhalation powder — 1|2|3 A C
- **Striverdi® Respimat®** — 2.5 mcg — olodaterol hydrochloride — 1|2|3 C

INHALED CORTICOSTEROIDS

reduce and prevent swelling of airway tissue; they do not relieve sudden symptoms of coughing, wheezing or shortness of breath

- **Alvesco® HFA** — 80, 160 mcg — ciclesonide — 1|2|3 A
- **ArmonAir® Digihaler™** — 55, 113, 232 mcg — fluticasone propionate inhalation powder — 1|2|3 A
- **ArmonAir® RespiClick®** — 55, 113, 232 mcg — fluticasone propionate inhalation powder — 1|2|3 A
- **Arnuity® Ellipta®** — 50, 100, 200 mcg — fluticasone furoate inhalation powder — 1|2|3 A
- **Asmanex® HFA** — 100, 200 mcg — mometasone furoate — 1|2|3 A
- **Asmanex® Twisthaler®** — 110, 220 mcg — mometasone furoate inhalation powder — 1|2|3 A
- **Flovent® Diskus®** — 50, 100, 250 mcg — fluticasone propionate inhalation powder — 1|2|3 A
- **Flovent® HFA** — 44, 110, 220 mcg — fluticasone propionate — 1|2|3 A
- **Pulmicort Flexhaler®** — 90, 180 mcg — budesonide inhalation powder — 1|2|3 A
- **QVAR® Redihaler™** — 40, 80 mcg — beclomethasone dipropionate — 1|2|3 A

COMBINATION MEDICATIONS

contain both inhaled corticosteroid and long-acting beta$_2$-agonist (LABA)

- **Advair Diskus®** — 100/50, 250/50, 500/50 mcg — fluticasone propionate and salmeterol inhalation powder — 1|2|3 A C G
- **Advair® HFA** — 45/21, 115/21, 230/21 mcg — fluticasone propionate and salmeterol xinafoate — 1|2|3 A G
- **AirDuo® Digihaler™** — 55/14, 113/14, 232/14 mcg — fluticasone propionate and salmeterol inhalation powder — 1|2|3 A
- **AirDuo® RespiClick®** — 55/14, 113/14, 232/14 mcg — fluticasone propionate and salmeterol inhalation powder — 1|2|3 A G
- **Breo® Ellipta®** — 100/25, 200/25 mcg — fluticasone furoate and vilanterol inhalation powder — 1|2|3 A C
- **Dulera®** — 100/5, 200/5 mcg — mometasone furoate and formoterol fumarate dihydrate — 1|2|3 A
- **Symbicort®** — 80/4.5, 160/4.5 mcg — budesonide and formoterol fumarate dihydrate — 1|2|3 A C
- **Wixela™ Inhub™** — 100/50, 250/50, 500/50 mcg — fluticasone propionate and salmeterol xinafoate (approved generic of Advair Diskus) — 1|2|3 A C

contain both long-acting beta$_2$-agonist (LABA) and long-acting muscarinic antagonist (LAMA)

- **Anoro® Ellipta®** — 62.5/25 mcg — umeclidinium and vilanterol inhalation powder — 1|2|3 C
- **Bevespi Aerosphere®** — 9/4.8 mcg — glycopyrrolate and formoterol fumarate — 1|2|3 C
- **Stiolto™ Respimat®** — 2.5/2.5 mcg — tiotropium bromide and olodaterol — 1|2|3 C
- **Utibron™ Neohaler®** — 27.5/15.6 mcg — indacaterol and glycopyrrolate inhalation powder — C

contains inhaled corticosteroid, long-acting beta$_2$-agonist (LABA) and long-acting muscarinic antagonist (LAMA)

- **Trelegy® Ellipta®** — 100/62.5/25 mcg — fluticasone furoate, umeclidinium and vilanterol inhalation powder — 1|2|3 C

MUSCARINIC ANTAGONIST (ANTICHOLINERGIC)

relieve cough, sputum production, wheeze and chest tightness associated with chronic lung diseases

Short-acting

- **Atrovent® HFA** — 17 mcg — ipratropium bromide — 1|2|3 C

Long-acting

- **Incruse® Ellipta®** — 62.5 mcg — umeclidinium inhalation powder — 1|2|3 C
- **Seebri™ Neohaler®** — 15.6 mcg — glycopyrrolate inhalation powder — C
- **Spiriva® HandiHaler®** — 18 mcg — tiotropium bromide inhalation powder — C
- **Spiriva® Respimat®** — 1.25, 2.5 mcg — tiotropium bromide — 1|2|3 A C

COMBINATION

contains muscarinic antagonist and beta$_2$-agonist

- **Tudorza™ Pressair™** — 400 mcg — aclidinium bromide inhalation powder — 1|2|3 C

Short-acting

- **Combivent® Respimat®** — 20/100 mcg — ipratropium bromide and albuterol — 1|2|3 C

Long-acting

- **Duaklir® Pressair®** — 400, 12 mcg — aclidinium bromide and formoterol fumarate dihydrate — 1|2|3 C

BIOLOGICS

target cells and pathways that cause airway inflammation; delivered by injection or IV

- **Cinqair®** — reslizumab — A
- **Dupixent®** — dupilumab — A
- **Fasenra™** — benralizumab — A
- **Nucala®** — mepolizumab — A
- **Xolair®** — omalizumab — A

BRONCHIAL THERMOPLASTY

A minimally invasive procedure that uses mild heat to reduce airway smooth muscle, leading to fewer severe asthma flares, ER visits, and days lost from activities.

www.btforasthma.com

A

PDE4 INHIBITORS

ease lung inflammation and reduce exacerbations

- **Daliresp®** — 250, 500 mcg — roflumilast — C

Reviewed by Dennis Williams, PharmD

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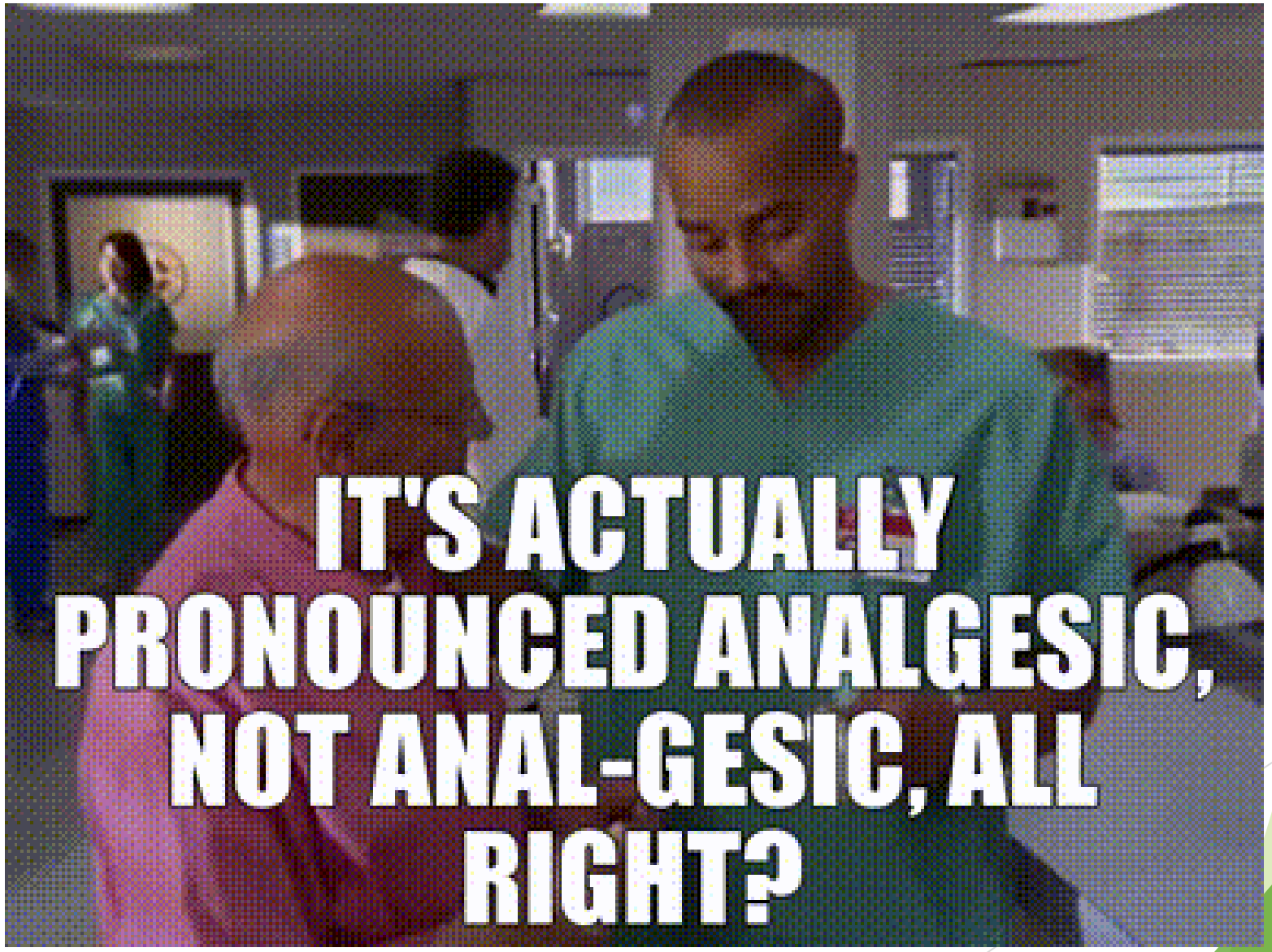
Think fast!


IT'S ACTUALLY
PRONOUNCED ANALGESIC,
NOT ANAL-GESIC, ALL
RIGHT?

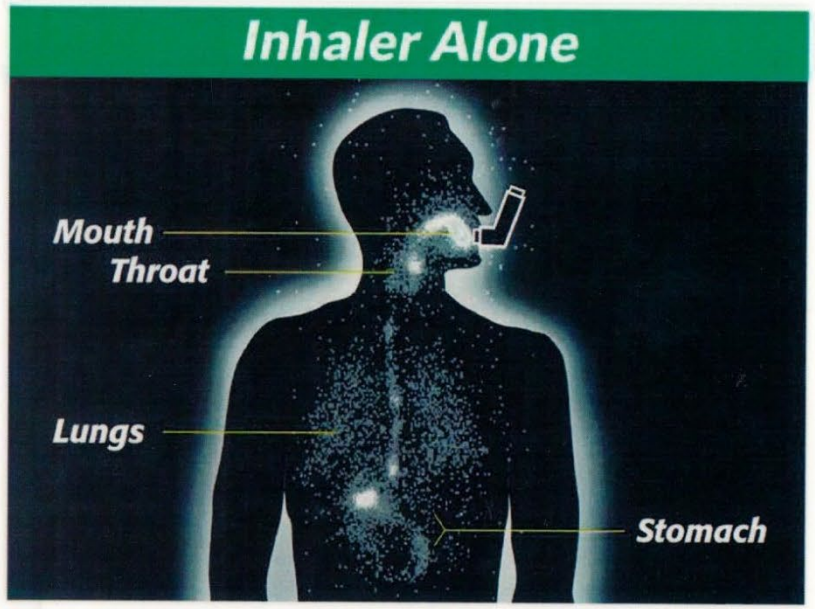
AeroChamber
Plus Flow-Vu
Anti-Static Valved Holding Chamber
Chambre de Retenue Valvée Antistatique

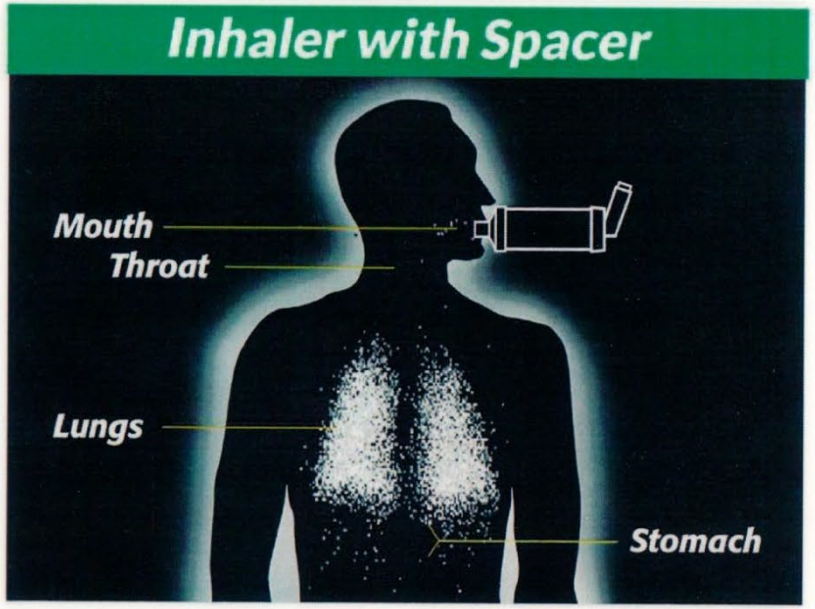
AeroChamber
Plus Flow-Vu
Anti-Static Valved Holding Chamber
Chambre de Retenue Valvée Antistatique

PHILIPS
RESPIRONICS

VORTEX
Non Electrostatic Valved Holding Chamber

Why use a Spacer with an Inhaler?





When an inhaler is used alone, medicine ends up in the mouth, throat, stomach and lungs.

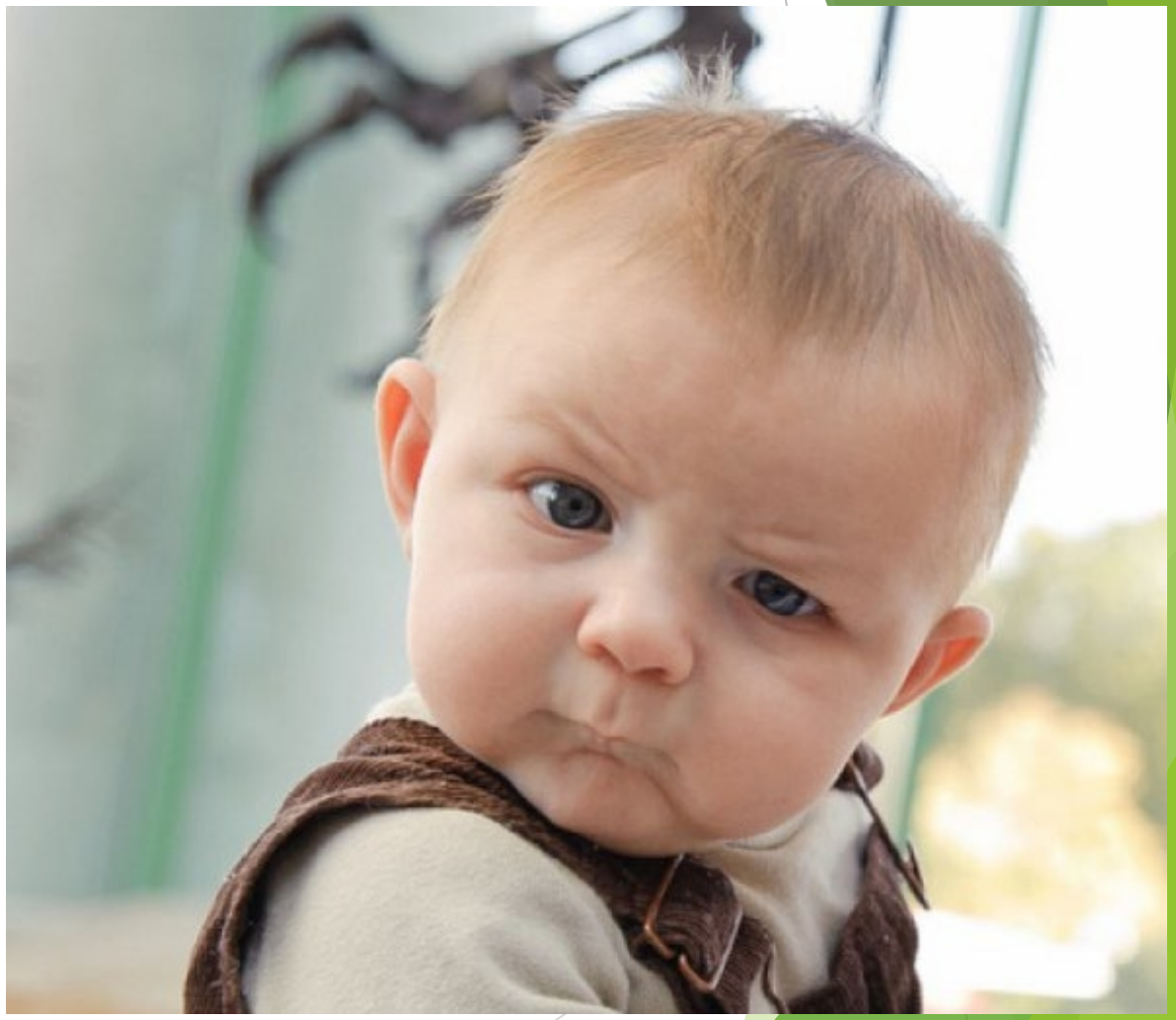
When an inhaler is used with a spacer device, more medicine is delivered to the lungs.

"Comparative respiratory deposition of ^{99m}Tc labeled particles of albuterol using a metereddose inhaler and a metered dose inhaler with spacer in healthy human volunteers using gamma-scintigraphy," R. Beihn, PhD, Scintiprox, Inc., Indianapolis, Indiana, and D. Doherty, MD, Department of Pulmonology, University of Kentucky Medical Center, Lexington, KY, 1997.

For more information:
919.970.8600 x83
lung@activehealthcare.com

Active Healthcare, Inc.

- How have you taught or administered meds?



What could go wrong....

- Asthma patients have used medical care in numerous instances, they have learned anecdotally that the nebulizer is the best
- ICU says MDI is better and you need spacer
- Pharmacy says "no your old enough"; use as directed
- Their cousin has a similar color they use when they need it, no spacer

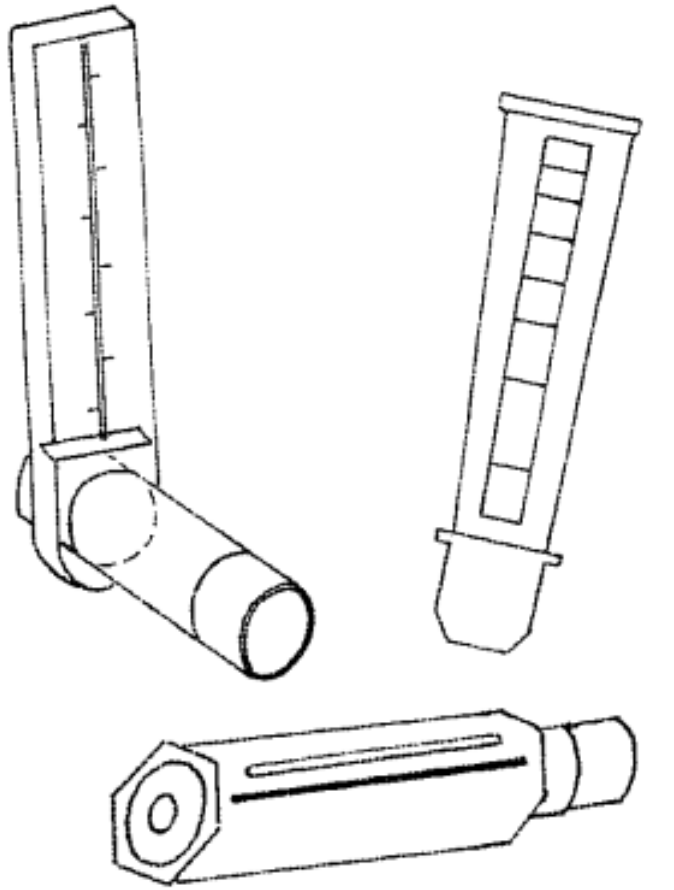
Where can you help

Who was missed- you can see who was not acurately graded- is exercise a consistent trigger? Is cold air exposure a relevant consideration?

Was the patient in the ED/ missed school for pred course in the past year

Needs albuterol before exercise- you are one of the first to see their limitation!

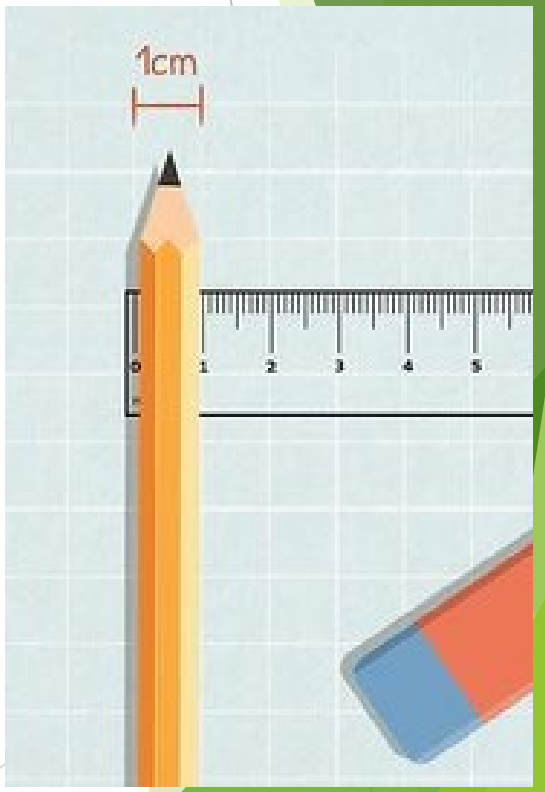
Have you heard?



- Peakflow- used to be used regularly, now has fallen out of favor
  - Easy to fool, only as good as your question
- Asthma classification
  - Many caregivers have heard of the asthma action plan
    - Few have heard of the severity classification
  - If you get prednisone once, you should consider step up
  - Rule of 2s
- Medications affect growth, or foster infections

Steroids affecting growth rates

- Getting good asthma control is essential- where repeated oral steroid courses are by far the most likely to have multiple long-term side effects
- 2020 update gives a PRN option targeting exacerbations
- In the intermittent patient who is having 1-2 exacerbations lasting 2-3 days per year the inhaled steroids doses are negligible
- In the intermittent patient who is having monthly exacerbations or 2-3 oral steroid courses - they are misclassified and need more than just PRN treatment



School Exposures

- You tell me!

- When have you seen people in the context of school present with these symptoms?

Exacerbating factors at school

- Entering the school: Fire, smog, emissions, cleaning products
- Scents around you: candles, plug in air fresheners, fragrances
- Classroom irritants: carpets, curtains, blinds

- Other considerations: Conversion from cooling to heating
- Decorations- wreaths, trees, seasonal projects
- Environmental exposures- Pool, construction/ demolition

The Asthma Action Plan

Asthma Treatment Plan – Student

(This asthma action plan meets NJ Law N.J.S.A. 18A:40-12.8) **(Physician's Orders)**

The Pediatric/Adult Asthma Coalition of New Jersey — "Your Pathway to Asthma Control" — Access approved Plan available at www.pacnj.org

Sponsored by American Lung Association in New Jersey

NJ Health — New Jersey Department of Health

(Please Print)

Name	Date of Birth	Effective Date
Doctor	Parent/Guardian (if applicable)	Emergency Contact
Phone	Phone	Phone

HEALTHY (Green Zone)

You have *all* of these:
- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work, exercise, and play

And/or Peak flow above _____

Take daily control medicine(s). Some inhalers may be more effective with a "spacer" – use if directed.

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
☐ Advair® HFA ☐ 45, ☐ 115, ☐ 230	2 puffs twice a day
☐ Aerospan™	☐ 1, ☐ 2 puffs twice a day
☐ Alvesco® ☐ 80, ☐ 160	☐ 1, ☐ 2 puffs twice a day
☐ Dulera® ☐ 100, ☐ 200	2 puffs twice a day
☐ Flovent® ☐ 44, ☐ 110, ☐ 220	2 puffs twice a day
☐ Qvar® ☐ 40, ☐ 80	☐ 1, ☐ 2 puffs twice a day
☐ Symbicort® ☐ 80, ☐ 160	☐ 1, ☐ 2 puffs twice a day
☐ Advair Diskus® ☐ 100, ☐ 250, ☐ 500	1 inhalation twice a day
☐ Asmanex® Twisthaler® ☐ 110, ☐ 220	☐ 1, ☐ 2 inhalations ☐ once or ☐ twice a day
☐ Flovent® Diskus® ☐ 50 ☐ 100 ☐ 250	1 inhalation twice a day
☐ Pulmicort Flexhaler® ☐ 90, ☐ 180	☐ 1, ☐ 2 inhalations ☐ once or ☐ twice a day
☐ Pulmicort Respules® (Budesonide) ☐ 0.25, ☐ 0.5, ☐ 1.0	1 unit nebulized ☐ once or ☐ twice a day
☐ Singulair® (Montelukast) ☐ 4, ☐ 5, ☐ 10 mg	1 tablet daily
☐ Other	
☐ None	

Remember to rinse your mouth after taking inhaled medicine.

If exercise triggers your asthma, take _____ puff(s) _____ minutes before exercise.

CAUTION (Yellow Zone)

You have *any* of these:
- Cough
- Mild wheeze
- Tight chest
- Coughing at night
- Other: _____

If quick-relief medicine does not help within 15-20 minutes or has been used more than 2 times and symptoms persist, call your doctor or go to the emergency room.

And/or Peak flow from _____ to _____

Continue daily control medicine(s) and ADD quick-relief medicine(s).

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
☐ Albuterol MDI (Pro-air® or Proventil® or Ventolin®)	2 puffs every 4 hours as needed
☐ Xopenex®	2 puffs every 4 hours as needed
☐ Albuterol ☐ 1.25, ☐ 2.5 mg	1 unit nebulized every 4 hours as needed
☐ Duoneb®	1 unit nebulized every 4 hours as needed
☐ Xopenex® (Levalbuterol) ☐ 0.31, ☐ 0.63, ☐ 1.25 mg	1 unit nebulized every 4 hours as needed
☐ Combivent Respimat®	1 inhalation 4 times a day
☐ Increase the dose of, or add:	
☐ Other	

- **If quick-relief medicine is needed more than 2 times a week, except before exercise, then call your doctor.**

EMERGENCY (Red Zone)

Your asthma is getting worse fast:
- Quick-relief medicine did not help within 15-20 minutes
- Breathing is hard or fast
- Nose opens wide • Ribs show
- Trouble walking and talking
- Lips blue • Fingernails blue
- Other: _____

And/or Peak flow below _____

Take these medicines NOW and CALL 911.
Asthma can be a life-threatening illness. Do not wait!

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
☐ Albuterol MDI (Pro-air® or Proventil® or Ventolin®)	4 puffs every 20 minutes
☐ Xopenex®	4 puffs every 20 minutes
☐ Albuterol ☐ 1.25, ☐ 2.5 mg	1 unit nebulized every 20 minutes
☐ Duoneb®	1 unit nebulized every 20 minutes
☐ Xopenex® (Levalbuterol) ☐ 0.31, ☐ 0.63, ☐ 1.25 mg	1 unit nebulized every 20 minutes
☐ Combivent Respimat®	1 inhalation 4 times a day
☐ Other	

Triggers

Check all items that trigger patient's asthma:

- ☐ Colds/flu
- ☐ Exercise
- ☐ Allergens
  - Dust Mites, dust, stuffed animals, carpet
  - Pollen - trees, grass, weeds
  - Mold
  - Pets - animal dander
  - Pests - rodents, cockroaches
- ☐ Odors (Irritants)
  - Cigarette smoke & second hand smoke
  - Perfumes, cleaning products, scented products
  - Smoke from burning wood, inside or outside
- ☐ Weather
  - Sudden temperature change
  - Extreme weather - hot and cold
  - Ozone alert days
- ☐ Foods:
  - _____
  - _____
  - _____
- ☐ Other:
  - _____
  - _____
  - _____

This asthma treatment plan is meant to assist, not replace, the clinical decision-making required to meet individual patient needs.

Permission to Self-administer Medication:

☐ This student is capable and has been instructed in the proper method of self-administering of the non-nebulized inhaled medications named above in accordance with NJ Law.

☐ This student is not approved to self-medicate.

PHYSICIAN/APN/PA SIGNATURE (SIGN HERE) _____ DATE _____

Physician's Orders

PARENT/GUARDIAN SIGNATURE (SIGN HERE) _____

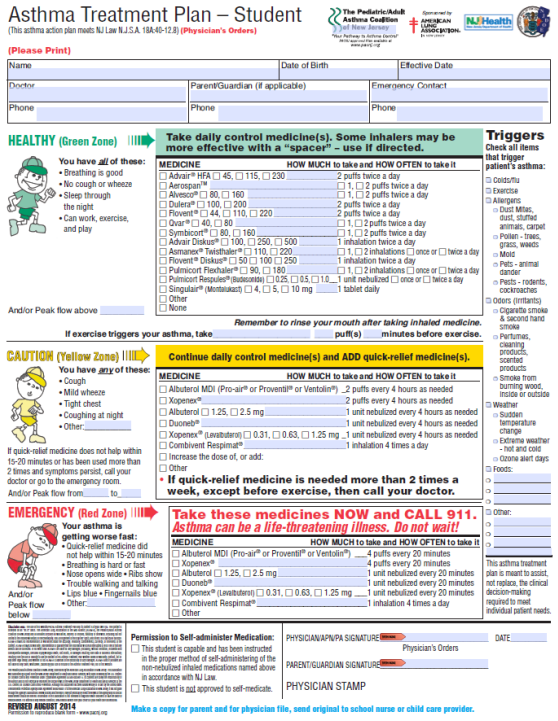
PHYSICIAN STAMP

REVISED AUGUST 2014

Permission to reproduce blank form - www.pacnj.org

Make a copy for parent and for physician file, send original to school nurse or child care provider.

The Asthma Action Plan



Asthma Treatment Plan – Student

(This asthma action plan meets NJ Law N.J.S.A. 18A:40-12.8) (Physician's Orders)

(Please Print)

Name | Date of Birth | Effective Date

Doctor | Parent/Guardian (if applicable) | Emergency Contact

Phone | Phone | Phone

HEALTHY (Green Zone)

You have all of these:
- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work, exercise, and play

Take daily control medicine(s). Some inhalers may be more effective with a "spacer" – use if directed.

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
☐ Advair® HFA ☐ 45, ☐ 115, ☐ 230	2 puffs twice a day
☐ Aerospan™	☐ 1, ☐ 2 puffs twice a day
☐ Alvesco® ☐ 80, ☐ 160	☐ 1, ☐ 2 puffs twice a day
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☐ Qvar® ☐ 40, ☐ 80	☐ 1, ☐ 2 puffs twice a day
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☐ Flovent® Diskus® ☐ 50, ☐ 100 ☐ 250	1 inhalation twice a day
☐ Pulmicort Flexhaler® ☐ 90, ☐ 180	☐ 1, ☐ 2 inhalations ☐ once or ☐ twice a day
☐ Pulmicort Respules® (Budesonide) ☐ 0.25, ☐ 0.5, ☐ 1.0	1 unit nebulized ☐ once or ☐ twice a day
☐ Singulair® (Montelukast) ☐ 4, ☐ 5, ☐ 10 mg	1 tablet daily
☐ Other	
☐ None	

And/or Peak flow above

Remember to rinse your mouth after taking inhaled medicine.

If exercise triggers your asthma, take puff(s) minutes before exercise.

Triggers
Check all items that trigger patient's asthma:
- ☐ Colds/flu
- ☐ Exercise
- ☐ Allergens
  - ○ Dust Mites, dust, stuffed animals, carpet
  - ○ Pollen - trees, grass, weeds
  - ○ Mold
  - ○ Pets - animal dander
  - ○ Pests - rodents, cockroaches
- ☐ Odors (irritants)
  - ○ Cigarette smoke & second hand smoke
  - ○ Perfumes, cleaning products, scented products
  - ○ Smoke from burning wood, inside or outside
- ☐ Weather
  - ○ Sudden temperature change
  - ○ Extreme weather - hot and cold
  - ○ Ozone alert days
- ☐ Foods:
  - ○
  - ○
  - ○
- ☐ Other:
  - ○
  - ○
  - ○

CAUTION (Yellow Zone)

You have any of these:
- Cough
- Mild wheeze
- Tight chest
- Coughing at night
- Other:

Continue daily control medicine(s) and ADD quick-relief medicine(s).

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
☐ Albuterol MDI (Pro-air® or Proventil® or Ventolin®)	2 puffs every 4 hours as needed
☐ Xopenex®	2 puffs every 4 hours as needed
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☐ Combivent Respimat®	1 inhalation 4 times a day
☐ Increase the dose of, or add:	
☐ Other	

If quick-relief medicine does not help within 15-20 minutes or has been used more than 2 times and symptoms persist, call your doctor or go to the emergency room.

And/or Peak flow from to

- **If quick-relief medicine is needed more than 2 times a week, except before exercise, then call your doctor.**

EMERGENCY (Red Zone)

Your asthma is getting worse fast:
- Quick-relief medicine did not help within 15-20 minutes
- Breathing is hard or fast
- Nose opens wide • Ribs show
- Trouble walking and talking
- Lips blue • Fingernails blue
- Other:

And/or Peak flow below

Take these medicines NOW and CALL 911.
Asthma can be a life-threatening illness. Do not wait!

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
☐ Albuterol MDI (Pro-air® or Proventil® or Ventolin®)	4 puffs every 20 minutes
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☐ Other	

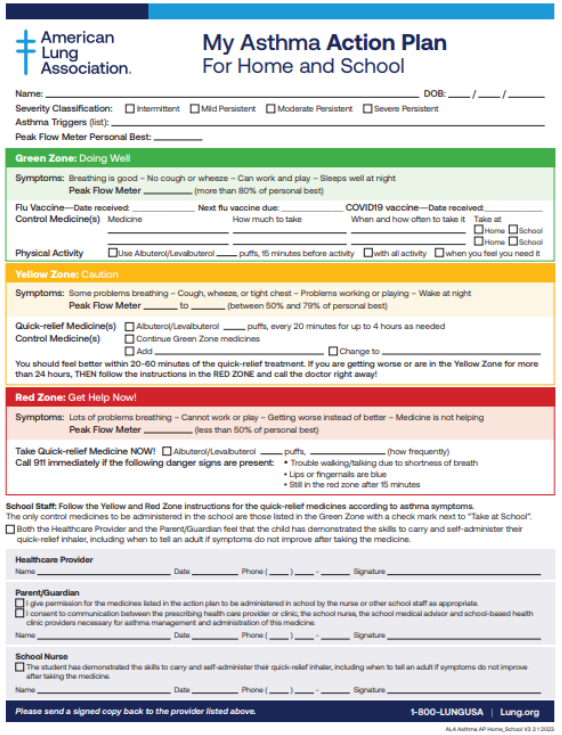
This asthma treatment plan is meant to assist, not replace, the clinical decision-making required to meet individual patient needs.

Permission to Self-administer Medication:
☐ This student is capable and has been instructed in the proper method of self-administering of the non-nebulized inhaled medications named above in accordance with NJ Law.
☐ This student is not approved to self-medicate.

PHYSICIAN/APN/PA SIGNATURE (Required) DATE
Physician's Orders
PARENT/GUARDIAN SIGNATURE (Required)
PHYSICIAN STAMP

REVISED AUGUST 2014

Make a copy for parent and for physician file, send original to school nurse or child care provider.



American Lung Association.

My Asthma Action Plan
For Home and School

Name: DOB: / /

Severity Classification: ☐ Intermittent ☐ Mild Persistent ☐ Moderate Persistent ☐ Severe Persistent

Asthma Triggers (list):

Peak Flow Meter Personal Best:

Green Zone: Doing Well

Symptoms: Breathing is good – No cough or wheeze – Can work and play – Sleeps well at night
Peak Flow Meter (more than 80% of personal best)

Flu Vaccine—Date received: Next flu vaccine due: COVID19 vaccine—Date received:

Control Medicine(s)	Medicine	How much to take	When and how often to take it	Take at
				☐ Home ☐ School
				☐ Home ☐ School

Physical Activity ☐ Use Albuterol/Levalbuterol puffs, 15 minutes before activity ☐ with all activity ☐ when you feel you need it

Yellow Zone: Caution

Symptoms: Some problems breathing – Cough, wheeze, or tight chest – Problems working or playing – Wake at night
Peak Flow Meter to (between 50% and 79% of personal best)

Quick-relief Medicine(s) ☐ Albuterol/Levalbuterol puffs, every 20 minutes for up to 4 hours as needed
Control Medicine(s) ☐ Continue Green Zone medicines
☐ Add ☐ Change to

You should feel better within 20–60 minutes of the quick-relief treatment. If you are getting worse or are in the Yellow Zone for more than 24 hours, THEN follow the instructions in the RED ZONE and call the doctor right away!

Red Zone: Get Help Now!

Symptoms: Lots of problems breathing – Cannot work or play – Getting worse instead of better – Medicine is not helping
Peak Flow Meter (less than 50% of personal best)

Take Quick-relief Medicine NOW! ☐ Albuterol/Levalbuterol puffs, (how frequently)
Call 911 immediately if the following danger signs are present: • Trouble walking/talking due to shortness of breath • Lips or fingernails are blue • Still in the red zone after 15 minutes

School Staff: Follow the Yellow and Red Zone instructions for the quick-relief medicines according to asthma symptoms.
The only control medicines to be administered in the school are those listed in the Green Zone with a check mark next to "Take at School".
☐ Both the Healthcare Provider and the Parent/Guardian feel that the child has demonstrated the skills to carry and self-administer their quick-relief inhaler, including when to tell an adult if symptoms do not improve after taking the medicine.

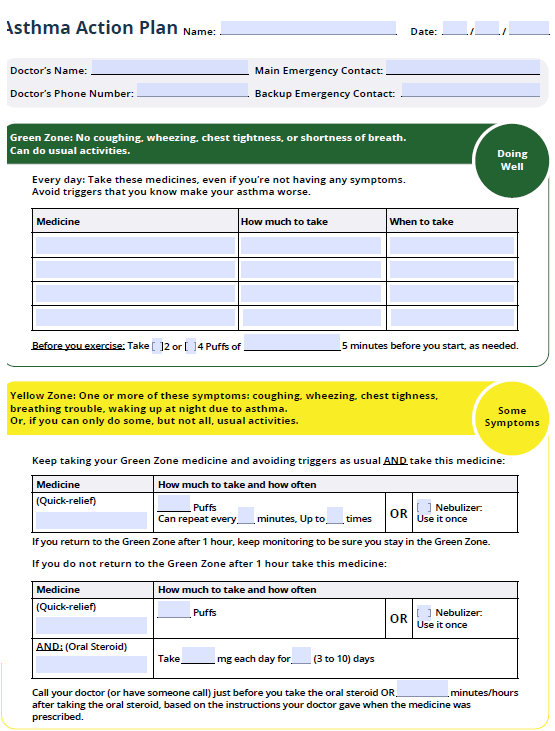
Healthcare Provider
Name Date Phone ( ) - Signature

Parent/Guardian
☐ I give permission for the medicines listed in the action plan to be administered in school by the nurse or other school staff as appropriate.
☐ I consent to communication between the prescribing health care provider or clinic, the school nurse, the school medical advisor and school-based health clinic providers necessary for asthma management and administration of this medicine.
Name Date Phone ( ) - Signature

School Nurse
☐ The student has demonstrated the skills to carry and self-administer their quick-relief inhaler, including when to tell an adult if symptoms do not improve after taking the medicine.
Name Date Phone ( ) - Signature

Please send a signed copy back to the provider listed above. 1-800-LUNGUSA | Lung.org

ALA Asthma AP Home_School V3 3 1 2022



Asthma Action Plan Name: Date: / /

Doctor's Name: Main Emergency Contact:

Doctor's Phone Number: Backup Emergency Contact:

Green Zone: No coughing, wheezing, chest tightness, or shortness of breath. Can do usual activities. Doing Well

Every day: Take these medicines, even if you're not having any symptoms.
Avoid triggers that you know make your asthma worse.

Medicine	How much to take	When to take

Before you exercise: Take ☐ 2 or ☐ 4 Puffs of 5 minutes before you start, as needed.

Yellow Zone: One or more of these symptoms: coughing, wheezing, chest tightness, breathing trouble, waking up at night due to asthma. Or, if you can only do some, but not all, usual activities. Some Symptoms

Keep taking your Green Zone medicine and avoiding triggers as usual AND take this medicine:

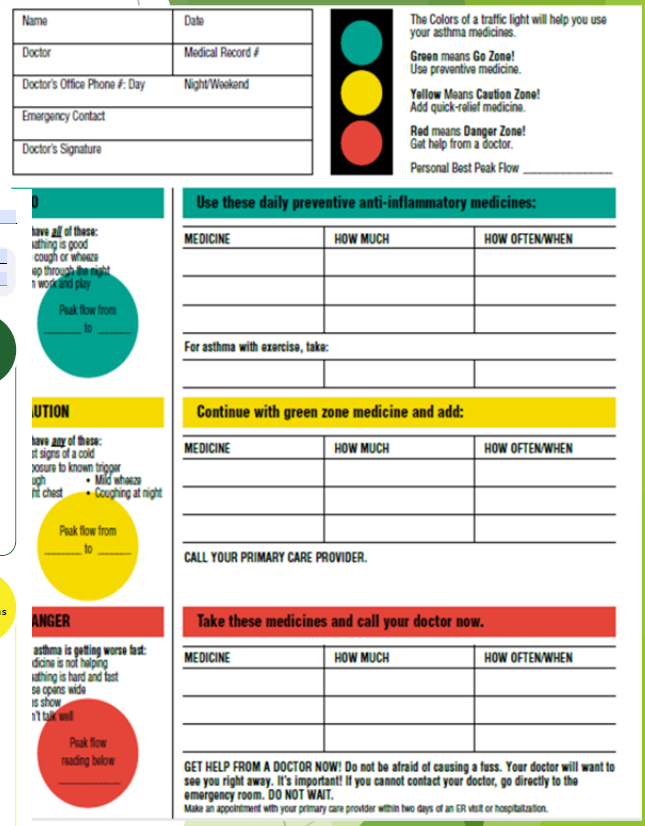
Medicine	How much to take and how often		
(Quick-relief)	Puffs Can repeat every minutes, Up to times	OR	☐ Nebulizer: Use it once

If you return to the Green Zone after 1 hour, keep monitoring to be sure you stay in the Green Zone.

If you do not return to the Green Zone after 1 hour take this medicine:

Medicine	How much to take and how often		
(Quick-relief)	Puffs	OR	☐ Nebulizer: Use it once
AND: (Oral Steroid)	Take mg each day for (3 to 10) days		

Call your doctor (or have someone call) just before you take the oral steroid OR minutes/hours after taking the oral steroid, based on the instructions your doctor gave when the medicine was prescribed.



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

0

have all of these:
- asthma is good
- cough or wheeze
- up through the night
- n work and play

Peak flow from to

UTION

have any of these:
- t signs of a cold
- xposure to known trigger
- ugh
- ht chest
- Mild wheeze
- Coughing at night

Peak flow from to

ANGER

asthma is getting worse fast:
- dicine is not helping
- athing is hard and fast
- se opens wide
- s show
- n'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.

Thank you!