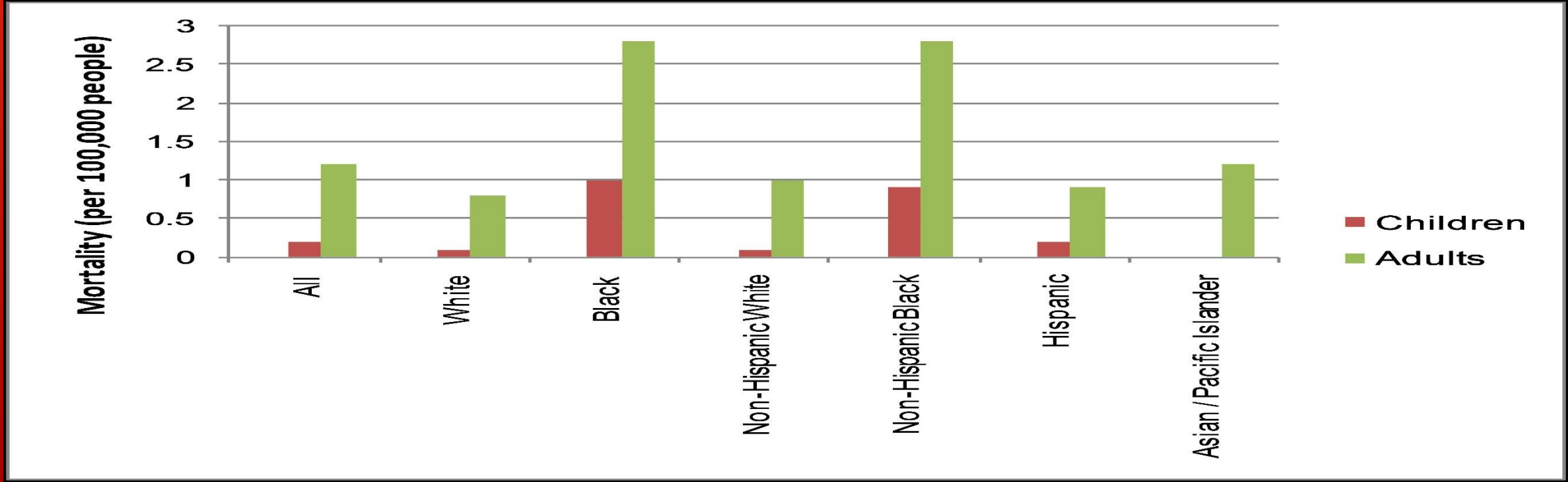


ASTHMA IN AFRICAN AMERICAN CHILDREN

Terrence Shenfield MS, RRT-ACCS, RPFT, NPS, AE-C

A series of several parallel white lines of varying lengths and positions, all slanted diagonally from the bottom-left towards the top-right, located on the right side of the slide.

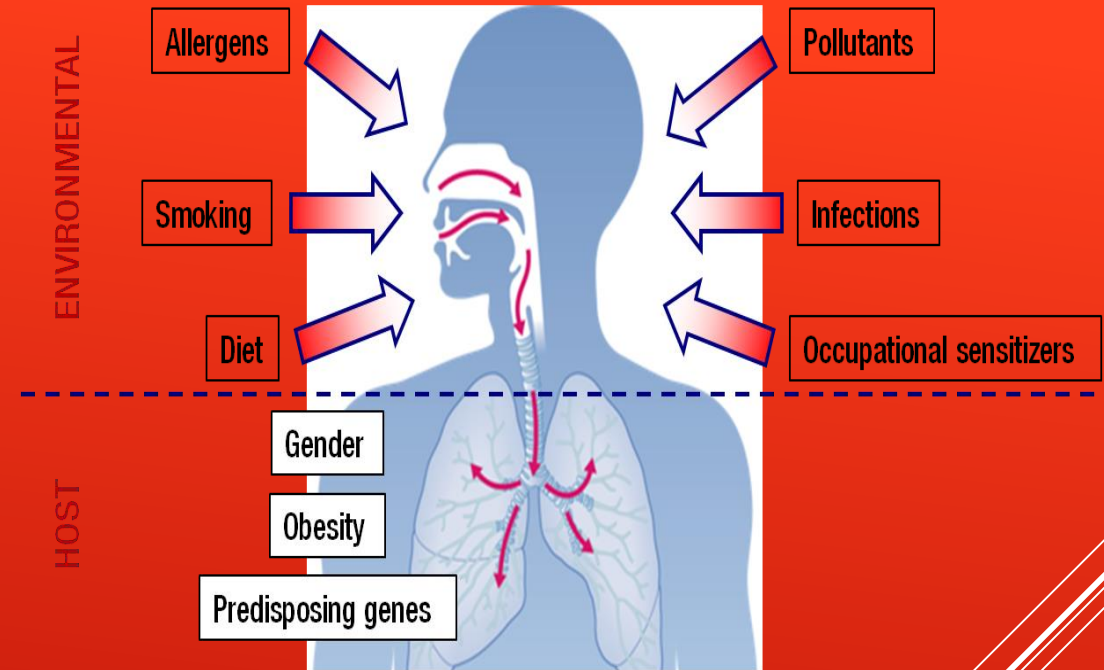




- ▶ What is asthma?
- ▶ Asthma statistics amongst African Americans
- ▶ Risk factors of asthma
- ▶ Socio-economics
- ▶ Genetics
- ▶ Environmental factors
- ▶ Reporting of symptoms
- ▶ Solutions

OBJECTIVES

- ▶ Asthma is a disease of inflammation of the airways
 - ▶ The symptoms associated with asthma are:
 - ▶ Chest tightness
 - ▶ Wheezing
 - ▶ Shortness of breath
 - ▶ Coughing
 - ▶ The inflammation that results in the symptoms is treatable and the progressive damage that occurs to the airways is easier to delay with today's medications
- ▶ Causes of asthma – not well known
 - ▶ Genetics
 - ▶ Linked to allergies and atopic dermatitis (Eczema)
 - ▶ Could be triggered by environmental allergens and infections
 - ▶ Emotional stress
 - ▶ Obesity



ASTHMA

- ▶ Asthma prevalence, hospitalizations rates, and mortality is higher amongst African American children
- ▶ Racial and socioeconomic status impacts prevalence of Asthma
- ▶ Disparities in health care access
- ▶ Incomes that is less than poverty level
 - ▶ Children are at twice the risk of severe asthma attacks



SOME WELL KNOWN FACTS

- ▶ 3.9 Million African Americans reported that they currently have asthma
- ▶ 3 times more likely to die from asthma attack
- ▶ 260% higher emergency department visits
- ▶ 250% higher hospitalization rate
- ▶ 500% higher death rate from asthma, as compared with white children.
- ▶ African American women were 30% more likely to have asthma

AFRICAN AMERICANS ASTHMA FACTS

Asthma severity

Needs to be determined

- Directs initial level of therapy
- Determined at the time of diagnosis
- Categories: Intermittent, Persistent
- Determined by the most severe level of symptoms

Asthma control

Important for adjusting therapy

- Regular Clinic visits every 2-6 weeks until good control established
- Two or more Asthma check ups per year for maintaining Asthma control

TWO MAJOR ISSUES NEED TO BE
ADDRESSED

Table 1. Classifying Severity and Initiating Treatment: Children 0 to 4 Years

Severity Category	Impairment		Risk	
	Days and Nights With Symptoms	Interference With Normal Activity	Exacerbations	Preferred Treatment
Severe Persistent	Throughout (days) > 1 night/wk (nights)	Extremely limited	(see below)	Step 3: Medium-dose ICS and consider short-course OCS
Moderate Persistent	Daily (days) 3 to 4 nights/month	Some limitation	(see below)	Step 3: Medium-dose ICS and consider short-course OCS
Mild Persistent	3 to 6 days/wk (days) 1 to 2 nights/month (nights)	Minor limitation	2 or more/6 months or ≥4 episodes of wheezing/yr with risk factors for asthma	Step 2: Low-dose ICS
Intermittent	≤2 days/wk (days) 0 nights/month (nights)	None	0 to 1/yr	Step 1: SABA PRN

Exacerbation: episode requiring OCS.
 Risk factors for asthma: parent history of asthma, patient has eczema, patient sensitized to aeroallergens, or two of following: patient sensitized to foods, eosinophilia, wheezing apart from colds.
 ICS=inhaled corticosteroids, LABA=long-acting beta₂ agonist, OCS=oral corticosteroids, SABA=short-acting beta₂ agonist
 Adapted from the National Asthma Education and Prevention Program. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, 2007.*
 NIH Publication No. 07-4051. Bethesda, Md: National Heart, Lung, and Blood Institute; 2007.

Table 2. Classifying Severity and Initiating Treatment: Children 5 to 11 Years

Severity Category	Impairment		Risk		
	Days and Nights With Symptoms	Interference With Normal Activity	Pulmonary Function	Exacerbations	Preferred Treatment
Severe Persistent	Throughout (days) Often (nights)	Extremely limited	FEV ₁ : <60% FEV ₁ /FVC: <75%	2 or more/yr	Step 4: Medium-dose ICS + LABA and consider short-course OCS Step 3: Medium-dose ICS and consider short-course OCS
Moderate Persistent	Daily (days) >1 night/wk (nights)	Some limitation	FEV ₁ : 60% to 80% FEV ₁ /FVC: 75% to 80%	2 or more/yr	Step 3: Medium-dose ICS and consider short-course OCS
Mild Persistent	3 to 6 days/wk (days) 3 to 4 nights/month (nights)	Minor limitation	FEV ₁ : >80% FEV ₁ /FVC: >80%	2 or more/yr	Step 2: Low-dose ICS
Intermittent	≤2 d/wk (days) ≤2 nights/month (nights)	None	FEV ₁ : >80% FEV ₁ /FVC: >85%	0 to 1/yr	Step 1: SABA PRN

FEV₁=forced expiratory volume in 1 second, FVC=forced vital capacity, ICS=inhaled corticosteroids, LABA=long-acting beta₂ agonist, OCS=oral corticosteroids, SABA=short-acting beta₂ agonist.

Adapted from the National Asthma Education and Prevention Program. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma*, 2007. NIH Publication No. 07-4051. Bethesda, Md: U.S. National Heart, Lung, and Blood Institute; 2007.

Table 3. Classifying Severity and Initiating Treatment: Youth 12 Years of Age and Older

Severity Category	Impairment		Risk	Preferred Treatment
	Days and Nights With Symptoms	Interference With Normal Activity	Exacerbations	
Severe Persistent	Throughout (days) Often, 7×/wk (nights)	Extremely limited	FEV ₁ : <60% FEV ₁ /FVC: Reduced >5%	2 or more/yr Step 5: High-dose ICS + LABA and consider short-course OCS Step 4: Medium-dose ICS + LABA and consider short-course OCS
Moderate Persistent	Daily (days) 2 to 6 night/wk (nights)	Some limitation	FEV ₁ : 60% to 80% FEV ₁ /FVC: Reduced 5%	2 or more/yr Step 3: Low-dose ICS + LABA OR Medium-dose ICS and consider short-course OCS
Mild Persistent	3 to 6 days/wk (days) 3 to 4 nights/month (nights)	Minor limitation	FEV ₁ : >80% FEV ₁ /FVC: Normal	2 or more/yr Step 2: Low-dose ICS
Intermittent	≤2 days/wk (days) ≤2 nights/month (nights)	None	FEV ₁ : >80% FEV ₁ /FVC: Normal	0 to 1/yr Step 1: SABA PRN

FEV₁=forced expiratory volume in 1 second, FVC=forced vital capacity; ICS=inhaled corticosteroids, LABA=long-acting beta₂ agonist, OCS=oral corticosteroids, SABA=short-acting beta₂ agonist

Adapted from the National Asthma Education and Prevention Program. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, 2007*. NIH Publication No. 07-4051. Bethesda, Md: National Heart, Lung, and Blood Institute; 2007.

Table 6. Asthma Control

	Well-controlled	Not Well-controlled	Very Poor Control
Child 0 to 11 Years			
Day symptoms	≤2 days/wk	>2 days/wk	Throughout
Night symptoms	0 to 1/month	≥2/mo	≥2/wk
FEV ₁ percent predicted	>80%	60% to 80%	<60%
FEV ₁ /FVC ratio	>80%	75% to 80%	<75%
Exacerbations	0 to 1/yr	≥2/yr	≥2/yr (>3/yr for 0 to 4 yr)
Action	Maintain; consider step down (if well-controlled for 3 months) Recheck in 1 to 6 months	Review ICE Step up Recheck in 2 to 6 weeks	Review ICE Step up 1 to 2 steps Consider OCS Recheck in 2 to 6 weeks
12 years to Adult			
Day symptoms	≤2 days/wk	>2 days/wk	Throughout
Night symptoms	0 to 2/month	1 to 3/wk	≥4/wk
FEV ₁ percent predicted	>80%	60% to 80%	<60%
Exacerbations	0 to 1/yr	≥2/yr	≥2/yr
Action	Maintain; consider step down (if well-controlled for 3 months) Recheck in 1 to 6 months	Review ICE Step up 1 step Recheck in 2 to 6 weeks	Review ICE Step up 1 to 2 steps Consider OCS Recheck in 2 weeks

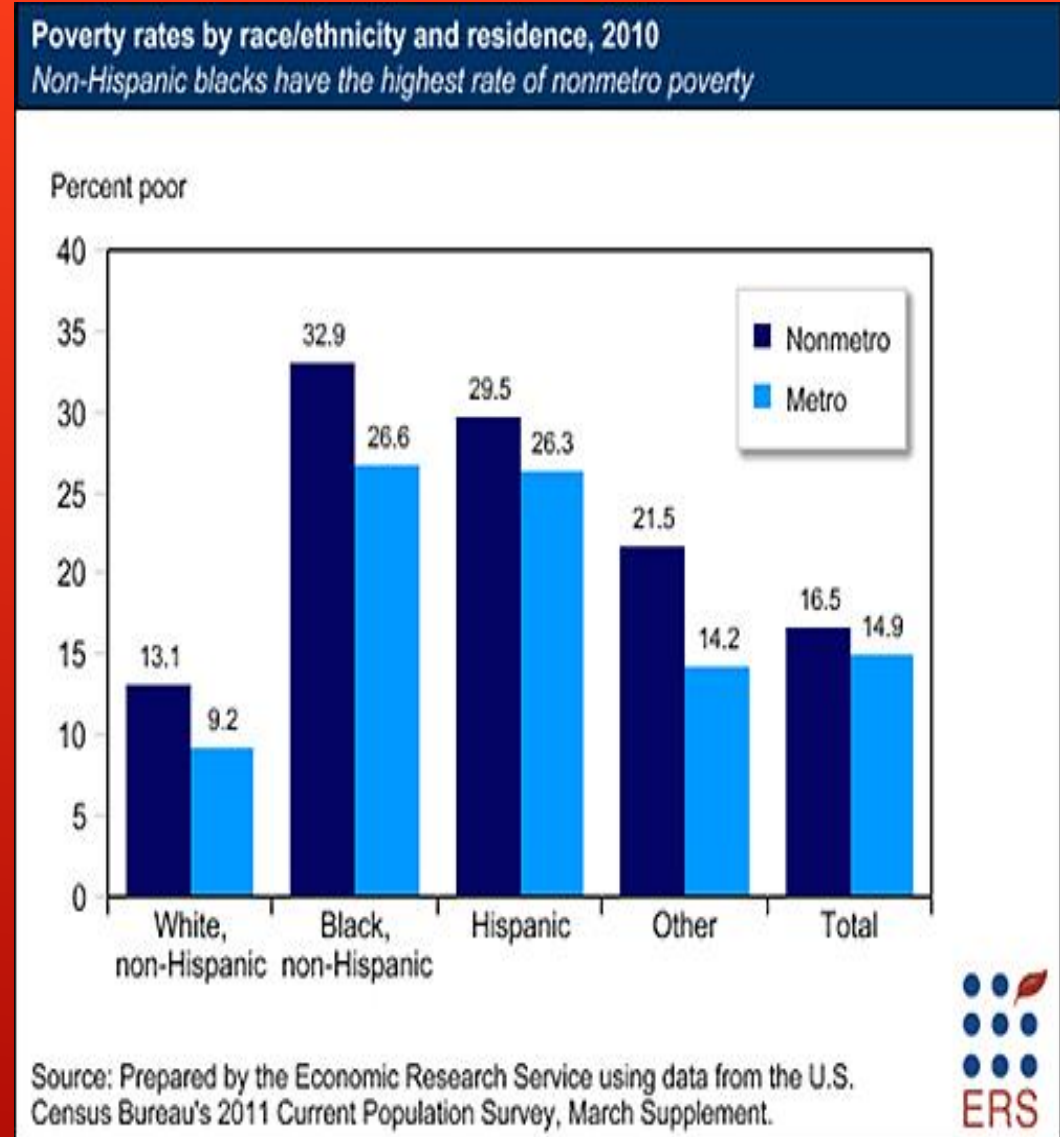
ICE=inhaler technique, compliance, environmental control and comorbidities, FEV₁=forced expiratory volume in 1 second, FVC=forced vital capacity, OCS=oral corticosteroids

Adapted from the National Asthma Education and Prevention Program. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, 2007*. NIH Publication No. 07-4051. Bethesda, Md: National Heart, Lung, and Blood Institute; 2007.

- ▶ Low-income households
 - ▶ Higher level of indoor allergens in urban households
 - ▶ Cockroach, dust mites, mold
- ▶ Low-income neighborhoods
 - ▶ Poor housing – difficult to adhere to environmental interventions
- ▶ Chronic stresses related to:
 - ▶ Higher crime rates
 - ▶ Impacts patients' and caregivers' ability to access safe transportation

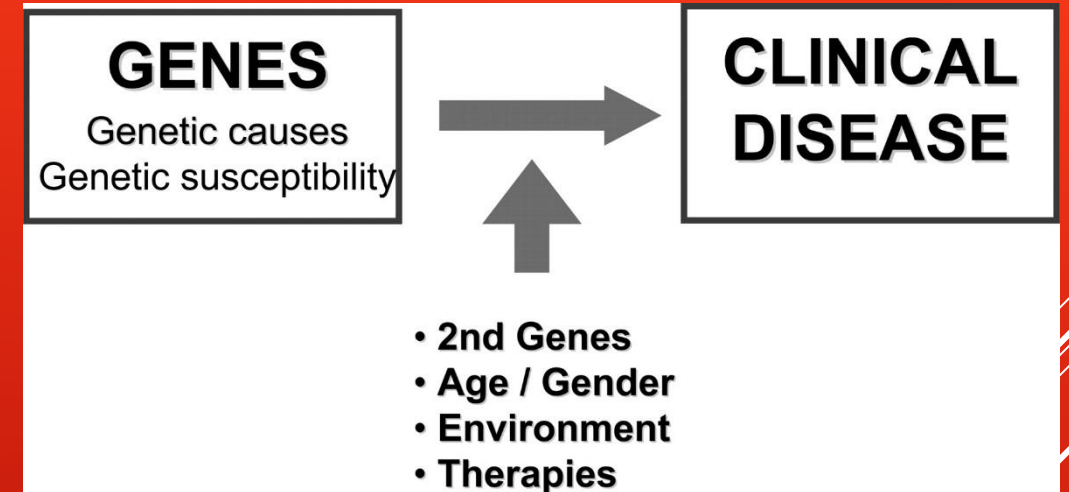
SOCIOECONOMICS

Asthma and ethnic minorities: socioeconomic status and beyond. Forno E, Celedon JC. Curr Opin Allergy Clin Immunol 9:154-160.



Asthma disparities in urban environments. Bryant-Stephens T. J Allergy Clin Immunol 2009; 123:1202-1203.

- ▶ Genetic research is limited
- ▶ Ethnic disparities in disease prevalence characterized by inflammation and/or altered immunologic responses
 - ▶ Hypertension
 - ▶ Diabetes type 2
 - ▶ Obesity
 - ▶ Allergies and Asthma
 - ▶ 6x more likely if family members have asthma



GENETICS



- ▶ 2nd Hand Cigarette Smoking
 - ▶ 20% of adults smoke at home
 - ▶ Greater prevalence amongst African American adults smoking at home
 - ▶ Higher education = less smoking family members



SECOND HAND SMOKING

▶ Air pollution

- ▶ African Americans are more likely to live in areas with elevated levels of air pollutants
 - ▶ Particulate matter, carbon monoxide, ozone, and sulfur dioxide
- ▶ Nitrogen oxide and diesel exhaust particles (traffic-related air pollution) have also been associated with increased asthma symptoms

▶ Stress and co-morbidities

- ▶ Exposure to stress and violence
- ▶ Obesity
 - ▶ Higher proportion of overweight children was higher in African American children

ENVIRONMENTAL EXPOSURES

▶ Primary Care Physician Versus Specific Physician

- ▶ Primary care physician may not monitor patient as closely as specific physician (Pulmonologist)



▶ African-Americans

- ▶ Treatment in Emergency room
- ▶ Use inhaled bronchodilators instead of controller medications
- ▶ Receive care in poorer facilities with irregular follow-up
- ▶ More likely to be seen by general hospital providers rather than by asthma specialists



QUALITY OF CARE

▶ Healthcare Providers frequently underestimate symptom severity

▶ Caregiver factors:

- ▶ Literacy and language barriers
- ▶ Differences in words used to describe symptoms
- ▶ FEV1 described differently- less severe with AA

▶ Physician factors:

- ▶ Unintentional racial biases in interpreting symptoms
- ▶ Poor understanding of the patient's cultural and educational context
- ▶ 1/3 of patients did not take their controller medications because of their health beliefs
- ▶ Inattention to cross-cultural communication and health beliefs negatively affect asthma care and management
- ▶ Less patient-centered communication with black than with white patients



COMMUNICATION BETWEEN PATIENTS AND PROVIDERS

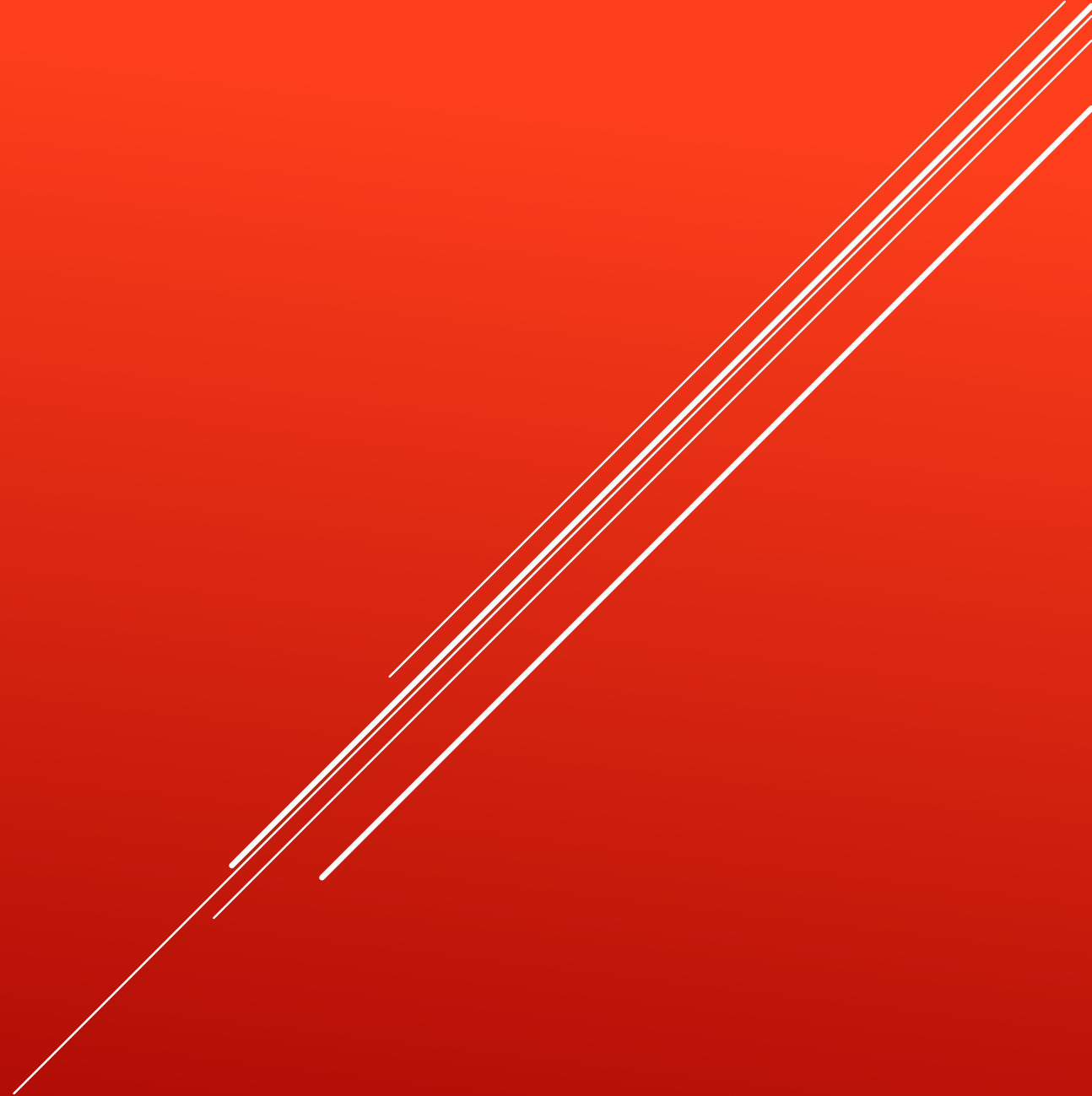
- ▶ African Americans report their asthma symptoms differently from Caucasians
- ▶ FEV1 described differently
- ▶ Typically don't report nocturnal asthma symptoms
 - ▶ "Don't have as much"
- ▶ Don't complain of dyspnea even with methacholine challenge
- ▶ Chest tightness and work of breathing not routinely reported
- ▶ Underestimate severity of asthma



REPORTING OF ASTHMA SYMPTOMS

SOLUTIONS

Minimize or eliminating disparities



- ▶ Can potentially improve:
 - ▶ Health education focused on assisting students to manage asthma, food allergy, and other chronic diseases
 - ▶ Access to care
 - ▶ School personnel management skills



SCHOOL-BASED ASTHMA PROGRAMS

▶ THE HEALTHY HOMES UNIVERSITY PROGRAM

- ▶ Pilot program in Michigan which exposed parents to family asthma management intervention
 - ▶ 6 month program
 - ▶ Demonstrated techniques (e.g., furnace filter replacement, cleaning, and vacuuming) to reduce asthma triggers
 - ▶ Patient /parent education
 - ▶ Resulted in 50% reduction in asthma related symptoms
 - ▶ 3 times more likely to have their asthma under control
 - ▶ Less likely to visit the ED and be hospitalized
 - ▶ Caregivers less likely to feel helpless, frustrated, or upset because of their child's asthma and more likely to feel confident to manage their child's asthma

HOME-BASED ASTHMA PROGRAMS

▶ Easy Breathing

▶ Easy Breathing Survey

- ▶ 4 validated questions to assist in diagnosing asthma
- ▶ These 4 questions ask about asthma symptoms in the previous 12 months, nocturnal cough, exercise-related symptoms, and the duration of a cough with colds.
- ▶ MD determines disease severity and control, and creates a severity-specific asthma treatment plan
- ▶ A written asthma management plan is placed in the medical record

▶ Results:

- ▶ Hospitalizations rates were high and decreased 53% for black children and 33% for Hispanic children after the intervention.
- ▶ ED visits were decreased
- ▶ Outpatient visits decreased for both black and Hispanic children
- ▶ ICS (inhaled corticosteroids) prescription rates increased with a subsequent decrease in usage of bronchodilators for both black and Hispanic children

EASY BREATHING SURVEY

- ▶ 1. Has your child had wheezing or whistling in the chest at any time in the last 12 months?
- ▶ 2. Has your child awakened at night because of coughing in the last 12 months?
- ▶ 3. Has your child had coughing, wheezing, or shortness of breath with exercise or activity and had to stop because of these symptoms at any time in the last 12 months?
- ▶ 4. When your child has a cold, does the cough usually last more than 10 days?

EASY BREATHING SURVEY QUESTIONS

▶ Parent Mentors

- ▶ Experienced parents of asthmatic children received specialized training.
 - ▶ Parent mentors met monthly with children and families at community sites, phoned parents monthly, and made home visits
 - ▶ 10 asthma outcomes and costs were monitored for 1 year
- ▶ Results:
- ▶ Children who underwent the intervention experienced significantly reduced rapid-breathing episodes, asthma exacerbations, and ED visits

PARENT MENTOR PROGRAMS

▶ The Philadelphia Allies Against Asthma

- ▶ Developed and implemented the Child Asthma Link Line, a telephone-based care coordination and system integration program
- ▶ *Results.*
 - ▶ Significantly less likely to have follow-up hospitalizations than matched sample children ($p = .02$).
 - ▶ More likely to attend outpatient office visits in the follow-up year ($p = .045$).
 - ▶ Significantly less likely to have an emergency department visit in 2004 ($p = .046$).
- ▶ *Conclusion.*
 - ▶ This coalition-developed, telephone-based, system-level intervention had a significant impact on childhood asthma morbidity
 - ▶ Telephone-based care coordination and service integration may be a viable and economic way to impact childhood asthma



PHILADELPHIA ALLIES AGAINST ASTHMA

- ▶ Increase awareness of racial/ethnic disparities in health care
- ▶ Increase the proportion of under-represented minorities in the health care workforce
- ▶ Integrate cross-cultural education into the training of all health care professionals
 - ▶ Improve providers' ability to understand, communicate with, and care for patients from diverse backgrounds different than their own
 - ▶ Enhance providers' awareness of socio-cultural influences on patients' health beliefs and behaviors
 - ▶ Provide physicians with the skills to understand and manage these factors in the medical encounter



PROVIDER EDUCATION

- ▶ Prevalence and severity of Asthma in African American children is alarming
- ▶ Educational activities reduce hospital admissions
- ▶ School, home, and community based programs work
- ▶ Environmental practices are key

SUMMARY

ANY
QUESTIONS
?

▶ **Alliance of Community Health Plans (ACHP)**

- ▶ This organization works with medical directors, quality improvement staff, and other health plan officials to improve the health care system and the lives of people in the communities they serve. The site provides background information about the intervention "Asthma Intervention for Inter-City Children."

▶ **Allies Against Asthma (Allies)**

- ▶ Allies Against Asthma, a program of the Robert Wood Johnson Foundation, was a national initiative to improve asthma control for children and adolescents. This site provides tools and resources that may be useful to other asthma coalitions and programs addressing asthma.

▶ **American's Health Insurance Plans (AHIP)**

- ▶ Sponsored by America's Health Insurance Plans, *Taking on Asthma* is a national program to improve the quality of care provided to people with asthma and enhance their quality of life. AHIP offers resources and tools that may be useful to health insurance plans to improve the overall quality of asthma care.

▶ **Center for Health Care Strategies, Inc. (CHCS)**

- ▶ This site provides information about the Improving Asthma Care for Children initiative to improve the management of pediatric asthma in high-risk recipients of Medicaid and State Children's Health Insurance Programs under managed care.

▶ **Communities in Action for Asthma-Friendly Environments Network**

- ▶ EPA supports this network in partnership with Allies Against Asthma, a program of the Robert Wood Johnson Foundation. It provides community-based asthma programs with a platform for real-time learning that can drive ongoing improvement of asthma care.

ADDITIONAL RESOURCES

- ▶ [Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2008. Tables 1, 2, 3, 4.](#)
- ▶ [Asthma Data/Statistics.](#) The Office of Minority Health. U.S. Dept of Health and Human Services. Last updated 04/22/2010.
- ▶ [Are Physician Estimates of Asthma Severity Less Accurate in Black than in White Patients?](#) Okelo SO, Wu AW, Merriman B, Kirshnan JA, Diette GB. *Society of General Internal Medicine* 2007;22:976-981.
- ▶ [Asthma and ethnic minorities: socioeconomic status and beyond.](#) Forno E, Celedon JC. *Curr Opin Allergy Clin Immunol* 9:154-160.
- ▶ [Asthma disparities in urban environments.](#) Bryant-Stephens T. *J Allergy Clin Immunol* 2009;123-1199-1206.
- ▶ [Race, ethnicity, and social class and the complex etiologies of asthma.](#) Drake KA, Galanter JM, Burchard EG. *Pharmacogenomics.* 2008 Apr;9(4):453-462
- ▶ [Genetics and asthma disease susceptibility in the US Latino population.](#) *Mt Sinai J Med.* 2010 Mar;77(2):140-8.
- ▶ [Asthma and ethnic minorities: socioeconomic status and beyond.](#) Forno E, Celedon JC. *Curr Opin Allergy Clin Immunol* 9:154-160

REFERENCES