

Implementing EBI Can Improve Care and Lower Costs for Children with Asthma

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Childhood Asthma is Challenging on Many Levels

Widespread and Serious



- 1 in 7 ever diagnosed
- 9% currently have it
- 60% with current asthma have had at least one attack in the past year

Costly

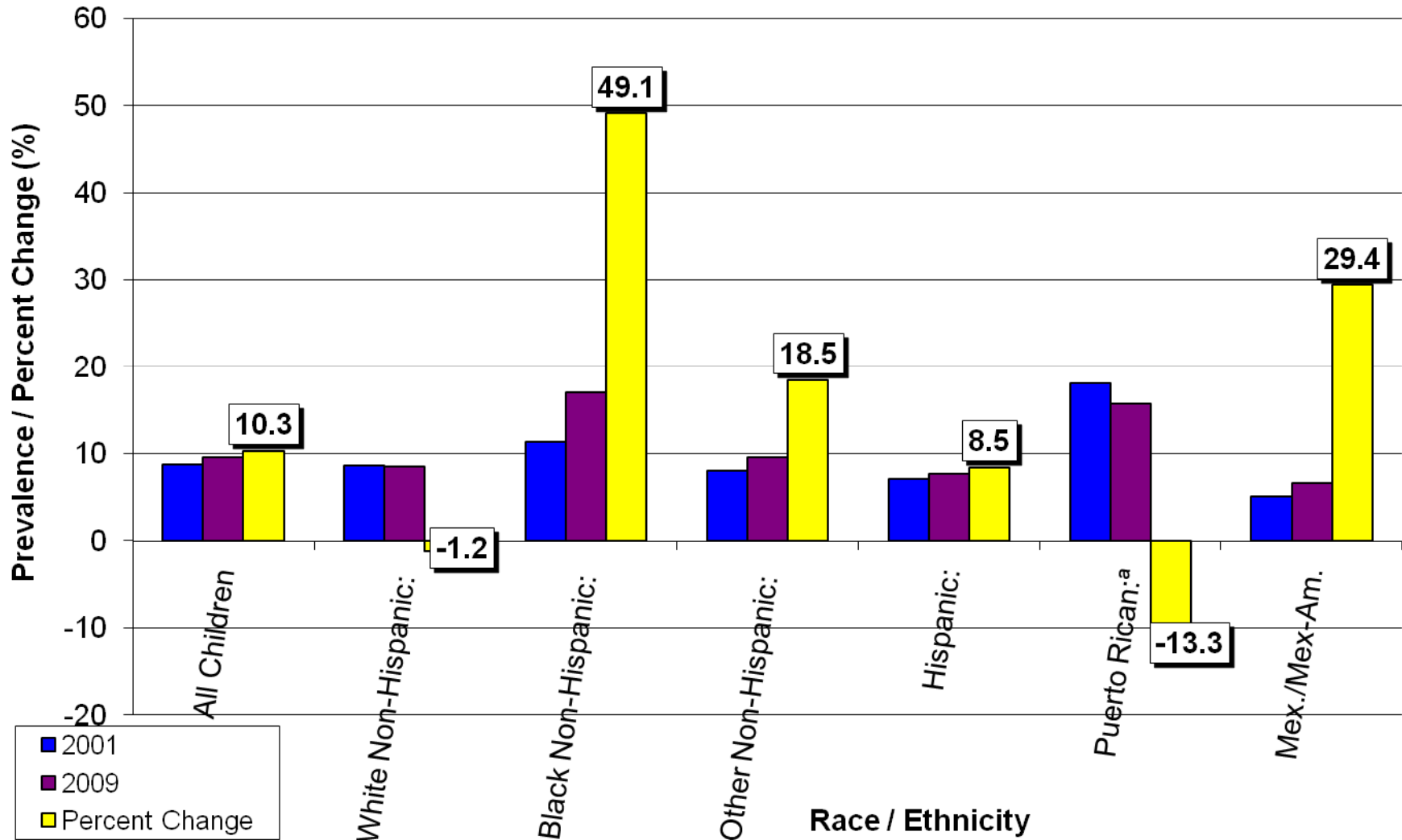


- \$8-10 billion in medical expenditures ('10)
- Additional \$10 billion in indirect costs
- 40% higher emergency department costs

Preventable and Avoidable

Asthma Highest Among Minority Children, Prevalence Largely Not Improving Over Time

Current Asthma Prevalence, Children Aged <18, by Race/Ethnicity
United States: National Health Interview Survey, 2001, 2009



Most Frequent First-listed Conditions for Rural and Non-rural ED Visits for Children (0-17 years), 2008

<u>Condition</u>	<u>Rural (Rank)</u>	<u>Non-rural</u>
Upper Respiratory Conditions	12.9 (1)	10.7 (1)
Superficial injury; contusion	8.5 (2)	6.4 (2)
Otitis media and related conditions	7.2 (3)	5.8 (3)
Sprains and strains	5.2 (4)	4.0 (6)
Open wounds of head; neck; and trunk	4.4 (5)	4.8 (4)
Open wounds of extremities	3.7 (6)	2.7 (11)
Fever of unknown origin	3.5 (7)	4.4 (5)
Viral infection	3.4 (8)	3.2 (8)
Other injuries and conditions due to external causes	3.0 (9)	3.9 (7)
Fracture of upper limb	2.8 (10)	2.9 (9)

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2008

Most Common Specific Reasons for Admission of Children to the Hospital, 2009*

<u>Principal diagnosis</u>	<u>Rate of discharges per 10,000 population[†]</u>
1. Pneumonia	22.5
2. Asthma	18.4
3. Acute bronchitis	16.6
4. Mood disorders	12.8
5. Appendicitis	11.3

* Excludes newborn conditions.

† Calculated using resident population for July 2009 from the U.S. Bureau of the Census, accessed on February 28, 2011. From: <http://www.census.gov/popest/national/asrh/NC-EST2009-sa.html>.

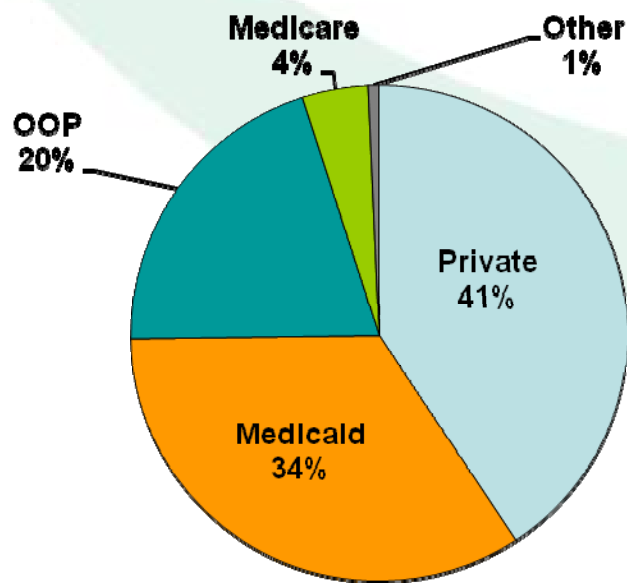
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Kids' Inpatient Database (KID), 2009

Racial Disparities Exist in Children Being Treated for Asthma

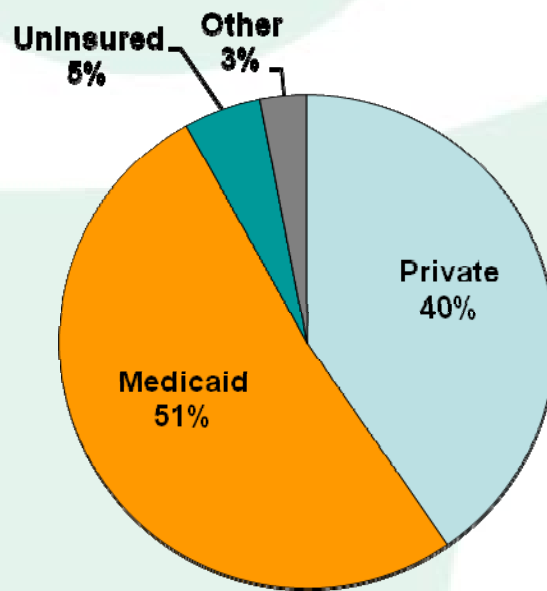
	<i>Current prevalence percent (2004-05)</i>	<i>Ambulatory visits per 1,000 (2003-04)</i>	<i>Emergency dept visits per 10,000 (2003-04)</i>	<i>Hospital discharges per 10,000 (2003-04)</i>	<i>Deaths per 1,000,000 (2003-04)</i>
White	7.9	95	73	17	1.5
Black	12.8	76	265	59	9.0
Hispanic	7.8	83	108	*	1.8
Puerto Rican	19.2	*	*	*	*
Mexican	6.4	*	*	*	1.7
NH white	8.0	100	66	*	1.3
NH black	12.7	72	253	*	9.2
Overall 0-17 years	8.7	90	99	29	2.6

Medicaid Carries Heavy Load in Paying for Pediatric Asthma-Related Medical Expenses

Asthma Medical Expenditures, 2006



Asthma Hospital Discharges, 2006



Sources: Soni, Anita, Statistical Brief # 242, April 2009, Rockville, MD: AHRQ; AHRQ, HCUPnet, 2010

There is Help: Evidence-Based Interventions Proven to Improve Care and Lower Costs

States, communities can
look to EBI for help in

- Improving clinical outcomes
- Closing gaps in asthma outcome disparities
- Reducing asthma morbidity and enhancing quality of life

Evidence-based
interventions can

- Potentially be “translated” and successfully integrated into health care systems and multiple communities
- Enhance empowerment to increase knowledge, change negative life style behaviors
- Help family members participate in treatment decisions and successfully navigate complex health care system

NCICAS and ICAS: The Gold Standard in Asthma Interventions

National Cooperative Inner City Asthma Study (NCICAS)

Phase I: Large Scale Epidemiology Study

- Purpose: determine the factors leading to the rapid increase in asthma among inner city children
- 1,528 children at 8 research centers

Phase 2 – Intervention study

- Purpose: intervene on factors identified in Phase 1
- 1,033 children at 8 research centers randomized to a tailored Asthma Counselor intervention or control condition



Inner City Asthma Study (ICAS)

Two-part intervention for children ages 5-12 from 8 inner city communities

Part I: Environmental

Tailored environmental allergen mitigation and education

Part II:

Physician Quality of Care

Feedback to PCPs regarding children's asthma symptoms, medicine use and healthcare utilization;

NCICAS Asthma Counselor Intervention Symptom Reduction by Severity Group

	Interv	Control	Difference	% Change
Symptoms				
Overall	3.51	4.06	- 0.55	13.5 %
Mild (0-7 days)	2.96	3.24	- 0.29	8.9 %
Severe (8-14 days)	5.39	6.93	- 1.54	22.2 %
Hospitalizations				
None	3.52	4.02	- 0.50	12.4 %
1 or more	3.14	5.18	-2.04	39.4 %
Unscheduled Visits				
0 – 1	3.41	3.88	- 0.47	12.4 %
2 or more	4.13	6.25	-2.12	33.9 %

MCAN-Funded Programs Combine EBI (Case Management, Trigger Removal) to Improve Health



MCAN programs have been shown to improve asthma management and quality of life for families by:

- Decreasing missed school and work days
- Increasing number of families whose children have asthma action plans
- Empowering families to reduce asthma triggers at home
- Decreasing emergency room visits



Implementation Science Has Taught Us Important Lessons

Interventions Often Multi-Level

EBI deemed efficacious within clinical or community-based trials are often multi-level interventions and are not easily translated into routine practice

Variety and Adaptation Important

Context is important and EBI are rarely transferable without adaptations to specific settings; partnerships and varied approaches are essential

Should Address Real World

Implementation research should address the level to which health interventions can be integrated into real-world public health and clinical service delivery systems

Stay tuned to www.mcanonline.org for new reports on MCAN program health outcomes, research results, and policy recommendations



Does obesity have adverse effects on children or adults with asthma?

Impact of Obesity in Asthma

<u>Asthma Outcomes</u>	<u>Children</u> (5–17 y.o.)	<u>Adults</u> (BMI<30 vs >30)
Disease severity	Negative	Negative
Spirometry measures	Negative	FVC: 84 vs 79% pred.
QOL measures	Negative	AQLQ*: 4.2 vs 3.9 SF-36 PCS**: 52 vs 48 SF-36 MCS: 51.4 vs 49
Health care utilization	Negative	Negative

* Asthma Quality of Life Questionnaire: higher score indicates higher QOL

** 36-Item Short Form Health Survey (physical & mental components): higher score indicates higher QOL

Ref.: Peter JI, et al. Ann. Allergy, Asthma & Immunol. 106: 30-35 (2011)

Bivariate Relationships of BMI to Asthma Outcome Measures (adults)

Outcome	BMI (kg/m ²)			P value
	<25	25-29.9	30 +	
Mini-AQLQ*				
Mean +/- SD	5.3 (1.2)	5.1 (1.2)	4.6 (1.3)	<.0001
Score <3.9	14.1%	17.5%	28.6%	<.0001
ATAQ**				
Mean (SD)	0.7 (0.9)	0.8 (1.0)	1.2 (1.1)	<.0001
Score >1	18.5%	23.3%	38.9%	<.0001
Asthma-related hospitalization in the past year	3.9%	3.7%	8.8%	.002

* Juniper mini-Asthma QOL Questionnaire: Higher score indicates higher quality of life

** Asthma Therapy Assessment Questionnaire: Higher score indicates more asthma control problems

Ref.: Mosen DM et al. J Allergy Clinical Immunol. 122:507-11 (2008)

Summary

- Asthma is a serious chronic inflammatory condition and an escalating public health problem
- The annual cost for managing asthma in the US is app. \$56 B and Medicaid covers 1/3 of total costs and 1/2 of hospital costs for children
- Asthma is **manageable**, and EBI have been shown to improve outcomes and quality of care, and lower costs
- Data show EBI are underused and that children with poorly controlled asthma have the greatest improvement in outcomes and cost benefits when offered case management/environmental mitigation of triggers
- Research that addresses the impact of obesity on asthma shows conflicting results – further studies are required