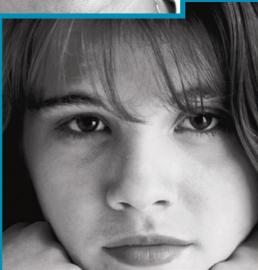


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Asthma and Asthma-Related Health Care for Children Enrolled in HUSKY A: 2007

**Mary Alice Lee, PhD
Amanda Learned, BA
(MAXIMUS, Inc.)**

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New Haven Office
33 Whitney Ave.
New Haven CT 06510
Phone: 203.498.4240
Fax: 203.498.4242

Hartford Office
53 Oak St. Suite 15
Hartford CT 06106
Phone: 860.548.1661
Fax: 860.548.1783

Web Site: www.ctkidslink.org
E-mail: voices@ctkidslink.org

Asthma and Asthma-Related Health Care for Children Enrolled in HUSKY A: 2007

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Key Findings

- **Asthma prevalence:** In 2007, about 11 percent of children in HUSKY A received care for a primary diagnosis of asthma or filled at least four prescriptions for treatment of asthma. The burden of disease was disproportionately high among young children 1 to 5, boys, Hispanic children, and children living in Bridgeport.
- **Asthma care:** Children with asthma made an average of 3.2 office or clinic visits for care, but few were seen more than once, as recommended by national guidelines. Fifteen percent had emergency care. Just over two percent were hospitalized for treatment of asthma. Differences between communities with *Easy Breathing*© projects warrant further investigation.
- **Quality of asthma care:**
 - **Follow-up after emergency care or hospital discharge:** Relatively few children received timely office or clinic visits following an emergency visit for treatment of asthma (24%) or a hospital discharge (52%). Follow-up rates have not improved in recent years and are well below treatment guidelines.
 - **Use of long-term control medication:** About 82 percent of children with persistent asthma filled any prescriptions for long-term control medications (preferred therapies). The percentages of school-aged children and adolescents who received appropriate medications for asthma management were at or below age-specific rates reported by NCQA for other Medicaid managed care plans nationwide. Differences between communities with *Easy Breathing*© projects warrant further investigation.

PURPOSE

- To estimate the prevalence of asthma among children enrolled in HUSKY A;
- To describe asthma-related health care and health care quality for children with asthma;
- To identify factors associated with access to care and trends.

This report is the tenth annual report on asthma and asthma-related health care in HUSKY A (Medicaid managed care).

METHODS

Study Sample

Children under 21 years who were continuously enrolled in any HUSKY A managed care plan between January 1 and December 31, 2007 were included in the study sample.¹

Data

HUSKY A enrollment and encounter data files were obtained from the Connecticut Department of Social Services for ongoing independent performance monitoring. Enrollment files were searched to determine which children were continuously enrolled for the one-year period. Encounter records were searched for records corresponding to outpatient, inpatient, and emergency care with a primary diagnosis of asthma (ICD-9-CM code 493.0-493.9). HUSKY pharmacy data were searched for prescriptions for any one of the medications on a list developed by the National Committee for Quality Assurance for managed care plan performance monitoring.² To determine hospital and emergency department (ED) follow up rates, encounter records were also searched for care for related respiratory conditions.³

Measure of Asthma Prevalence

For 2007, the prevalence of asthma was estimated by determining the percentage of all continuously enrolled children who received *any care for a primary diagnosis of asthma or 4 or more prescriptions for medication used to control or treat asthma*. This approach to estimating prevalence represents a change from the method used in reporting prevalence in 2006 where prevalence was based on children who had a primary diagnosis or *one or more* prescription medications to control or treat asthma. This change was made to improve the precision in defining the “asthma universe” and to make these findings comparable to asthma prevalence reported in other states that use Medicaid claims data to track asthma.⁴

In addition, the subset of children who had persistent asthma was determined. The National Committee for Quality Assurance (NCQA) criteria for determining that children had persistent asthma were modified for this study.⁵ For the purpose of monitoring the quality of asthma care,

¹ Performance monitoring is based on health care received by children continuously enrolled during a specified time period for the following reasons: 1) utilization can be reported in terms of the experience of actual children rather than averaged over “member-months” or varying periods of eligibility; 2) depending on the age groups under study, up to 80% of children ever enrolled during a one-year period were in fact enrolled for 12 months; 3) the HUSKY program and participating health plans are clearly accountable for care of these children; 4) utilization differences among continuously enrolled children are likely to occur among other children as well; and 5) results of performance monitoring can be expressed in simple and consistent terms that convey the actual experience of children in the program.

² National Committee for Quality Assurance. HEDIS 2006. Healthcare Effectiveness data & information set. Vol. 2, Technical specifications. Washington (DC): National Committee for Quality Assurance; 2005.

³ Asthma-related diagnoses: bronchitis (ICD-9-CM codes 466, 480), bronchiolitis (466.1, 487.1, 491.8), allergies (495.4-495.9, 995.3, 995.2, 995.1, 477.0-477.9), viral and bacterial pneumonia (480.0-487.9, 483, 481, 482.2, 482.3, 482.9, 483, 485, 486) and chronic obstructive pulmonary disease (491, 492, 496).

⁴ Dombkowski KJ, Wasilevich E, Callo SL, Nguyen TQ, Medvesky MG, Lee MA. Asthma surveillance using Medicaid administrative data: a call for a national framework. *Journal of Public Health Management and Practice* (in press).

⁵ Criteria for the HEDIS definition of persistent asthma are described in: National Committee for Quality Assurance. HEDIS 2006. Healthcare Effectiveness data & information set. Vol. 2, Technical specifications. Washington (DC): National Committee for Quality Assurance; 2005.

NCQA defines persons with persistent asthma as those who had at least one hospital admission OR at least one emergency visit for treatment of asthma OR at least four outpatient visits plus at least two prescriptions OR at least four prescriptions for treatment of asthma. However, NCQA specifications require that these criteria are met in the current and previous measurement year, whereas our definition only includes the current measurement year.

Measures of Utilization and Quality

Health care utilization for children with asthma was described in terms of the number of visits for ambulatory care with an asthma diagnosis (average, range), percentage of children with more than one office or clinic visit for asthma-related care, and percentages of children with ED visits and hospitalizations for treatment of asthma.

The National Heart, Lung and Blood Institute recommends that children with asthma should be seen regularly (about every 6 months for mild intermittent or mild persistent asthma that has been under control for 3 months or more with more frequent visits for uncontrolled asthma or moderate to severe persistent asthma) in order to prevent recurrent exacerbations of asthma and to minimize the need for ED visits or hospitalizations.⁶

The seasonality of emergency visits was described by plotting the number of visits by weeks of the year.

The National Heart, Lung and Blood Institute recommends that children who were seen for emergency care or discharged after hospitalization for treatment of asthma should be seen for follow-up within 1 to 4 weeks.⁷ The percentage of children who received timely follow-up (an office or clinic visit within two weeks or four weeks of an ED visit or hospital discharge) for asthma or related respiratory diagnoses following an emergency visit or hospital discharge was determined overall and by managed care plan for the first emergency visit or hospital discharge for each child.

The percentage of children with persistent asthma who received treatment with long-term control medications (i.e., preferred therapies), according to a measure developed by NCQA and modified for this study, was determined overall, by age, and by managed care plan.⁸

In Connecticut, improving the quality of care for children with asthma is the focus of *Easy Breathing*©, a professional education program that trains pediatric providers in diagnosis and

⁶ National Heart, Lung, and Blood Institute. Guidelines for diagnosis and management of asthma. Bethesda, MD: NHLBI, 2007; p. 67. Available at: <http://www.nhlbi.nih.gov/guidelines/asthma/>.

⁷ National Heart, Lung, and Blood Institute. Guidelines for diagnosis and management of asthma. Bethesda, MD: NHLBI, 2007; 401. Available at: <http://www.nhlbi.nih.gov/guidelines/asthma/>.

⁸ National Committee for Quality Assurance. Use of appropriate medications for people with asthma. HEDIS 2005, volume 2: technical specifications. Washington, DC: NCQA, 2005. Ways in which HEDIS specifications were modified for this study: not limited to children 5 and over (though reported for children 5-9 and 10-17); no look back to previous year for identification of children with persistent asthma; no check on amount of prescription medication dispensed (assumed 30-day supply was dispensed); inclusion of children with at least four asthma medication dispensing events even if leukotriene modifiers were the sole asthma medication dispensed. Criteria for the HEDIS definition of persistent asthma are described in: National Committee for Quality Assurance. HEDIS 2006. Healthcare Effectiveness data & information set. Vol. 2, Technical specifications. Washington (DC): National Committee for Quality Assurance; 2005.

management of asthma.⁹ This clinical management program is based on NHLBI guidelines for care. *Easy Breathing* is administered in Hartford by the Connecticut Children's Medical Center with state funds that support operations in five communities (New Haven, Waterbury, New Britain, East Hartford/Manchester, and Bridgeport). To date, 182 clinicians in 88 participating practice sites (clinics, private group practices, hospital inpatient units, school-based health centers) have been trained and have implemented the management guidelines. Over 74,000 children have been enrolled in *Easy Breathing* sites in the past five years. Effective July 1, 2007, the program was expanded to practice sites statewide. For the purpose of describing the impact of this program on the quality of care for HUSKY A children residing in Hartford and the five communities with programs, data were grouped by town and compared to the experience of all other children in HUSKY A, using the measures described above. Investigation of asthma management at specific participating sites was beyond the scope of this preliminary exploration of program impact.

Data Quality Problems

In 2007 at the direction of the Department of Social Services, managed care plans in the HUSKY Program began using the National Provider Identifier (NPI). The NPI is a 10-digit unique identifier for health care providers that is used in all electronic transmissions of health data.¹⁰

According to sources at the Department of Social Services and the Department's data vendor, three of the four HUSKY health plans successfully implemented the NPI; BlueCare Family did not. The result was that the Department's data vendor rejected most of the encounter records (67%) submitted by BlueCare for the period September to December 2007. BlueCare has apparently been unable to correct the data or use the work-arounds recommended by the data vendor.

Usually, Connecticut Voices waits 180 days to allow for submission of encounter records and corrections, as needed. For 2007 data, we waited an extra 90 days to obtain as complete a dataset as possible for 2007 utilization reporting.¹¹ We then counted records by health plan by month for each type of service (dental, office visits, clinic visits, and inpatient) for each of the past 3 years to determine the extent of the problem:

- For BlueCare, the 2007 annual total and the monthly average number of encounter records overall was considerably lower for all types of service except dental care, compared with 2005 and 2006. For Community Health Network, Health Net, and WellCare, the 2007 monthly average number of encounter records varied just slightly from month to month and was consistent with monthly and annual totals for 2005 and 2006 for each type of service.
- Compared with the earlier months of 2007, the monthly average number of BlueCare encounter records in September, October, November and December 2007 was down 55 percent for office visits, 81 percent for clinic visits, and 82 percent for inpatient care.

⁹ Description of the *Easy Breathing*© program, obtained from the Connecticut Department of Public Health; enrollment is through December 31, 2007.

¹⁰ Use of the National Provider Identifier (NPI) is required by the Health Insurance Portability and Accountability Act (HIPAA) of 1996. The NPI is a unique identifier for health care providers, health plans, and employers that is designed for simpler electronic transmission of health data and more efficient coordination of transactions relating to health benefits. For further information: <http://www.cms.hhs.gov/NationalProvIdentStand/>.

¹¹ Mercer created the dataset October 21, 2008.

As is the usual practice, we report 2007 utilization rates separately for each of the HUSKY health plans and for children who changed plans during the year. For analysis of asthma care trends, we compared utilization rates from previous years to the rate for members of Community Health Network, Health Net and WellCare combined.

Other Limitations of the Data

Treatment prevalence estimates in this report are based on secondary analyses of readily available, uniformly coded encounter data corresponding to care received by children with asthma. However, the methods used to generate these estimates affect and limit interpretation of the results. First, prevalence estimates were based on the health care experiences of continuously enrolled children. Any significant changes in enrollment, access to care, and quality of care can affect prevalence estimates when based on health service utilization. Second, the completeness and accuracy of the encounter data could not be assessed. What may appear to be increases or decreases in prevalence and utilization over time can be due in part to changes in the quality of data submissions. Third, depending on the data source, prevalence estimates can vary significantly.^{12,13,14,15} Fourth, the accuracy of the diagnosis, the severity of the condition, and the appropriateness of clinical care cannot be assessed using administrative data alone. Fifth, the data available for these analyses do not include records of phone contacts with providers, case management, or other services that do not typically result in submission of an encounter record. Despite these limitations, this approach to tracking asthma prevalence and asthma-related health care utilization among children at increased risk is a useful adjunct to other surveillance efforts and program performance monitoring.¹⁶

RESULTS

Description of the Study Population

There were 160,227 children under 21 who were continuously enrolled in HUSKY A in 2007. The sociodemographic and enrollment characteristics of these children are described in Table 1.

Estimated Prevalence of Pediatric Asthma

In 2007, 18,126 children under 21 who were continuously enrolled in HUSKY A (11.3%) received care or filled at least four prescriptions for asthma medication (Table 2). Among children enrolled in CHNCT, Health Net, and WellCare, there were 10,032 children with asthma (11.6%). In 2006, the estimate based on the more precise definition of asthma prevalence was 11.9 percent or nearly

¹² Dombkowski KJ, Wasilevich EA, Lyon-Callo SK. Pediatric asthma surveillance using Medicaid claims. *Public Health Reports*, 2005; 120: 515-524.

¹³ Buescher PA, Jones-Vessey K. Using Medicaid data to estimate state- and county-level prevalence of asthma among low-income children. *Maternal and Child Health Journal*, 1999; 3(4): 211-216.

¹⁴ Children's Health Council. *Asthma and asthma-related health care for Children in HUSKY A: FFY 2002*. Hartford, CT: CHC, 2003.

¹⁵ Twiggs JE, Fifield J, Apter AJ, Jackson EA, Cushman RA. Stratifying medical and pharmaceutical administrative claims as a method to identify pediatric asthma patients in a Medicaid managed care organization. *Journal of Clinical Epidemiology*, 2002; 55: 938-944.

¹⁶ Pearce N, Beasley R, Burgess C, Crane J. *Asthma epidemiology: principles and methods*. New York: Oxford University Press; 1998.

the same as the 2007 rate for children in the three plans with complete data.¹⁷ As in previous years, asthma prevalence in 2006 varied with age, gender, race/ethnicity, primary language, residence, and health plan:

- **Age:** Children 1 to 5 were most likely than younger or older children to have had asthma care or medication;¹⁸
- **Gender:** Boys were more likely than girls to have had asthma care or medication;¹⁹
- **Race/ethnicity:** Hispanic children were most likely to have had care or medication for asthma compared with African-American children, White children, and children of other racial/ethnic groups;²⁰
- **Primary Language:** Children from Spanish-speaking households were more likely to have had asthma care or medication than children from English-speaking households and households with other primary languages;²¹
- **Residence:** Bridgeport children were more likely to have had asthma care or medication compared with those living in all other towns.²²
- **Health Plan:** Rates for children in the three health plans with complete data were nearly equal; the rate for children in BlueCare was lower.²³

There were 12,855 children with persistent asthma using the modified definition of the NCQA definition of persistent asthma, corresponding to a prevalence estimate of 8.0 percent in 2007 (71.2% of all children who received any care or at least 4 prescriptions for asthma).

Asthma-related Health Care Utilization

In 2007, children who had any asthma care made an average of 3.2 office visits for asthma care (Table 3). Just 27 percent of children with any office or clinic visit were seen more than once, as recommended by national guidelines for care.²⁴

Among children with asthma, 2,741 children (15.1%) made 3,589 visits for emergency care (average 1.3 per child with any emergency care). The number of visits per child with any emergency care is virtually unchanged from 2006 (1.3) and 2005 (1.4). One in five children with any emergency care (20.7%) made two or more ED visits, essentially unchanged from the previous year (20.4% in 2006).

In 2007, 467 asthmatic children (2.3% of those with asthma) were hospitalized at least once for asthma. Eighty-four children were hospitalized more than once (18.0% of children who were ever

¹⁷ Connecticut Voices for Children. Asthma and asthma-related care for Children Enrolled in HUSKY A: 2006. New Haven, CT: Connecticut Voices, April 2008. Available at: www.ctkidslink.org. See footnote 9.

¹⁸ RR Age 1 to 5: all others = 1.18 (95% CI: 1.14, 1.21)

¹⁹ RR boys: girls = 1.31 (95% CI: 1.27, 1.35).

²⁰ RR Hispanic: all others = 1.11 (95% CI: 1.08, 1.14)

²¹ RR Spanish: all others = 1.13 (95% CI: 1.10, 1.17)

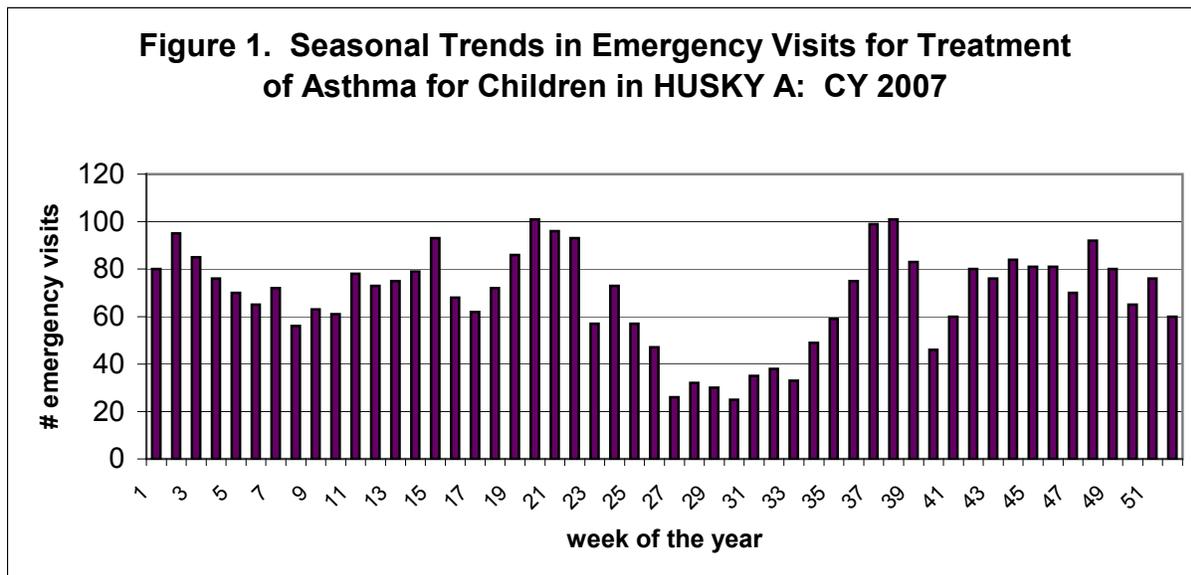
²² RR Bridgeport : all other cities and towns = 1.10 (95% CI: 1.05, 1.15)

²³ RR BC: all other plans = 0.93 (95% CI: 0.91, 0.96). The lower rate for children in BlueCare is due at least in part to incomplete data for the last 4 months of the calendar year. In 2006, the rate was slightly higher than rates for children in other plans.

²⁴ National Heart, Lung, and Blood Institute. Guidelines for diagnosis and management of asthma. Bethesda, MD: NHLBI, 2007; p. 67. Available at: <http://www.nhlbi.nih.gov/guidelines/asthma/>.

hospitalized). The percentage of children who were hospitalized more than once was essentially the same as in the previous year (17.4% in 2006).

As expected, emergency visit for asthma showed a seasonal pattern (Figure 1). An increase in the visit rate for emergency visits occurred in mid- to late-September, shortly after children return to school.



Two in three children with asthma (66.4%) had both a visit for management and treatment *and* 4 or more prescriptions for asthma medication (Table 4). There were also 813 children who had prescriptions for short-acting, quick-relief medications only (no long-term control medications) (4.8% of children with any asthma medication) (data not shown).

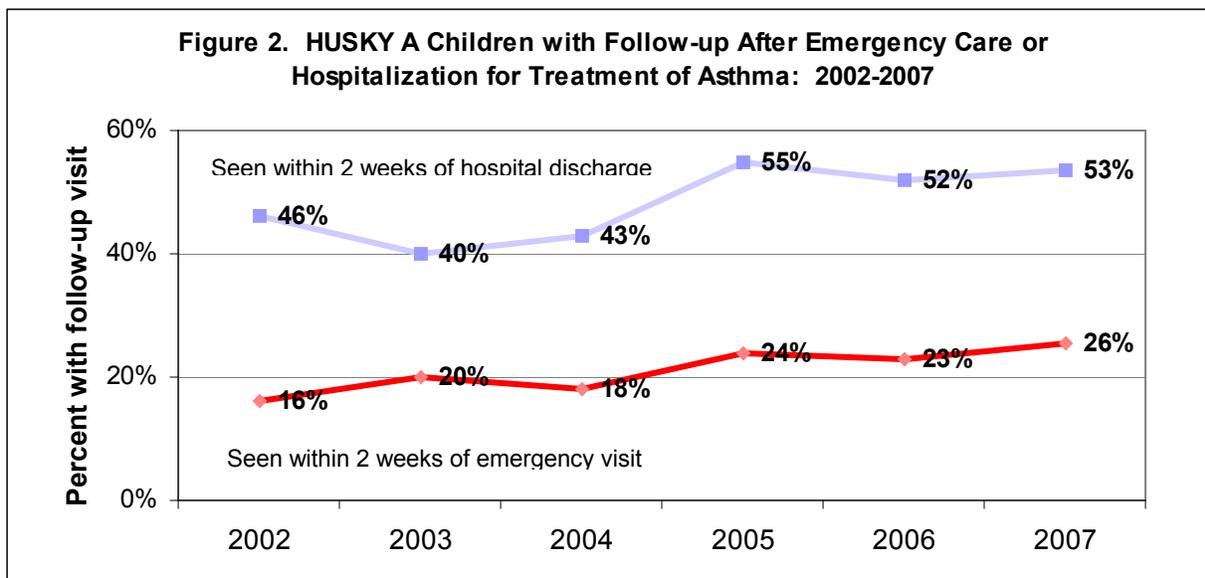
One in four children with asthma (26.8%) had prescriptions only, without any office/clinic visit, emergency care, or hospitalization for treatment or management of asthma. In previous years, conditions for which children received any prescription medication that can be used in the treatment of asthma included diagnoses of upper respiratory conditions, ear, nose and throat conditions, and allergic conditions.²⁵ Children who had four or more prescriptions in the absence of even one visit with a primary diagnosis of asthma may have received the prescriptions in the course of well-child or acute care visits for which asthma was a secondary diagnosis. Children with prescription medications may have had other third party coverage for primary care visits but used HUSKY coverage for medications.

Follow-up after emergency care and hospitalization

The rates for follow-up after emergency care and hospitalization are very low, give NHLBI guidelines, and have not improved in recent years (Figure 2). Among the 2,741 asthmatic children who received any emergency care, about one in four children received follow-up care for asthma or an asthma-related diagnosis within 2 weeks of the visit as recommended (Table 5). This rate is

²⁵ Connecticut Voices for Children. Asthma and asthma-related health care for children enrolled in HUSKY A: 2006. New Haven, CT: Connecticut Voices, 2008. Available at: www.ctkidslink.org.

essentially unchanged from the two previous years (Figure 2). The proportion of children who received follow-up for asthma or an asthma-related diagnosis within one month of the ED visit was not much higher (28.1%). Managed care plan-specific follow-up rates at two weeks varied somewhat (range: BlueCare 21.6% - CHNCT 27.8%) at 2 weeks and even more by one month following the emergency visit (BlueCare 25.7% - CHNCT 31.4%).²⁶ With respect to trends over time, the combined rate for children in CHNCT, Health Net, and WellCare shows no meaningful improvement in recent years.



Note: 2007 follow-up rates do not include children in BlueCare.

About one of every two children who were hospitalized for treatment of asthma (52.0%) was seen in 2 weeks following discharge for asthma or an asthma-related diagnosis. Managed care plan-specific rates varied widely (range: WellCare 43.5% - Health Net 65.9%). With respect to trends over time, the combined rate for children in CHNCT, Health Net, and WellCare shows no meaningful improvement in recent years.

Preferred Medications

There were 12,855 children under 21 who met the definition of having persistent asthma. About 82 percent of children under 21 filled prescriptions for preferred therapies for long-term control of symptoms. This rate is essentially the same as the rate for the previous year (82.9%). The rates varied by managed care plan (Table 6). Rates for filled prescriptions were about 86.7 percent for children 5 to 9 and 81.8 percent for children 10 to 17.

Asthma and Asthma Care in Communities with *Easy Breathing* Projects

Asthma prevalence, asthma care utilization, and asthma care quality are described in Table 7 for children in HUSKY A who lived in Hartford, in communities with state-funded *Easy Breathing* projects and in all other Connecticut towns in 2007. The rates reported are community-wide, that is for all children with HUSKY A coverage living in the targeted communities, and is not specific to

²⁶ Low rates for children in BlueCare may be due to incomplete data.

sites that have been trained in *Easy Breathing* methods for diagnosis and treatment. Compared to statewide and town-specific rates for other communities with *Easy Breathing* projects, children living in New Britain and Manchester had the highest estimated prevalence of asthma and persistent asthma. The highest emergency care utilization rate was for children with asthma living in New Haven, followed by Hartford and Waterbury. The highest hospital rate was for New Haven, followed by Waterbury. Children with persistent asthma who lived in Hartford and New Haven were less likely than children living in other communities with *Easy Breathing* projects and all other towns to have filled prescriptions for preferred asthma therapies, that is, long-term control medications like inhaled corticosteroids. Analysis of data for children in CHNCT, Health Net, and WellCare only (not including incomplete data for BlueCare) show that the prevalence estimates and utilization rates changed somewhat, but that direction and magnitude of differences among communities with *Easy Breathing* projects and all other towns changed very little (data not shown).

COMPARISON WITH NATIONAL AND CONNECTICUT DATA

Asthma Prevalence

Prevalence estimates based on data from national and state surveys are shown in Table 8. While the methodology for deriving these estimates is considerably different than what was used for this report, the lifetime and current estimates of asthma prevalence for children under 18 are useful for understanding the scope of the problem for children in Connecticut and in HUSKY A. Data from the 2006 National Health Interview Survey show that an estimated 9.3 percent of children in the United States currently have asthma.²⁷ The prevalence of asthma is highest for Black non-Hispanic children (12.7%), those living in poor families (12.2%), and those living in the Northeast (12.1%). Connecticut-specific asthma prevalence data for children from the 2007 Behavioral Health Risk Factor Surveillance System and the 2007 National Survey on Children's Health show that lifetime and current prevalence of asthma, as reported by parent-respondents, is higher in Connecticut than it is nationwide and higher still among Connecticut children with public insurance.²⁸

Asthma Care

Data from the Connecticut Department of Public Health for the state's largest cities (Bridgeport, Hartford, New Haven, Stamford, and Waterbury, compared to all other towns) show that child hospitalization rates and emergency care rates vary considerably by town and by age and race/ethnicity within town.²⁹ New Haven has the highest annual new hospitalization rate for children under 18, largely driven by rates for young children under 5 and for Black and Hispanic children. The emergency care rates for Hartford, New Haven and Waterbury are considerably higher than rates for other cities and towns. As with hospitalizations, rates within these cities are highest for very young children and for Black and Hispanic children, especially in Hartford. Statewide, Medicaid was the payer for about 55 percent of hospitalizations and 56 percent of emergency visits for children with asthma statewide. Depending on the city, about one third of emergency visits occurred on Saturday and Sunday; and about 60 percent occurred during the evening and over night hours.

²⁷ <http://www.cdc.gov/ASTHMA/nhis/06/table4-1.htm>.

²⁸ 2007 Behavioral Risk Factor Surveillance System. Data provided for this report by Connecticut Department of Public Health. 2007 National Child Health Survey. Available at: <http://www.nschdata.org>.

²⁹ Connecticut Department of Public Health. Asthma data fact sheet for the five largest cities in Connecticut. Hartford, CT: DPH, February 2009. Available at:

Asthma Management

The percentages of children in HUSKY A in 2007 who received appropriate medications for management of persistent asthma were at or below age-specific rates reported by NCQA for Medicaid managed care plans nationwide (for children 5 to 9: 86.7% in HUSKY A, compared with 86.5% to 91.9% nationwide, depending on accreditation status of Medicaid plans; for children 10 to 17: 81.8% in HUSKY A, compared with 84.5% to 89.2% for Medicaid nationwide, depending on accreditation status of health plans).³⁰ Despite differences in methods that may account for lower rates, these findings suggest that medication management could be improved for sizeable number of children in HUSKY A.

No national data on follow-up after emergency care or hospitalization are available for comparison to these findings.

CONCLUSIONS

- **Asthma prevalence:** In 2007, about 11 percent of children in HUSKY A received care for a primary diagnosis of asthma or at least four prescriptions for treatment of asthma. The burden of disease is disproportionately high among young children 1 to 5, boys, Hispanic children and children from Spanish-speaking households, and children living in Bridgeport.
- **Asthma care:** Children with asthma made an average of 3.2 office or clinic visits for care, but few were seen more than once, as recommended by national guidelines. Fifteen percent had emergency care and just over two percent were hospitalized for treatment of asthma. Differences among *Easy Breathing*© communities warrant further investigation.
- **Quality of asthma care:**
 - **Follow-up after emergency care or hospital discharge:** Relatively few children received timely office or clinic visits following an emergency visit for treatment of asthma (24%) or a hospital discharge (52%). Follow-up rates have not improved in recent years and are well below treatment guidelines.
 - **Use of long-term control medication:** About 82 percent of children with persistent asthma filled prescriptions for long-term control medications (preferred therapies). The percentages of school-aged children and adolescents who received appropriate medications for asthma management were at or below age-specific rates reported by NCQA for other Medicaid managed care plans nationwide. Differences among *Easy Breathing*© communities warrant further investigation.

³⁰ National Committee for Quality Assurance. The state of health care quality 2007. HEDIS measures of care. Washington, DC: NCQA, 2007. Available at: http://www.ncqa.org/Portals/0/Publications/Resource%20Library/SOHC/SOHC_07.pdf. NCQA reporting methods were modified for this report, as described in earlier.

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Table 1. Sociodemographic Characteristics of Children in HUSKY A by Health Plan, CY 2007

	All Enrollees^a		BlueCare		CHNCT		HealthNet		WellCare		Changed plans^b	
Total	160,227	100.0%	65,686	41.0%	28,557	17.8%	42,092	26.3%	15,852	9.9%	8,040	5.0%
Age												
<1	1,635	1.0%	623	0.9%	295	1.0%	456	1.1%	148	0.9%	113	1.4%
1- 5	47,839	29.9%	19,511	29.7%	9,049	31.7%	11,710	27.8%	4,949	31.2%	2,620	32.6%
6-14	77,134	48.1%	31,851	48.5%	13,312	46.6%	20,751	49.3%	7,603	48.0%	3,617	45.0%
15-20	33,619	21.0%	13,701	20.9%	5,901	20.7%	9,175	21.8%	3,152	19.9%	1,690	21.0%
Total	160,227		65,686		28,557		42,092		15,852		8,040	
Gender												
Female	79,296	49.5%	32,554	49.6%	14,147	49.5%	20,780	49.4%	7,823	49.4%	3,992	49.7%
Male	80,204	50.1%	32,821	50.0%	14,295	50.1%	21,157	50.3%	7,950	50.2%	3,981	49.5%
Unknown	727	0.5%	311	0.5%	115	0.4%	155	0.4%	79	0.5%	67	0.8%
Total	160,227		65,686		28,557		42,092		15,852		8,040	
Race/ethnicity												
Black	39,049	24.4%	14,432	22.0%	6,859	24.0%	9,288	22.1%	6,332	39.9%	2,138	26.6%
White	66,346	41.4%	29,555	45.0%	7,896	27.6%	21,963	52.2%	3,868	24.4%	3,064	38.1%
Hispanic	50,079	31.3%	19,540	29.7%	13,042	45.7%	9,431	22.4%	5,385	34.0%	2,681	33.3%
Other	4,441	2.8%	2,027	3.1%	710	2.5%	1,346	3.2%	222	1.4%	136	1.7%
Unknown	312	0.2%	132	0.2%	50	0.2%	64	0.2%	45	0.3%	21	0.3%
Total	160,227		65,686		28,557		42,092		15,852		8,040	
Language												
English	136,647	85.3%	55,529	84.5%	23,235	81.4%	37,543	89.2%	13,707	86.5%	6,633	82.5%
Other	1,056	0.7%	464	0.7%	168	0.6%	242	0.6%	117	0.7%	65	0.8%
Spanish	14,354	9.0%	5,938	9.0%	4,094	14.3%	1,980	4.7%	1,565	9.9%	777	9.7%
Unknown	8,170		3,755		1,060		2,327		463		565	
Total	160,227		65,686		28,557		42,092		15,852		8,040	
City												
Bridgeport	15,361	9.6%	1,801	2.7%	2,886	10.1%	6,727	16.0%	3,105	19.6%	842	10.5%
Hartford	17,677	11.0%	11,466	17.5%	2,213	7.7%	1,476	3.5%	1,677	10.6%	845	10.5%
New Haven	14,620	9.1%	3,129	4.8%	6,006	21.0%	1,290	3.1%	3,299	20.8%	896	11.1%
Other	112,569	70.3%	49,290	75.0%	17,452	61.1%	32,599	77.4%	7,771	49.0%	5,457	67.9%
Total	160,227		65,686		28,557		42,092		15,852		8,040	

Source: HUSKY A enrollment data from the Connecticut Department of Social Services

^a Children under 21 who were continuously enrolled in HUSKY A in CY 2007

^b Children who changed plans at least once in CY 2007

Table 2. Estimated Prevalence of Asthma Among Children in HUSKY A by Health Plan, CY 2007

	Children with asthma ^a		BlueCare		CHNCT		HealthNet		WellCare		Changed Plans ^b	
Total	18,126	11.3%	7,127	10.9%	3,334	11.7%	4,890	11.6%	1,808	11.4%	967	12.0%
Age												
<1	100	6.1%	38	6.1%	17	5.8%	28	6.1%	12	8.1%	5	4.4%
1- 5	6,054	12.7%	2,433	12.5%	1,134	12.5%	1,497	12.8%	619	12.5%	371	14.2%
6-14	9,106	11.8%	3,572	11.2%	1,664	12.5%	2,529	12.2%	900	11.8%	441	12.2%
15-20	2,866	8.5%	1,084	7.9%	519	8.8%	836	9.1%	277	8.8%	150	8.9%
Total	18,126		7,127		3,334		4,890		1,808		967	
Gender												
Female	7,754	9.8%	3,030	9.3%	1,410	10.0%	2,115	10.2%	771	9.9%	428	10.7%
Male	10,270	12.8%	4,053	12.3%	1,907	13.3%	2,756	13.0%	1,025	12.9%	529	13.3%
Unknown	102	14.0%	44	14.1%	17	14.8%	19	12.3%	12	15.2%	10	14.9%
Total	18,126		7,127		3,334		4,890		1,808		967	
Race/ethnicity												
Black	4,475	11.5%	1,610	11.2%	725	10.6%	1,159	12.5%	704	11.1%	277	13.0%
White	7,165	10.8%	3,063	10.4%	904	11.4%	2,444	11.1%	421	10.9%	333	10.9%
Hispanic	6,080	12.1%	2,271	11.6%	1,647	12.6%	1,163	12.3%	661	12.3%	338	12.6%
Other	374	8.4%	170	8.4%	52	7.3%	119	8.8%	17	7.7%	16	11.8%
Unknown	32	10.3%	13	9.8%	6	12.0%	5	7.8%	5	11.1%	3	14.3%
Total	18,126		7,127		3,334		4,890		1,808		967	
Language												
English	15,232	11.1%	5,937	10.7%	2,639	11.4%	4,357	11.6%	1,536	11.2%	763	11.5%
Other	103	9.8%	47	10.1%	19	11.3%	26	10.7%	7	6.0%	4	6.2%
Spanish	1,740	12.1%	655	11.0%	554	13.5%	238	12.0%	189	12.1%	104	13.4%
Unknown	1,051	12.9%	488	13.0%	122	11.5%	269	11.6%	76	16.4%	96	17.0%
Total	18,126	11.3%	7,127		3,334		4,890		1,808		967	
City												
Bridgeport	1,891	12.3%	147	8.2%	349	12.1%	893	13.3%	400	12.9%	102	12.1%
Hartford	2,031	11.5%	1,287	11.2%	260	11.7%	175	11.9%	205	12.2%	104	12.3%
New Haven	1,490	10.2%	321	10.3%	616	10.3%	108	8.4%	354	10.7%	91	10.2%
Other	12,714	11.3%	5,372	10.9%	2,109	12.1%	3,714	11.4%	849	10.9%	670	12.3%
Total	18,126	11.3%	7,127		3,334		4,890		1,808		967	

Source: HUSKY A enrollment data from the Connecticut Department of Social Services

^a Children under 21 who had at least one encounter record with a primary diagnosis of asthma (ICD-0-CM 493) or had at least 4 prescriptions for asthma medication (long-term control or quick-relief medication).

^b Children who changed plans at least once in CY 2007

Table 3. Asthma Health Care Utilization in HUSKY A, CY 2007

	All Children
Number of children enrolled in HUSKY A	160,277
Number of children with asthma^a	18,126
Estimated prevalence of asthma	11.3%
Number of children with office or clinic visits for asthma	12,032
Percent with office or clinic visit	66.4%
Percent of children with more than one asthma visit	41.3%
Total office or clinic visits for asthma treatment	45,725
Average number of office or clinic visits	3.8
Number of children with ED visits for asthma	2,741
Percent with ED visits	15.1%
Total ED visits for asthma treatment	3,589
Average number of ED visits	1.3
Number of children hospitalized for asthma	467
Percent who were hospitalized	2.3%
Total number of hospitalizations	588
Average number of hospitalizations	1.3

Source: HUSKY A enrollment data from the Connecticut Department of Social Services

^a Children under 21 who had at least one encounter record with a primary diagnosis of asthma (ICD-9-CM 493) or had at least 4 prescriptions for asthma medication (long-term control or quick-relief medication).

Table 4. Children with Asthma in HUSKY A: Visits and Prescription Medications, CY 2007

HAD ASTHMA CARE^a	HAD PRESCRIPTION MEDICATION FOR ASTHMA^b	
	YES	NO
percent children with asthma	12,027 66.4%	1,238 6.8%
percent children with asthma	4,861 26.8%	did not have asthma care or prescription

Source: HUSKY A enrollment data from the Connecticut Department of Social Services

^a Had at least one encounter record for office or clinic visit, emergency visit, or hospitalization with a primary diagnosis of asthma (ICD-9-CM 493).

^b Had at least 4 prescriptions for asthma medication, including long-term control or quick relief medications or both.

Table 5. Follow-up After Emergency Visit or Hospitalization for Asthma, CY 2007

	All Children	BlueCare	CHNCT	Health Net	WellCare	Changed Plans
After emergency care for asthma:						
Follow-up for asthma or related diagnosis^a						
Within 2 weeks	24.4%	21.6%	27.8%	23.3%	26.6%	22.9%
Within 1 month	28.1%	25.7%	31.4%	26.4%	30.6%	25.9%
Follow-up for any diagnosis						
Within 2 weeks	42.3%	38.1%	44.2%	44.3%	45.1%	38.6%
Within 1 month	52.2%	48.0%	53.8%	54.7%	55.6%	47.0%
After hospitalization for asthma:						
Follow-up for asthma or related diagnosis^a						
Within 7 days	46.5%	41.0%	49.7%	59.1%	37.0%	44.0%
Within 2 weeks	52.0%	47.9%	53.1%	65.9%	43.5%	48.0%
Within 1 month	57.8%	55.6%	57.2%	72.7%	48.9%	52.0%
Follow-up for any diagnosis						
Within 7 days	58.5%	51.3%	60.7%	73.9%	51.1%	52.0%
Within 2 weeks	68.5%	63.2%	69.7%	81.8%	64.1%	56.0%
Within 1 month	75.6%	70.9%	75.9%	85.2%	73.9%	68.0%

Source: HUSKY A enrollment data from the Connecticut Department of Social Services.

^a Visit for primary diagnosis of asthma (493) or asthma-related diagnoses: bronchitis (ICD-9-CM codes 466, 480), bronchiolitis (466.1, 487.1, 491.8), allergies (495.4-495.9, 995.3, 995.2, 995.1, 477.0-477.9), viral and bacterial pneumonia (480.0-487.9, 483, 481, 482.2, 482.3, 482.9, 483, 485, 486) and chronic obstructive pulmonary disease (491, 492, 496).

Table 6. Use of Appropriate Medications for Persistent Asthma by Age and Managed Care Plan, CY 2006^a

	All Children with Persistent Asthma^b	BlueCare	CHNCT	Health Net	WellCare	Changed Plans
Had appropriate medication^a	82.1%	83.7%	80.4%	83.0%	76.0%	82.2%
Age group						
5 to 9	86.7%	87.7%	87.1%	87.1%	80.7%	86.3%
10 to 17	81.8%	83.5%	80.2%	82.3%	76.7%	81.8%

Source: HUSKY A enrollment data from the Connecticut Department of Social Services.

^a Children 5 to 17 in HUSKY A with persistent asthma who received treatment with long-term control medications (i.e., preferred therapies), according to a HEDIS measure developed by NCQA and modified for this study.

^b Children who with at least one emergency visit OR at least one hospitalization OR at least 4 outpatient visits plus at least 2 prescriptions OR at least 4 prescriptions for treatment of asthma in the reporting year. NCQA HEDIS specifications were modified for this report.

Table 7. Asthma Prevalence and Asthma Care for HUSKY A Children in *Easy Breathing*® Communities^a

	HUSKY A Statewide	Children With Asthma Living in:							
		Bridgeport	East Hartford	Hartford	Manchester	New Britain	New Haven	Waterbury	All Other Towns
Children with asthma^b	18,126	1,891	459	2,031	398	1,102	1,490	1,389	11,397
Percent with asthma	11.3%	12.3%	11.4%	11.5%	12.9%	14.3%	10.2%	10.5%	11.1%
Percent with emergency care	15.1%	14.4%	12.4%	19.9%	6.5%	12.7%	28.7%	18.4%	13.7%
Percent hospitalized	2.6%	1.7%	1.3%	1.8%	0.0%	1.1%	9.6%	3.2%	2.0%
Children with persistent asthma^c	12,855	1,278	308	1,494	293	809	1,089	1,037	8,041
Percent with persistent asthma	8.0%	8.3%	7.7%	8.5%	9.5%	10.5%	7.4%	7.8%	7.9%
Had long-term control medication^d									
Children under 21	82.1%	86.4%	82.1%	70.7%	87.4%	83.2%	73.3%	82.6%	82.2%
Children 5 to 9	86.7%	90.4%	87.9%	76.2%	92.9%	86.1%	78.4%	83.7%	87.2%
Children 10 to 17	81.8%	85.4%	73.9%	72.9%	87.4%	80.4%	76.8%	85.0%	81.9%

Source: HUSKY A enrollment data from the Connecticut Department of Social Services.

^a Identification of specific children who obtained care at the specific participating practice sites was beyond the scope of this investigation, nor was a review of medical records conducted to determine adherence to Easy Breathing or NHLIB guidelines for diagnosis and management of asthma.

^b Children who were continuously enrolled in HUSKY A in 2007 and had at least encounter record with a primary diagnosis of asthma OR filled at least 4 prescriptions for asthma medication.

^c Children who had at least one emergency visit OR at least one hospital admission OR at least 4 outpatient visits plus at least 2 prescriptions OR at least 4 prescriptions for treatment of asthma in 2007 while continuously enrolled in HUSKY A. NCQA HEDIS specifications were modified for this measure.

^d Children with persistent asthma who had filled prescriptions for long-term control medication, expressed as a percentage of all those with any prescriptions for asthma, including the short-acting, quick-relief medications, based on a list of asthma medications compiled by NCQA and used for monitoring appropriate care for persons with asthma.

Table 8. Prevalence of Asthma Among Children Under 18: National and Connecticut data

Survey (year)	Lifetime Prevalence^a	Current Prevalence^b
National Health Interview Survey (2006)	13.5%	9.3%
Behavioral Risk Factor Surveillance System		
United States (27 states; 2004)	11.8%	8.3%
Connecticut (2007)	13.0%	8.9%
National Child Health Survey (2007)		
United States--all children	13.5%	9.0%
Connecticut--all children	16.9%	11.8%
United States--children with public insurance	NA	16.8%
Connecticut--children with public insurance	NA	23.2%

^a Lifetime prevalence: Positive response to "Have you ever been told by [doctor, nurse, health professional] that you have asthma?" or similar question.

^b Current prevalence: Positive response to "Do you still have asthma?" or similar question.

Source: 2006 National Health Interview Survey. Available at: <http://cdc.gov/ASTHMA/nhis/06/table2-1.htm> (lifetime prevalence) and <http://cdc.gov/ASTHMA/nhis/06/table4-1.htm> (current prevalence)

Source: 2004 Behavioral Risk Factor Surveillance System. Available at: <http://www.cdc.gov/asthma/brfss/04/lifetime/tableK2.htm> (lifetime prevalence) and <http://www.cdc.gov/asthma/brfss/04/current/tableK1.htm> (current prevalence). 2007 Behavioral Health Risk Factor Surveillance System data for children in Connecticut were provided by Connecticut Department of Public Health..

Source: 2007 National Child Health Survey. Available at: <http://www.nschdata.org>