

# Specialty Asthma Care and Asthma Education

Advancing Asthma Care: A PHN Initiative  
Educational Webinar #2



Speakers: William Sheehan, MD; Deepa Rastogi, MD; Dinesh Pillai, MD;  
Eduardo Fox, MD; Shilpa Patel, MD, MPH; Nikita Kachroo, AE-C

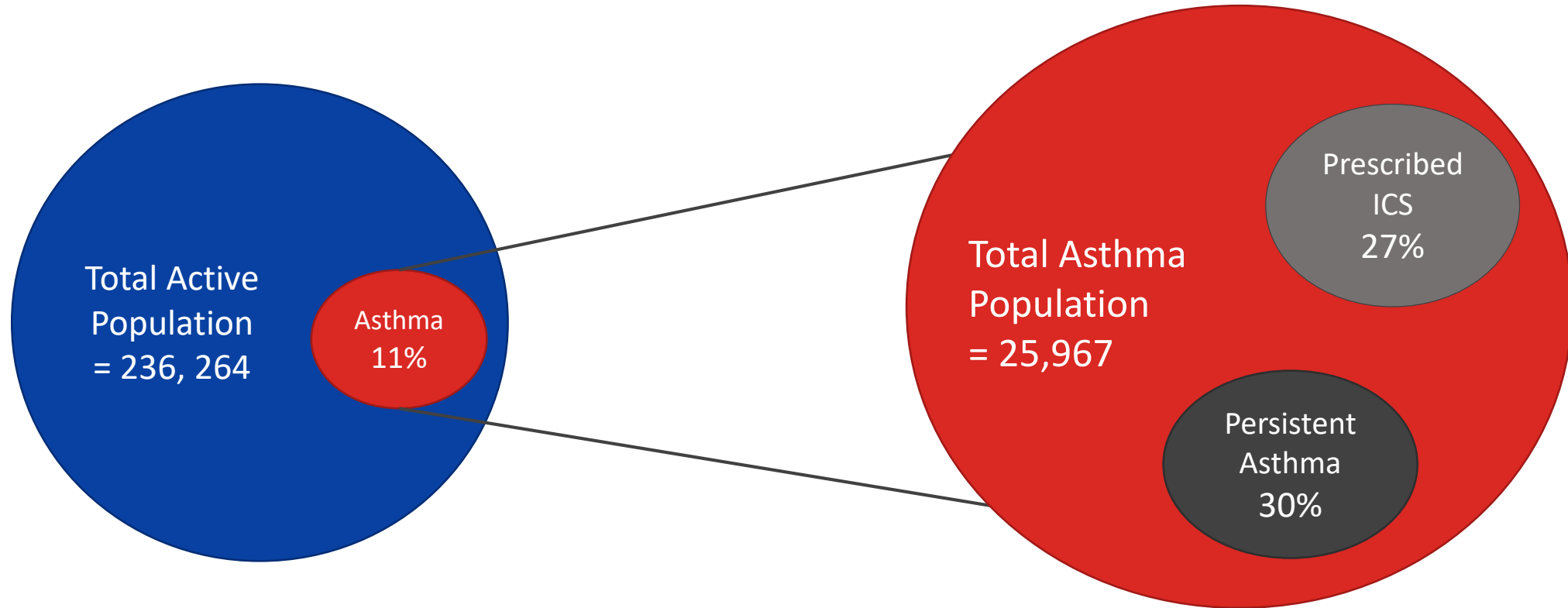
**Pediatric Health Network**



# A few notes about today's webinar:

- All lines are muted throughout the presentation.
- Please use the Q&A function to ask questions or make comments during the presentation
- We will be recording the session.
- Today's recording and materials will be posted to the PHN's virtual collaboration site, [Glasscubes](#), following the presentation.

# Advancing Asthma Care: Population Data (N=27 Practices)



# Speakers



**Eduardo Fox, MD**  
Associate Medical  
Director, IMPACT DC;  
Pediatrician



**Shilpa Patel, MD**  
Medical Director,  
IMPACT DC;  
Emergency Medicine



**Dinesh Pillai, MD**  
Director, Severe  
Asthma Program;  
Pulmonologist



**Deepa Rastogi, MD**  
Co-Director, Severe  
Asthma Program;  
Pulmonologist



**William Sheehan, MD**  
Allergy Lead, Severe  
Asthma Program;  
Allergist/Immunologist



**Nikita Kachroo, MD**  
**AE-C**  
Program Lead,  
Impact DC

## No conflicts to disclose:

- No financial or business interest, arrangement or affiliation that could be perceived as a real or apparent conflict of interest in the subject (content) of their presentation.
- No unapproved or investigational use of any drugs, commercial products or devices.

# When to Refer: The Role of Pulmonologists and Allergists in Asthma Diagnosis and Management



Speakers: William Sheehan MD; Dinesh Pillai, MD; Deepa Rastogi, MD

**Pediatric Health Network**



# Learning Objectives

1. Review indications and typical work-up when considering referrals for patients with asthma to Allergy or Pulmonary.
2. Understand logistics of how to refer.
3. Discuss opportunities for co-management with subspecialists.
4. Briefly discuss 2020 Guideline updates as they relate to subspecialty asthma care.
5. Develop strategies around patient asthma education and using the Asthma Control Test.

# Some Quick Definitions

- SABA = short-acting beta agonist (albuterol is our most commonly used SABA)
- LABA = long-acting beta agonist
- ICS = inhaled corticosteroids (fluticasone or Flovent; or beclomethasone-dipropionate or QVAR)
- Combined LABA –ICS = formoterol + budesonide or Symbicort
- LTRA = leukotriene receptor antagonist such as montelukast or Singulair
- SMART = single maintenance and reliever therapy
- FeNO = Fractional nitric oxide (NO) concentration in exhaled breath

Carla

## 3 yo with recurrent wheezing

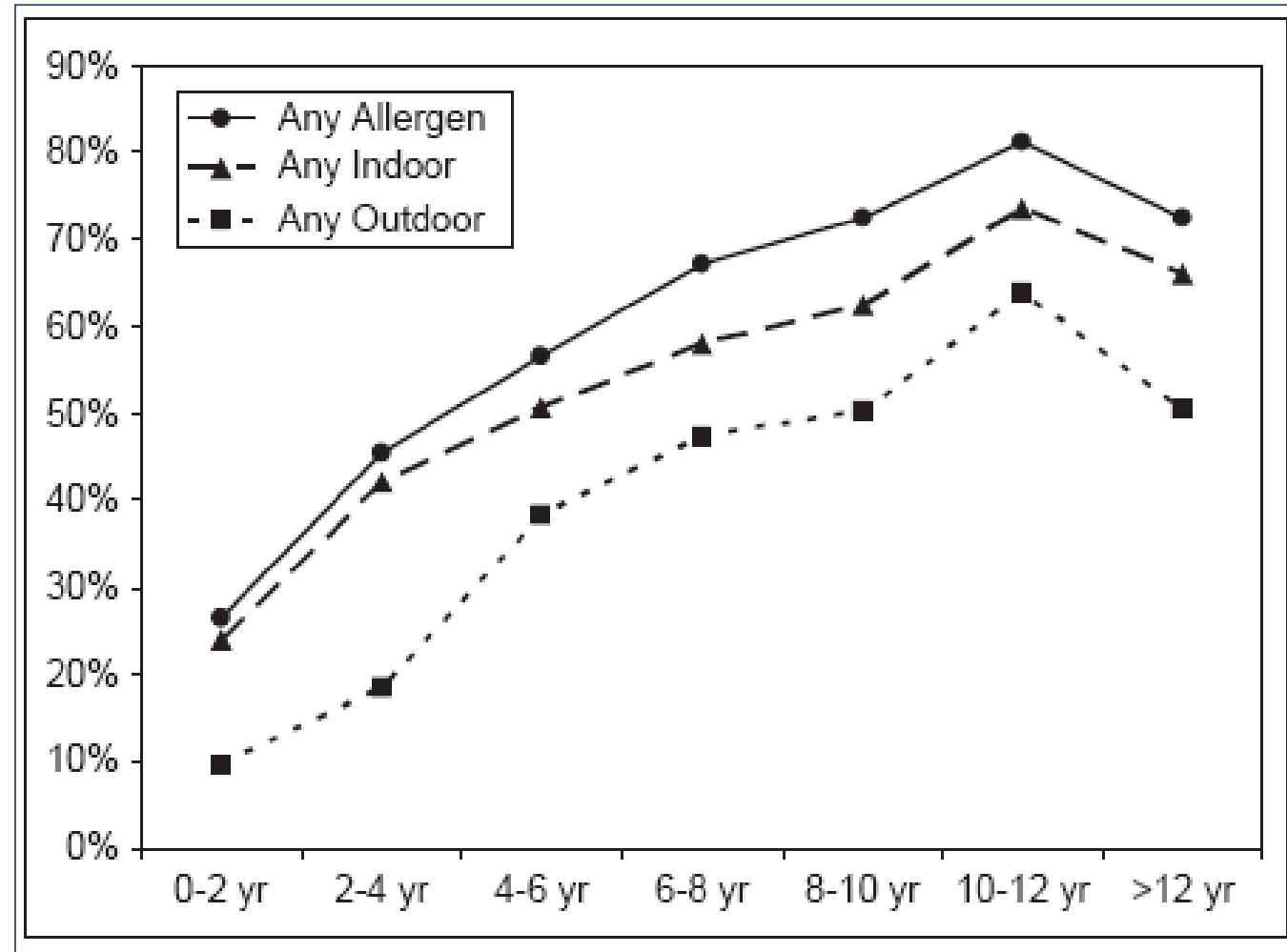
- 3 yo with mild intermittent asthma. You most recently recommended to use SABA plus 7-10 d course of daily ICS at the start of URIs.
- Now parents are concerned she always has a runny nose. Could this be allergies?





Let's talk to our Allergist...

# At what age do children develop allergies?



Sheehan WJ et al. *Clini Pediatr.* 2010 49(6):579-85.

# Kevin

9 year old with moderate persistent asthma and allergic rhinitis

- As discussed on the last webinar, you are considering SMART therapy as per recent guidelines update.
- Parents are asking about possible allergic triggers and testing.
- You plan to refer to the allergist.



Should I do any testing before referring?

Could you discuss the difference between skin and serum allergy testing?

# Environmental Aeroallergens

## Skin Prick Testing

Sensitivity > 85%

Specificity > 85%

**VS.**

## IgE-Specific Blood Testing

Sensitivity = 60-95%

Specificity = 30-95%

**In general, skin testing is a better test as compared with blood testing for environmental aeroallergens in young children**

# Skin Prick Testing vs. Blood Testing

## Skin Prick Tests

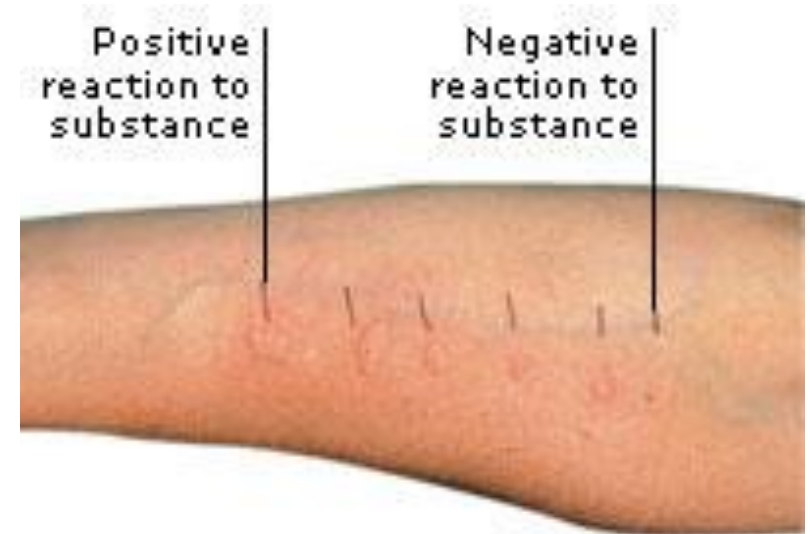
- Increased sens/spec
- Immediate result
- Less expensive
- Patients able to see the reaction / result

## IgE-Specific Blood Testing

- Not affected by medications
- No risk of allergic reaction
- Not affected by skin conditions
- Sometimes more convenient

# Skin Prick Tests

- Assess local IgE response in epidermis
- Source of allergen:
  - Commercially prepared extract
  - Some extracts are standardized in potency units (grass, dust mites, ragweed)
- H<sub>1</sub> Antihistamines stopped 7 days prior to skin testing
- Wheal and flare response measured after 15 minutes
- Positive = wheal  $\geq$  3mm after saline control subtracted



# Skin Prick Tests

- Allergens routinely tested in patients with persistent asthma and/or chronic rhinoconjunctivitis
  - Tree, grass, and weed
  - Molds
  - Dust mites
  - Animal danders
  - *Inner city environments: cockroach, mouse, rat*
- **Contraindications:**
  - Poorly controlled asthma, reduced lung function
  - Serum IgE testing may be performed (though less sensitive), and skin testing performed once asthma controlled



What would be the next step for you if you saw Kevin in your office?

How do you envision the optimal co-management of this patient?

# Role of Allergist Immunologist

- Evaluate/treat co-morbid atopic disorders
  - Allergic rhinoconjunctivitis
  - Atopic dermatitis
  - Food allergy
- Assess aeroallergen sensitization
  - Skin prick testing
  - Intradermal skin testing (if indicated)
  - Education regarding allergen avoidance
- Consider starting allergen immunotherapy
- Consider starting immunomodulator (omalizumab, anti-IgE)
- Primary immunodeficiency evaluation
  - Recurrent or severe pulmonary infections

# 2020 Guideline Update: IMMUNOTHERAPY IN THE TREATMENT OF ALLERGIC ASTHMA



# Immunotherapy

## Subcutaneous Immunotherapy (SCIT)

Recommended as an adjunct treatment for:

- 5 Years and older
- Mild to moderate allergic asthma (not severe)
- Demonstrated sensitization and symptoms related to exposure to relevant allergen
- No acute asthma symptoms

## Sublingual Immunotherapy

The evidence reviewed did not support the use of SLIT specifically for the treatment of allergic asthma.

Joey

14 yo with poorly controlled moderate to severe asthma.

- Per recent updated guidelines he was placed on SMART therapy at the last visit.
- You have also addressed adherence and environmental triggers but he continues to have > 2 days a week of symptoms that require albuterol.
- He was seen in the emergency department last week and required systemic steroids.
- You consider a referral to the pulmonologist.



**Pediatric Health Network**



# Let's ask our pulmonologists...

What laboratory testing should the primary care provider order before referring to you?

What diagnostic studies do you consider for this patient? (spirometry, FeNO, etc)

# Pulmonary Diagnostic Evaluation in Asthma

## Uncontrolled Asthma – Basic Considerations

- Serum Studies (Try to perform off systemic steroids for 4 weeks)
  - Differentiate allergic vs. non-allergic disease
  - Important for targeted therapies (immunotherapy, biologics)
- Lung Function Testing
  - Spirometry: Only objective measure included in asthma guidelines
  - Can track longitudinally
  - FeNO: May be useful to track response to therapy
  - Oscillometry: provides sensitive data on airway dynamics
  - Provocation Testing: hyper-reactivity important in defining asthma
  - Lung Volumes: Evaluate RV in context of TLC; role in obesity

# Basic Serum Studies

**Uncontrolled Moderate Persistent Asthma OR Severe Persistent Asthma** (Medium Dose ICS + LABA/LTRA/LAMA or higher)

Testing	Abnormal	Consideration
CBC with differential	Eos >0.15 (abs), 4%	Eligible for anti-IL5/IL4 therapy
	>10%	Pulmonary eosinophilia risk
Total IgE	>150	Eligible for anti-IgE therapy (>30)
	>1000	Evaluate for Hyper-IgE, ABPA
25OH-VitD	<30	2000 IU daily or 50,000 IU weekly



# Let's ask our pulmonologists...

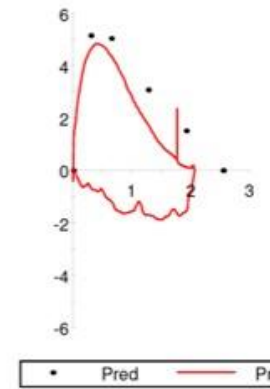
What is the role of spirometry in the primary care setting?

When do you consider biologics?

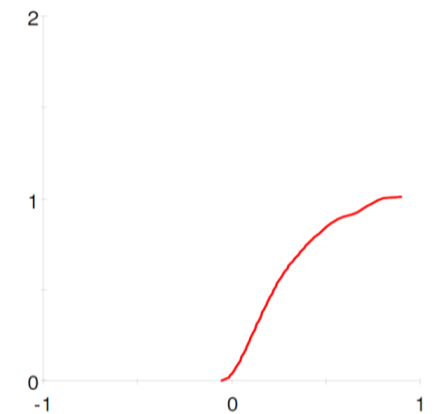
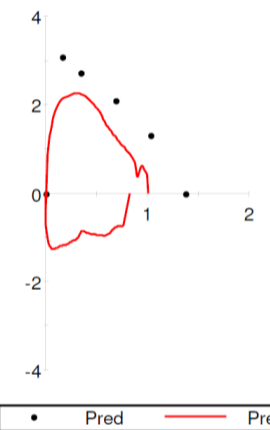
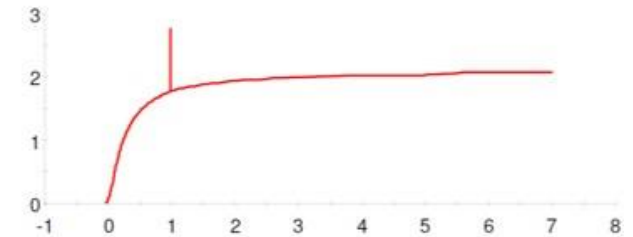
# Considerations for spirometry

- 20% variability in daily testing if not calibrated properly each day
- Adult normal values applied to children
  - Not sensitive enough
  - Children with mild/moderate asthma may have 'normal' lung function
  - Need better normal values in children
- Interpreter must understand impact of patient effort, medications on results

Flow-Volume



Volume-Time



## Biologic Agents: Uncontrolled Asthma (Medium Dose ICS + LABA/LTRA/LAMA or higher)

	Omalizumab	Mepolizumab	Benralizumab	Dupilumab
Indication	IgE 30-700* IU/mL  Age ≥6 yrs	Serum Eos>150 (Abs)  Age ≥6 yrs	Serum Eos>300  Age ≥12 yrs	Age ≥12 yrs  OCS Dependent
Contraindication	Allergic Reaction to medication			
Dose	Varies (Wt, IgE, Age)	6-12 y: 40 mg SQ ≥12 y: 100 mg SQ	30 mg SQ	200mg <u>OR</u> 300mg SQ
Frequency	Q2 OR q4 weeks	Monthly	Monthly x3 Q2 months	400/600mg x1 200/300mg q2wk
Target	IgE binding	IL-5 antagonist	IL-5Rα antagonist	IL-4Rα antagonist

**Consider early, at moderate persistent asthma (medium dose ICS)**

# Let's ask our pulmonologists...

What would be the next step for you if you saw Joey in your office?

How do you envision the optimal co-management of this patient? Who graduates from Severe Asthma Clinic?

# Next Steps for Joey

## Uncontrolled Severe Asthma on SMART

- Consider switching off SMART therapy
- Serum Studies
  - CBC w/ Diff, IgE, Vit D
- Spirometry
- Consider Biologics
  - Discuss w/ Allergy
  - Consider AIT
- Co-Manage with PCP
  - Specialist drives medical care
  - PCP assesses periodically
  - Specialist decreases visits after achieving control

MANAGEMENT OPTION	FACTORS TO CONSIDER			
	Age	Asthma Symptoms	Co-Morbidity	Insurance
Increase ICS	Any Age			Failed low dose ICS
Add LTRA	>1 yr	Activity Night time Black box warning	Rhinitis SDB/OSA	Failed ICS alone +Rhinitis
Change to ICS/LABA	≥8 yr	Frequent albuterol use		Failed ICS alone
Add Tiotropium	≥12 yr	Frequent exacerbations		
Some patients need combination of increase ICS, ICS/LABA, LTRA (and LAMA)				
ICS: Inhaled corticosteroid; LTRA: Leukotriene receptor antagonist (i.e. montelukast); LABA: Long acting β-agonist; SDB: Sleep disordered breathing; OSA: Obstructive sleep apnea; LAMA: Long acting muscarinic antagonist				

# Referral Options and Basics:



PROVIDER	WHY REFER	CONTACT INFO
<b>IMPACT DC</b>	Asthma Education Environmental/Trigger evaluation Device teaching	<b>IMPACTDC@childrensnational.org</b> Multiple clinics each week
<b>SEVERE ASTHMA CLINIC</b>	On Step 4 or higher therapy Step 3 therapy, not controlled Comorbidity evaluation Long term asthma care	<b>pulmasthma@childrensnational.org</b> Weekly clinics Consider IMPACT DC referral as well Dual Pulm/Allergy appt available
<b>AERODIGESTIVE CLINIC</b>	Comorbidity evaluation Evaluation by $\geq 2$ of the following: ENT      Pulmonary/ Sleep GI      Speech	<b>aerodigestive@childrensnational.org</b> Monthly clinic Monthly procedure day Expanding clinics and procedures
<b>ALLERGY</b>	Allergy education Allergy testing/immunotherapy Food allergies	202-476-3016 or 4490

# Asthma Education: Best Practices



Speakers: Eduardo Fox, Shilpa Patel, Nikita Kachroo



# Asthma Control Test (ACT) and Childhood Asthma Control Test (C-ACT)

- ACT: patients 12 years or older
- C-ACT: patients aged 4–11 years.
- Score less than 20 = poorly controlled asthma
- Compared with FEV<sub>1</sub> (gold standard; forced expiratory volume in 1 second on spirometry)\*:
  - ACT: sensitivity of 71% and specificity of 71% (ACT)
  - C-ACT: sensitivity of 68% and specificity of 74% (C-ACT)
- GSK Asthma Control Test Webpage

<https://www.asthma.com/understanding-asthma/severe-asthma/asthma-control-test/>

\*Liu AH, Zeiger R, Sorkness C, et al. Development and cross-sectional validation of the Childhood Asthma Control Test. J Allergy Clin Immunol. 2007;119:817–825

# Implementation of the Asthma Control Test in a Large Primary Care Network

*Shilpa Sangvai, MD, MPH\*†; Stephen J. Hersey, MD\*†; Dane A. Snyder, MD\*†; Elizabeth D. Allen, MD†‡; Cindy Hafer, MBA, MHA, CPHQ§; Jeanne Wickliffe, RN, BSN, CPN\*; Judith A. Groner, MD\*†*

## **Abstract**

**Introduction:** Achieving control in asthma is a primary goal of pediatric care, and assessing the degree of control is a principal step in management. The purpose of this quality improvement project was to implement the Asthma Control Test (ACT) and the Childhood Asthma Control Test (C-ACT) in a large primary care network as a means to reliably and consistently assess asthma control at all visit types. **Methods:** A prospective design was used to measure provider documentation of the ACT or C-ACT. Patients (or caregivers) 4 years of age or older with a known diagnosis of asthma were administered the ACT (ages 12 and older) or the C-ACT (ages, 4–11). The quality improvement project, which involved multiple interventions, took place at 11 centers of the Primary Care Network of Nationwide Children’s Hospital from November 2013 to December 2014. A goal was set for a 70% completion rate of the ACT/C-ACT at any visit type for patients 4 years of age or older with asthma. **Results:** Six months after the introduction of the questionnaires, the 70% completion rate was reached. Rates of ACT/C-ACT completion have consistently exceeded 70% through December 2016. **Conclusions:** We demonstrated that the ACT/C-ACT can be integrated into a busy primary care network. It is imperative to work toward better asthma care; consistent assessment of asthma control can be the critical first step. (*Pediatr Qual Saf* 2017;2:e038; doi: 10.1097/pq9.000000000000038; Published online August 21, 2017.)

Sangvai S, Hersey SJ, Snyder DA, Allen ED, Hafer C, Wickliffe J, Groner JA. Implementation of the Asthma Control Test in a Large Primary Care Network. *Pediatr Qual Saf* 2017;2:e038

# Asthma Self-Management Education

## ➤ Recognition of symptoms and signs

- Yellow Zone Management
- Asthma Action Plan

## ➤ Medication adherence and technique

- Controller vs. Quick Relief
- Medication delivery devices – HFA vs. DPI
- Spacer technique

## ➤ Identification and mitigation of triggers

- Allergens vs. Irritants

## ➤ Resources

- [IMPACT DC Patient Education Videos on Vimeo](#)
- [IMPACT DC Patient Education Handouts](#)
  - Triggers
  - Medication Technique
  - Asthma Care Tips
- Basics of asthma for practice staff (module)

# Initiative Next Steps




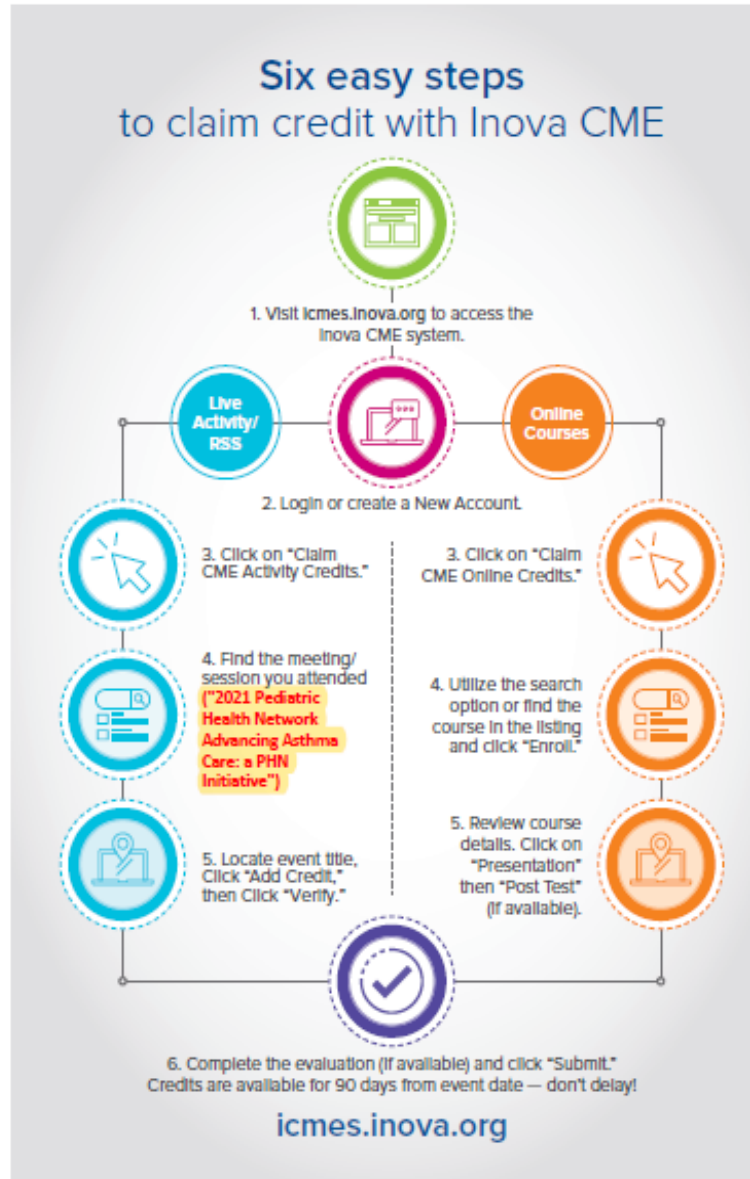
# Upcoming Due Dates & Events

- Asthma Measure Selection due today, 3/9, in Glasscubes
  - Suggestion: hold a team meeting on asthma measures and improvement plan (MOC practices need to report on team meeting)
- Data Champions Meeting
  - Date options: April 27<sup>th</sup> and April 29<sup>th</sup>
- Educational Webinar
  - May 11<sup>th</sup>, 2021 – [Register Here](#)
  - Health Disparities Data for the DMV Region
  - Social and Environmental Factors Affecting Asthma Outcomes: Tips for Screening and Intervention

# CME

**6 easy steps** to claim credit with Inova CME

Questions? Please contact us at [cme@inova.org](mailto:cme@inova.org).

✓ MOC Part 2 must be claimed within **30 days** of the event!

✓ CME must be claimed within **90 days** of event!

If you have any questions, please feel free to email [PHN@childrensnational.org](mailto:PHN@childrensnational.org)



All materials from this webinar will be posted on Glasscubes

# References



# Tips for Telehealth Asthma Visits



Eduardo Fox, MD

**Pediatric Health Network**



# Challenges/ Opportunities

- Challenges
  - Limited time for visits
    - Pick and choose which components to do at the visit
    - Can perform different components of evaluation over several visits
  - Lack of Exam: if any concerns then have them follow up in person.
- Opportunities
  - “On the ground” assessment
  - Environmental Assessment

# History

Symptoms (cough, wheeze, chest pain, exercise intolerance, fatigue)

Triggers (colds, exercise, changes in weather, stress, pets, dust, smoke, strong smells, pollen)

Risk

- # of ED asthma visits in last 12 months
- # of admission in last 12 months
- # of urgent care visits in the last 12 months
- # of systemic steroid courses in last 12 months

Impairment

- daytime symptoms- days/week
- Nighttime awakenings- nights/month
- Albuterol use for symptom control (not counting pre-exercise)- times/week
- Interference with normal activity (none, minor, some, severe)
- School absences due to asthma

Asthma Control Test (ACT)

# Exam

Observe eyes, face, neck, chest, skin, and respiratory effort

Consider having patient/ parent adjust clothing observe chest and suprasternal area (depending on age of patient).

Can count respiratory rate

## Sample Exam

- **General:** patient activity, ? Well or sick appearing
- **HEENT:** can comment on conjunctivae, nasal drainage, allergic shiners
- **Lungs:** No increased work of breathing, ? audible wheezing, ? able to sing or converse
- **Cardiovascular:** deferred
- **Abdomen:** deferred or observation about “belly breathing”
- **Neurological:** normal gait, alert and oriented
- **Skin:** There were no obvious rashes or lesions noted. ? eczema, ? acanthosis

# Medication and Spacer Technique

Confirm medications- ask family to get medications

Spacer – where is it stored, patient familiarity, sizing

Technique

- HFA/spacer (Link to IMPACT DC videos)
- Breath-activated devices

# Quick Video Home Visit

Environmental assessment- consider:

- Bedroom/ sleeping space
- Smoke Exposure
- Pests
- Dust
- Moisture, Mold, Smells
- Pets
- Carpet and flooring

Evidence for interventions?

- No strong evidence for single trigger elimination
- Better evidence for pest management intervention than other single triggers
- Mild to moderate evidence for multi-component interventions but need more research

# 2020 Guideline Update: Long-Acting Muscarinic Antagonists



# Long-Acting Muscarinic Antagonists (LAMA)

## 12 Years and Older with Uncontrolled Persistent Asthma

LAMA: Pharmacologic class of long-acting bronchodilators

### Key Points:

- Adding a LABA rather than a LAMA to an ICS is recommended when asthma is not controlled by ICS alone.
- If a LABA cannot be used, adding a LAMA to an ICS is an acceptable alternative (small potential benefit)
- If already on ICS-LABA, adding a LAMA is recommended for many individuals (may improve asthma control and quality of life)small potential benefit).

### Potential risks:

- Do not use in those with glaucoma or at risk for urinary retention.
- No more benefit than adding a LABA to ICS controller therapy
- May increase the risk of harm (based on a single real-world study in Black individuals)





# 2020 Guideline Update: FeNO – Is it helpful?



# FeNO

## 5 Years and Older with uncertainty about asthma diagnosis

FeNO: Fractional exhaled Nitric Oxide

### Key Points:

- May support an asthma diagnosis if spirometry is inconclusive
- Could use for ongoing monitoring when there is uncertainty in adjusting therapy.
- Not to be used in isolation
- Not useful in predicting disease in age < 4