



# Implementation of Asthma Home-Visits in Increasing Asthma Self-Management in Children in Miami-Dade County, Florida

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# Asthma Overview



- According to the National Heart, Lung and Blood Institute (NIH), asthma is a chronic lung disease that inflames and narrows the airways.
- During an asthma attack, the airways react, the muscles around them tighten. This narrows the airways, causing less air to flow into the lungs
- Asthma causes recurring periods wheezing, chest tightness, shortness of breath, and coughin

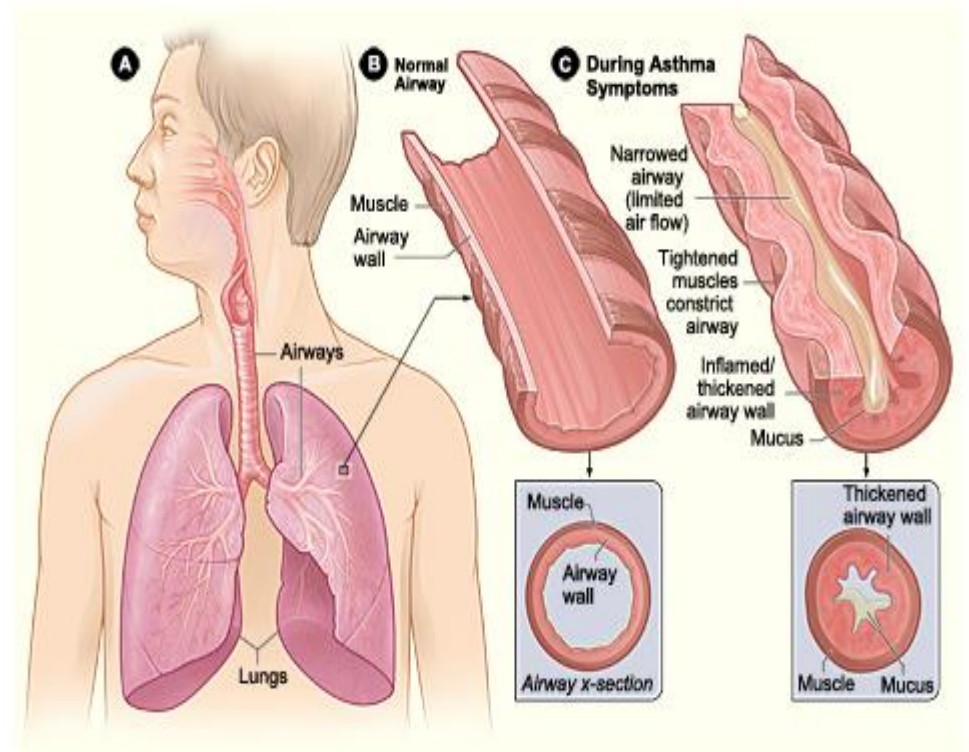
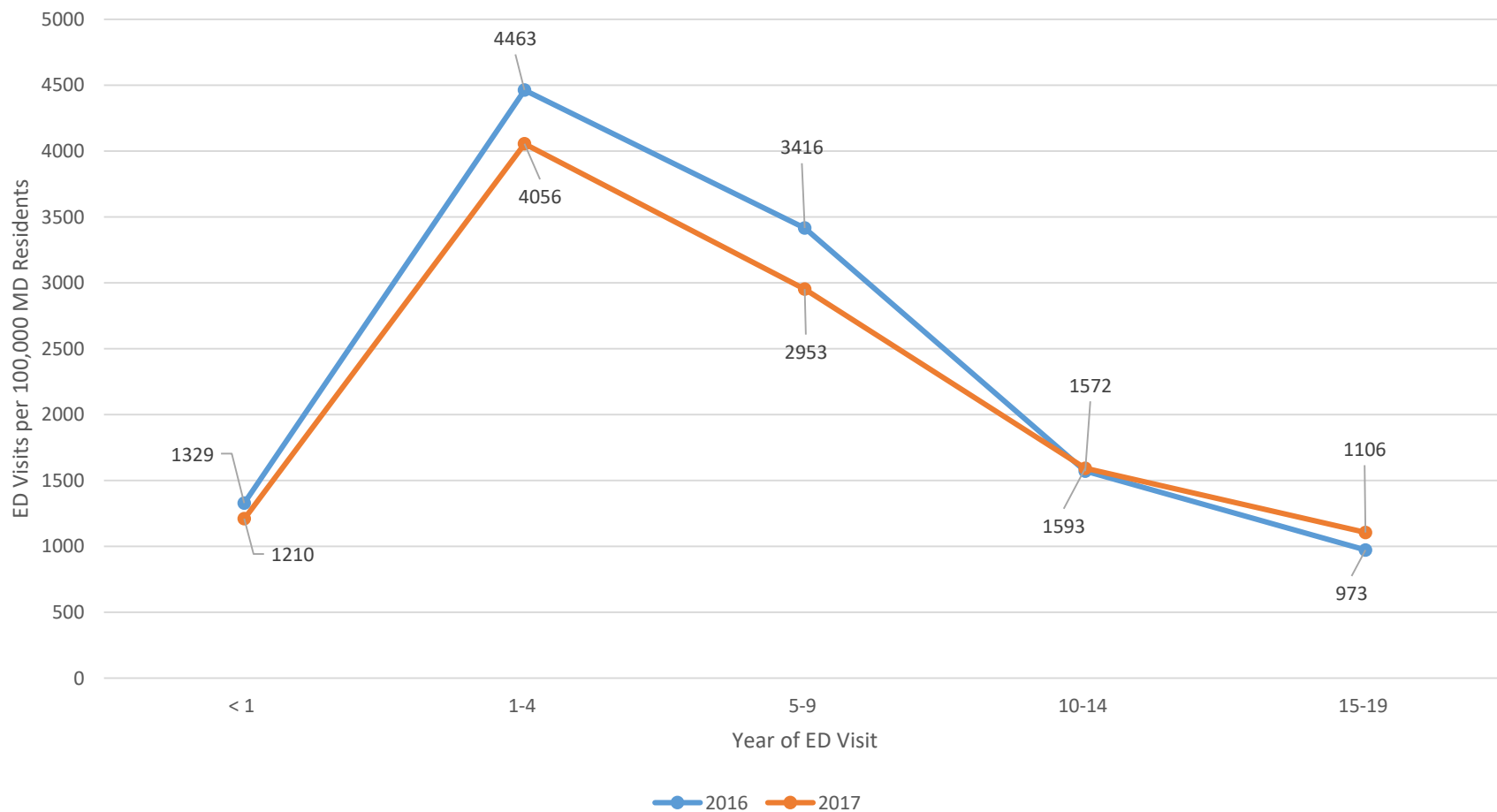


Figure A shows the location of the lungs and airways in the body. Figure B shows a cross-section of a normal airway. Figure C shows a cross-section of an airway during asthma symptoms.

# Asthma-related Emergency Department (ED) Visits in Miami-Dade County, Florida 2016-2017



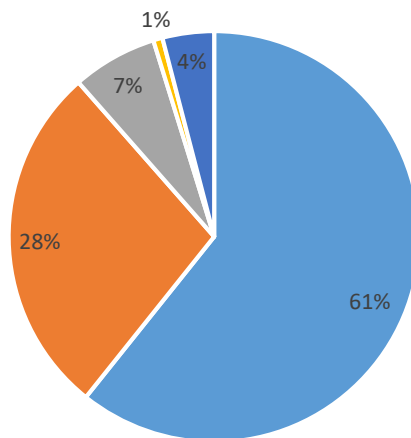
Rates of Asthma-related ED Visits by Age-Group, Miami-Dade County, Florida 2016-2017



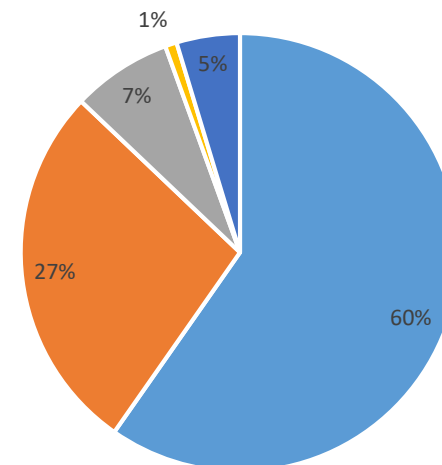
# Asthma-related ED Visits by Race/Ethnicity in Miami-Dade County, Florida 2016-2017



**Pediatric Asthma-related ED Visits by Race/Ethnicity, Miami-Dade County, Florida 2016**



**Pediatric Asthma-related ED Visits by Race/Ethnicity, Miami-Dade County, Florida 2017**

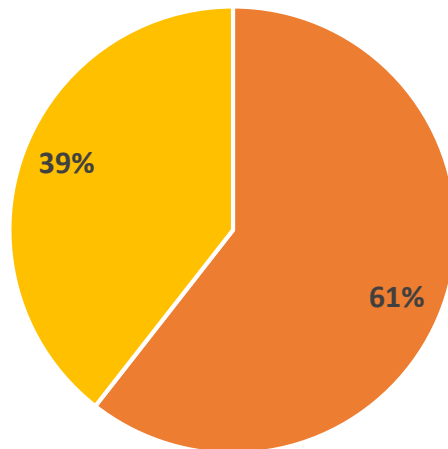


■ Hispanic ■ Non-Hispanic Black ■ Non-Hispanic White ■ Other ■ Unknown    ■ Hispanic ■ Non-Hispanic Black ■ Non-Hispanic White ■ Other ■ Unknown

# Pediatric Asthma-related ED Visits by Gender in Miami-Dade County, Florida 2016-2017

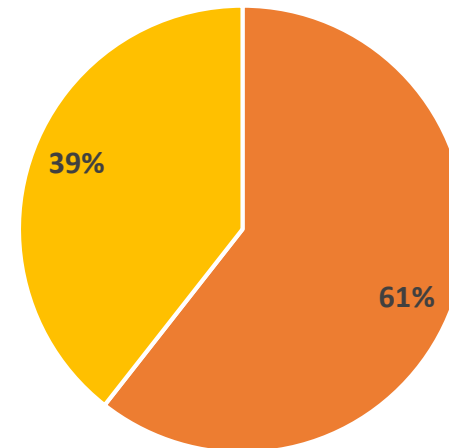


**Pediatric Asthma-related ED Visits by Gender, Miami-Dade County, Florida 2016**



■ Male ■ Female

**Pediatric Asthma-related ED Visits by Gender, Miami-Dade County, Florida 2017**



■ Male ■ Female

# Project Objective



- To reduce the number of Emergency Department (ED) visits for families with children who suffer from asthma and asthma-related illnesses
- Decrease school absenteeism
- Increase asthma self-management through the implementation of asthma-home visits

# Project Design/Methodology



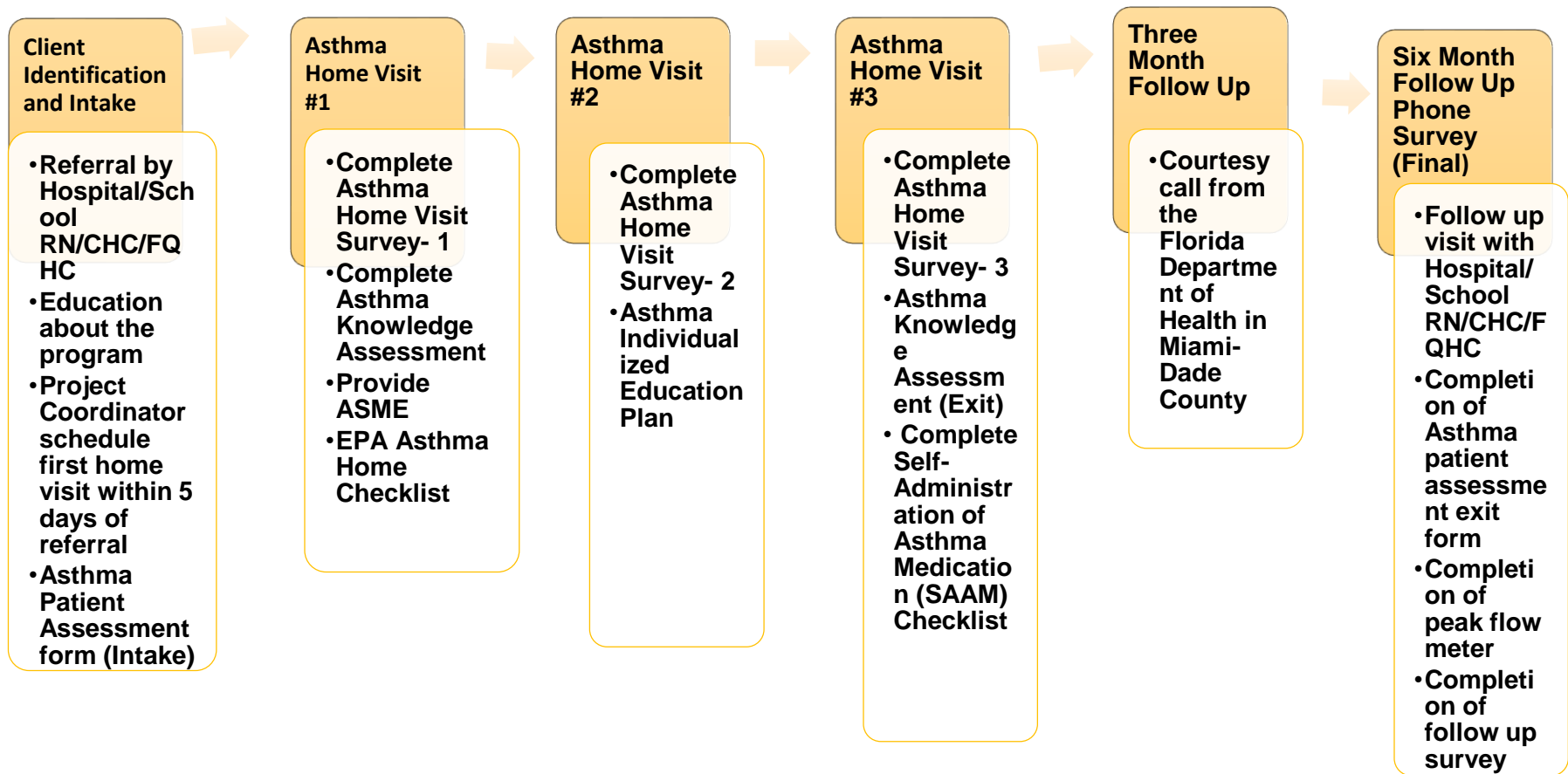
- To assess the effectiveness of the program's ability to promote change in the child's environment and asthma self-management.
- Data will be collected retrospectively to assess the child's medical history regarding asthma, as compared to their baseline and after intervention data.
- The three and six month follow-ups will allow understanding of the long-term effects of the education and remediation program provided at the home visits.
- In addition, reduction of emergency room visits and hospitalization will be assessed to provide information on the program's cost effective strategies in reducing medical related costs as they pertain to asthma management.

# Inclusion Criteria



- Miami-Dade County residents
- Age 0-17 years of age
- An asthma-related hospitalization or 2 or more emergency department visit
- $\geq 2$  days per week of symptoms or quick relief inhaler use
- $\geq 2$  nights per month of nighttime asthma symptoms

# Asthma Home-Visiting Project



# Asthma Knowledge Assessment



## *Section 1: What is Asthma? (Pathophysiology)*

1. People who have asthma, will have it for the rest of their life	<input type="checkbox"/> true	<input type="checkbox"/> false
2. Asthma cannot be cured but it can be controlled	<input type="checkbox"/> true	<input type="checkbox"/> false
3. Asthma episodes usually occur without warning.	<input type="checkbox"/> true	<input type="checkbox"/> false
4. Not all asthma episodes need to be taken seriously	<input type="checkbox"/> true	<input type="checkbox"/> false
5. There is nothing you can do to keep from getting an asthma attack.	<input type="checkbox"/> true	<input type="checkbox"/> false
6. People with asthma should not exercise.	<input type="checkbox"/> true	<input type="checkbox"/> false
7. Coughing is not a symptom of asthma.	<input type="checkbox"/> true	<input type="checkbox"/> false
8. Asthma symptoms (wheezing, trouble breathing, chest tightness) are caused by swelling and narrowing of airways.	<input type="checkbox"/> true	<input type="checkbox"/> false
9. Allergens do not cause an asthma attack	<input type="checkbox"/> true	<input type="checkbox"/> false
10. An allergen is the antibody missing in people with asthma	<input type="checkbox"/> true	<input type="checkbox"/> false

# Asthma Knowledge Assessment



## Section 2: Asthma Triggers

Asthma symptoms can be made worse by:

11. Dust	<input type="checkbox"/> Yes <input type="checkbox"/> No	12. Chocolate	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Cockroaches	<input type="checkbox"/> Yes <input type="checkbox"/> No	14. Milk	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. Mosquitoes	<input type="checkbox"/> Yes <input type="checkbox"/> No	16. Scented Candles	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Mold, mildew, or fungi	<input type="checkbox"/> Yes <input type="checkbox"/> No	18. Birds	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Tobacco smoke	<input type="checkbox"/> Yes <input type="checkbox"/> No	20. Cats	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. Hard, crisp, or crunchy foods	<input type="checkbox"/> Yes <input type="checkbox"/> No	22. Pollen	<input type="checkbox"/> Yes <input type="checkbox"/> No
23. Infections	<input type="checkbox"/> Yes <input type="checkbox"/> No	24. Air pollution	<input type="checkbox"/> Yes <input type="checkbox"/> No
25. Eggs	<input type="checkbox"/> Yes <input type="checkbox"/> No	26. Freshly cut grass	<input type="checkbox"/> Yes <input type="checkbox"/> No
27. Exercise	<input type="checkbox"/> Yes <input type="checkbox"/> No	28. Emotional stress or excitement	<input type="checkbox"/> Yes <input type="checkbox"/> No
29. Pet fish	<input type="checkbox"/> Yes <input type="checkbox"/> No	30. Watching television	<input type="checkbox"/> Yes <input type="checkbox"/> No
31. Dust mites	<input type="checkbox"/> Yes <input type="checkbox"/> No	32. Cleaning products	<input type="checkbox"/> Yes <input type="checkbox"/> No
33. Dogs	<input type="checkbox"/> Yes <input type="checkbox"/> No	34. Aerosol (i.e. Lysol, Febreze)	<input type="checkbox"/> Yes <input type="checkbox"/> No

# Asthma Knowledge Assessment



## *Section 3: Medication*

35. People with asthma have no way to know how well their lungs are working.	<input type="checkbox"/> true	<input type="checkbox"/> false
36. A peak flow meter is used to make sure your sinuses are open	<input type="checkbox"/> true	<input type="checkbox"/> false
37. A person with asthma can become addicted to their medications.	<input type="checkbox"/> true	<input type="checkbox"/> false
38. You don't need to shake most asthma medication inhalers before using them.	<input type="checkbox"/> true	<input type="checkbox"/> false
39. A rescue inhaler is taken to reduce inflammation in the lungs.	<input type="checkbox"/> true	<input type="checkbox"/> false
40. An inhaler will deliver a dose of medication successfully no matter how it is used.	<input type="checkbox"/> true	<input type="checkbox"/> false
41. Inhaled steroids have the same side effects as oral steroids.	<input type="checkbox"/> true	<input type="checkbox"/> false
42. The steroid inhaler (i.e. Becotide, Beclomet, Pulmicort) is to be used every day to prevent asthma attacks from occurring.	<input type="checkbox"/> true	<input type="checkbox"/> false

# Asthma Home-Visit Surveys



Current Asthma Prevalence and Symptoms: In the LAST 14 DAYS (2 Weeks):				# of Days (1-14)	
How many days did your child have an episode of asthma or an asthma attack?					
How many days did your child experience wheezing or tightness in the chest?					
How many nights has your child's sleep been disturbed to asthma or symptoms including wheezing, or whistling?					
How many times did your child have to slow down or stop play or activities because of asthma or symptoms of wheezing, whistling, cough, or tightness in the chest?					
Medication and Control: During the LAST 6 MONTHS, on average:	Never	Rarely (less than once a week)	Sometimes (1-2 times a week)	Frequently (every other day)	Very Frequently (daily)
How often has your child used any medications DURING AN ASTHMA ATTACK to stop it?					
How often has your child used over-the-counter medications for asthma?					
How often has your child used prescription medication for asthma?					
How often has your child used any medication to PREVENT ASTHMA ATTACKS FROM OCCURRING (this is different from quick-relief inhalers)					
How often has your child used a peak flow meter?					
Quality of Life Factors: During the LAST 6 MONTHS:					
How many times did you visit an emergency room or urgent care center for your child's asthma?					
How many days of school did your child miss because of asthma symptoms?					
How many days of school did your child miss for any reason?					
How many days were YOU unable to work because of your child's asthma? (Adult: Parent or Guardian)			<input type="checkbox"/> Not Applicable or Unemployed		

# ASTHMA HOME ENVIRONMENT

## CHECKLIST

### Dust Mites

*Triggers:* Body parts and droppings.

*Where Found:* Highest levels found in mattresses and bedding. Also found in carpeting, curtains and draperies, upholstered furniture, and stuffed toys. Dust mites are too small to be seen with the naked eye and are found in almost every home.

### Pests (such as cockroaches and rodents)

*Triggers:* Cockroaches – Body parts, secretions, and droppings.  
Rodents – Hair, skin flakes, urine, and saliva.

*Where Found:* Often found in areas with food and water such as kitchens, bathrooms, and basements.

### Warm-Blooded Pets (such as cats and dogs)

*Triggers:* Skin flakes, urine, and saliva.

*Where Found:* Throughout entire house, if allowed inside.

### Mold

*Triggers:* Mold and mold spores which may begin growing indoors when they land on damp or wet surfaces.

*Where Found:* Often found in areas with excess moisture such as kitchens, bathrooms, and basements. There are many types of mold and they can be found in any climate.

### Secondhand Smoke

*Trigger:* Secondhand smoke – Mixture of smoke from the burning end of a cigarette, pipe or cigar and the smoke exhaled by a smoker.

*Where Found:* Home or car where smoking is allowed.

### Nitrogen Dioxide (combustion by-product)

*Trigger:* Nitrogen dioxide – An odorless gas that can irritate your eyes, nose, and throat and may cause shortness of breath.

*Where Found:* Associated with gas cooking appliances, fireplaces, woodstoves, and unvented kerosene and gas space heaters.

# Project Outcomes



- Improvement in baseline knowledge of environmental asthma triggers
- Cost effectiveness of program as compared to cost of hospitalizations
- Reduction in the number of triggers
- Improved compliance with adhering to prescribed medication.
- Reduction in the number of hospitalization/ ED visits
- Effectiveness to provide long-term changes in health behaviors of the participating families.

# Project Evaluation



- Initial and Follow-up ED Visits/Hospitalizations
  - Reduced repeat ED and Hospitalization Visits
  - Reduced costs
- Medication Use
  - Prevention
  - During an attack
- Asthma Triggers
- School Absenteeism
- Pre & Post Asthma Knowledge Assessments

# Project Status



- Next Steps:
  - Final program document revisions
  - Apply for IRB
  - Finalize potential MOU's with partners
  - Train project staff to deliver program
  - Recruit patients

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