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Socioeconomic, Family, and Pediatric Practice Factors That Affect Level of Asthma Control

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What's Known on This Subject

Asthma control in the pediatric population has generally been found to be suboptimal. In particular, this poor control has been attributed to the underuse of controller medications.

What This Study Adds

This study documents the level of control among children cared for by community primary care pediatricians, applying domains of impairment and risk as defined in the most recent Expert Panel Report 3 asthma guidelines and considers various factors influencing that level of control.

ABSTRACT

BACKGROUND. Multiple issues play a role in the effective control of childhood asthma.

OBJECTIVE. To identify factors related to the level of asthma control in children receiving asthma care from community pediatricians.

PATIENTS AND METHODS. Data for 362 children participating in an intervention study to reduce asthma morbidity were collected by a telephone-administered questionnaire. Level of asthma control (well controlled, partially controlled, or poorly controlled) was derived from measures of recent impairment (symptoms, activity limitations, albuterol use) and the number of exacerbations in a 12-month period. Data also included demographic characteristics, asthma-related quality of life, pediatric management practices, and medication usage. Univariable and multivariable analyses were used to identify factors associated with poor asthma control and to explore the relationship between control and use of daily controller medications.

RESULTS. Asthma was well controlled for 24% of children, partially controlled for 20%, and poorly controlled for 56%. Medicaid insurance, the presence of another family member with asthma, and maternal employment outside the home were significant univariable factors associated with poor asthma control. Medicaid insurance had an independent association with poor control. Seventy-six percent of children were reported by parents as receiving a daily controller medication. Comparison of guideline recommended controller medication with current level of asthma control indicated that a higher step level of medication would have been appropriate for 74% of these children. Significantly lower overall quality-of-life scores were observed in both parents and children with poor control.

CONCLUSIONS. Despite substantial use of daily controller medication, children with asthma continue to experience poorly controlled asthma and reduced quality of life. Although Medicaid insurance and aspects of family structure are significant factors associated with poorly controlled asthma, attention to medication use and quality-of-life indicators may further reduce morbidity. *Pediatrics* 2009;123:829–835

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Key Words
childhood asthma, asthma control, asthma outcomes

Abbreviations
NAEPP—National Asthma Education and Prevention Program
ED—emergency department
QoL—quality of life
ICS—inhaled corticosteroid
AAP—asthma action plan
SABA—short-acting β agonist

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ASTHMA IS A highly visible and demanding part of primary care practice. It is both a chronic and acute episodic disease that has become a major cause of childhood disability,[1–3] with pediatricians becoming increasingly responsible for diagnosing and managing its care.[4] Ambulatory care for asthma in terms of visit rates has steadily increased since the early 1990s and has continued to increase despite a plateau in both childhood asthma prevalence and ambulatory care visits over recent years.[3,5] However, reports from national telephone surveys indicate that asthma morbidity is not being adequately addressed.[6–9]

During enrollment for an intervention study, interviews with parents generated data about asthma morbidity and care. These data provided an opportunity to use parent-reported information to characterize multiple attributes of school-aged children with persistent asthma and identify factors that influence morbidity.

METHODS

Setting and Study Population

This cross-sectional study used data from the 362 patients enrolled in an intervention study evaluating the Telephone Asthma Program. Families were eligible to participate in the Telephone Asthma Program study if their child was between 5 and 12 years of age, had a physician diagnosis of asthma for at least a year, and had at least 1 of the following: an acute exacerbation requiring an unscheduled office visit, a course of oral steroids, or an emergency department (ED) visit or hospitalization within the previous year. The child also had to be using daily controller medications and/or have symptoms or interference with normal activity ≥3 days per week, or short acting β2 agonist use >8 times during the past 2 weeks. Families were ineligible to participate if they did not have a telephone or could not speak English, if a sibling was already a study subject, or if the child with asthma had another disease that required regular follow-up by the pediatrician (such as cystic fibrosis or sickle cell disease) or was participating in another asthma study. The study was approved by the Washington University Human Studies Committee, and all parents gave informed consent.

Potential subjects were recruited from families who called the telephone triage service at St Louis Children's Hospital for asthma care between January 2003 and December 2005. On consent of the child's pediatrician, a member of the study team called the parent to invite them to participate in the study. We identified 483 eligible participants of whom 362 participated in the study and completed the 20-minute baseline interview. For 98% (355 of 362) of the study population, the time gap between the index call to the telephone triage service and the baseline interview was at least 2 weeks, and for 84% (303 of 362) it was at least a month.

We obtained demographic information, and asked about use of an asthma action plan (AAP), the frequency of asthma checkups, and use of controller medications. Parents reported the frequency of asthma symptoms (wheeze, cough, shortness of breath, and chest tightness), use of reliever medications in the past week, the number of days missed from school or physical education class restrictions in the past 2 weeks, the number of courses of oral steroids in the past 3 months, and the number of ED visits or hospitalizations in the past year. These varied time frames were used to capture asthma events that occurred over irregular intervals and needed to be incorporated into the global assessment of asthma control and, at the same time, minimized recall bias. Although data about night-time symptoms were collected, an error in instrument development precluded use of these data. Parents were asked about their level of satisfaction with the asthma care received from the child's pediatrician and responded by using a Likert scale (poor, fair, good, very good, excellent).

Disease-specific quality of life (QoL) was measured for children and parents by using the Pediatric Asthma Quality of Life Questionnaire[10] and Pediatric Asthma Caregiver's Quality of Life Questionnaire,[11] respectively (with permission). For both instruments, answers were expressed on a 7-point scale, with a higher score indicating a better QoL.

Definitions

Use of Controller Medications

To assess use of controller medications, parents were asked, "Apart from albuterol and oral steroids, which medications has your child used for asthma in the past 7 days?" Parents provided the name, dose, and dosing frequency used. The step level of controller treatment was categorized by using the comparative daily doses for inhaled corticosteroid (ICS) and the definitions for stepped care provided in the National Asthma Education and Prevention Program (NAEPP) Guidelines (2002) current at the time of data collection.[12] Treatment was determined to be less than optimal if a child not well controlled was eligible to be increased 1 step level of controller medications. Consequently, children who were currently receiving maximal levels of ICS but were still poorly controlled were excluded from this subgroup analysis. Observations were excluded from the assessment of the stepped level of care if data about dose or dosing frequency were unavailable ($n = 25$), or the child's therapeutic regimen could not be classified within the guidelines ($n = 30$) (most often, this was because the child was receiving both fluticasone/salmeterol and montelukast, a combination not recognized in the 2002 asthma guidelines.)[12] Adherence was elicited by directly asking about the number of days in the past week the child received each medication and if the child sometimes missed a dose or a day of medication.

Asthma Control

Asthma control was assessed in terms of short-term morbidity and history of exacerbations (Table 1).[13] Short-term morbidity included the frequency of daytime symptoms and albuterol use in the past week and activity limitations in the past 2 weeks. History of exacerbations included oral steroid bursts in the past 3 months and ED visits or hospitalizations in the past 12 months. For each item, a 3-point scale was used to define children who were well controlled, partially controlled, and poorly controlled. The maximal score for any 1 of the 5 items was the child's overall level of control. During the period of data analysis, a draft of the 2007 NAEPP guidelines became available. This guideline introduced the terms "impairment" for short-term morbidity and "risk" for long-term morbidity.[13]

Data Analysis

Demographic, family, and pediatric practice characteristics were evaluated as predictors of partially and poorly controlled asthma. Continuous variables were reported as mean (SD) or median (range), and categorical data as proportions. In subgroup analyses, differences were compared by using the Student's t test, analysis of variance, Wilcoxon rank-sum test, χ^2 test, or Fisher's exact test as appropriate.

To identify variables that are independently associ-

TABLE 1 Definitions Used to Assess Level of Asthma Control

	Well Controlled	Partially Controlled	Poorly Controlled
Impairment			
Symptoms (daytime)[a]	≤2 d/wk	>2 d/wk, not daily	Daily
Interference with normal activity	None or ≤2 d/wk	3–4 d/wk	≥5 d/wk or missed school or had physical education restrictions
SABA use for symptom control[b]	None or ≤2 d/wk	3–6 d/wk	Daily use
Risk			
Oral corticosteroid use in past 3 mo, No. of courses	0–1	2–3	>3
ED visit or hospitalized in past 12 mo, No. of events	0–1	2–3	>3

[a] Symptoms: frequency of nighttime symptoms not available.
[b] Preexercise use excluded.

ated with the outcomes, we first performed univariate analysis, and then performed multivariate analysis. Because of the ordinality of our outcome (well controlled = 1, partially controlled = 2, and poorly controlled = 3), we used the mean score statistic to test the null hypothesis of no association versus the alternative hypothesis of a location difference among the different levels of nominal categorical variables. The statistical significance was determined by χ^2 distribution with (s-1) degree of freedom, where s is the number of nominal categorical levels. For ordinal categorical variables, we used the correlation statistic to test the null hypothesis of no association versus the alternative hypothesis of linear association between these variables and outcomes. The statistical significance was determined by χ^2 distribution with 1 degree of freedom. For the multivariate analyses, we selected the variables with a P value of ≤.2 in the univariate analysis and the variables thought to be clinically important as the candidates for stepwise procedure. Finally, interactions were tested among those variables selected through the stepwise procedure. The proportional odd assumption for variables retained in the model was examined by using the score statistic.

A probability of $P < .05$ (2-tailed) was used to establish statistical significance with all tests. All statistical analyses were performed by using Stata 9.2 (Stata Corp, College Station, TX) or SAS 9.2 (SAS Institute, Inc, Cary, NC).

RESULTS

Patient and Family Characteristics

Of the 362 survey respondents, 94% were mothers. The children were school age (5–12 years of age), 62% were males, and 61% were white (Table 2). All had a history of symptoms consistent with persistent asthma,[12] with a median duration of diagnosis of 5 years (range: 1–12 years).

The families generally resided in suburban areas and all had access to pediatric care with 73% having commercial health insurance and 22% Medicaid (Table 2). Five percent had "other" forms of insurance or were self-pay. The majority (71%) of families were headed by 2 parents. Eighty-two percent of respondents had some college education with 41% holding a college/postgraduate degree. Seventy-two percent of respondents were employed outside the home, either part time or full time. Asthma was also a common occurrence within the family, with 53% of families having another member with asthma.

Asthma Morbidity

Impairment

The degree of short-term asthma morbidity was substantial. In the previous week, daily or continuous symptoms were present in 20% of children: 18% were using albuterol for symptoms 3 to 6 days per week and 17% were using albuterol daily; 19% were limited in their normal daily activities for at least 5 days. For the 326 children who attended school, 26% of mothers reported their children were absent from school within the previous 2 weeks (median: 2 days [range: 0.5–9.0 days]), and 27% reported restrictions in physical education (median: 2 days [range: 1–14 days]). In the previous 2 weeks, 19% of caregivers missed work because of the child's asthma symptoms (median: 2 days [range: 1–8 days]).

Risk

Many children had a history of a recent exacerbation: 183 (51%) children had received 1 or more courses of oral corticosteroids in the past 3 months, 59% had ≥1 ED visit, and 10% had been hospitalized for an asthma exacerbation in the past 12 months (Table 3).

Level of Control

Eighty-seven (24%) of the children were well-controlled, 71 (20%) were partially controlled, and 204 (56%) were poorly controlled (Table 3).

Quality of Life

Asthma-related QoL scores for both parents and children were high. The mean (SD) overall score for parents was 5.8 (1.2) and for children was 5.7 (1.0). Overall QoL scores varied significantly by level of asthma control, for both parents and children, ($P < .05$, analysis of variance). For children categorized as well-controlled, partially controlled, and poorly controlled, the mean (SD) QoL scores were 6.5 (0.5), 6.2 (0.9), and 5.4 (1.3) for parents and 6.1 (0.9), 5.7 (1.0), and 5.5 (1.1) for children, respectively.

TABLE 2 Baseline Patient and Family Characteristics of 362 Participants

Characteristic	Value
Patient characteristics	
Male gender, *n* (%)	224 (62)
Age, median (range), y	7.7 (5–12.9)
Race/ethnicity	
White, *n* (%)	220 (61)
Black, *n* (%)	116 (32)
Hispanic, *n* (%)	9 (2)
Other, *n* (%)	22 (6)
Missing, *n* (%)	4 (1)
Attends school	332 (92)
School, *n* (%)	326 (90)
Home school, *n* (%)	8 (2)
Day care, *n* (%)	12 (6)
Family characteristics	
Health insurance	
Commercial insurance, *n* (%)	264 (73)
Medicaid insurance, *n* (%)	79 (22)
Self-pay, *n* (%)	10 (3)
Other, *n* (%)	7 (2)
Missing, *n* (%)	2 (1)
Household	
2 parent, *n* (%)	258 (71)
1 parent, *n* (%)	97 (27)
Other, *n* (%)	5 (1)
Respondent's employment[a]	
Stay at home, *n* (%)	98 (27)
Part-time, *n* (%)	77 (21)
Full-time, *n* (%)	184 (51)
Respondent's education[a]	
Completed high school or less, *n* (%)	64 (18)
Any college, college graduate, or postgraduate degree, *n* (%)	294 (82)
Family member with asthma, *n* (%)	191 (53)
Respondent with asthma, *n* (%)	67 (19)
Tobacco exposure in home, *n* (%)	88 (24)
Asthma management	
Contacts/visits for asthma symptoms in previous 2 wk	
Called office, *n* (%)	71 (20)
Office visit, *n* (%)	22 (6)
Urgent care/ED, *n* (%)	15 (4)
Hospitalized, *n* (%)	4 (1)
Routine asthma care in previous 6 mo, *n* (%)[b]	173 (48)
Supervision/teaching	
AAP	
Ever received, *n* (%)	235 (65)
Last updated	
Past 6 mo, *n* (%)	115 (49)
6–12 mo, *n* (%)	68 (29)
>12 mo, *n* (%)	52 (22)
Inhaler use observed, *n* (%)	200 (55)
Ever discussed early signs, *n* (%)	238 (66)
Ever seen an asthma specialist, *n* (%)	137 (38)
Satisfaction with care	
Poor, *n* (%)	8 (2)
Fair, *n* (%)	33 (9)
Good, *n* (%)	66 (18)
Very good, *n* (%)	111 (31)
Excellent, *n* (%)	139 (39)
Influenza immunization in past winter, *n* (%)	215 (59)
Asthma-related quality of life scores	
Parent, mean, SD	5.8 (1.2)
Child, mean, SD	5.7 (1.0)

[a] Of the respondents, 94% were the child's mother.
[b] Visits for asthma when asthma was under control.

TABLE 3 Asthma Morbidity and Level of Asthma Control Assessed From Parent-Reported Data for 362 Children

	Well Controlled	Partially Controlled	Poorly Controlled
	n (%)	*n* (%)	*n* (%)
Impairment: short-term assessment			
Symptoms (daytime)[a]	210 (58)	78 (22)	74 (20)
Interference with normal activity	178 (49)	17 (5)	167 (46)
SABA use for symptom control[b]	234 (65)	66 (18)	62 (17)
Risk: long-term assessment			
Oral corticosteroid use in past 3 mo	311 (86)	45 (12)	6 (2)
ED visit or hospitalized in past 12 mo	238 (66)	92 (25)	32 (9)
Control level[c]	87 (24)	71 (20)	204 (56)

Shown is the level of control for each individual component of impairment and for risk.
[a] Symptoms: frequency of nighttime symptoms not available.
[b] Preexercise use excluded.
[c] The control level uses the maximal score for any 1 of the 5 items, namely, symptoms, activity limitations, albuterol use, oral steroid bursts, and ED visits/hospitalizations; reported as *n* (%) of the study population of 362 children. (Refer to Table 1 for definitions of control.)

Medications

Two hundred seventy-five (76%) children reported using a controller/maintenance medication in the week before the interview (Table 4). Two hundred nineteen (60%) were using an ICS either alone (66) or in combination with salmeterol (52), montelukast (50), or both (48), or with other controller medications (3). Fifty-five (15%) children used montelukast alone and 1 used sodium cromolyn.

Stepped Management

Table 5 presents the controller medication, reported by the parent, categorized by the step level outlined in the 2002 guidelines.[12] Of the 307 children included in this subgroup analysis, 87 (28%) were not taking controller medications, 65 (75%) of whom had partially or poorly controlled asthma. Among the 29 children receiving maximal therapy, 24 (83%) were still only partially or poorly controlled. These 24 children were excluded from the analysis assessing the adequacy of the child's stepped level of treatment. Of the remaining 283 children, 209

TABLE 4 Use of Asthma Controller Medications by Children Reported by 362 Families

Medication	*n* (%)
Any controller	275 (76)
ICS alone	66 (18)
Montelukast alone	55 (15)
Fluticasone/salmeterol	52 (14)
ICS with montelukast	50 (14)
Fluticasone/salmeterol, montelukast	48 (13)
Cromolyn	1
Other combinations of multiple medications	3

TABLE 5 Relationship Between Level of Control and Stepped Controller Use in a Subgroup of 307 Children

Stepped Level of Controller Medication Used[b]	Level of Asthma Control, *n* (%)[a]			Total
	Well Controlled	Partially Controlled	Poorly Controlled	
No controllers	22 (25)	18 (21)	47 (54)	87 (100)
Step 2	27 (33)	17 (21)	37 (46)	81 (100)
Step 3	20 (18)	25 (23)	65 (59)	110 (100)
Step 4	5 (17)	6 (21)	18 (62)	29 (100)
Total	74 (24)	66 (22)	167 (54)	307

Twenty-five children were excluded from the analysis because of inadequate data to assess stepped level of care, and 30 were excluded because their treatment could not be classified per guideline treatment recommendations.

[a] The columns report the distribution of the level of control for participants on that level of control. The level of control was calculated by using self-reported data about short-term morbidity and history of exacerbations (see Table 1 for details).[7,13]

[b] Stepped level of care was calculated for self-reported medication use in past 7 days by using the 2002 guidelines.[12]

(74%) were not well-controlled, although 196 (69%) reported daily use of controller medications.

Adherence

We asked parents, "In the past 7 days, what medications apart from oral steroids and albuterol has your child taken for asthma?" This was followed by questions related to missed doses and days for each individual medication. The overall parent-reported usage of controller medications in the 7 days preceding the interview was high. Eighty-nine percent of parents reported that their child was using an ICS and received the medication for ≥5 days/week, as did 94% of those treated with montelukast.

Office and Home Management Practices

Access to primary care was readily available. In the 2 weeks before the telephone interview, 20% of parents had called their pediatrician's office because of asthma symptoms with calls ranging from 1 to 10 calls within that period (Table 2). Seventeen percent of parents telephoned for advice on multiple occasions after hours. In the previous 2 weeks, 41 (11%) of the children visited a health care provider for emergent asthma care because symptoms were not controlled (16 at the primary care office only, 8 at the office and ED, 13 ED only, 4 ED with a hospitalization). When respondents were asked to rate the overall quality of asthma care by the pediatrician, 70% responded that it was "very good" or "excellent."

A routine asthma care visit in the past 6 months occurred for 173 (48%) children (Table 2). Within this group, 58% were seen at the pediatrician's office, and 41% were seen by an asthma specialist. Although 235 (65%) had at one time received an AAP, only 49% (115 of 235) of this group had the AAP updated in the past 6 months. Sixty-six percent of parents reported they had talked to the pediatrician regarding their child's early warning signs of asthma, and 55% reported that their child had ever been observed using their inhaled medications by their physician or nurse.

TABLE 6 Univariate Analysis of the Relationship Between Demographic and Asthma-Related Factors With Level of Control in 362 Children

	n	Well Controlled, %	Partial Control, %	Poor Control, %	*P*
Total sample	362	24	20	56	—
Medicaid	79	13	23	65	.0166
Someone else at home has asthma	191	18	23	60	.0168
Respondent works outside the home	98	16	19	64	.0249
Single parent	97	22	12	66	.0597
Male	224	23	19	58	.39
Black	116	22	22	56	.65
Respondent's education high school or less	64	19	20	61	.26
Asthma action plan	235	23	18	59	.43
Maintenance visit in past 6 mo	173	25	16	59	.79
Inhaler use was observed	200	24	21	56	.96
Cigarette smoking in home	88	23	16	61	.50

Predictors of Poor Control

The results of the univariable analyses are provided in Table 6. Three variables were significant in the association with poorly controlled asthma: Medicaid insurance ($\chi^2_2 = 7.32$; $P = .0166$); homes where the mother worked full time or part time outside of the home ($\chi^2_2 = 5.15$; $P = .025$); and the presence of another family member in the home with asthma ($\chi^2_2 = 9.35$; $P = .017$). In the multivariate analysis, Medicaid insurance was the only independent factor associated with poorly controlled asthma. Children with Medicaid insurance were less likely to be well controlled (odds ratio: 0.489; 95% confidence interval: 0.276–0.865). Removing Medicaid insurance from the multivariate models failed to identify any other statistically significant independent predictors of poorly controlled asthma.

DISCUSSION

Asthma morbidity was significant in this cohort of children from the general asthma population. Although the cohort was identified through contact with a telephone triage service for asthma care, the time between the index call and the baseline interview was adequate to assume that these reported data represented the child's usual state of control. It is disconcerting to see the degree of activity limitations and missed school and work days that persist for families with asthma, despite widespread availability of effective therapy. Activity limitations, commonly used by patients and their parents to minimize asthma symptoms,[7] accounted for the largest group of children classified as poorly controlled in this population. These limitations may not be identified unless specific questions are asked, causing asthma control to be overestimated and the prescribed step level of medication suboptimal.[14]

We identified several factors associated with poorly controlled asthma. Medicaid health insurance, another family member with asthma, and the mother working part time or full time outside the home were associated with poorly controlled asthma in the univariate analyses, and Medicaid health insurance was an independent predictor. That family issues may be related to poorly controlled asthma has been noted previously.[15] Someone else in the family with asthma, single parenting, and mothers working outside the home suggest competing priorities that interfere with parental knowledge of their child's level of asthma control, daily use of controller medications, and opportunities for asthma monitoring visits. These factors may be used to identify families that may benefit from more frequent monitoring contacts and additional support and education to augment effective home management of their child's asthma.

Inhaled corticosteroids and montelukast were more widely prescribed in the study cohort than reported in earlier studies,[6,9,16] indicating the increased awareness of the need for daily controller therapy, rather than short-acting β agonists (SABAs), to reduce exacerbations. However, many children remained symptomatic despite use of effective controller medications. Although self-reported adherence for these medications was high, it is well recognized that there are serious discrepancies between reported and actual medication use.[17–19] It is also possible, that after initiating daily controller use, there may not have been sufficient monitoring and follow-up to ensure the child's step level of controller medication was adequate for optimal control.[6,12,15,16,20,21]

Asthma maintenance visits were infrequent in the study population. Parents may not recognize the need for maintenance visits and resist follow-up when their child is "doing well." In addition, they may have low expectations for asthma control,[15,20,22] accepting the child's limitations as "unavoidable consequences of the their disease."[9] Parents may also not see the value of regular checkups if they are hesitant to accept a diagnosis of asthma as a chronic disease, and may also underreport the asthma status of their child.[23] These factors may explain why most parents reported a high degree of satisfaction with their child's asthma care despite high levels of asthma morbidity.

We acknowledge several limitations to our study. We used self-reported data and did not confirm data accuracy. We used a short timeframe to limit recall bias.[13] Acute exacerbations serious enough to require an ED visit or hospitalization are likely to be memorable events. We did not use office charts to confirm these data, but these records are often incomplete.[24] Our method to assess the level of asthma control has not been validated but is similar to the methodology proposed by Fuhlbrigge et al[7] and is consistent with the approach used in the 2007 NAEPP guidelines.[13] Unfortunately, we were unable to include nighttime symptoms in our control assessment because of an error in the response scale. This omission is likely to result in underestimation of the extent of partially or poorly controlled asthma.[25]

CONCLUSIONS

Our findings have implications for maintenance asthma care provided by community pediatricians. Despite widespread use of ICS and montelukast as controller medications, many patients are not using the appropriate step level of controller medications to fully control symptoms. Economic factors, family priorities, parent undervaluation of their child's symptoms, and lack of adequate monitoring and follow-up by the parent and the primary care physician may all play a role in not meeting the expectation of adequate treatment and reduced morbidity. Interventions for parents and physicians are needed to enable the goals of effective therapy to be met.

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"More than 17 000 police patrol school hallways nationwide, a big increase from even 10 years ago. There is little question that the police have made many schools safer. There is also growing concern that the larger number of police, plus zero-tolerance policies at many schools, has led to unnecessary arrests. While some arrests involve serious offenses—like carrying weapons—most involve fighting, disrupting a classroom or some similar disturbance that in the past might have led to a trip to the principal's office or suspension. Often the arrested students suffer from learning disabilities or mental health problems that, if addressed, could alleviate the behavior that got them in trouble in the first place. With this as a backdrop, the American Civil Liberties Union and its Connecticut affiliate examined school-based arrests in Hartford and the suburban districts of West Hartford and East Hartford between 2004 and 2007. It found that in West Hartford and East Hartford, minorities were far more likely to be arrested than white students who committed the same infraction. In Hartford's overwhelmingly minority school system, police arrested students at disturbingly young ages: 86 primary grade children in one two-year period, including 13 in grade three or below. Connecticut is hardly the only state struggling with these issues. In 2006, a Florida kindergarten student was arrested for throwing a tantrum. Last year, the ACLU devoted a special report to police behavior in New York City schools, and found much to criticize."

Editorial. *New York Times*. January 4, 2009
Noted by JFL, MD

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