Asthma Management: Remediating Indoor Triggers that Contribute to Asthma Exacerbations

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Objectives

Learning Objectives:
By the end of this presentation participants should be able to:

1. Identify at least 2 ways to reduce and avoid indoor and outdoor triggers to lower the risk of an asthma episode.
2. List the benefits of tests that help identify personal triggers for asthma.
3. Describe common comorbid conditions that may increase asthma symptoms.

The Burden of Asthma

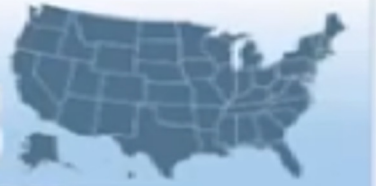
“The burden of asthma affects patients with asthma, their families and society in terms of lost work and school, lessened quality of life, and avoidable emergency room visits, hospitalization and deaths."

Image source : vecteezy.com

NAEPP, 2020, EPR-3, 2007

Asthma

25 MILLION
Americans diagnosed

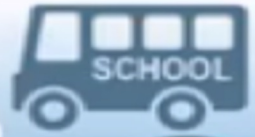


1 in 10
CHILDREN

$80 BILLION
annual costs

3,168
DEATHS annually

75% higher for black persons than white persons



13.8 MILLION missed school days per year

#1 reason kids miss school

14.2 MILLION
missed work days per year

3 in 5
limit physical activity

71%
MISUSE
inhalers

1 in 5
CANNOT AFFORD
medications

AllergyAsthmaNetwork.org

Allergy & Asthma NETWORK

What is Asthma?

The Global Initiative for Asthma (GINA) defines asthma as:

"a heterogeneous disease, usually characterized by chronic airway inflammation with a severe global impact on quality of life, mortality, economy, and health care utilization."

GINA, 2022

Asthma

- Asthma is defined by the history of respiratory symptoms:
  - Wheeze
  - Shortness of breath
  - chest tightness
  - Cough
- Symptoms vary over time and in intensity with variable expiratory airflow
- Many patients experience poor disease control and a decreased quality of life despite optimal pharmacological treatment

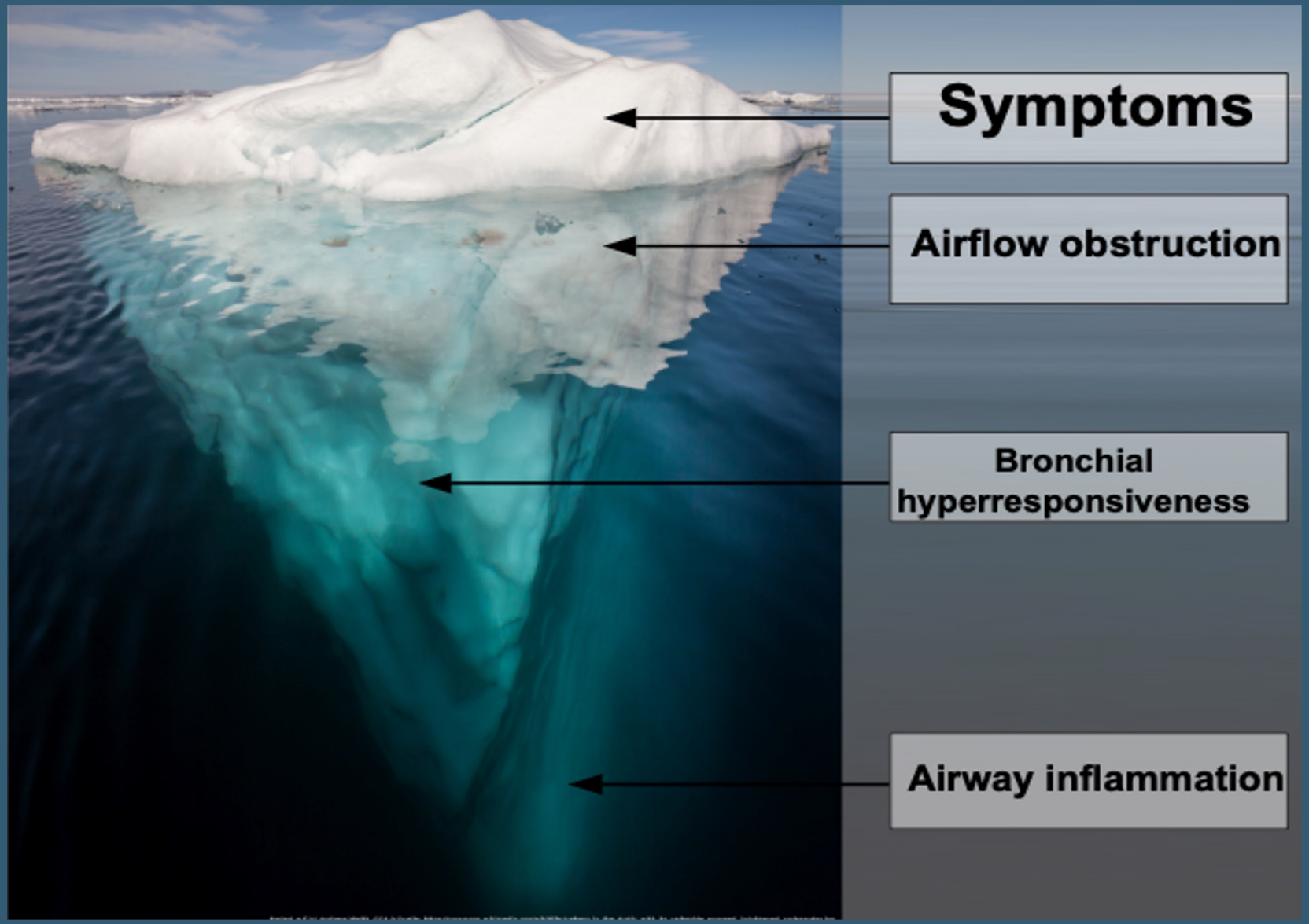


Image source: EkkehardDomning, CC BY-SA 4.0 via Wikimedia Commons

What Causes Asthma?

- **Airway epithelium**

  plays an important role in immunity

  site of initial exposure to viruses and allergens, which can drive stress, possibly underlying the development of asthma

- **Respiratory viral infection** early in life associates with the development of asthma, and viral infections later in life drive exacerbations of asthma

- **Cytokines** are important to the development and exacerbation of asthma

J Allergy Clin Immunol 2021;148:1430-41

Airway Remodeling

- Repeated asthma exacerbations over a long period cause pathological changes in the normal airway structure
- Changes in the structures and functions of airway wall cells due to airway inflammation and tissue injury
- Occurs in large and small airways
- Principal morphologic features: include epithelial disruption, subepithelial fibrosis, smooth muscle hyperplasia, glandular hypertrophy, and neoangiogenesis
- Changes eventually lead to airway wall thickening, airway narrowing, and airway hyperresponsiveness

Front. Med. 2020; 7:191.

Ann Transl Med 2022;10(18):1023

Key Indicators of Asthma Triggers

Symptoms occur or worsen in the presence of:

- Exercise
- Viral infection
- Inhalant allergens (e.g., animals with fur or hair, house-dust mites, mold, pollen)
- Irritants (tobacco or wood smoke, airborne chemicals)
- Changes in weather
- Strong emotional expression (laughing or crying hard)
- Stress
- Menstrual cycles

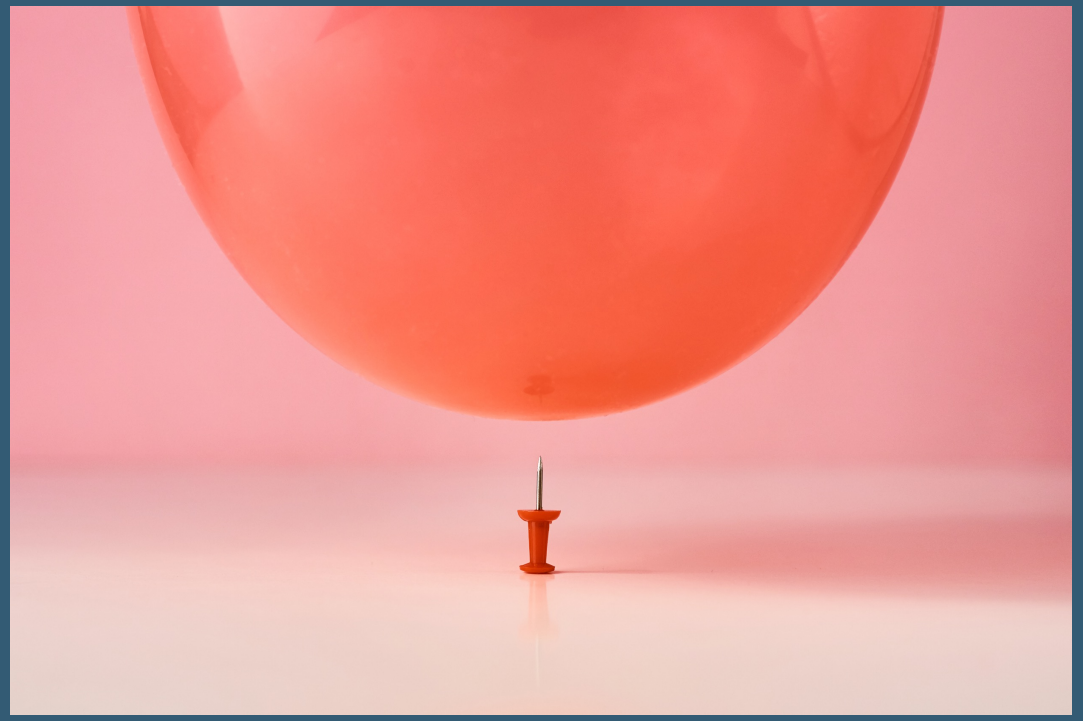
Symptoms occur or worsen at night, awakening the patient

Asthma changes over time in response to triggers
It is important to keep monitoring and managing asthma even when it seems to be under control

Risk Factors for Dying from Asthma

ICU admissions or intubations

- 2+ hospitalizations in past years
- 3+ ER visits per year
- 2 quick-reliver inhalers per month
- Difficulty recognizing symptoms
- Living in underprivileged communities
- Having additional health issues



Primary Goal of Asthma Management and Treatment

- Achieve the control of symptoms and underlying airway inflammation
- Reduce the risk of asthma exacerbation
- Minimize the risk of medication-related side effects
- Prevent the progression of obstructive lung damage
- Engagement of patients as active partners
- Ongoing asthma education
- Ongoing and comprehensive treatment aimed to reduce the symptom burden

GINA, 2023. NAEPP, 2020 EPR-3, 2007

Why do you need to know triggers that could contribute to an Asthma Exacerbation?

Since there is no cure, **prevention** is key.

Black, Hispanic, and Indigenous individuals in the U.S. face THE HIGHEST BURDEN OF ASTHMA.

These disparities are caused by complex factors including systemic and structural racism.

Compared to white Americans:

Black Americans are nearly **1.5 times** more likely to have asthma

Puerto Rican Americans are nearly **2 times** more likely to have asthma

Black Americans are **5 times** more likely to visit the emergency department due to asthma

Black Americans are **3 times** more likely to die from asthma

When sex is factored in, **BLACK WOMEN** have the highest rates of death due to asthma

Asthma and Allergy Foundation of America

aafa.org/asthmadisparities

NYC H + H Woodhull Hospital

Asthma ED visits (children)

Asthma emergency department visits among children ages 5 to 17 years old, 2018

In **Williamsburg - Bushwick**, the asthma emergency department visits among children ages 5 to 17 years old, 2018 is Worse compared to the NYC average. Severe asthma attacks can result in a visit to the ED. Certain exposures can trigger asthma symptoms, including smoke, air pollution, dust mites, cockroaches, mold, pollen and pet dander, among others.

Neighborhood Comparison

Williamsburg - Bushwick	Brooklyn	New York City
246.7	161.2	183.3

Estimated Annual Rate per 10,000 residents

POPULATION BY RACE AND ETHNICITY

65% Hispanic

20% Black*
9% White*
5% Asian*
1% Other*

https://a816-dohbesp.nyc.gov/IndicatorPublic//neighborhood_reports/williamsburg_bushwick/asthma_and_the_environment/

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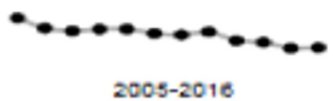
Asthma and the Environment in Williamsburg - Bushwick

Asthma is a common lung disease and a leading cause of hospitalizations for children under 15 years old. This report provides a summary of asthma indicators by neighborhood. It also describes housing and neighborhood characteristics that can make asthma worse.

Zip Codes: 11206,11221,11237

Child Asthma

Rates per 10,000 residents, unless otherwise indicated.

	Williamsburg - Bushwick	Brooklyn	NYC	Williamsburg - Bushwick: Compared with other NYC neighborhoods*	Williamsburg - Bushwick: Trend over time
Asthma emergency department visits among children ages 5 to 17 years old, 2016	327.2	186.8	215.3	Worse	 2005-2016
Asthma hospitalizations among children ages 5 to 17 years old, 2016	33.0	24.1	27.2	Worse	 2005-2016
Asthma among public school children ages 5 to 14 years old (per 1,000 children), 2013-2014	86.3	59.6	73.8	Worse	 2010-2011-2013-2014

https://a816-dohbesp.nyc.gov/IndicatorPublic//neighborhood_reports/williamsburg_bushwick/asthma_and_the_environment/

Why?

~30% living in poverty

Lack health insurance

+

- Increased air pollutant
- fine particulate matter
- Increased ground level ozone air pollution exposure

+

- Over 119,000 Brooklyn residents live in public housing
- Buildings are 85 yrs. old & deteriorating

+

- Increased secondhand smoke
- Increased exposure to allergens from cockroaches, mice/rats & mold

=

Asthma Burden in North Brooklyn

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Social Determinants of Health

- Life-enhancing resources, such as food supply, housing, economic and social relationships, transportation, education and health care, whose distribution across populations effectively determines length and quality of life.

World Health Organization

Factors Associated with Asthma Outcomes

Factors

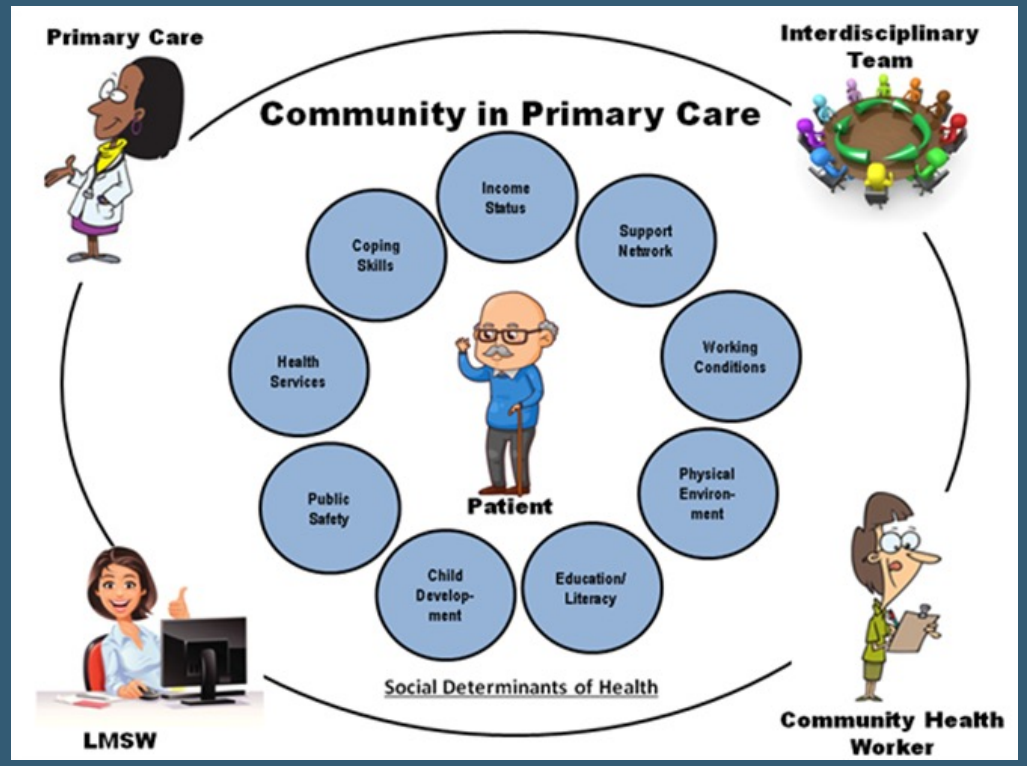
- Race/ethnicity and racism
- Socioeconomic status
- Housing conditions
- Food insecurity
- Allergen exposure
- Second hand smoke
- Psychosocial stress and community violence
- Neighborhood conditions
- Social capital
- Access to care

Mechanisms

- Immune response
- Stress-induced inflammation
- Weathering
- Distribution of other factors
- Tradeoffs between material goods and medication
- Competing priorities
- Social support
- Medical expertise

Strategies to Address Social Determinants of Health (SDOH)

- Clinical – anti-racism, quality improvement
- Research – root causes, intervention development
- Health Policy – large-scale, cross-sector strategies



Summary of Evidence on SDOH Asthma Interventions

- Housing vouchers lead to improvements in respiratory symptoms
- Green Housing leads to fewer asthma exacerbations, hospital visits, and school absences
- Smoke-free policy in public housing leads to 17% decrease in child emergency department visits
- Community health workers effective but low uptake
- Environmental controls lead to fewer acute care visits and decreased asthma symptoms
- Provision of Supplemental Nutrition Assistance Program benefits associated with reduction in emergency department claims for asthma

Sullivan K et al. Structural and Social Determinants of Health in Asthma in Developed Economies: a Scoping Review of Literature Published Between 2014 and 2019. Current Allergy and Asthma Reports. 2020;20(5):doi: 10.1007/s11882-020-0899-6.

Addressing SDOH Issues in Clinical Practice

Barrier

- Medical model bias and the treatment imperative in health care
- Patients who experienced prior stereotyping and discrimination in clinical care
- Medical providers feeling overwhelmed, overworked and lacking time
- Medical providers not knowing what resources exist in the local community
- Medical providers unsure of what concrete actions to take to address social determinants

Facilitator

- Health care provider reminder and recall systems to adopt a more holistic and biopsychosocial approach
- Treating patients with dignity and respect and creating "safe spaces" for disclosure
- Taking a few extra minutes per consultation to address complex health and social needs
- Providing a mapping of benefits and local referral resources for specific social challenges
- Resources, training and ongoing support of physicians and allied health care workers

Adopted from CMAJ. 2016 Dec 6; 188(17-18): E474–E483.

At the community level, medical providers and allied health professionals can:

- Partner with local and public health organizations
- Get involved in health planning
- Advocate for more supportive environments for health.

Speaking on fighting against asthma disparities to stakeholders at Allergy & Asthma Network Day on Capital Hill 2023

Free Stock photos by Vecteezy

Indoor Triggers - Smoke

- Including secondhand exposure
  - 18% of people living with Asthma smoke
  - Compared to 13.6%

    - **Lung Helpline - 1-800-LUNGUSA**
    - **https://www.inspire.com/groups/freedom-from-smoking**
    - **Freedom From Smoking®**
    - **Pulmonary Rehabilitation**

- Fireplaces, wood burning stoves

https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/learn-about-asthma/what-causes-asthma/smoking-with-asthma#:~:text=Living%20with%20a%20chronic%20lung,known%20to%20trigger%20asthma%20attacks.

Indoor Triggers - Pets

- Dander & Saliva
- Keep out of bedrooms
- Vacuum and dust weekly
- Wash hands after contact
  - Bathe and change clothes

https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/reduce-asthma-triggers#:~:text=Dander%20and%20saliva%20from%20animals,spend%20a%20lot%20of%20time.

Indoor Triggers - Pests

- Dust Mites
  - one-quarter to one-third of a millimeter
- Cockroaches
- Mice, Rats

  - Don’t leave food out
  - Keep humidity below 50%
  - Store garbage outside if possible
  - **Vacuum and dust weekly**
  - Wash bedding weekly
  - Watch for leaks & fix as soon as possible

https://www.lung.org/clean-air/at-home/indoor-air-pollutants/dust-mites
https://www.lung.org/clean-air/at-home/indoor-air-pollutants/cockroaches

Pest Allergens

35 to 45% of kids with asthma are allergic to roaches

- Cockroach allergens are in:
  - Live and dead cockroaches
  - Frass – cockroach excrement
  - Shed skins
  - Egg casings

German cockroach

Nymph cockroaches near egg casing

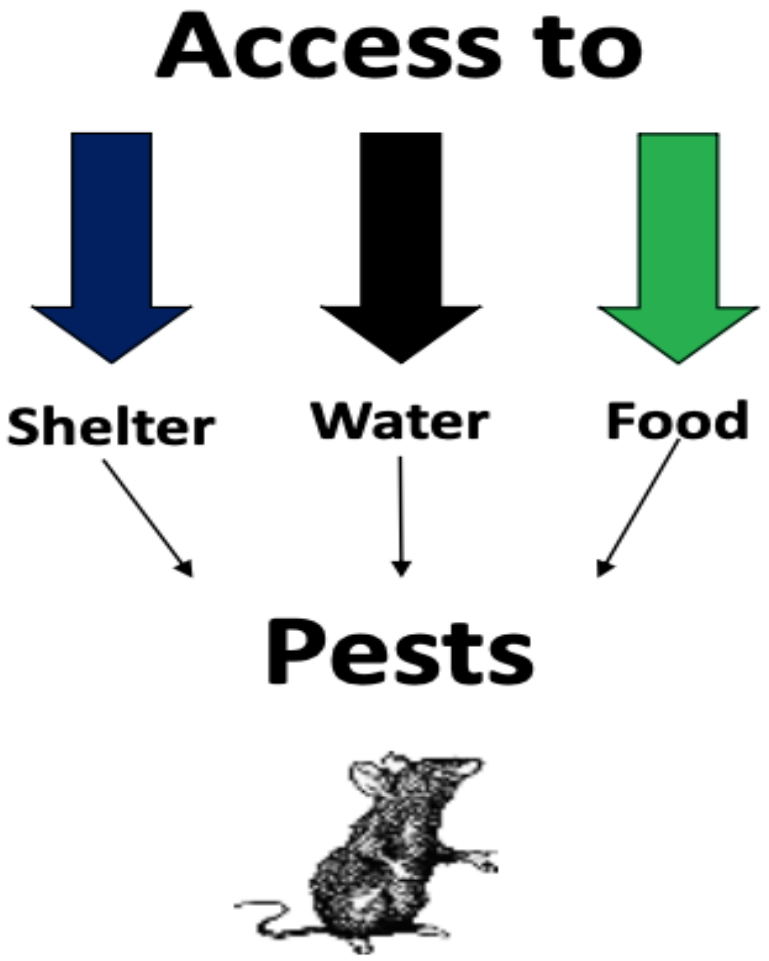
18 to 22% of kids with asthma are allergic to mice

- Mouse allergens are in:
  - Live and dead mice
  - Nesting materials
  - Mice urine and feces
  - Rub marks
  - Mice hair

Mouse droppings on kitchen stove

NYC Health

Conditions that Help Pests Thrive



Asthma Triggers

- Tobacco smoke
- Dust mites
- Animal dander
- Cockroach allergens
- Indoor mold
- Wood smoke
- Formaldehyde
- Volatile organic compounds

- Air pollution
- Cold, damp, windy, stormy weather
- Sudden temperature changes
- Weeds, trees, grass
- Strenuous exercise
- Respiratory infections
- Common food allergies

Controlling Asthma Triggers

Let patients know that although they are not able to control outdoor triggers like the weather or pollen season, they can start to control any indoor triggers they may have especially in the home.

Dust
- Remove carpet
- No stuff animals in bed
- Use dust mite proof encasement for mattress and pillows

Mold
- Fix leaks
- Watch for standing water in the house (bathroom, under refrigerator)

Pests
- Cover trash
- Use sticky traps
- Wash dishes
- Plug gaps and holes in walls

Strong Smells
- Watch use of cleaning products
- Substitute with things like vinegar, baking soda, lemon
- Avoid sprays, candles , perfume, etc.

Smoke
- No Smoking in the home
- Wear a raincoat or poncho whiling smoking

Food & Medications

Food

- Additives
- Dairy
- Eggs
- **Peanuts**
- Sesame
- **Shellfish**
- Soy
- Sulfites
- Tree nuts
- Wheat

Medications

- Antibiotics
- Aspirin
- Beta-blockers
  - Cardio-selective versus Non-selective
- Fever reducers
- Nonsteroidal anti-inflammatory drugs
- Herbal remedies

https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/reduce-asthma-triggers#:~:text=Dander%20and%20saliva%20from%20animals,spend%20a%20lot%20of%20time.
https://aafa.org/asthma/asthma-triggers-causes/food-as-an-asthma-trigger/
Tiotiu, A., Novakova, P., Kowal, K., Emelyanov, A., Chong-Neto, H., Novakova, S., & Labor, M. (2019). Beta-blockers in asthma: myth and reality. *Expert review of respiratory medicine*, *13*(9), 815–822. https://doi.org/10.1080/17476348.2019.1649147

Mold & Mildew

- Type of fungus
- Condensation, high humidity, & water leaks
  - Keep humidity levels below 50%
  - Exhaust fans
  - Soap, water & a brush, dry thoroughly
  - Wear an N95

https://www.lung.org/clean-air/at-home/indoor-air-pollutants/mold-and-dampness

Outdoor Triggers

- Air Pollution
- Pollen
  - Spring allergies - February to early Summer
  - Ragweed - August to November
    - Mid-September
- Extreme Weather
  - Thunderstorms
- Mold

https://www.cdc.gov/asthma/triggers.html#:~:text=Outdoor%20air%20pollution%20can%20trigger,can%20cause%20an%20asthma%20attack.
https://acaai.org/allergies/allergic-conditions/seasonal-allergies/

Workplace Triggers

- Cleaning chemicals
- Dust Mites & other pests
- Exposure to respiratory illnesses - Flu
- Gases and fumes
- Mold
- Outdoor air, vehicle exhaust
- Personal lotions, perfumes & candles
- Stress

https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/workplace

Workplace Triggers

- 11 million exposed to at least one trigger at work
- 21.5% have increased symptoms because of their workplace
  - Educate coworkers
  - Ventilation system
  - Wear a mask
  - Vaccinations
  - Might have to change jobs

Safer Choices website.

NIOSH-Approved Respirators: What they are? How can they be identified? Where can I get them?

https://www.epa.gov/saferchoice
https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/respsource3approval.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fniosh%2Fnpptl%2Ftopics%2Frespirators%2Fdisp_part%2Frespsource1.html
https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/workplace

Types of Allergy Testing

- **Skin Prick Test (SPT)**
  - Believed to be most accurate
  - Does not show severity
  - Need to be off antihistamines for at least 3 to 4 days but 7 to 10 days may be needed

Types of Allergy Testing

- **Intradermal Skin Test**
  - “Under the skin”
  - Used if SPT is negative but allergy reaction still suspected
  - Used for possible venom or drug allergy
  - Not shown to be accurate for food allergies

Types of Allergy Testing

- **Blood Test - Specific IgE**
  - Antibodies
  - Alternate choice for if patient cannot be off antihistamine
  - Children that will not tolerate skin allergy tests
  - RAST (Radioallergosorbent test)/ immunoCAP test

False Positives

Asthma and Allergy Foundation of America. 2015. *Allergies: Allergy Diagnosis. https://aafa.org/allergies/allergy-diagnosis/*

Types of Allergy Testing

- **Physician - Supervised Challenge**
  - Food allergy
  - Drug allergy
  - Anaphylaxis

- **Patch Test**
  - Causes for Contact Dermatitis
  - Up to 96 hours
  - Rash

What needs to be considered if someone with Asthma is not responding to treatment?

Comorbid Conditions

Comorbid Conditions

- Allergic Bronchopulmonary Aspergillosis (ABPA)
  - reaction to antigens of *Aspergillus fumigatus*
  - >4 million people
- Gastroesophageal Reflux Disease (GERD)
  - Reflux during sleep
- Obesity
- Obstructive Sleep Apnea (OSA)
- Allergic Rhinitis/Sinusitis
- Anxiety/Stress/Depression

https://allergyasthmanetwork.org/allergies-updates/allergic-bronchopulmonary-aspergillosis-abpa/#:~:text=Allergic%20bronchopulmonary%20aspergillosis%20is%20commonly,are%20higher%20in%20some%20settings.
Bhankhur, D., Singla, N., Aggarwal, D., & Chander, J. (2019). Prevalence of allergic bronchopulmonary aspergillosis among patients with severe bronchial asthma in a tertiary care hospital in Northern India. *Indian journal of pathology & microbiology*, *62*(1), 111–113. https://doi.org/10.4103/IJPM.IJPM_205_18
National Heart, Lung, and Blood Institute. (2007). National Asthma Education and Prevention Program: Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma.

Comorbid Conditions

- Arthritis
- Diabetes
- Cancer
- Heart Disease
- Osteoporosis
- Stroke

National Heart, Lung, and Blood Institute. (2007). National Asthma Education and Prevention Program: Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma.

Comorbid Conditions - Pregnancy

- 45% have an Asthma attack
- Emotions
  - Not just when pregnant
  - Crying, laughing, yelling
- Monitor with doctor
- Avoid known triggers
- **Take Asthma Medications**

https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/asthma-and-pregnancy

Exercise-Induced Bronchoconstriction (EIB)

- Exercise-Induced Asthma - formerly
  - Loss of heat/moisture from airways
  - Approximately 90% with Asthma have EIB
  - Not everyone with EIB has Asthma
  - Common triggers
    - Chlorine
    - Cold, dry air
    - Extreme hot air
    - Pollution

https://acaai.org/asthma/types-of-asthma/exercise-induced-bronchoconstriction-eib/
https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/reduce-asthma-triggers#:~:text=Dander%20and%20saliva%20from%20animals,spend%20a%20lot%20of%20time.

Exercise-Induced Bronchoconstriction (EIB)

- Diagnosis
  - History
  - Exercise Challenge Testing
- Treatment
  - Short-acting inhaled beta2-agonists
    - 15 to 30 minutes before exercise
  - Long-term control medicine
  - Inhaled corticosteroids
  - Long-acting inhaled beta2-agonists
    - 30 to 60 minutes before exercise
    - Once in 12 hours
    - With an inhaled corticosteroid
  - Montelukast

https://acaai.org/asthma/types-of-asthma/exercise-induced-bronchoconstriction-eib/
https://www.lung.org/lung-health-diseases/lung-disease-lookup/asthma/managing-asthma/reduce-asthma-triggers#:~:text=Dander%20and%20saliva%20from%20animals,spend%20a%20lot%20of%20time.

Asthma Management: Behavioral & Environmental Modifications

The Journey Towards Asthma Control

Linda Nozart - MPH, BSRT, RRT, AE-C

Health Belief Model

The Health Belief Model focuses on an individual's perceptions of the threat of a health problem and the behavior change necessary to prevent or manage the problem.

Health Belief Model?

It includes six factors that influence decisions and an individual's readiness to act:

- Perceived susceptibility
- Perceived severity
- Perceived benefits
- Perceived barriers
- Cues to action
- Self-efficacy

Health Belief Model?

- Recognize there is a problem
- Acknowledge it can be serious
- Believe that something can be done about it
- Patients need to know what to do
- Believe it is worth doing
- Be able to do it

Patient Engagement in Asthma Self-Management

Share Decision Making

Seek your patient's participation
Help explore & compare treatment options
Assess patient's values & preferences
Reach a decision with your patient
Evaluate your patient's decision

Psychosocial Variables

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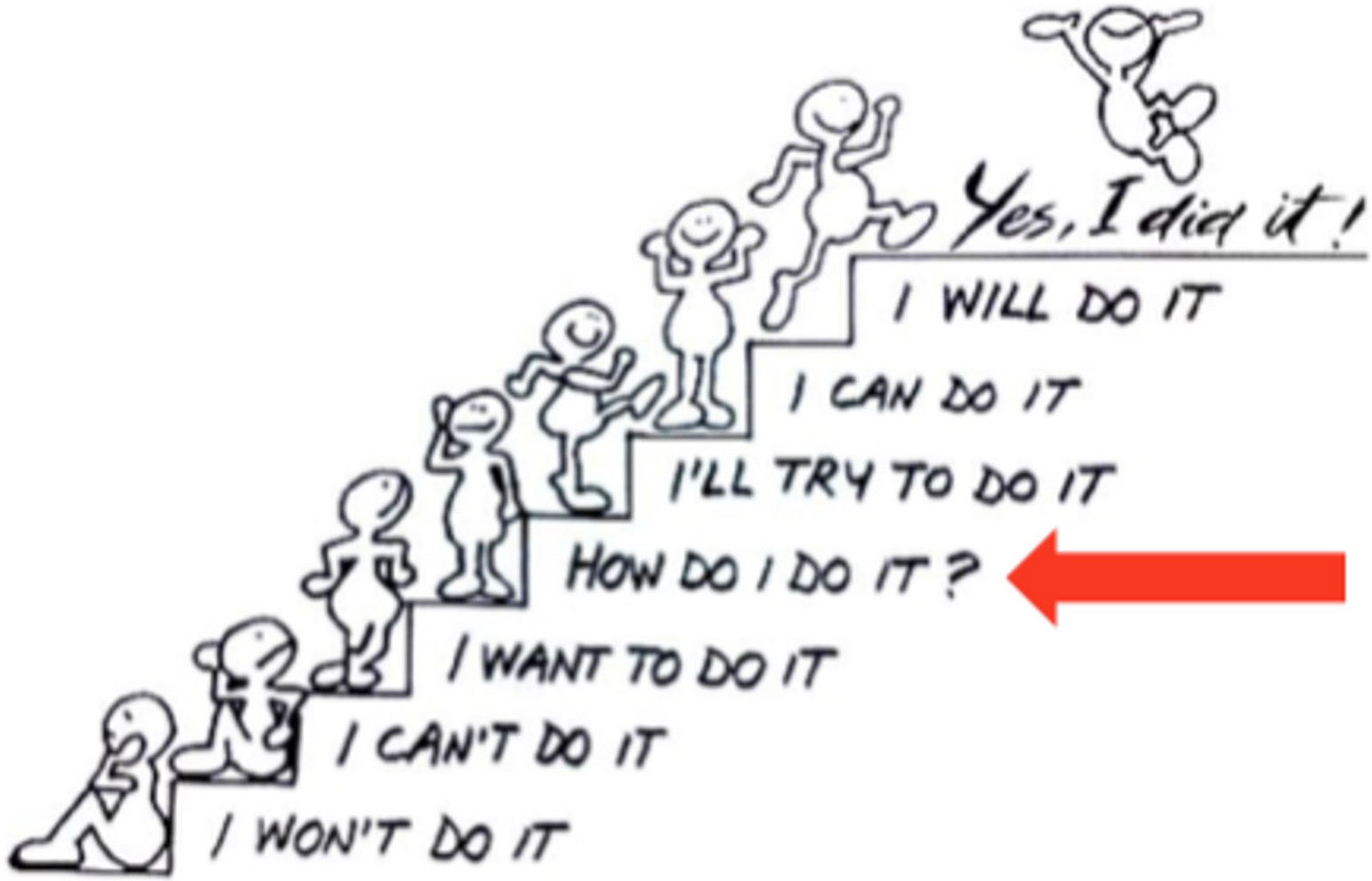
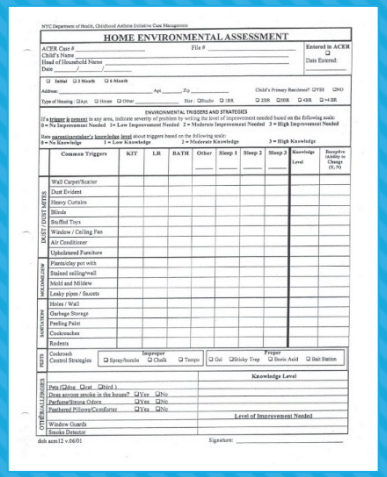


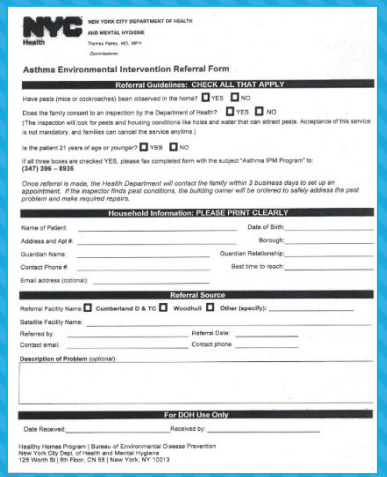
Which Step Have You Reached Today?

https://www.myenglishclub.com/groups/creativeminds/forum/which-step-have-you-reached-today

Resources Used During Home Environmental Assessments



HOME ENVIRONMENTAL ASSESSMENT



NYC Health

NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Asthma Environmental Intervention Referral Form

Referral Guidelines: CHECK ALL THAT APPLY

Household Information: PLEASE PRINT CLEARLY

Referral Source

For DOH Use Only

Patients receive EPA certified cleaning kits as part of the remediation plan

CHW continue education and perform Home Environmental Assessments

For those that qualify a referral for Integrated Pest Management is included in the Remediation Plan

Home Characteristics and Asthma Triggers

Checklist for Home Visitors

Using this Home Assessment Can Help Make Homes Healthier.

A trained home visitor can help find common asthma triggers in homes and discuss ways to reduce and remove triggers. Removing asthma triggers in the home, along with proper medical care can improve health.

The checklist is organized into a Core Assessment plus two appendices (Dust Mite Module and Mold and Moisture Module). The Core Assessment can be used for all types of housing and climates, but the additional modules can be used if dust mites or mold/moisture issues are suspected by the trained home visitor. The suggested action items in this checklist are generally simple and low cost.

Glossary of Asthma Triggers Commonly Found in Homes

Combustion by-products

Triggers: Particles and gases that are formed when fuel is burned.

Where Found: Gas cooking appliances, fireplaces, woodstoves, candles, incense, cigarettes, and unvented kerosene and gas space heaters.

Dust Mites

Triggers: Body parts and droppings.

Where Found: Mattresses, bedding, carpeting, curtains, upholstered furniture, and stuffed toys. Dust mites are too small to be seen with the naked eye. They can survive in a range of climates, but they prefer high humidity.

Mold

Triggers: Mold spores, fragments, and odors.

Where Found: Indoor mold growth is often found in areas with more moisture such as kitchens, bathrooms, and basements, or areas where water damage has occurred. There are many types of mold and they can be found in any climate.

Pests

Triggers: Cockroaches—Body parts and droppings. Rodents—Fur, skin flakes, and urine.

Where Found: Areas with food and water such as kitchens, bathrooms, and basements.

Pets with fur

Triggers: Fur, skin flakes, and saliva.

Where Found: Throughout entire home.

Secondhand Smoke

Triggers: Mix of smoke from the burning end of a cigarette, pipe, or cigar and the smoke exhaled by a smoker.

Where Found: Anywhere that smoking is allowed.

Volatile organic compounds (VOCs)

Triggers: Chemical vapors that come from household items.

Where Found: Products such as cleaning agents, deodorizers, air fresheners, perfumes, paints, nail polish, and nail polish remover.

CDC

EPA United States Environmental Protection Agency

Environmental History Form for Pediatric Asthma Patient

Specify that questions related to the child's home also apply to other indoor environments where the child spends time, including school, daycare, car, school bus, work, and recreational facilities.

		Follow up/Notes
Is your child's asthma worse at night?	❑ Yes ❑ No ❑ Not sure	
Is your child's asthma worse at specific locations? If so, where? _____	❑ Yes ❑ No ❑ Not sure	
Is your child's asthma worse during a particular season? If so, which one? _____	❑ Yes ❑ No ❑ Not sure	
Is your child's asthma worse with a particular change in climate? If so, which? _____	❑ Yes ❑ No ❑ Not sure	
Can you identify any specific trigger(s) that makes your child's asthma worse? If so, what? _____	❑ Yes ❑ No ❑ Not sure	
Have you noticed whether dust exposure makes your child's asthma worse?	❑ Yes ❑ No ❑ Not sure	
Does your child sleep with stuffed animals?	❑ Yes ❑ No ❑ Not sure	
Is there wall-to-wall carpet in your child's bedroom?	❑ Yes ❑ No ❑ Not sure	
Have you used any means for dust mite control? If so, which ones? _____	❑ Yes ❑ No ❑ Not sure	
Do you have any furry pets?	❑ Yes ❑ No ❑ Not sure	
Do you see evidence of rats or mice in your home weekly?	❑ Yes ❑ No ❑ Not sure	
Do you see cockroaches in your home daily?	❑ Yes ❑ No ❑ Not sure	
Do any family members, caregivers or friends smoke?	❑ Yes ❑ No ❑ Not sure	
Does this person(s) have an interest or desire to quit?	❑ Yes ❑ No ❑ Not sure	
Does your child/teenager smoke?	❑ Yes ❑ No ❑ Not sure	
Do you see or smell mold/mildew in your home?	❑ Yes ❑ No ❑ Not sure	
Is there evidence of water damage in your home?	❑ Yes ❑ No ❑ Not sure	
Do you use a humidifier or swamp cooler?	❑ Yes ❑ No ❑ Not sure	
Have you had new carpets, paint, floor refinishing, or other changes at your house in the past year?	❑ Yes ❑ No ❑ Not sure	
Does your child or another family member have a hobby that uses materials that are toxic or give off fumes?	❑ Yes ❑ No ❑ Not sure	
Has outdoor air pollution ever made your child's asthma worse?	❑ Yes ❑ No ❑ Not sure	
Does your child limit outdoor activities during a Code Orange or Code Red air quality alert for ozone or particle pollution?	❑ Yes ❑ No ❑ Not sure	
Do you use a wood burning fireplace or stove?	❑ Yes ❑ No ❑ Not sure	
Do you use unvented appliances such as a gas stove for heating your home?	❑ Yes ❑ No ❑ Not sure	
Does your child have contact with other irritants (e.g., perfumes, cleaning agents, or sprays)?	❑ Yes ❑ No ❑ Not sure	

What other concerns do you have regarding your child's asthma that have not yet been discussed?

_____

Reference: Environmental Management of Pediatric Asthma Guidelines for Health Care Providers
www.neefusa.org/resource/environmental-management-pediatric-asthma-guidelines-health-care-providers

NEEF

Additional resources and Spanish language materials available at www.neefusa.org/health/asthma
health@neefusa.org

Trust = Asthma Home Visit

Speaker's personal pictures

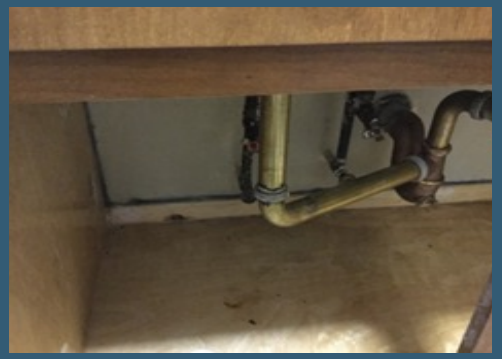
Results

WOODHULL ASTHMA PROGRAM

- CONDUCTED AND COORDINATED 1,408 HOME ENVIRONMENTAL ASSESSMENTS
- 62% HAD IMPROVED POST ACT SCORES OF OVER 19
- 72% OF PEDIATRIC PARTICIPANTS DID NOT RETURN TO THE ER FOR ASTHMA

Before

After



Speaker's personal pictures

Noz Health Ed LLC

Partnership for Adherence

- Ask open ended questions
- Listen to patient
- Be empathetic
- Give options
- Create treatment plan together
- Attached new behavior to daily routine
- Small and simple task at a time
- Reward any proactive activities mentioned towards asthma management

Educational Barriers to Adherence

- Level of education
- Level of understanding
- Not able to read
- Difficulty hearing
- Visual impairment
- English is a second language
- Too much info at one time

Medication Barriers to Adherence

- Difficulties with inhalers devices
- Complication or inconvenient treatment plan
- Fear of side effects
- Dislike for medication
- Lack of transportation to pharmacy
- Cost

Addressing Barriers to Adherence

Provide or link to social and/or community support

Asthma Management: Your Role as an Asthma Educator

Linda Nozart - MPH, BSRT, RRT, AE-C

Great communication begins with connection.

Oprah Winfrey

How to Coach Patients Towards Asthma Control

Keep it Simple & Engaging

- Asthma is a lung disease that makes it hard to breathe because the small airway tubes are getting smaller, which makes it harder for air to get in and out.
- Asthma is a chronic lung disease so that means it is with you for life, but can be controlled
- You can live your best life even with asthma once it is controlled





Image source: CC0 via pexels

Asthma Self-Management Program Services

Noz Health Ed LLC

Include:

- Referrals to linkage of care
- Asthma trigger reduction strategies
- Long-term asthma case management support to identify and solve problems to improve asthma control
- Reinforced asthma education and management skills
- Community awareness on asthma
- Home environmental assessments

Always a WHEEZER!

Noz Health Ed LLC

Warm-hearted
Helpful
Empathetic
Educator
Zealous
Empower
Resilient

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Asthma Steps in Testing and Diagnosing

https://www.mayoclinic.org/diseases-conditions/asthma/in-depth/asthma/art-20045198

American Thoracic Society: Sleep and Respiratory Neurobiology

https://www.thoracic.org/members/assemblies/assemblies/srn/questionaires/act.php

Medical News Today: How does the Asthma Control Test Work

https://www.medicalnewstoday.com/articles/asthma-control-test

American Physical Therapy Association: Evidence Based Practice Resources

https://www.apta.org/patient-care/evidence-based-practice-resources/test-measures/asthma-quality-of-life-questionnaire-aqlq#:~:text=The%20AQLQ%20was%2

Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual review of public health*, *31*, 399-418.

NEEF's Environmental History for Pediatric Asthma Patient Formhttps://www.neefusa.org/sites/default/files/resources/EnvHistoryFormforPedAsthmaPatient_0.pdf

EPAs Asthma Home Environment Checklist

https://www.epa.gov/asthma/asthma-home-visit-programs

Thank You

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