

Poorly Controlled Asthma and Health Service Utilization in New York in a Medicaid Managed Care Population

Robert Silverman¹, Joan Reibman², and the New York State Asthma Control and Co-morbidities Working Group[†]

¹North Shore-Long Island Jewish Medical Center; Albert Einstein College of Medicine, NY; ²Bellevue Hospital and NYU Medical Center; New York University School of Medicine, NY

Background

- Asthma cost and resource utilization are major public health issues.
- In the U.S., asthma affects ~16.2 million adults (7.3%) and ~6.7 million (9.1%) children, accounting for over 440,000 hospitalizations, 2.8 million emergency department (ED) or hospital outpatient (OP) visits and 10.6 million physician office visits annually.¹
- Total annual asthma expenditures in 2001 were estimated at \$13 billion of which nearly \$3.2 billion were for drugs.²
- Lim et al.³ in a Mayo-Clinic based employee insurance program found that 28% of patients with persistent asthma (identified with Health Plan Employer and Data Information Set [HEDIS] measures) were uncontrolled when surveyed with the Asthma Control Test (ACT).
- To our knowledge the frequency of uncontrolled asthma in a population enrolled in a Medicaid managed care program has not been assessed.

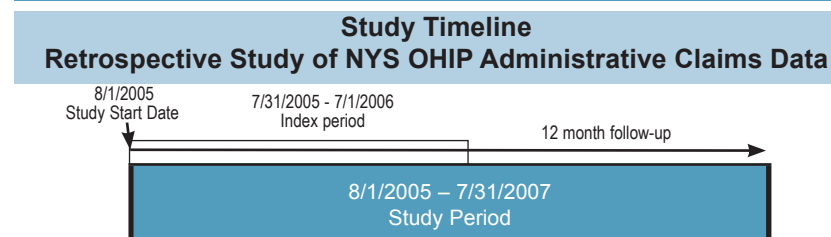
New York State Office of Health Insurance Programs (NYS OHIP)

- Managed care plans focus on preventive health care and provide enrollees with a medical home.
- Enrollment in the New York State Medicaid Managed Care (NYS MMC) was over 1.4 million as of July, 2006, limited to those enrolled for at least 12 months and who were at least 5 years of age as of July 1, 2006.
- This study focuses on enrollees in the NYS MMC between August 1, 2005 through July 31, 2007.

Objective

To determine the prevalence of uncontrolled asthma and its affect on health services utilization in patients with HEDIS defined persistent asthma.

Methods



Study Population Parameters:

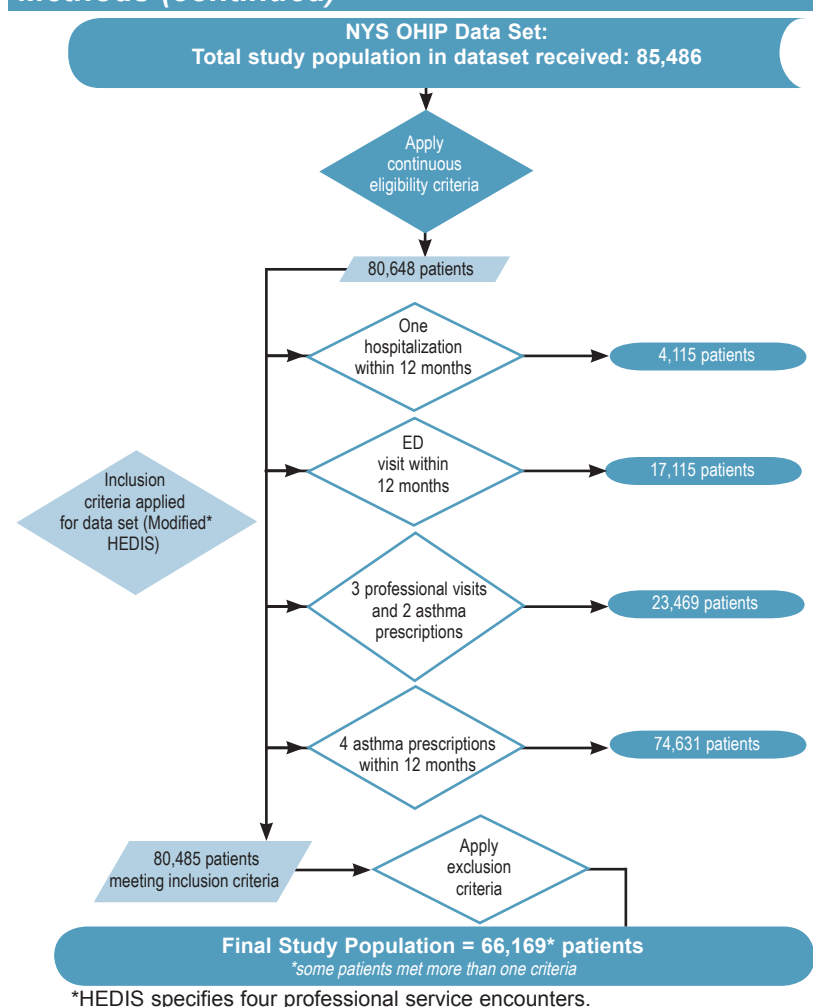
Claims and encounter data was retrospectively obtained from the NYS OHIP Medicaid Encounter Database System II.

- Included all patients with at least 12 months of continued enrollment.
- Study start date (the index date) defined as the date of patients first primary asthma provider visit, asthma hospitalization or ED visit, or asthma prescription claim.
- Pharmacy, institutional, and professional encounter and claims data were then analyzed for the subsequent 12 months.

Inclusion Criteria

- Age: 5 years or older as of July 2006 with ICD-9-CM codes of 493.9, 493.1, 493.2, 493.9
- Persistent asthma (modified HEDIS criteria).
- A total of 6.1% (85,486/1,406,729 managed care patients) were identified to have persistent asthma using a modified HEDIS definition.

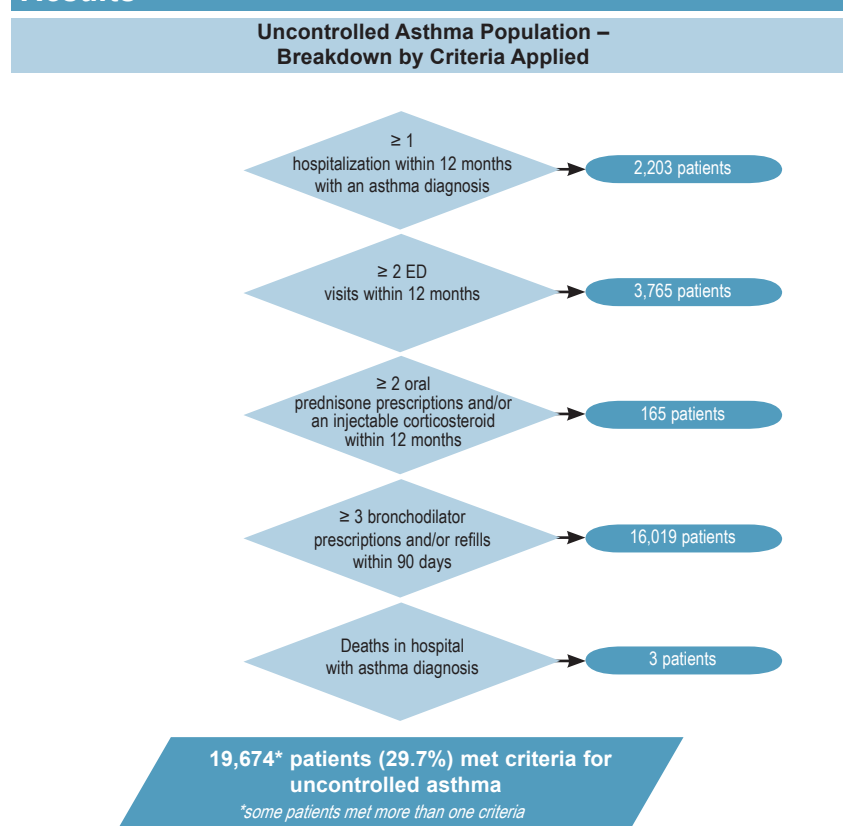
Methods (continued)



Description	Controlled Asthma n = 46,495	Uncontrolled Asthma n = 19,674	p value
Total Population = 66,169			
Mean age (± SD)	21.6 ± 17.09	26.0 ± 17.39	<0.0001
Age Groups	n, (%)	n, (%)	
5-17	37,299 (56.4)	28,082 (75.3)	<0.0001
18-24	3,999 (6.0)	2,694 (67.4)	
25-44	13,280 (20.1)	8,559 (64.5)	
45-64	11,466 (17.3)	7,068 (61.6)	
		4,398 (38.4)	
Gender			<0.0001
Female	38,322 (57.9)	26,317 (68.7)	
Male	27,847 (42.1)	20,178 (72.5)	
Race/Ethnicity*			<0.0001
African American	17,344 (26.2)	11,993 (69.1)	
Asian	3,907 (6.0)	3,076 (78.7)	
Caucasian	10,699 (16.1)	7,926 (74.1)	
Hispanic	29,093 (44.0)	19,862 (68.3)	
Native American	212 (0.3)	160 (75.5)	
Other	3,452 (5.2)	2,475 (71.7)	

*1,462 patients were missing the codes for race/ethnicity

Results



Description (per patient per year)	Controlled Asthma n = 46,495	Uncontrolled Asthma n = 19,674	p value
Encounters (annual per patient)			
Hospital/Inpatient (asthma primary)	0.008	0.13	<0.0001
ED (asthma primary)	0.17	0.57	<0.0001
Treatment Medications (annual per patient)			
Controller	5	7	<0.0001
Rescue Medications	4.5	9.4	<0.0001
Outcomes, Total Number (% of patient population)			
Relapses	0	1,337 (6.8)	<0.0001
Intubations	55 (0.12)	90 (0.46)	<0.0001

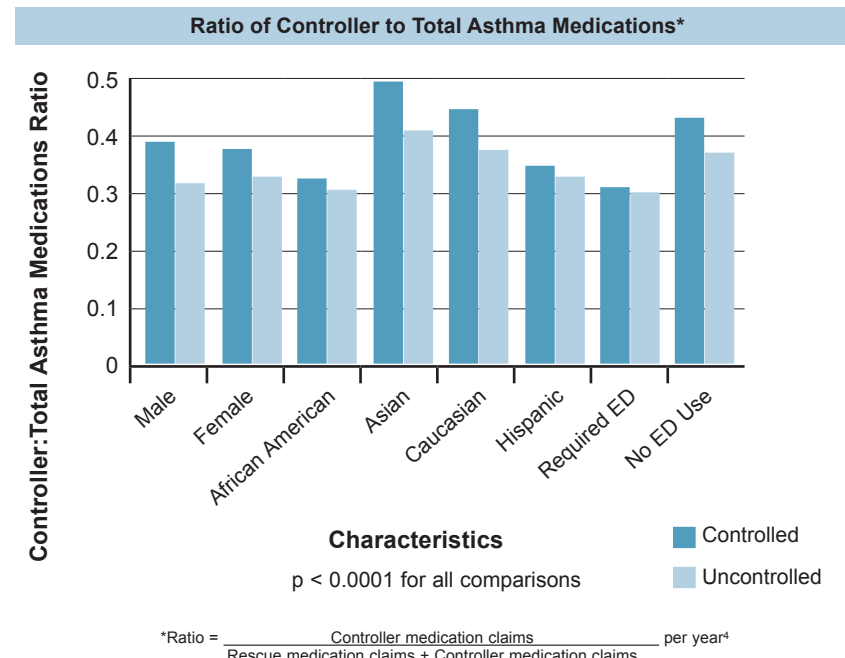
[†]Members of the New York State Asthma Control and Co-morbidities Working Group included: Beth Corn (Mt. Sinai School of Medicine), Edward Fishkin (Woodhull Medical and Mental Health Center), Jill Karpel (North Shore-Long Island Jewish Medical Center), Todd Lee (Northwestern University), Madu Rao (SUNY Health Sci Ctr), Linda Rogers (Bellevue Hospital), Peter Smith (Long Island College Hospital), Foster Gesten (NYS Dept. of Health), Kevin Colgan (EPI-Q) Qing Harshaw (EPI-Q), and Carla Frye (EPI-Q).

Analysis supported through a grant from Novartis Pharmaceuticals Corporation and completed with the cooperation of the NYS OHIP, EPI-Q, Inc., provided technical and scientific support.

Results (continued)

Description (per patient per year)	Controlled Asthma n = 46,495	Uncontrolled Asthma n = 19,674	p value
Treatment Costs, mean per patient per year			
Total, mean ± SD	\$3,895.40 ± 6,496.20	\$6,234.00 ± 7,917.10	<0.0001
Professional Costs, mean	\$439.35	\$486.01	<0.0001
Institutional Costs, mean	\$361.90	\$967.49	<0.0001
Pharmacy Costs, mean	\$1,822.50	\$3,081.60	<0.0001
Treatment Encounters, mean per patient per year			
Primary Care Visits	2.8	4.0	—
Pediatrics Visits (children only)	3.8	4.0	
Specialty Pulmonary Care Visits	0.75	0.85	

	Controlled Asthma n = 46,495	Uncontrolled Asthma n = 19,674	p value
Number of Controller Claims/Year (n, %)			
0 or 1	11,943 (25.7)	3,322 (16.9)	<0.0001
2-4	10,718 (23.1)	2,502 (12.8)	
4-6	8,189 (17.7)	2,559 (13.0)	
6-8	5,295 (11.4)	2,250 (11.5)	
>8	10,350 (22.3)	9,041 (46.0)	
Number of Rescue Medication Claims/Year (n, %)			
0-4	18,731 (40.3)	2,329 (11.9)	<0.0001
5-8	11,160 (24.0)	2,932 (14.9)	
8-12	8,293 (17.8)	3,789 (19.3)	
>12	8,311 (17.9)	10,624 (54.0)	



Results (continued)

Variable	Estimate	OR	OR 95% Confidence Interval
Controllers	0.5325	1.703	1.619 - 1.791
Hispanic	0.1389	1.149	1.075 - 1.228
African American	0.1236	1.132	1.056 - 1.213
Having Co-morbidity ^{**}	0.1140	1.121	1.077 - 1.166
Male Gender	0.0455*	1.047	1.008 - 1.086
# of Primary Care Visits	0.0320	1.032	1.028 - 1.037
Age	0.0112	1.011	1.010 - 1.012
# of Specialty Care Visits	0.0059*	1.006	1.001 - 1.011
Caucasian	-0.2297	0.795	0.737 - 0.857
Asian	-0.5229	0.593	0.537 - 0.655
Intercept	-1.791		

Note: unless marked by * (p<0.05), all of coefficient were statistically significant at p<0.0001
**Co-morbidities included in this analysis were those identified as most common in the 2004 New York State Consumer Assessment of Healthcare Providers and Systems (CAHPS) Survey of children and adults with asthma and included obesity, depression, developmental disorder/delay, attention deficit disorders, hypertension, heart disease, diabetes, arthritis/rheumatism, and emotional problems/mental illness (excluding depression).

Discussion

- The overall prevalence of uncontrolled asthma in this Medicaid managed care population of persistent asthmatics was 29.8%.
 - Females were less likely to be controlled than males.
 - Older patients were less likely to be controlled than younger asthmatics.
 - Patients with uncontrolled asthma had limited use of specialty pulmonary healthcare providers.
 - Co-morbidities were found to be a risk factor in the incidence of uncontrolled asthma, even after adjustment for other variables.
 - The need for endotracheal intubation was nearly 4 times greater in uncontrolled asthma.
- Only 54% of patients with uncontrolled asthma filled a total of 8 or more controller medication prescriptions over a 12 month period of time.
- Schatz et al.⁴ found that higher controller medication:total asthma medication ratios were associated with better patient-centered outcomes as well as with reduced ED and hospital utilization – consistent with our findings.
- Despite the assumed equal access to care in a Medicaid managed care database, there were racial/ethnic differences in the prevalence of uncontrolled asthma, with African Americans and Hispanics having the highest rates (30.9% and 31.7%). African Americans and Hispanics also had lower controller:total medication ratios compared to Caucasians and Asians.
- The costs of managing patients with uncontrolled asthma were greater than in patients with controlled asthma; however very little of the differences were attributable to costs for provider visits.

Conclusions

- In a Medicaid managed care program, where all patients have access to a health care provider, uncontrolled asthma is relatively common among individuals with persistent asthma.
- Further work is needed to determine whether therapeutic interventions and patient adherence are optimal, or whether these patients are failing best current therapy.
- Programs designed to identify and manage poorly controlled asthmatics within the managed care system need to be considered as possible solutions.

References

- National Center for Health Statistics, FastStats on Asthma, 2009. <http://www.cdc.gov/nchs/faststats/asthma.htm> Last accessed on April 22, 2009.
- Weiss KB, Sullivan SD. The health economics of asthma and rhinitis. I. assessing the economic impact. J Allergy Clin Immunol 2001; 107:3-8.
- Lim KG et al. Flunking Asthma? When HEDIS takes the ACT. Am J Manag Care 2008; 14:487-494.
- Schatz M, Nakahiro R, Crawford W, et al. Asthma quality of care markers using administrative data. Chest 2005; 128:1968-1973.