

National and Global Asthma Management Guiding Principles 2026

Kenneth Miller

MEd, MSRT, RRT-ACCS, AE-C, FAARC



Learning Objectives

Describe

Describe the evolution of asthma over the past several decades

Define

Define the scientific methodology utilization in asthma management

Review

Review the current recommends germane to asthma clinical management



Asthma Epidemiology

262 million individuals are diagnosed with asthma

Mortality rate remains relatively low at approximately 1%

However, the burden and cost of treating and managing asthma remains very high

In the United States the cost of indirect and direct management exceeds 300 billion dollars

Cost exceeds 650 billion dollars globally



Two Primary Asthma Resources

National Asthma
Education and Prevention
Program (NAEPP)

• 1989

Global Initiative for
Asthma Report (GINA)

• 1993

The goal of these
governing bodies are to:

- Increase the awareness of asthma
- Recognize signs and symptoms of asthma
- Ensure effective asthma control
- Enhance the quality of life of people with asthma



The Evolution of Asthma Management

- 1960-1970s
 - Focus was on the treatment and prevention of bronchospasm
 - Rescue beta-agonist
- 1980-1990s
 - Focus shifted to avoidance of asthma triggering
 - Control chronic inflammation
 - Inhaled corticosteroids
- Currently
 - Viewed as a heterogenous disease
 - Specially individualized designed action plans
 - Use of biological therapies



Scientific Methodology

Utilized objective and standardized approaches to formulate recommendations per evidence-based reviews

Are composed of leading asthma management experts

Work in collaboration with other committee experts

- ATS, ACCP, ERS

Developments a need assessment profile based on recommends and current evidence

Conducts quality and research follow up based on recommendations



Review of Current Literature

- Use of inhaled corticoid steroids in children <6 years old
- Intermittent maintenance and relief therapy
- Exercise pretreatment
- Short term Increase in inhaled steroids
- Long-acting Muscarinic Antagonists
- Exhaled Nitric Oxide as a monitoring assessment in asthma
- Indoor Allergen Mitigation
- Immunology therapy
- Bronchial Thermoplasty
- COVID-19 and Asthma



Intermittent Inhaled Corticosteroids in Children <6 yrs. Old

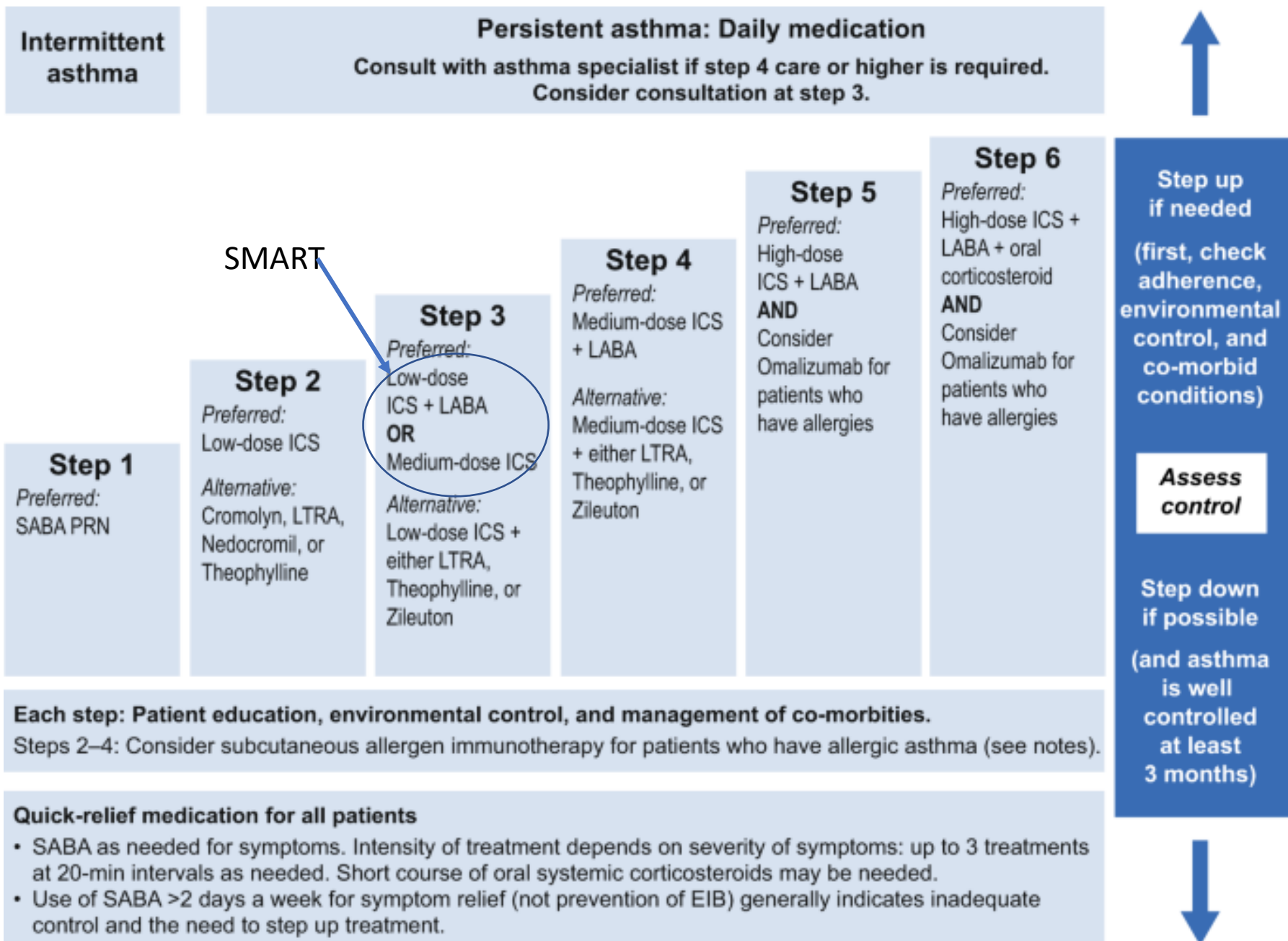
- Asthma affects about 7% of all children
- Asthma is often difficult to distinguish from other childhood diseases
 - Bronchiolitis
 - Foreign body aspiration
 - Tracheal malacia
 - IRDS
- Asthma diagnosis should be confirmed utilizing a predictive index
 - Bronchodilator response
 - Eosinophilia
 - Family history
- The recommendation is if there is recurrent wheezing, episodes ≥ 3 times, a short course of inhaled steroids should be administered (7-14 days)
 - In conjunction with a PRN SABA



Intermittent Maintenance and Relief Therapy

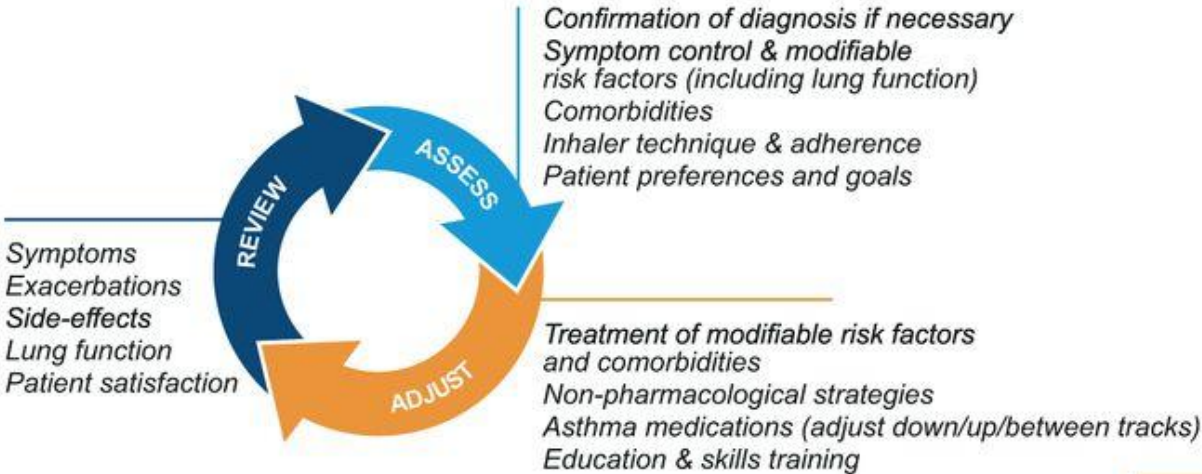
- Daily low dosage ICS and PRN SABA (Step2)
- SMART
 - Includes an ICS and LABA as a single maintenance and relief therapy
- Alternative therapies include
 - Leukotriene receptor antagonists
 - Cromolyn
 - Theophylline



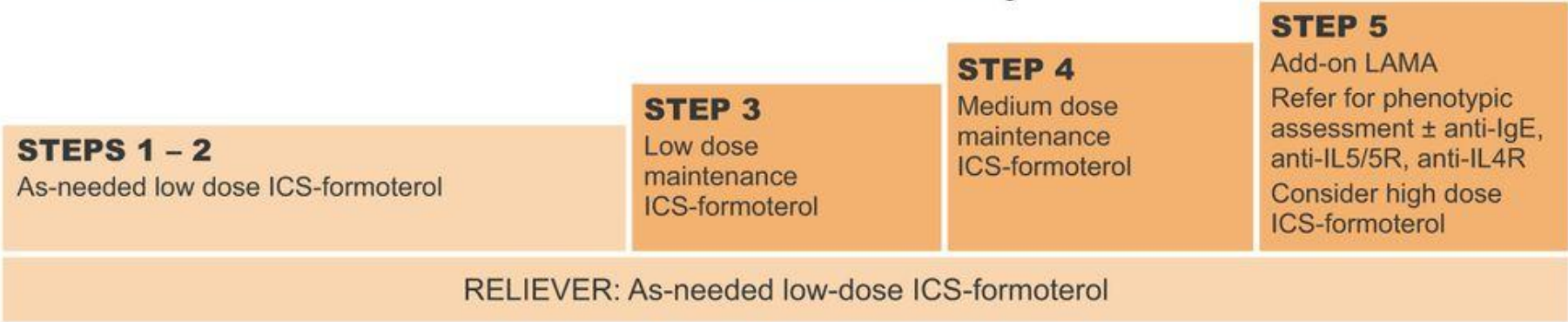


Adults & adolescents
12+ years

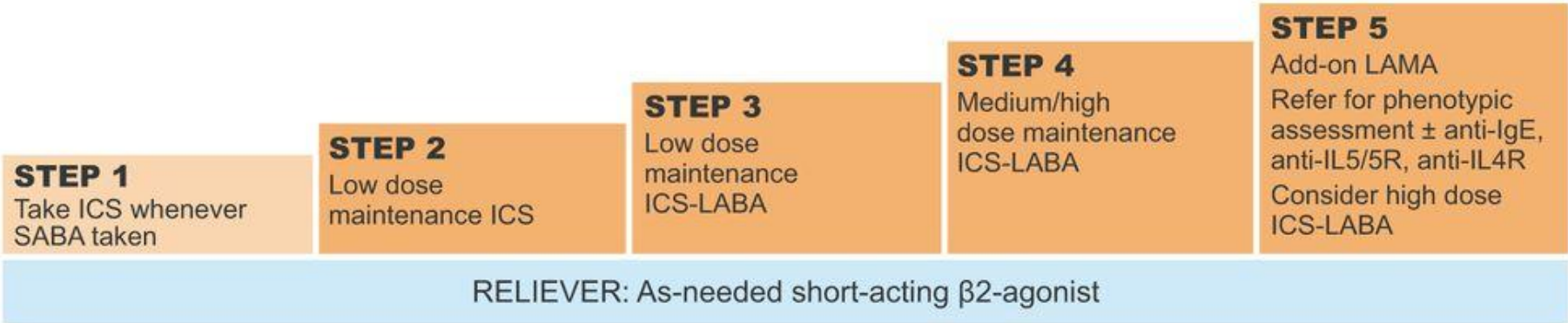
Personalized asthma management
Assess, Adjust, Review
for individual patient needs



CONTROLLER and **PREFERRED RELIEVER**
(Track 1). Using ICS-formoterol as reliever reduces the risk of exacerbations compared with using a SABA reliever



CONTROLLER and **ALTERNATIVE RELIEVER**
(Track 2). Before considering a regimen with SABA reliever, check if the patient is likely to be adherent with daily controller



Other controller options
for either track

	Low dose ICS whenever SABA taken, or daily LTRA, or add HDM SLIT	Medium dose ICS, or add LTRA, or add HDM SLIT	Add LAMA or LTRA or HDM SLIT, or switch to high dose ICS	Add azithromycin (adults) or LTRA; add low dose ICS but consider side-effects
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Exercise Pretreatment with Single Maintenance and Relief Therapy

90% of asthmatic experience
exercised induced-asthma

Recommendation is to utilize
a low dose ICS with prn SABA

No benefit in adding a LABA
in this group



Short-Term Increase in Daily ICS

Considering doubling
or tripling ICS dosage
during asthma
exacerbation

7-14 days dosing

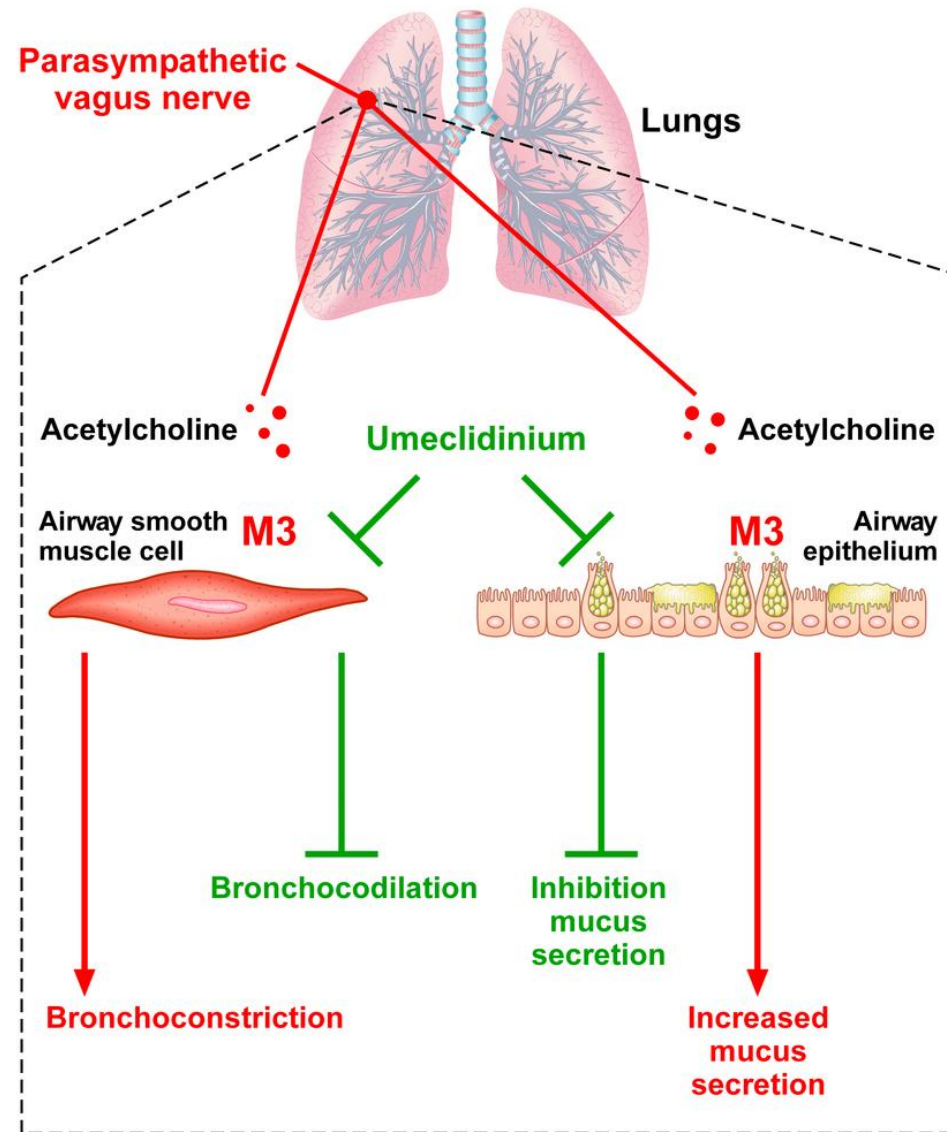
More studies need
to be done to
determine an exact
dosing regime



Long-Acting Muscarinic Antagonists

- Asthma is caused by airway inflammation, hypersecretion, and smooth muscle contraction
- The vagal nerve that controls the neurotransmitters and secretion acetylcholine in the submucosal gland, smooth muscle and epithelial cells that results in bronchospasm and hypersecretion
- LAMA block the release of acetylcholine and thus prevent bronchospasm and hypersecretion
- Sometimes recommend for asthma management
- May be useful as an add on therapy in poorly controlled asthma with other established medications.
- Should be NEVER used as a stand-alone asthmatic drug regime





Exhaled Nitric Oxide

Non-invasive way to assess and monitor airway inflammation in asthma

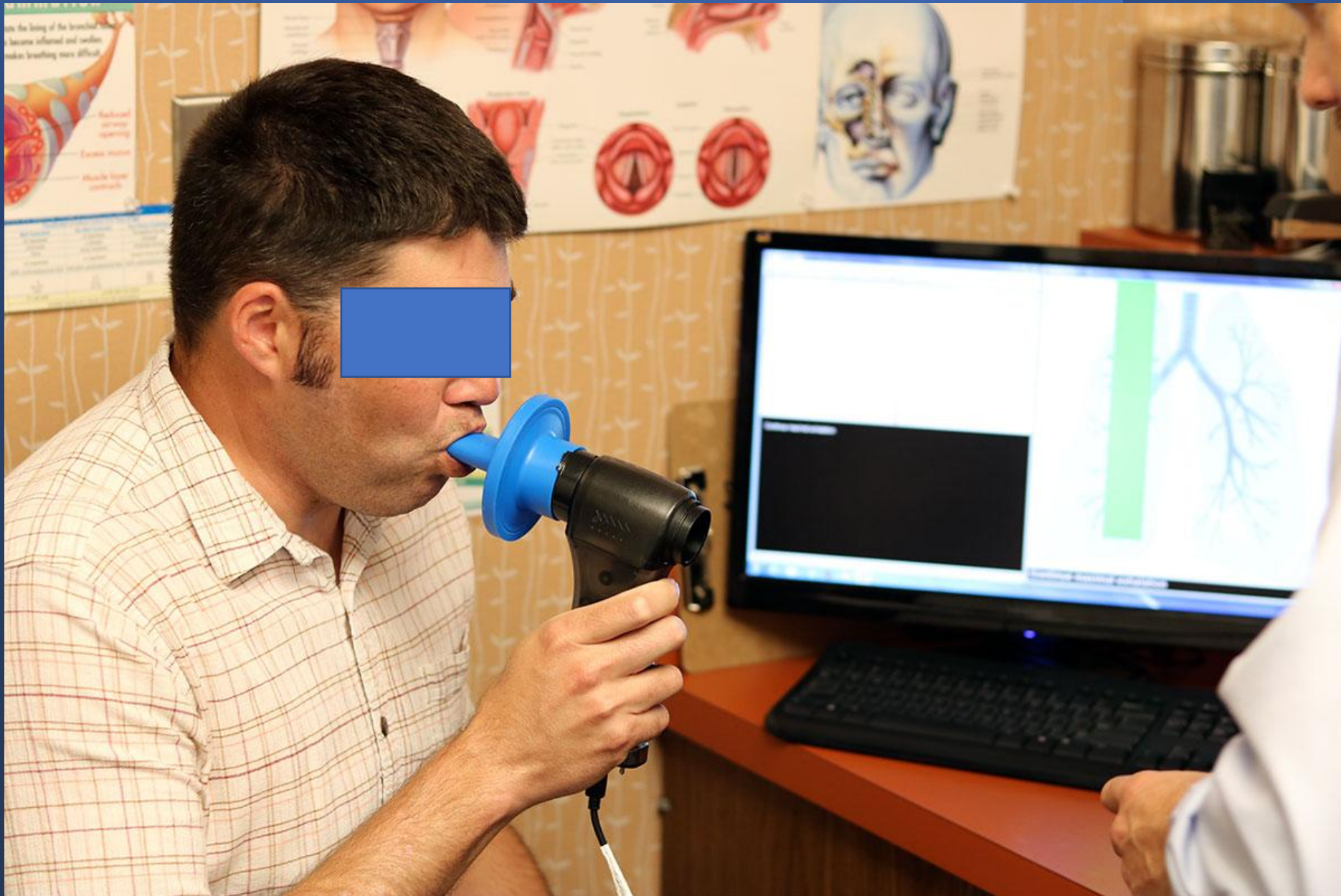
FENO > 50ppmin non-smokers, is associated with eosinophilic airway inflammation

FENO monitoring has become the standard to monitor ICS effectiveness

The recommendation is that FENO is useful to monitor asthma medication effectiveness or patient compliance

FENO is not useful in diagnosis or predicting the development of Asthma. PFTs are the standard in diagnosis assessment.





Indoor Allergen Mitigation

Control of environment factors is an integral part of asthma management

Common indoor allergens include:

- Dust mites
- Pet dander
- Molds
- Pest feces

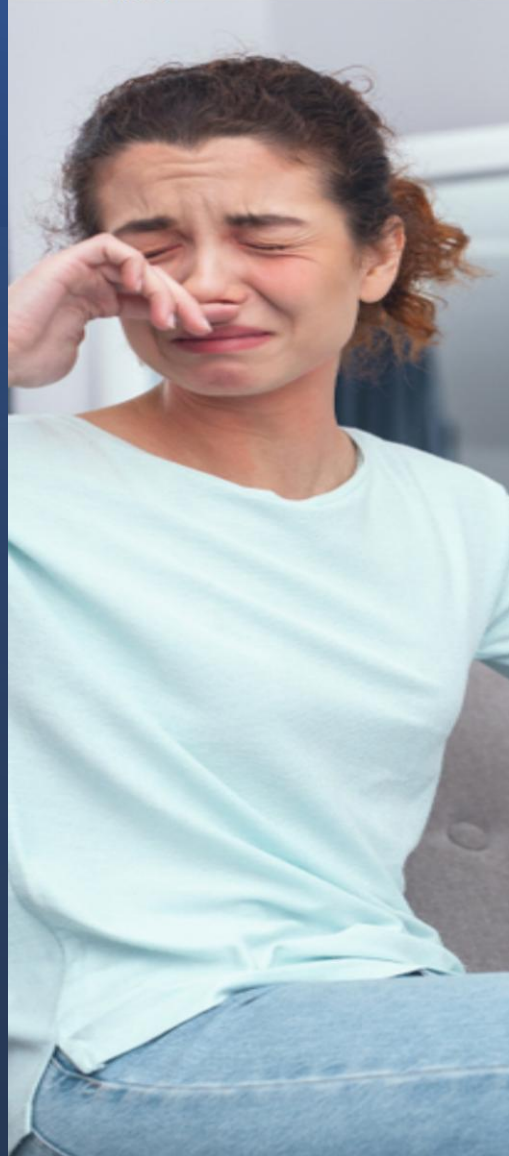
Allergen mitigation include:

- Impermeable pillow and mattress covers
- Pest eradication and management
- Animal dander sensitivity





**Tottori
Allergy & Asthma**
ASSOCIATES



COMMON INDOOR ALLERGIES

THAT MAY BE MAKING YOU FEEL SICK

HOUSE DUST



MOLD SPORES



FABRICS



DUST MITES



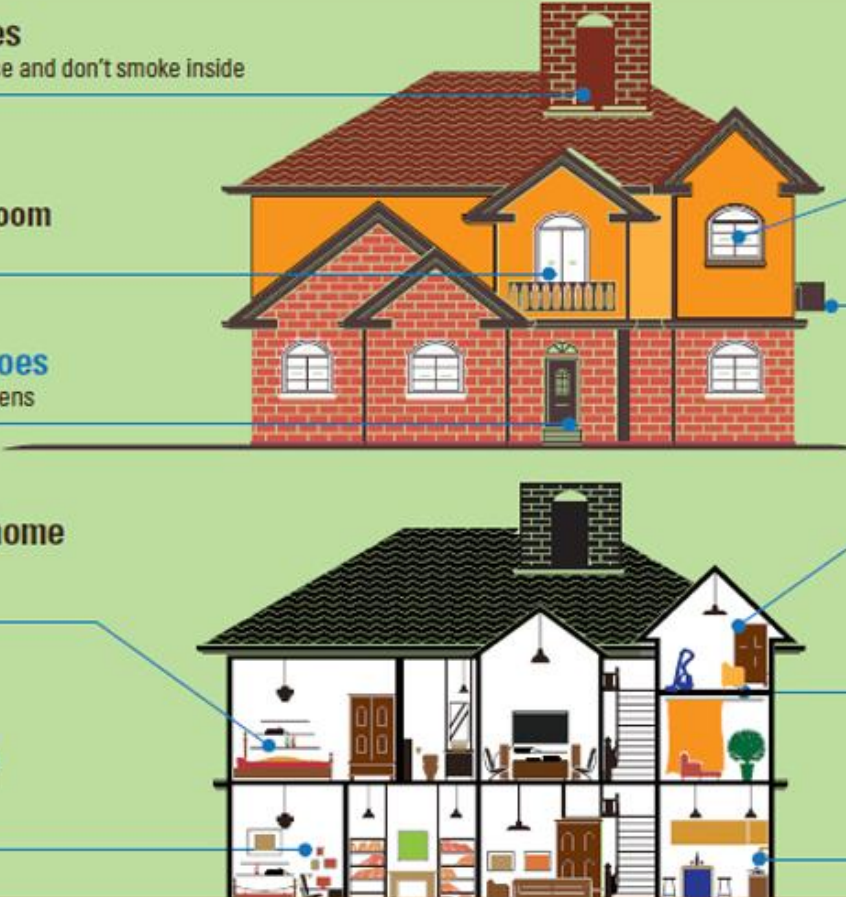
PET DANDER



COCKROACHES



10 Ways to Curb Hidden Allergens at Home

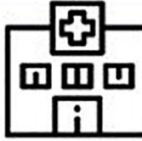
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- 1 Avoid smoke particles**
skip the wood-burning fireplace and don't smoke inside
 - 2 Keep pets out of the bedroom**
limit dander in your sleeping area
 - 3 Take off your shoes**
avoid tracking in allergens
 - 4 Avoid scenting your home**
room sprays, scented candles and oils can trigger allergies
 - 5 When buying furniture**
avoid cloth material and look for easy-to-clean surfaces
 - 6 Wash bed linens and curtains**
reduce allergens in the air
 - 7 Humidity levels matter**
too much moisture increases mold and dust mites
 - 8 Use HEPA filters**
use them in vacuum and furnace
 - 9 Use solid flooring like tile, wood and linoleum**
they are easiest to keep clean
 - 10 Use exhaust fans in kitchen and bathroom**
lessen cooking fumes and moisture



Immunotherapy

- About 40% of all asthmatics suffer with allergic rhinitis
- Asthma exacerbations may be caused by exposure to a specific allergen in a specific season(ragweed)
- Recommendation is that immunotherapy as a treatment option if the allergen plays a role in asthma exacerbations
- Can be administered by subcutaneous injection or sublingually
- No studies that demonstrate
- No studies has demonstrated a reduction in:
 - Provider visits
 - Improvement in quality of life
 - ER visits



	Treatment A	Treatment B
How the treatment is administered	   Infusion under skin at home	   Infusion into vein at clinic
How many needle sticks	 4 needle sticks per treatment 4 needle sticks per month	 2 needle sticks per treatment 8 needle sticks per month
How often you take the treatment	 Every 4 weeks	 Once per week
Total time per treatment	Administration time: 5 hours	Administration time: 1 hour
	Headache & drowsiness: 12 hours	Headache & drowsiness: None
	Total time: 17 hours	Total time: 1 hour
	Time per month: 17 hours	Time per month: 4 hours

Which would you choose, if these were the only options available?

Treatment A



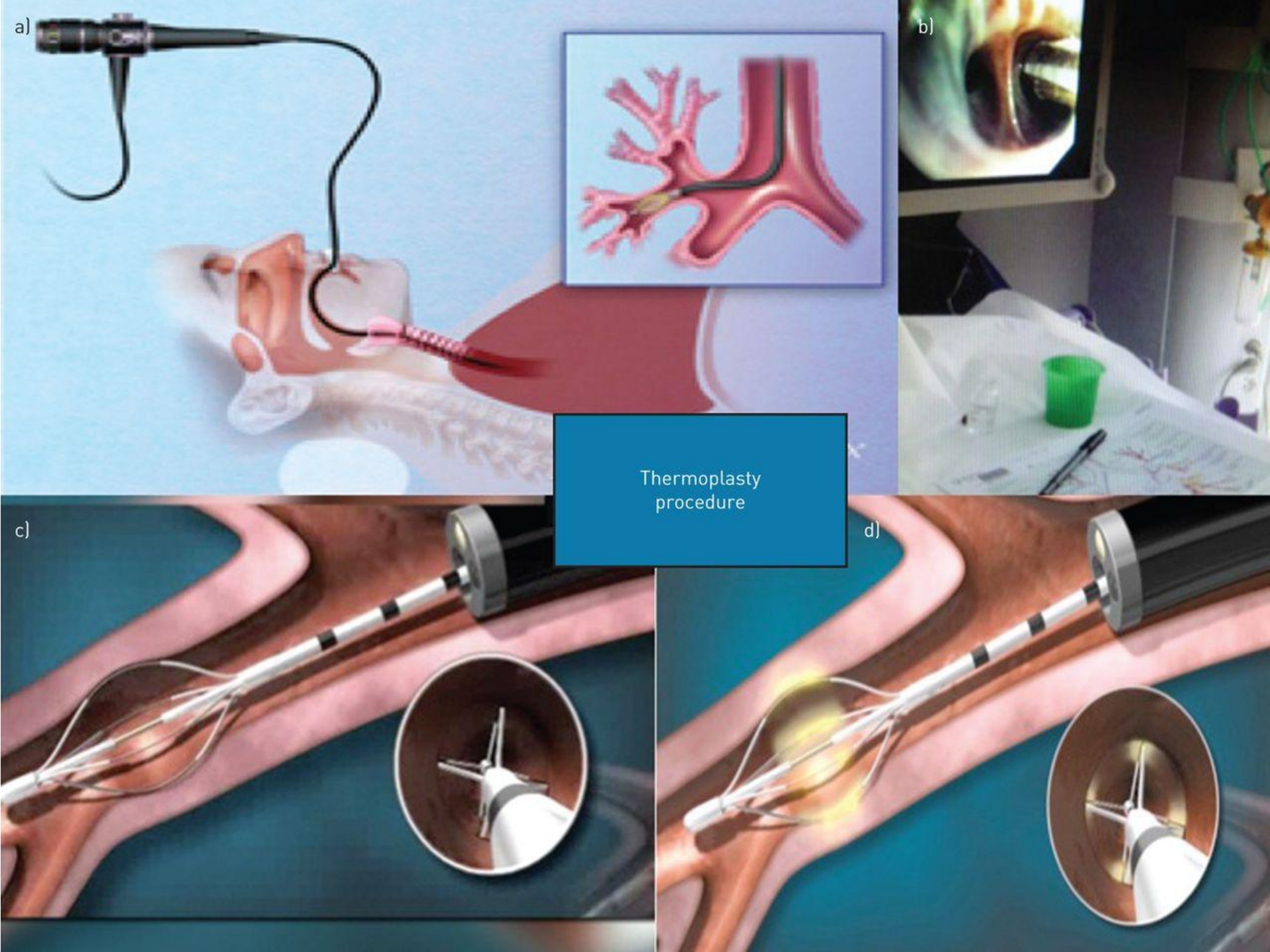
Treatment A



Bronchial Thermoplasty

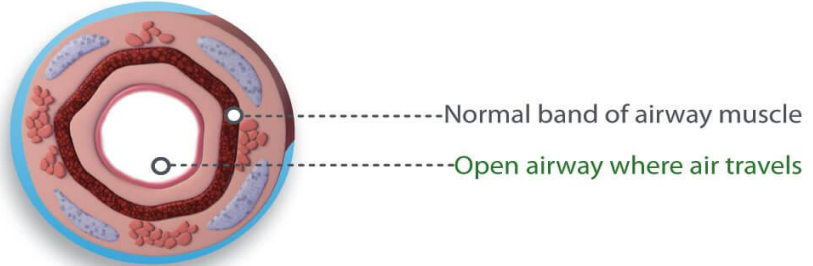
- This bronchoscopy therapy delivers local radiofrequency to the airways
- This causes modulation of the extracellular matrix formed by inflammation
- Currently the GINA and NAEPP panels can not recommend this intervention for refractory asthma secondary to small benefits compare to the potential side effects
 - Infection
 - Bleeding
 - Atelectasis
 - No long-term benefit > 5 yrs.



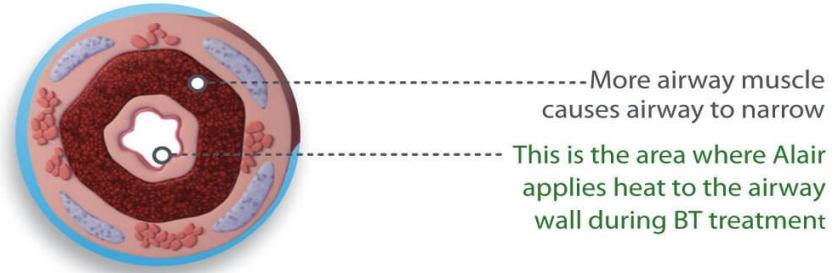


Airways Before and After Bronchial Thermoplasty Treatment

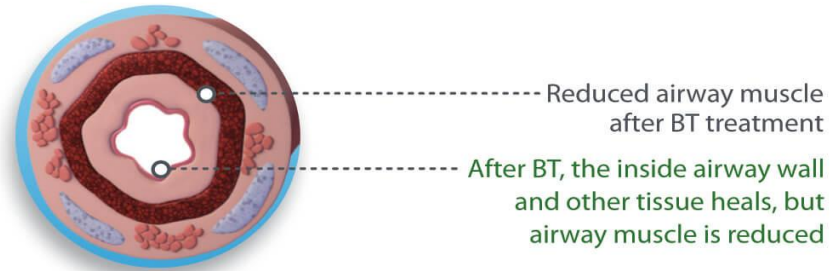
Airway of Person without Asthma



Airway of Person with Severe Asthma



Airway of Person with Severe Asthma after Treatment





Barriers to Asthma Education

- Diversity of age groups
- Wide spectrum of educational levels
- Access to educational resources
- Lack of daily symptoms
- Confusion regarding medications and devices
- Fear of steroids: 😞





Learning Strategies to Enhance Asthma Education

- The four essential components of asthma management are:
 - patient education,
 - minimizing exposure to asthma triggers,
 - monitoring for changes in symptoms or lung function,
 - pharmacologic therapy





Asthma Self-Management

- Understanding asthma and breathing.
- Knowing your asthma symptoms and keeping track of them.
- Improving communication skills with healthcare providers.
- Learning about asthma medicines and taking them correctly.
- Making changes in your life to prevent asthma problems.





The Primary Goal for Asthma Patients

- Preventing long-term (chronic) symptoms that interfere with daily living, such as coughing or shortness of breath during the night or after exercise. Maintaining lung function near the personal best





Rule of Two for Asthma?

- The “Rule of Two” is a guideline for managing asthma symptoms. If a person needs to use their quick-relief inhaler more than twice per week, or if they wake up at night due to asthma symptoms more than twice per month, they should make an appointment with a healthcare professional.





Adult Educational Strategies

- Components of an adult asthma education programs may include:
 - **information about airway inflammation and bronchospasm using figures to illustrate the concept; the rationale and methods for avoiding irritants and relevant allergens**
 - **description of the rationale, correct use and side effects of preventive medications and bronchodilators**
 - **demonstration and practice of inhaler technique and monitoring using symptoms or PEF meters**



- Breathe Well, Live Well: an Asthma Management Program for Adults
- The Breathe Well, Live Well Guide can be used for self study, telephone counseling, or in-person educational sessions. Breathe Well, Live Well is an American Lung Association program for adults who want to learn how to take control of their asthma and feel better. This program walks you through understanding your asthma, including what can make your asthma symptoms worse. You can also learn how to build an asthma support team, as well as how and when to take your medications so that you can keep your asthma in check.
- Topics include:
 - Understanding your asthma.
 - Building your asthma support team.
 - Taking asthma medications.
 - Using tools for daily self-management.
 - Following good health habits.



EXHALE PROGRAM

- **Education**
on asthma self-management
- **X-tinguishing**
smoking and exposure to secondhand smoke
- **Home**
visits for trigger reduction and asthma self-management education
- **Achievement**
of guidelines-based medical management
- **Linkages**
and coordination of care across settings
- **Environmental**
policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources



Do Asthma Educational Strategies Work?





Evidence: Effect of asthma education on health outcomes in children: a systematic review BMJ 2022

- Compared with the control group, the asthma education group had 54% lower hospitalisation risk (95% CI 0.32 to 0.66), and 31% lower emergency department visit risk (95% CI 0.59 to 0.81).
- Sensitivity analysis showed that the asthma education group had a reduced clinic visit risk (risk ratio (RR)=0.80, 95% CI 0.67 to 0.97). Subgroup analysis showed that asthma education involving both children and parents/guardians was associated with fewer hospitalisations (RR=0.38, 95% CI 0.24 to 0.59) and emergency department visits (RR=0.69, 95% CI 0.57 to 0.83).
- Asthma education in hospitals or non-hospitals can reduce the risk of hospitalisation and emergency department visits.
- However, only education in the hospitals was associated with the reduction of clinical visits (RR=0.45, 95% CI 0.22 to 0.92).





Asthma education: an essential component in Asthma management

Louis-Philippe Boulet
European Respiratory Journal 2015

- offering educational services through an experienced educator who attended family medicine clinics resulted in a significant reduction in unscheduled physician visits and more appropriate medication use, as well as increased provision of an action plan.
- Furthermore, an emergency department-based “automatic” referral programmed to an asthma educator resulted in improved assessment of asthma control and a marked increase in such referral.



COVID-19 and Asthma

- Respiratory viruses are a common trigger that can cause an exacerbation
- Asthmatic who are well controlled had no greater risk of acquiring COVID than non-asthmatic
- No increased risk of hospitalization or death
- Those that were a risk included
 - Uncontrolled asthma
 - Diabetics
 - Cardiovascular disease
 - Obesity
 - **Non vaccinated**
 - **Vaccination is recommended**



Conclusion

- Both NAEPP and GINA are valuable resources that make recommendations on best asthma management practices
- Health care providers need to keep aware of the changing asthma management recommendations
- Asthma management is evolutionary and will continue to adapt based on new evidence



References

- Enilari O, Sinha S. The Global Impact of Asthma in Adult Populations. Ann Glob Health 2019;85(1):2
- National Heart, Lung, and Blood Institute. National Asthma Education and Prevention Program (NAEPP). <https://www.nhlbi.nih.gov/science/national-asthma-education-and-prevention-program-naepp>. Accessed February 21, 2022.
- Global Initiative for Asthma. About us. <https://ginasthma.org/aboutus/>. Accessed February 21, 2022.

