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Culturally Appropriate Delivery of Asthma Management Education via Community Health Workers:

Findings from a
Chicago-based Intervention

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Chicago Asthma Consortium:
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Culturally Appropriate Delivery of Asthma Management Education via Community Health Workers: Findings from a Chicago-based Intervention

Disclosure of Conflict of Interest Information

I have no existing conflict of information to disclose



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Today's Objectives

- Describe key aspects of the Sinai Community Health Worker model to improve asthma self-management in children
- Critically assess differences between African American and Mexican participants
 - Baseline characteristics
 - Model utilization
 - Preliminary 6-month outcomes
- Discuss how findings might inform urban health care delivery to culturally diverse populations



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Epidemiology of Asthma

- 10 million children (13.5% of children <18 yrs) in the U.S. have asthma (NHIS 2006)
 - Rates vary by race/ ethnicity
 - Puerto Rican 31%
 - Black, non-Hispanic 17%
 - White, non-Hispanic 13%
 - Mexican/ Mexican-American 10%
- Inner-city, minority children experience a disproportionate asthma burden
 - Prevalence approaches 1 in 4
 - Sinai's Community Health Survey
 - Experience more severe asthma
 - Many rely primarily on Emergency Department (ED) for asthma care



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Previous Asthma Work

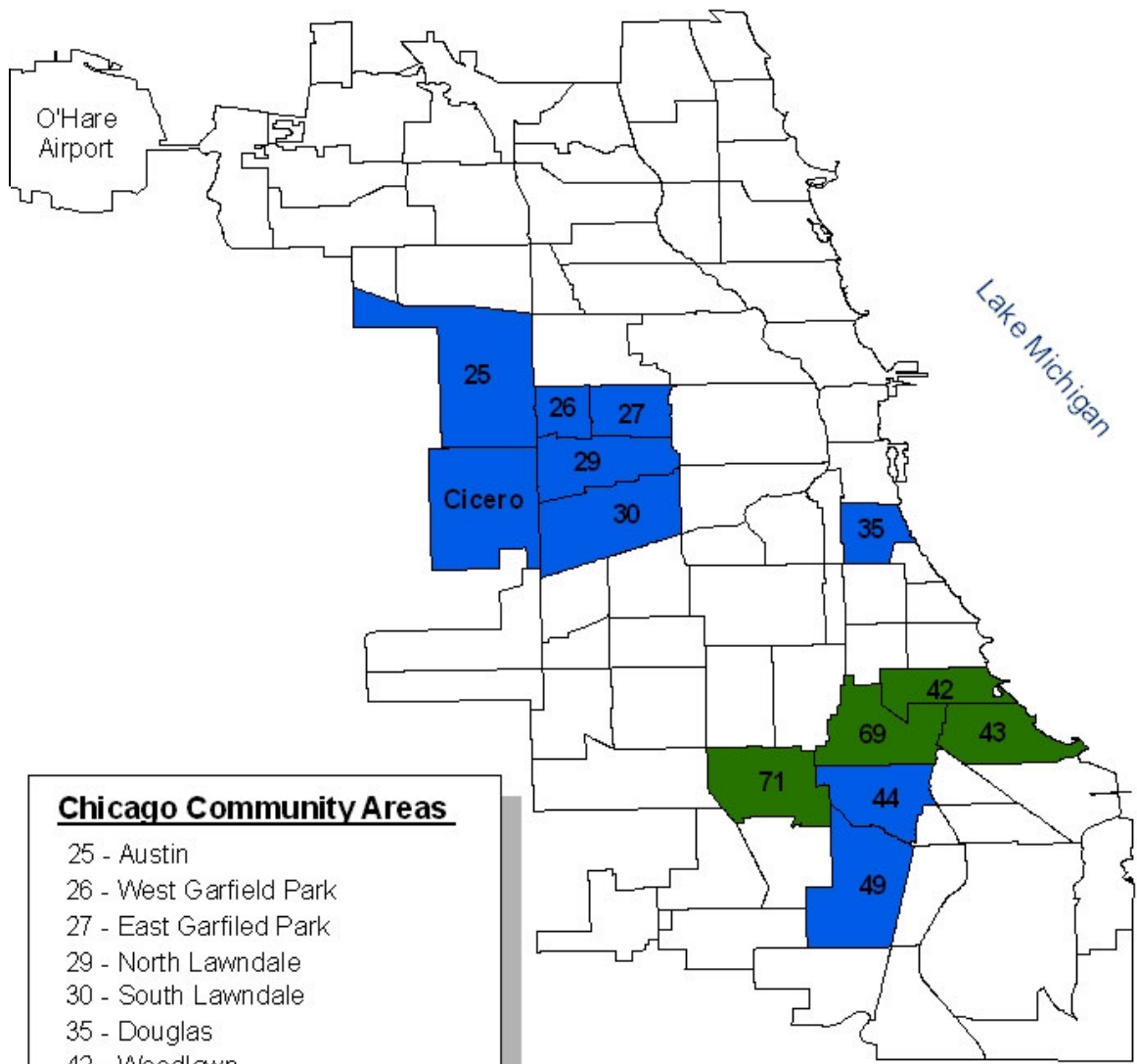
- Pediatric Asthma Intervention - 1
 - Karnick P, Margellos-Anast H, Seals G, Whitman S, Aljadeff G, Johnson D. *The Pediatric Asthma Intervention: A Comprehensive Cost-Effective Approach to Asthma Management in a Disadvantaged Inner-city Community.* *Journal of Asthma* 2007; 44:39-44.
- Pediatric Asthma Intervention - 2
 - Margellos-Anast H, Whitman S and Seals G. *Report of the Findings and Recommendations of Sinai's Pediatric Asthma Intervention-2: Final Report.* Chicago, IL, 2007.
 - Manuscript in Progress



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Background

- CPATCE is an initiative of the Illinois Department of Public Health (IDPH)
 - Goal: to improve asthma management among high risk children in IL and thereby reduce asthma-related healthcare expenditure, asthma morbidity and mortality
 - Five sites in the state of Illinois
 - Two sites in Chicago:
 1. SUHI / Children's Hospital
 2. CAC / RHAMC
- Presentation will focus on Sinai data



- Chicago Community Areas**
- 25 - Austin
 - 26 - West Garfield Park
 - 27 - East Garfield Park
 - 29 - North Lawndale
 - 30 - South Lawndale
 - 35 - Douglas
 - 42 - Woodlawn
 - 43 - South Shore
 - 44 - Chatham
 - 49 - Roseland
 - 69 - Greater Grand Crossing
 - 71 - Auburn Gresham
 - Cicero, Cook Co., IL



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Intervention

- Utilized Community Health Workers to deliver asthma education management
 - Community Health Workers (CHW)
 - Individuals from similar communities & backgrounds as participants
 - No prior health or asthma experience required
 - Received 40+ hours of asthma education
- Education was tailored to family's unique needs, and was provided in the family's home whenever possible
- CHWs met with families 3 times over 6 month period
- CHW also serves as a liaison between the family and the medical system



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Eligibility

- **Eligibility:**
 - Children (2-16 yrs) w/ prior diagnosis of asthma
 - Symptoms for at least 1 year pre-enrollment
 - One of following eligibility criteria:
 - Hospitalized for asthma during the past 12 months
 - Visited ED for asthma twice during the past 12 months
 - Asthma symptoms indicative of at least moderate persistent asthma
 - Had not participated in another comprehensive asthma education program in past year



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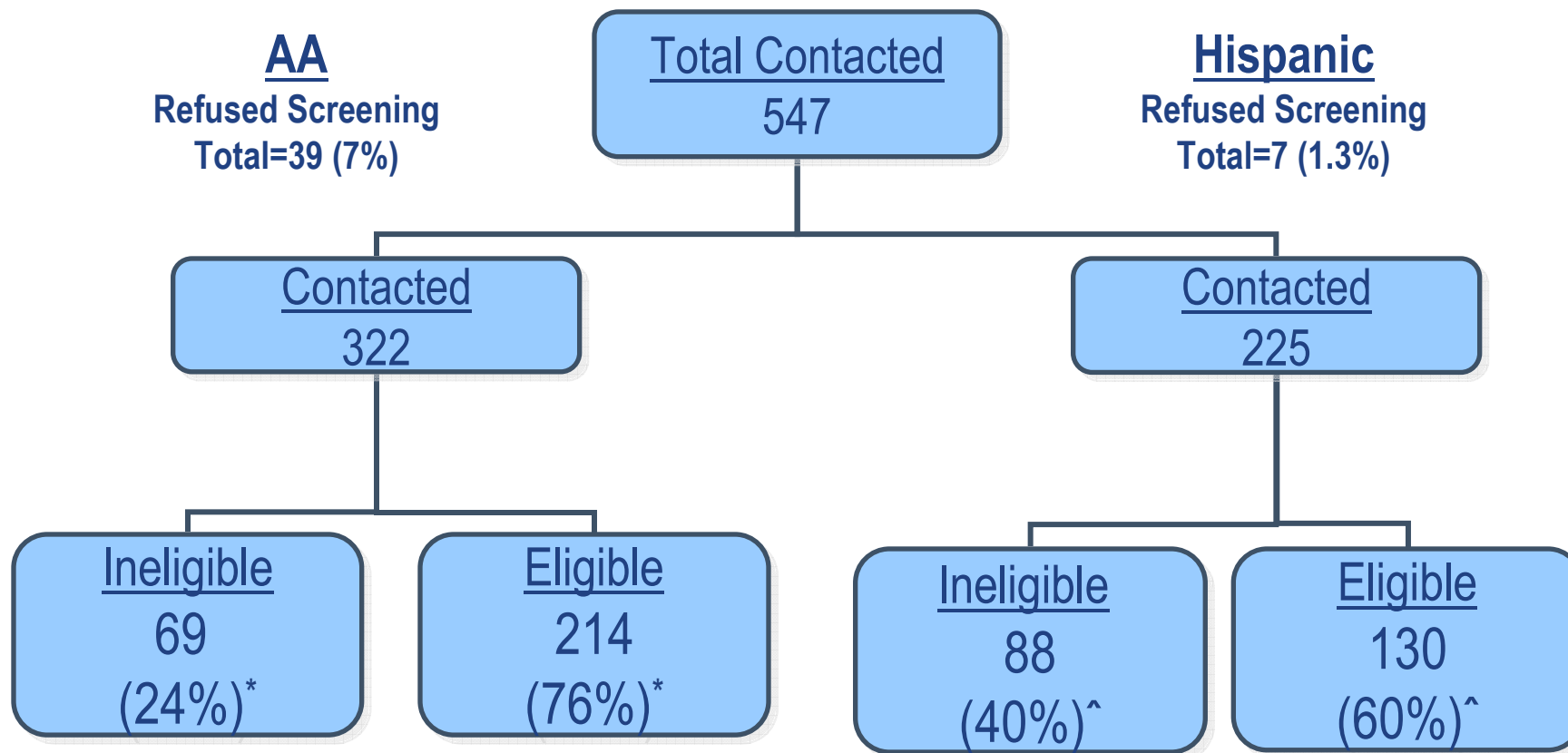
Recruitment Sources

- Participants recruited through:
 - Sinai's ED and inpatient units
 - Physician referrals
 - Self-referral
 - Health fairs
 - Schools / day cares
 - Community presentations / community based organizations



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Recruitment by Race/Ethnicity



*% of 283 screened

^% of 218 screened



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Recruitment by race/ethnicity

- Of those eligible to participate:
 - 88% of African American caregivers agreed to a baseline visit (189/214)
 - 95% of Hispanic caregivers agreed to a baseline visit (123/130)

- Of those who agreed to a baseline visit:
 - 69% of African American caregivers completed (130/189)
 - 82% of Hispanic families completed (106/123)



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Final Enrollment by Race/Ethnicity

- Enrollment from March 2006 – June 2008:
 - 236 total participants:
 - 50% African American
 - 39% Mexican
 - 11% Puerto Rican, Other Hispanic or self-identified with more than one race/ethnicity
 - Follow-up home visits end in December 2008
 - 12-month data follow-up ends in June 2009



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Loss to Follow-up: Preliminary Data by R/E

- Attrition to date:
 - Overall 30% of enrolled participants who completed a baseline visit have been lost to follow up:
 - 38% of African Americans families
 - 19% of Hispanic families
 - 70% attrition rate is high for a study of this nature



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Demographics by R/E

	<u>African American</u> (N=117)	<u>Mexican</u> (N=92)
Age (mean)	7 years	6 years
Male	59%	61%
Medicaid Insured	71%	85%
< HS Education	22%	38%*
Children with PCP	97%	98%
Children with Asthma Specialist	14%	21%
Children living with a smoker	48%	20%*

p < 0.05*

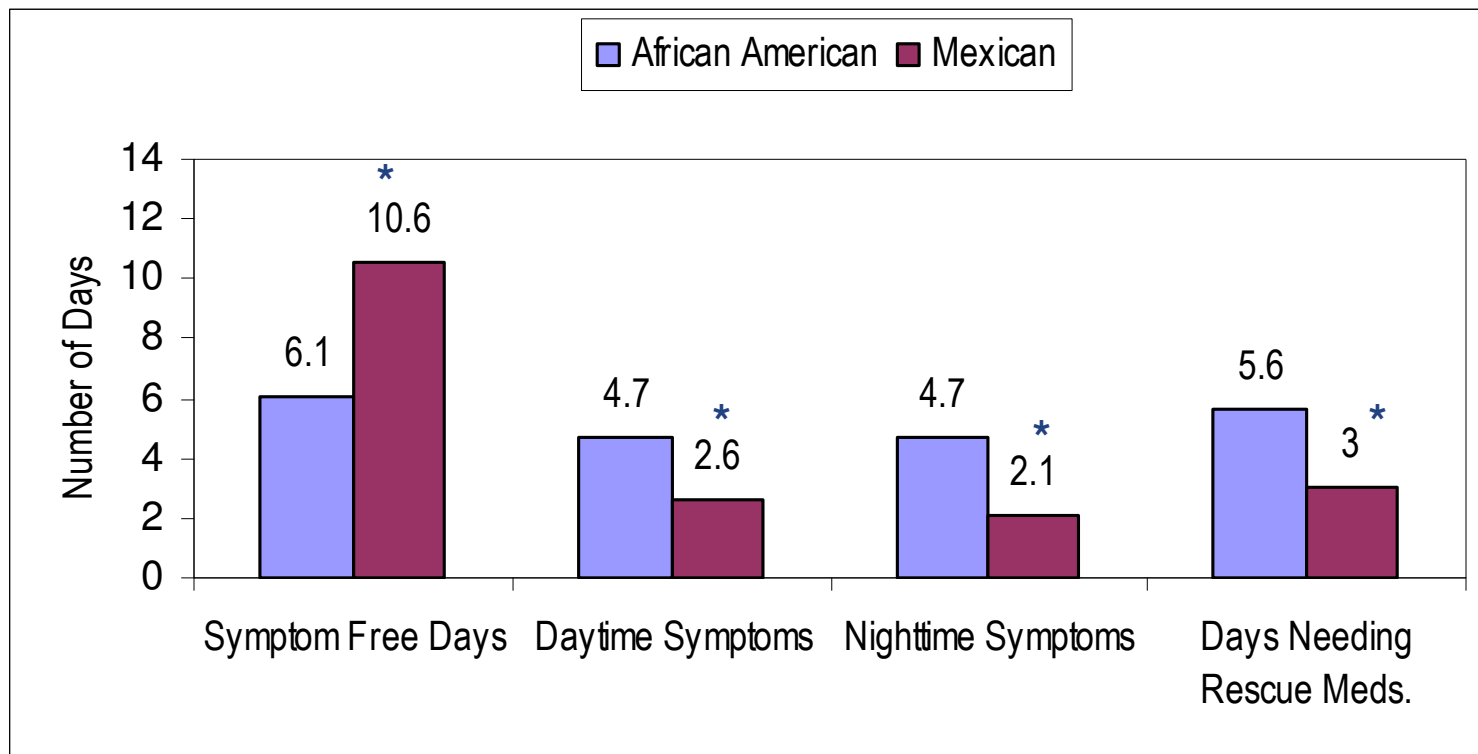
*Chi-square/Fisher as appropriate used to assess statistical significance



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Baseline Symptom Frequency (past 2 wks) by R/E

* $p < 0.05$



Mann-Whitney non-parametric test used to assess statistical significance

African American N=117, Mexican N=92

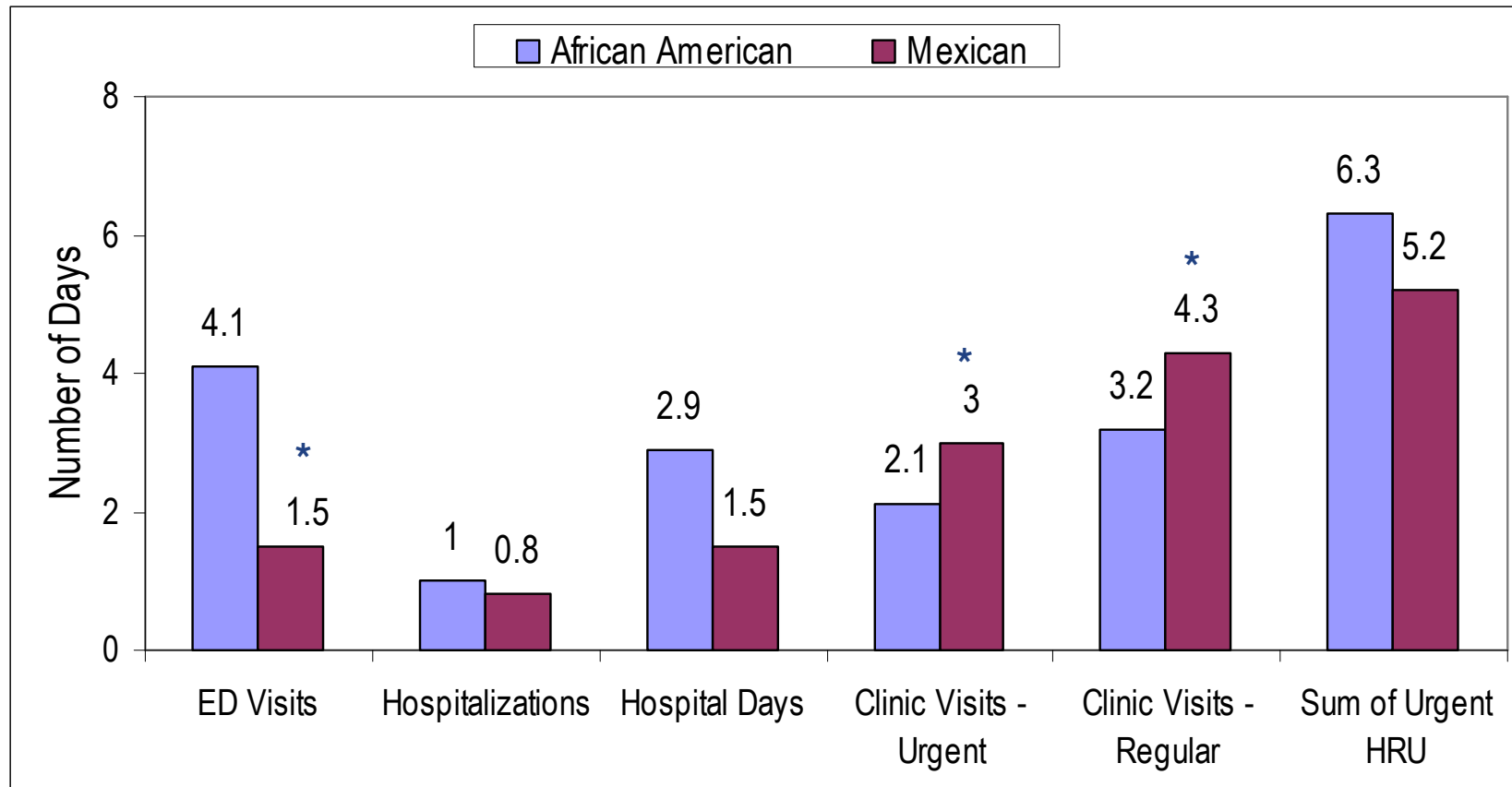
Outliers have been excluded from analysis: N varies



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Baseline Health Resource Utilization (past 12 mths) by R/E

* p < 0.05



Mann-Whitney non-parametric test used to assess statistical significance

African American N=117, Mexican N=92

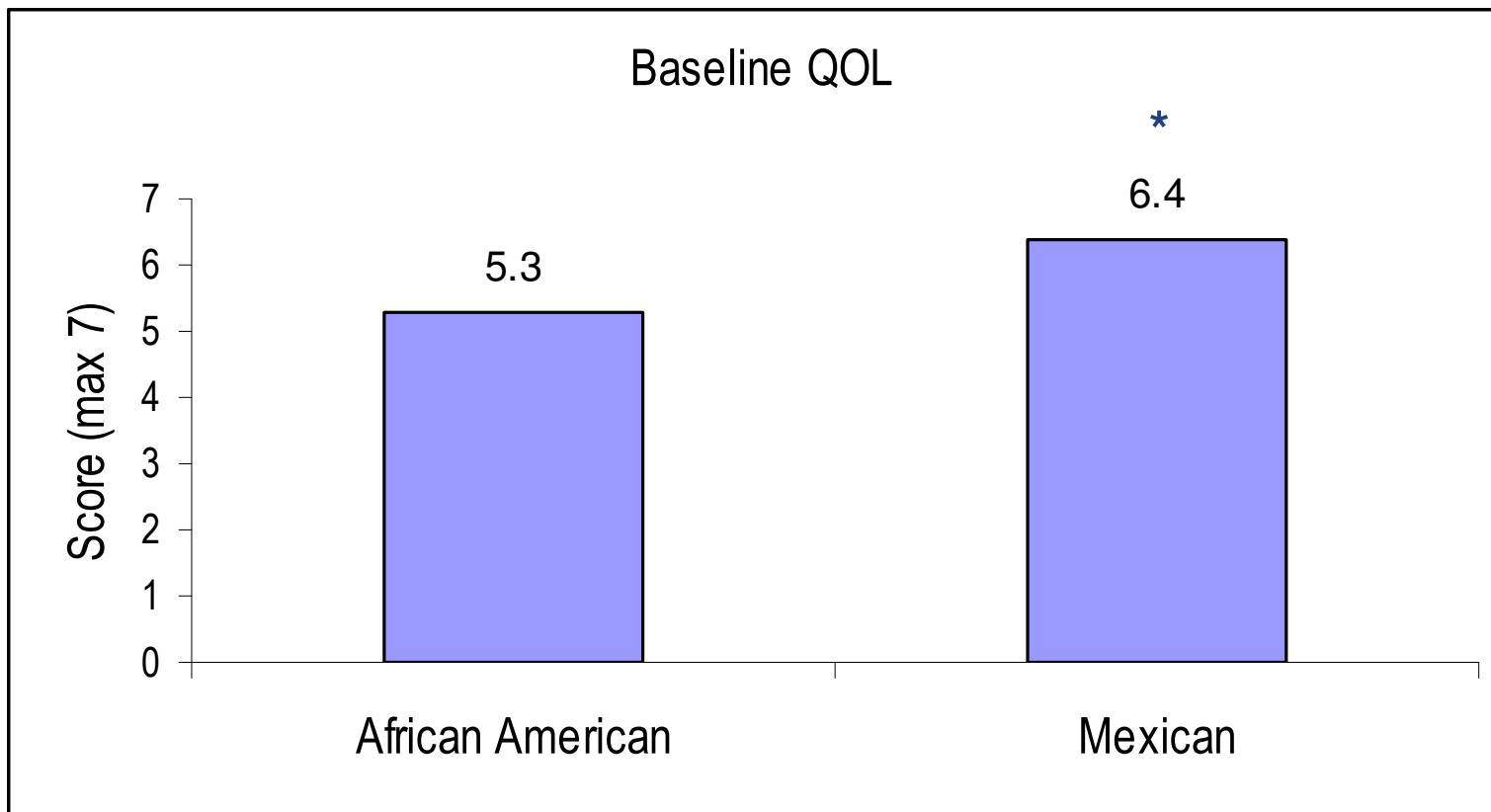
Outliers have been excluded from analysis: N varies



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Baseline Quality of Life by R/E

* $p < 0.05$



Mann-Whitney non-parametric test used to assess statistical significance

African American N=117, Mexican N=92



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Summary of Key Baseline Findings by R/E

- At baseline enrollment essentially no demographic differences between AA and Mexican participants
 - Mexican participants less likely to have completed HS (38% vs. 22%)
 - AA participants 2.5x more likely to live with a smoker (48% vs. 20%)
- Both AA and Mexican participants have asthma that is poorly controlled per National, Heart, Lung & Blood Institute Guidelines (NHLBI)
- However, AA participants have significantly greater asthma symptoms and health resource utilization in the year prior to their baseline visit than Mexican participants



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Preliminary findings BL – 6 months: Symptom Frequency

		African American (N=52)		Mexican (N=60)	
		Baseline	6 Months	Baseline	6 Months
Symptom Free Days	Mean	6.3	9.7*	10.7	12.1*
Daytime Symptoms	Mean	5	2.4*	2.4	1*
Nighttime Symptoms	Mean	4.4	2.2	1.8	0.5
Days Needing Rescue Meds.	Mean	4.7	2.8*	2.6	1.1

* P < 0.05

Wilcoxon signed rank sum test for non-parametric data used to assess statistical significance

Outliers have been excluded from analysis: N varies



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Preliminary findings BL – 6 months: Health Resource Utilization

		African American (N=52)		Mexican (N=60)	
		Baseline	6 months	Baseline	6 months
ED Visits	Mean	5	2.2*	1.4	0.5*
Hospitalizations	Mean	1.3	0.9	0.8	0.1*
Hospital Days	Mean	4.1	1.3*	1.6	0.3*
Clinic Visits - Urgent	Mean	2.9	2.4	3	0.3*
Clinic Visits - Regular	Mean	3.1	6.9*	4	4.7
Sum Urgent HRU	Mean	7.2	5.5*	5.2	0.9*

* P < 0.05

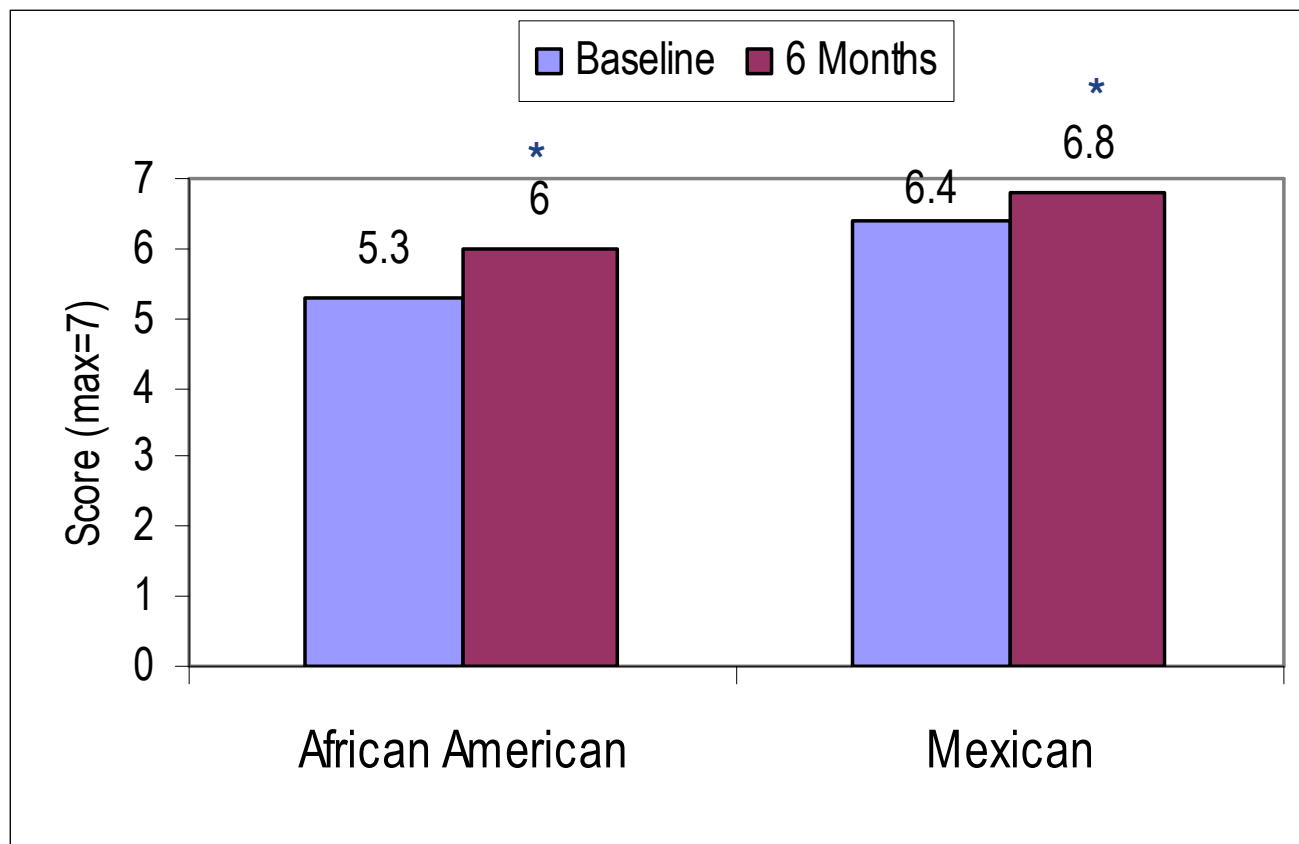
Wilcoxon signed rank sum test for non-parametric data used to assess statistical significance

Outliers have been excluded from analysis: N varies



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Preliminary findings BL – 6 months: Quality of Life



* p < 0.05

Wilcoxon signed rank sun test for non-parametric test used to assess statistical significance

African American N=117, Mexican N=92

Outliers have been excluded from analysis: N varies



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Summary of Preliminary Findings through 6-months by R/E

- Asthma Symptoms
 - Significant decrease in daytime symptom and an increase in symptom free days
 - All variables going in the intended direction
- Asthma related Health Resource Utilization (HRU)
 - Significant decrease in ED Visits, Hospital Days, Sum Urgent HRU
 - All variables going in the intended direction
- Quality of Life (QOL)
 - Significant increase in overall QOL and in each of its subscales



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Observations: CHW Model Implementation

- CHW model is an effective means of improving asthma in both AA and Mexican participants
- Difference between groups
 - AA participants have more severe asthma and have a larger reduction in symptoms and HRU
 - Program may be more beneficial in this population
 - Model appears to be better accepted by Mexican participants
 - Social Support
 - Promotoras
- HRU between two groups may be different
 - Needs further exploration due to possible confounders



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Limitations

- Majority of data collected via self-report
 - Recall bias, Social Desirability bias, etc.
- Causality
 - No control group, no randomization
- Cultural differences
 - Interpretation, access to health care, insurance



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Case Story: Deborah, Jabari & their CHW, Yolonda

- Yolonda taught mom and son, because Jabari is a “big boy”
- Teaching included visual depiction of airways, medication use, etc., which improved understanding
- Jabari impressed his asthma specialist with his asthma knowledge
- Deborah is now teaching other families and her co-workers about asthma
- Deborah and Jabari are a true success story of how a CHW model improves the lives of families via asthma education and management





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It takes a village...

- Steve Whitman – Principal Investigator
- Helen Margellos-Anast – Project Director
- Gloria Seals – Intervention Coordinator
- DeShuna Dickens – Asthma Training Coordinator
- Jeanette Avila – Research Assistant
- Sheena Freeman – Research Assistant
- Ana Rosa Garcia & Yolanda Curtis– Community Health Workers
- Deepak Jajoo – Co-Investigator/Medical Advisor, Pediatric Pulmonologist



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