



## *EVALUATION BRIEF*



DEBRA HEATH

AUGUST 2007

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# **APS ASTHMA PROGRAM EVALUATION YEAR FOUR • 2006 – 2007**

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## **BACKGROUND**

Asthma is estimated to affect over seven percent of children in New Mexico and is a leading cause of missed school days. The Health and Wellness department of Albuquerque Public Schools (APS) initiated the Coordinated School Health Program for Asthma in the fall of 2003, with multi-year funding from the Centers for Disease Control and Prevention. The program aims to improve asthma management and reduce absenteeism. In 2006-07, all 84 APS elementary schools participated in the asthma program.

This brief summarizes evaluation results from the program's fourth year of implementation. APS' Research, Development and Accountability department (RDA) evaluated progress related to the following goals: (1) identify students with asthma, (2) improve students' asthma-related knowledge, attitudes and skills, (3) improve health care access, (4) expand health insurance coverage, and (5) reduce absenteeism due to asthma.

## **DATA COLLECTION**

For every identified student with asthma, school nurses collected health information from the emergency cards parents submitted at registration and from direct parent contacts. Information included students' health insurance and health care providers, medication use and asthma diagnosis sources. Nurses entered the information onto program checklists and delivered them to the district's Health and Wellness department. Throughout the year, nurses contacted teachers, parents and students to verify absences and reasons for those absences, as well as to update other health information.

## **RESULTS**

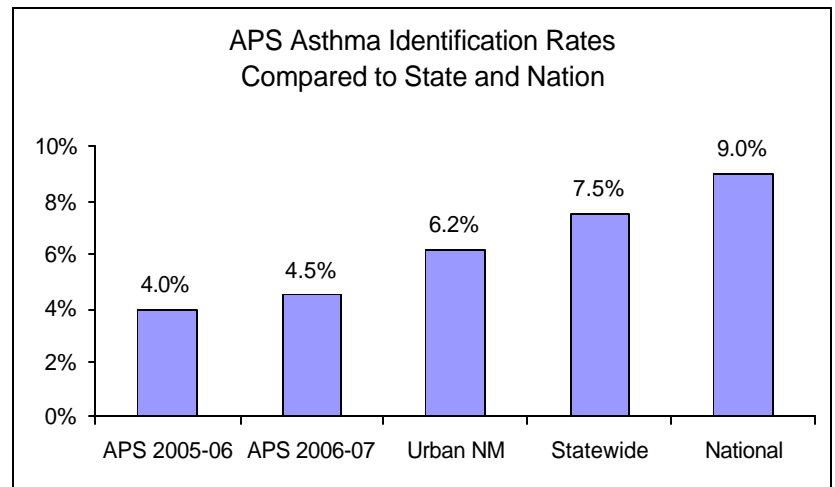
### **Goal 1: Identify Students with Asthma**

The asthma program strives to identify all students with asthma so they can be educated, monitored and connected with appropriate services. In 2006-07, the asthma program expanded to 30 additional schools, increasing school and student participation by 60% compared to 2005-06.

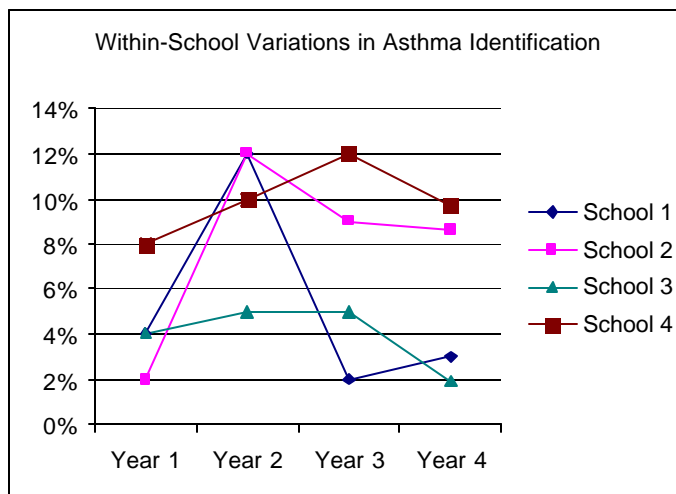
Successfully identifying all students with asthma within a school depends largely on parents and individual school nurses. Parents are asked to report their children's asthma on emergency cards when they register for school. School nurses verify emergency card information, pursue other evidence of asthma, and collect additional information essential for understanding and managing students' health.

Data from 2006-07 suggest that parent underreporting continues to pose a significant challenge to asthma identification. A 2001 study at three APS schools suggested that asthma prevalence may be as high as fifteen percent.<sup>1</sup> APS' average asthma identification rates in 2005-06 (4.0%) and 2006-07 (4.5%) were much lower than this and than other rates found in the larger community:

- 6.2% among public elementary school students in urban core areas of New Mexico;
- 7.5 % for children statewide;<sup>2</sup>
- 9% for children nationwide.



Asthma identification rates continued to vary widely, across schools, within schools across years, and for every program cohort.



For example, at one school four percent of students were identified with asthma in 2003-04, 12 percent in 2004-05, two percent in 2005-06 and three percent in 2006-07. School mobility alone is unlikely to produce such marked variations. Furthermore, each program cohort had schools with asthma identification rates as low as 1% or 2%, as well as schools with rates as high as eight to ten percent. Program staff attribute rate variations to varying levels of program implementation by school nurses. RDA recommends studying this in the 2008 evaluation.

**Goal 2: Improve students' asthma-related knowledge, attitudes and skills.**

APS nurses and American Lung Association (ALA) staff delivered the six-session Open Airways asthma education curriculum in 84 schools in 2006-07. They reached 433 third through fifth grade students, almost double the number of children reached in 2005-06 (236).

<sup>1</sup> Albuquerque Environmental Health Department, 2001.

<sup>2</sup> Hubbard G, The Burden of Asthma in New Mexico – 2006 Surveillance Report, New Mexico Department of Health, Epidemiology Bureau. 'Urban core area' is defined as continuously built-up areas with populations of 50,000 or more.

Results from the ALA Open Airways pre- and post-test questionnaires showed statistically significant increases in students' knowledge and ability to:

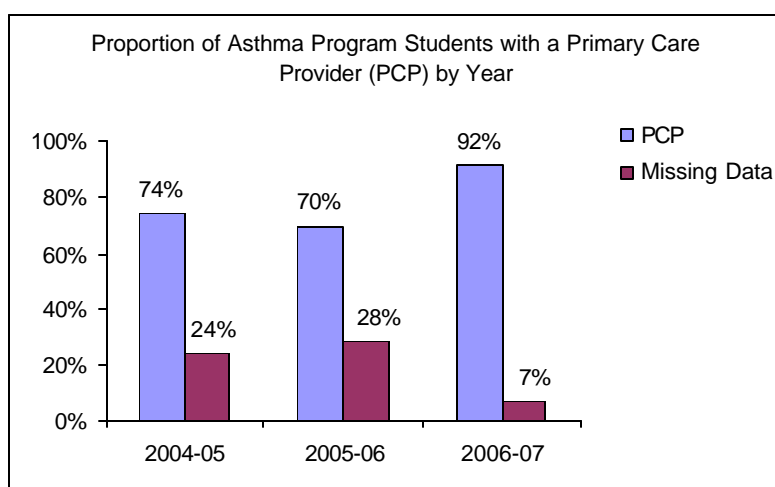
- Take asthma medicine appropriately;
- Handle asthma episodes;
- Recognize asthma triggers;
- Judge the severity of asthma episodes; and
- Talk to teaches about asthma and removing triggers from the classroom.

About three-quarters or more of respondents reported possessing the knowledge and ability to manage their asthma by the end of the Open Airways program. The proportion of students who indicated they were happy or very happy about having asthma increased to 53% at post-test from 33 percent at pre-test ( $p < .05$ ).

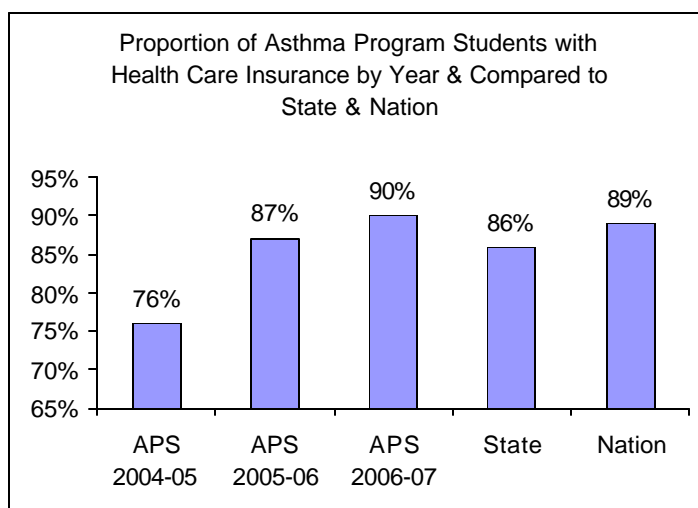
**Goal 3: Improve health care access.**

One of the asthma program's goals is to ensure that all students with asthma have access to health care provided by a primary care provider (PCP). In 2006-07, the proportion of students reported to have a PCP jumped significantly, to 92% from 70% in 2005-06.

Some of the increase may be due to the 21 percentage point improvement in data completion. Just as possibly the increase may reflect real improvements in health care access.



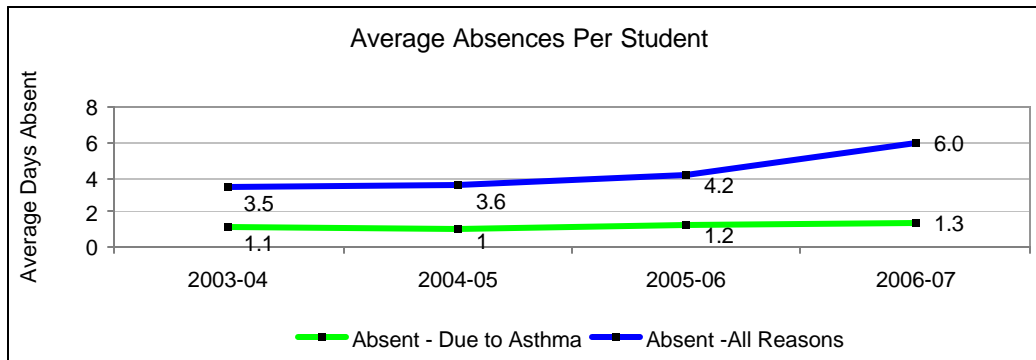
**Goal 4: Expand health insurance coverage.**



The asthma program works to ensure that every student has health care insurance coverage. Analyses of data collected by school nurses suggest that health care insurance coverage improved. In 2006-07, 90% of students identified with asthma were known to be covered by insurance. This was slightly more than in 2005-06 (87%) and markedly more than in 2004-05, when only 76 percent of students reportedly had health insurance coverage.

### Goal 5: Reduce absenteeism due to asthma.

Data collected during 2006-07 suggest that absences due to asthma remained stable, averaging one day per student, while total absences increased from 4.2 to 6 days. Asthma program students missed an average of 1.3 days of school due to asthma in 2006-07, similar to the preceding three years, and lower than national figures (3 to 4 days).



Different analyses of the same data suggest that the proportion of students absent at least one day due to asthma may have increased. However total reported absences increased proportionately.

- 43% of program students had at least one absence attributed to asthma in 2006-07, 14 percentage points higher than both 2005-06 and 2004-05 (29%). Similarly, the proportion of program students with reported absences due to any reason was 85% in 2006-07 compared to 69% in 2004-05 and 70% in 2005-06.

Changes in asthma tracking methods may be responsible for these apparent increases.<sup>3</sup> Additional years of data obtained through consistent methods are necessary for drawing conclusions about the program's effect on attendance.

### Success Factors and Recommendations

The length of a school's participation in the asthma program does not appear to affect either asthma identification or asthma-related absenteeism. Fidelity of implementation by individual nurses may be the most likely predictor of program success. Relatedly, the district's increased monitoring and training of school nurses during 2006-07 may explain high rates of data completion and low asthma-related absence rates even among schools in their first year of program participation.

Program staff suggest other possible predictors of absenteeism, including medication use. If absenteeism is lower among students who use controller medications, education and advocacy to promote medication use may be warranted. RDA recommends investigating the predictive value of these and other factors in the 2007-08 evaluation.

<sup>3</sup> In 2006-07 the APS asthma program office started using the district's new student information system, SchoolMax, to monitor and enforce absence tracking and reporting by school nurses.

ALBUQUERQUE PUBLIC SCHOOLS

# APS Asthma Program Evaluation

2005-2006

May 2006  
Arlana Bobo Peterson M.P.H.



# ALBUQUERQUE PUBLIC SCHOOLS

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# **Executive Summary**

## **APS Asthma Program Evaluation**

### **Year 3, 2005-06 School Year**

The APS Asthma Program was initiated at Albuquerque Public Schools (APS) in the Fall of 2003. The program is a multi-year project funded by the Centers for Disease Control and Prevention (CDC). The goals of the program are to: educate students, families and schools about asthma; provide health services to students with asthma; and reduce absenteeism for students with asthma. Although these goals sound simple, they require nurses to conceptualize their job roles in new ways and see themselves as part of system-wide change. In 2005-06, 54 schools participate in the asthma program.

#### **Goal: Provide student education**

- Students participating in the Open Airways curriculum showed statistically significant increases in knowledge about asthma, self-management, and asthma triggers.

#### **Goal: Reduce absences**

- On average, students miss about 4 days from school for any reason during the reporting period. Roughly 1 of those days is due to asthma.
- Although there is a slight *increase* in total days absent over time, the increase is not statistically significant.
- Asthma-related absences stay about the same (1.1 days to 1.2 days).
- For schools involved in the program since its inception in 2003 (cohort 1), the *proportion of total absences due to asthma* decreased significantly. In cohort 1, 39% of the overall absences were due to asthma in year 1, but only 26% were due to asthma in year 3.

#### **Goal: Provide health services**

- The percent of students identified with asthma per school is lower than last year and lower than the national average. Four percent of the student population was identified with asthma, compared to 8-12% at the national level. This may be due to differences in reporting (e.g., phone interview vs. nurse identification).
- The percent of students identified with asthma at each school ranges from 1% to 12%.
- 87% of our students were covered by health insurance at the end of the year, up 11% from last year.
- 13% of our population is uninsured<sup>1</sup>, compared to 16% at the state and 9.2% at the national level.

Stories from the field were collected using the Most Significant Change (MSC) technique. They show:

- Asthma program nurses are part of system-wide change. Program nurses initiate more interaction with families, schools and the community around asthma issues.
- Students are being empowered to manage their own asthma. This new confidence positively impacts many students on both personal and academic levels.

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<sup>1</sup> “Uninsured” = missing data and those students marked “no” for both Medicaid and Private insurance.

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## **Asthma Program: Evaluation Results Year 3 (2005-06)**

### *Introduction*

The APS Asthma Program was initiated at Albuquerque Public Schools (APS) in the Fall of 2003. The program is a multi-year project funded by the Centers for Disease Control and Prevention (CDC). The goals of the program are to: educate students, families and schools about asthma; provide health services to students with asthma; and reduce absenteeism for students with asthma.

To meet these goals, nurses must be trained in best practices for asthma care and then teach students and families how to manage asthma on a daily basis. Although these goals sound simple, they require nurses to conceptualize their job roles in new ways and see themselves as part of system-wide change.

The beginning of the 2003-04 school year brought the implementation of the first wave of schools participating in the Asthma Program. The plan is to double enrollment in the program each year until all elementary schools in the district are participating. After attrition and difficulties with staffing shortages, there were 18 schools in 2003-04, 36 schools in 2004-05, and 54 schools in 2005-06.

Data collection and evaluation are integral to the APS asthma program. The evaluation assesses the extent to which program staff implement the program as intended (process evaluation) and the impact the program has on students (outcome evaluation). Process evaluation includes information about students being served by the program (number diagnosed, insurance coverage, access to care, medications used). Outcome evaluation assesses change in asthma-related knowledge and attendance of students in the program.

APS Research, Development & Accountability department (RDA) assists the asthma program with their evaluation. This report contains evaluation results for the 2005-06 school year. **These data provide evidence that the asthma program is reaching its goals of reducing absenteeism due to asthma and producing system-wide change.**

Program staff nurses utilize a program checklist to record basic information about students and to document which students have asthma. Health room staff at each school track absences on identified children and follow up after absences with teachers, parents, and students to record the reason(s) for the absence. Data are recorded on the back of the checklist and reported to project staff periodically throughout the school year. The checklist includes an assessment of the student's insurance status, primary care provider, and education requests by parents. Using these data, nurses are able to follow through with appropriate assessments, interventions and documentation.

Effectiveness of the asthma education and awareness component of the program was evaluated using the American Lung Association's (ALA) Open Airways for Schools Questionnaire. Participants completed this questionnaire at the start and end of the six-class program. The following section details findings from the program checklist and ALA pre-post questionnaire.

## *Limitations*

The checklist data is recorded by nurses and handed in periodically to district-level staff. To reduce error in data entry, district-level staff perform quality checks prior to each data download, and efforts to improve data collection at the school level are ongoing. Because the data analyzed here are collected specifically for the asthma program, another limitation is the lack of comparable data from non-intervention schools and students without asthma. When comparable data are available, we present these in the text.

Missing data limits one's ability to draw conclusions. Any conclusions that are made are untenable, or "shaky", because one cannot know what these missing data points might be. Last year, as much as 25% of the student-level data was missing for some questions on the asthma program checklist. With few exceptions, the amount of missing data this year decreased dramatically. This is an encouraging trend. We believe this success is due to a concentrated effort by program staff to educate nurses about the importance of filling in every item on the asthma program checklist. In particular, staff implored nurses to fill in the answers for the program's key outcome variables. Program staff will continue to work with nurses to ensure that an answer is written for every question on the program checklists.

### *Changes in Reporting*

Last year's report excluded the missing data in all calculations. A more accurate way of reporting is to include the missing data. This allows us to more accurately portray the results for *all* of our students. In this report, data from last year (2004-05) include all students in the program (even the missing data), so comparisons from year to year can be made.

## *Methods & Results*

### *Asthma-Related Behaviors and Attitudes*

The ALA Open Airways questionnaire contained standardized, quantifiable responses to questions designed to inventory changes in asthma-related personal health care behaviors and attitudes. Open Airways was administered to 236 children. Figure 1, "ALA Open Airways Questionnaire Results" displays results for the students completing the ALA pre-post questionnaires at the time of this report.

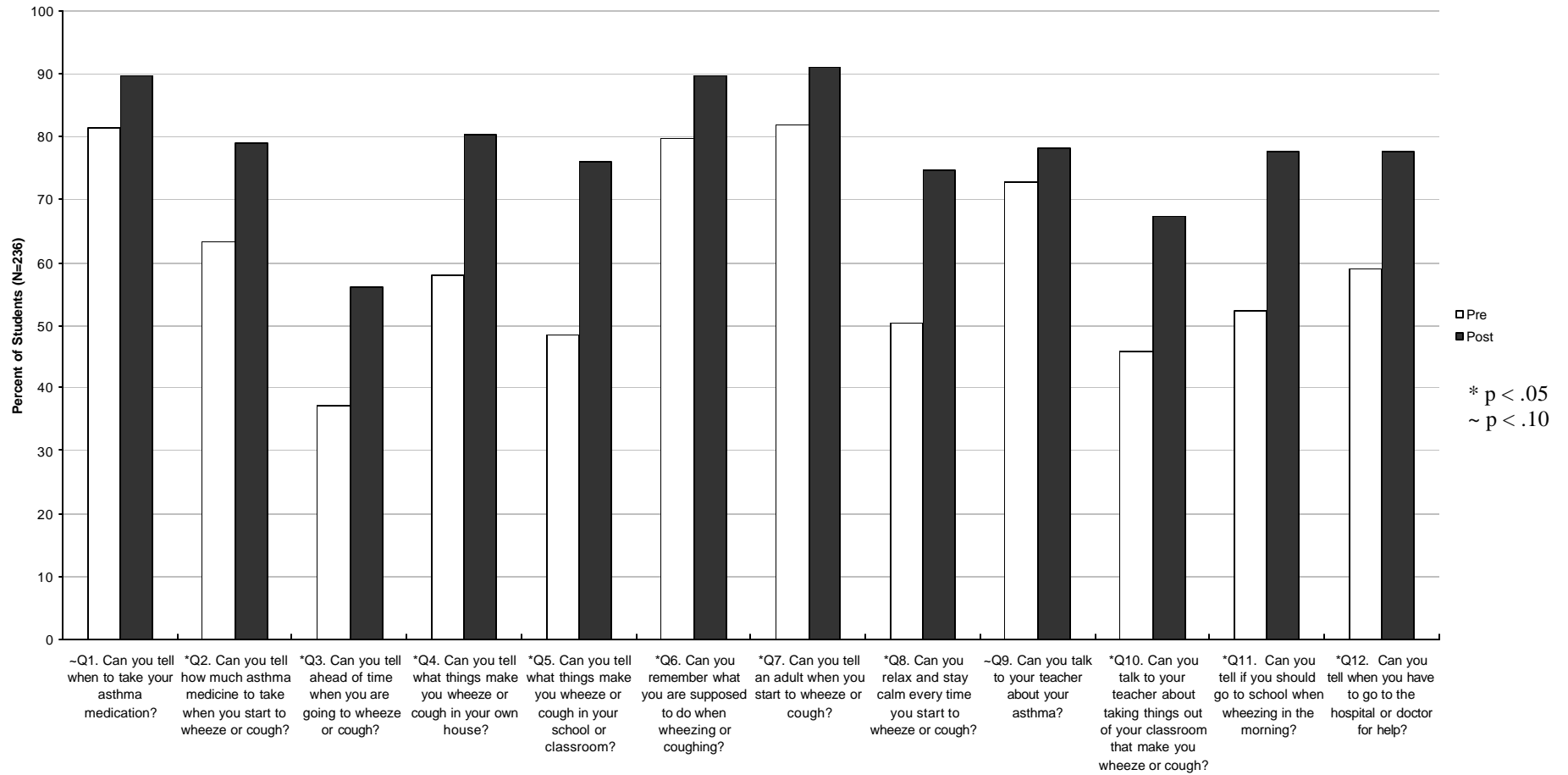
- Students participating in the Open Airways curriculum reported a statistically significant increase in knowledge about asthma, more self-management skills<sup>2</sup>, and better understanding of asthma triggers.
- Specifically, students reported statistically significant improvements ( $p < .05$ ) in their ability to recognize asthma triggers, identify severity of asthma episodes, and seek asthma management help from adults (questions 3 to 12).

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<sup>2</sup> Cross-tabulations were applied in SPSS 14.0 to each question on the ALA questionnaire. Two-way tables were generated for each of the 13 questions to determine if statistically significant differences were present using Pearson chi-square statistic.

- Students reported statistically significant improvements ( $p < .10$ ) in their knowledge about when and how much asthma medicine to take (question 1) and their ability to talk to their teacher about their asthma.

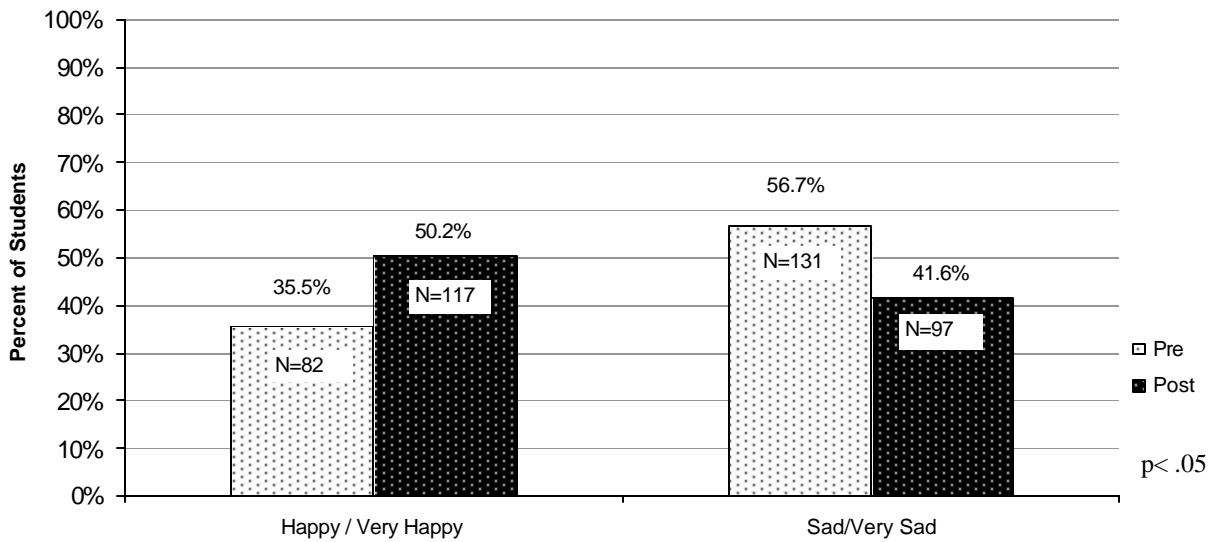
**Figure 1: ALA Open Airways Questionnaire Results**



Answers from question 13 suggest that the documented improvements in self-care practices (questions 1 to 12) may be of sufficient magnitude to favorably impact the students' overall attitude about having asthma.

As seen in the figure below, the number of students indicating they are either "happy" or "very happy" about having asthma increased from 82 (35.5%) to 117 (50.2%). The increase is statistically significant ( $p < .05$ ).

**Figure 2: How Students Feel About Their Asthma**



Q13. Circle the face that shows how you feel about having asthma  
Source: 2005-06 ALA Open Airways Questionnaire

### *Percent of Students with Asthma*

Table 1 shows the average identification rate of students with asthma for each program year and Cohort. Cohort 1 schools started the program in 2003-04. Cohort 2 schools started in 2004-05, and Cohort 3 started in 2005-06.

Figure 3, Figure 4, and Figure 5 display the percent of students with asthma as identified by the school nurses for schools in each Cohort. These numbers are also referred to as asthma identification rates. Percent of students with asthma were calculated as the number of students identified by the asthma program divided by the number of students enrolled at the 40-day reporting period, for each school.

The mean diagnosis rates for this year were: 4% overall, 5% for Cohort 1 and 4% for Cohorts 2 and 3.

- This does not support our hypothesis that the nurse's identification rates would rise to the level of the rates seen in our communities.

It is not unusual to see fluctuations in this type of data. We will follow these data over time to see if our identification rates increase, as the asthma management expertise of our nurse staff increases.

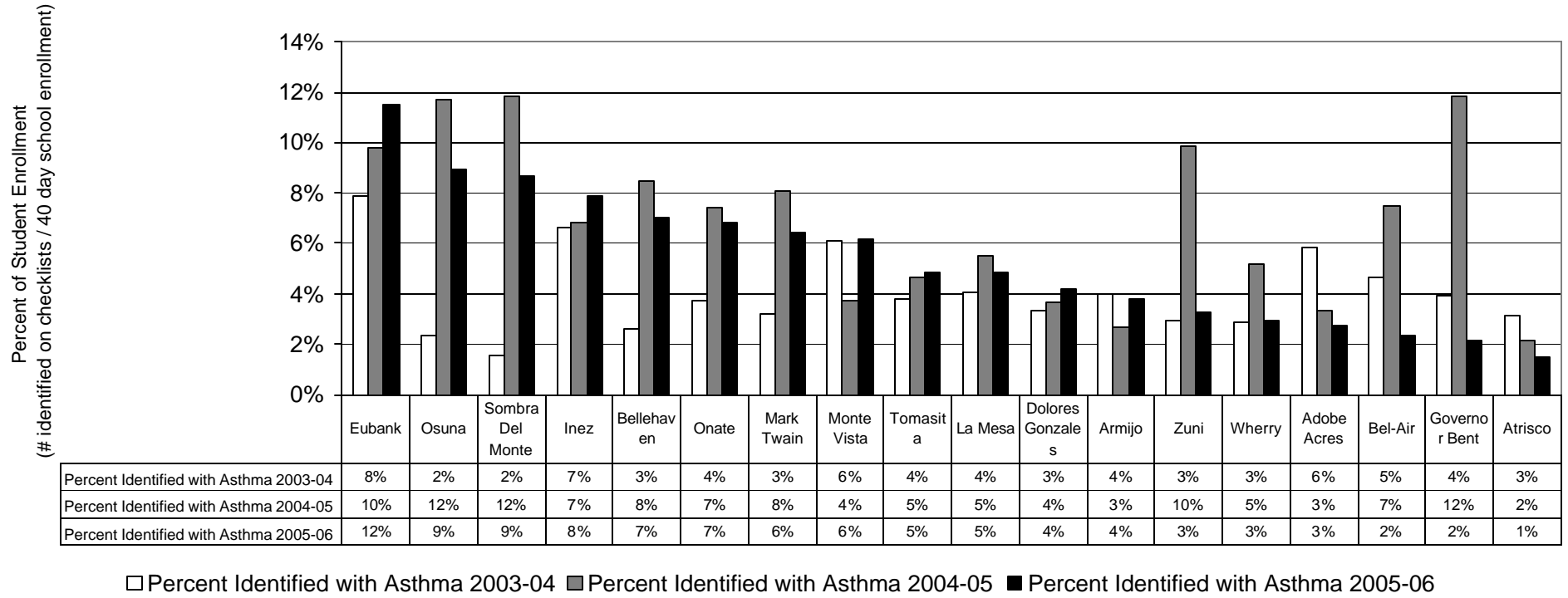
Trends over time:

- Percent of students with asthma for 2005-06 range from 1% to 12%. This is similar to last year's range.
- The overall rates this year are lower than last year and lower than the national averages of 8-12% as reported by the National Center for Health Statistics (Dey, Schiller & Tai, 2004).
- Cohort 1 continues to have the highest proportion of students identified with asthma, as compared to the other cohorts.

**Table 1: Percent of Students with Asthma by Program Year and Cohort**

	<b>Program Yr</b>		
	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
Cohort 1	4%	7%	5%
Cohort 2		5%	4%
Cohort 3			4%
<b>Overall</b>	<b>4%</b>	<b>6%</b>	<b>4%</b>

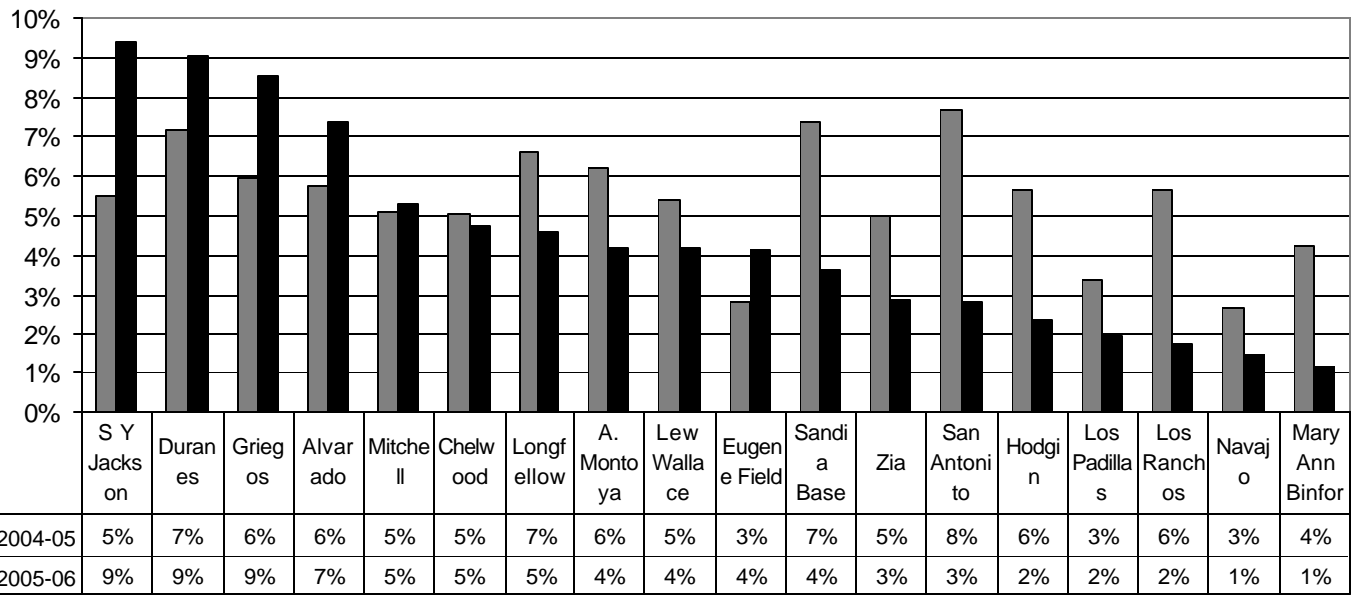
**Figure 3: Percent of Students Identified with Asthma by School – Cohort 1**



Source: APS Asthma Program Checklists

**Figure 4: Percent of Students Identified with Asthma by School – Cohort 2**

Percent of Student Enrollment  
 (# identified on checklists / 40 day school enrollment)

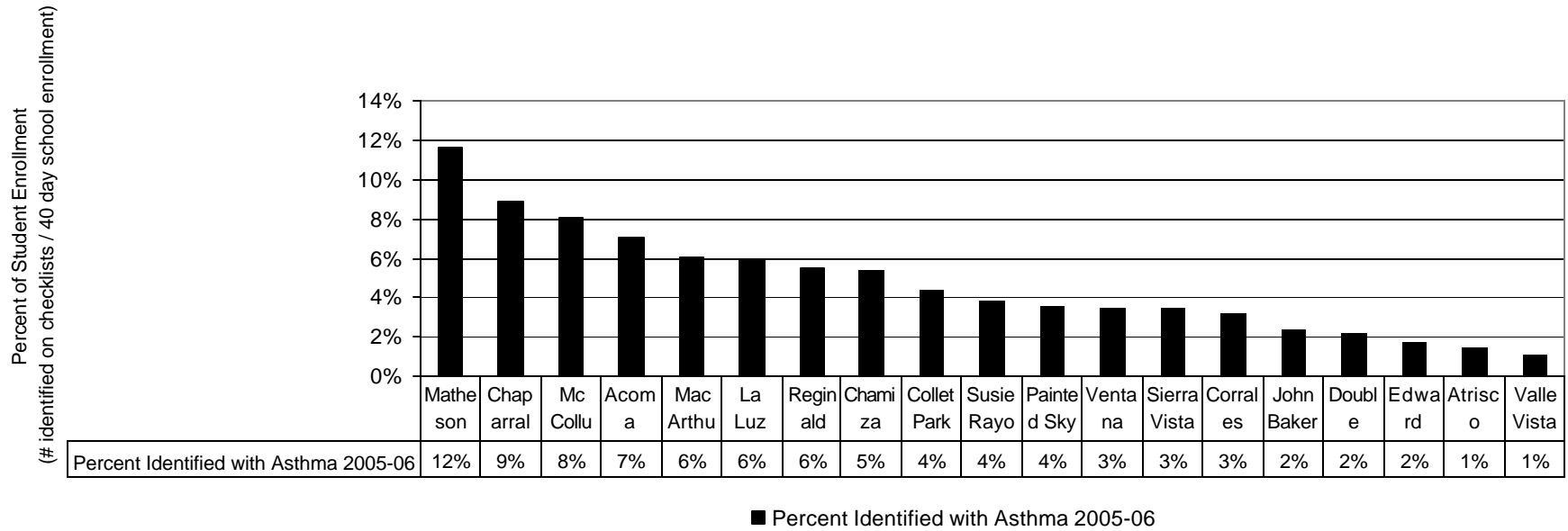


■ Percent Identified with Asthma 2004-05 ■ Percent Identified with Asthma 2005-06

Source: APS Asthma Program Checklists



**Figure 5: Percent of Students Identified with Asthma by School – Cohort 3**



Source: APS Asthma Program Checklists

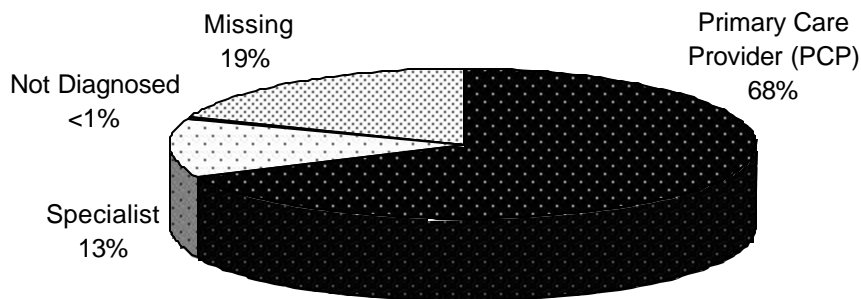
## Asthma Diagnosis

Number 9 on the program checklist asks, “Asthma diagnosed by”. The choices are: not diagnosed, PCP (primary care provider), and specialist. Nurses record this information on the Asthma Program Checklist. For a small proportion of students (less than 1%), asthma had not been diagnosed. It is difficult to define “not diagnosed”. It could be that the parent did not provide the nurse with this information. Or, it may be that a student had signs and symptoms of asthma, and the nurse filled out a checklist for them, based on information in the emergency card.

Trends over time:

- The proportion of students diagnosed by a specialist increased since last year.
- The primary care physician (PCP) continues to diagnose asthma in approximately 7 out of 10 students.

**Figure 6: Asthma Diagnosed by PCP, Specialist, or Not Diagnosed**



Q. 9 Asthma diagnosed by: ( ) Not Diagnosed ( ) PCP ( ) Specialist  
 Source: Self report from APS Asthma Program Checklist 2005-06, N=1229

**Table 2: Asthma diagnosed by PCD, Specialist, or Not Diagnosed – Yrs 2 and 3**

	Counts		Percents		Change
	2004-05	2005-06	2004-05	2005-06	
Primary Care Provider (PCP)	744	836	70.7%	68.0%	<b>-2.7%</b>
Specialist	56	155	5.3%	12.6%	<b>+7.3%</b>
Not Diagnosed	7	6	0.7%	0.5%	<b>-0.2%</b>
Missing	245	232	23.3%	18.9%	<b>-4.4%</b>
Total	1052	1229	100%	100%	

### Health Care Utilization

One of the asthma program goals is to ensure that all students have access to health care and have their asthma under control. Ideally, students whose asthma is under control will:

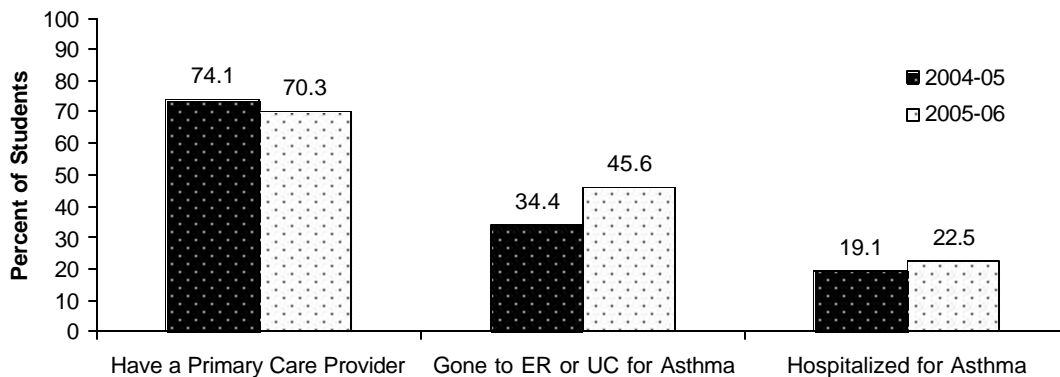
- Have a primary care provider
- Have no visits to the ER or urgent care clinic for asthma and
- Have no hospitalizations due to asthma.

Trends over time:

- While 70% of students have a primary care provider (PCP), this is lower than last year.
- More students have ER visits and hospitalizations for asthma this year than last year.
- Similar to last year, about 1 in 4 students report ever being hospitalized for asthma.

These numbers are down slightly from last year, but may be due to an increase in missing data for the PCP question. More of these data are filled in each year on the checklists, and not left blank. This is an encouraging trend. We believe this success is due to a concentrated effort by program staff to educate nurses about the importance of filling in each data point for each child. Program staff will continue to educate nurses about the need to gather all information for the students.

**Figure 7: Health Care Utilization for Yr 2 and Yr 3**



Source: Self report from APS Asthma Program Checklist 2004-05 (N=1052) and 2005-06 (N=1229)

**Table 3: Health Care Utilization for Yr 2 and Yr 3**

	Counts		Percents		Change	Percent Missing		Change
	2004-05	2005-06	2004-05	2005-06		2004-05	2005-06	
Have a Primary Care Provider	780	864	74.1%	70.3%	<b>-3.8%</b>	23.5%	28.3%	4.8%
Gone to ER or UC for Asthma	362	561	34.4%	45.6%	<b>+11.2%</b>	29.4%	16.7%	-12.7%
Hospitalized for Asthma	201	276	19.1%	22.5%	<b>+3.4%</b>	29.0%	17.5%	-11.5%

Source: Self report from APS Asthma Program Checklist 2005-06

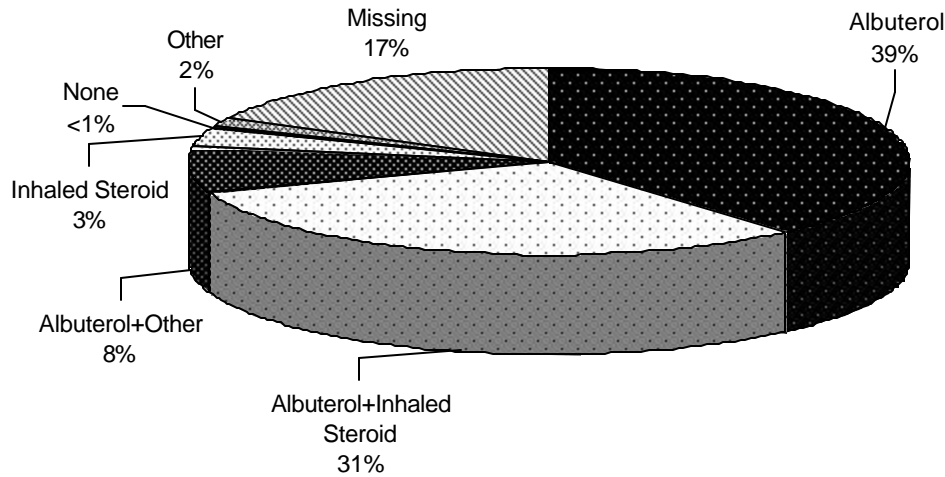
*Asthma Medications*

Medication information is used to help nurses determine the level of asthma severity for the child. Persistent asthma frequently requires daily controller medication such as an inhaled steroid. Students with mild intermittent asthma may only be prescribed a rescue or quick relief medication such as albuterol or Proventil.

Trends over time:

- An 11% increase in the use of albuterol and inhaled steroids since last year shows an increased awareness by providers of the need for a controller medication in order to manage asthma.

**Figure 8: Medications Used by Students in Asthma Program**



“What medication does your child take for asthma?”  
 Source: Self report from APS Asthma Program Checklist 2005-06, N=1229

**Table 4: Medications Taken Yr 2 and Yr 3**

	Counts		Percent		Change
	2004-05	2005-06	2004-05	2005-06	
Albuterol	373	474	35%	39%	4%
Albuterol+Inhaled Steroid	214	380	20%	31%	11%
Albuterol+Other	165	99	16%	8%	-8%
Inhaled Steroid	22	39	2%	3%	1%
None	0	4	0%	0%	0%
Other	27	23	3%	2%	-1%
Missing	252	210	24%	17%	-7%
Total	1053	1229	100%	100%	

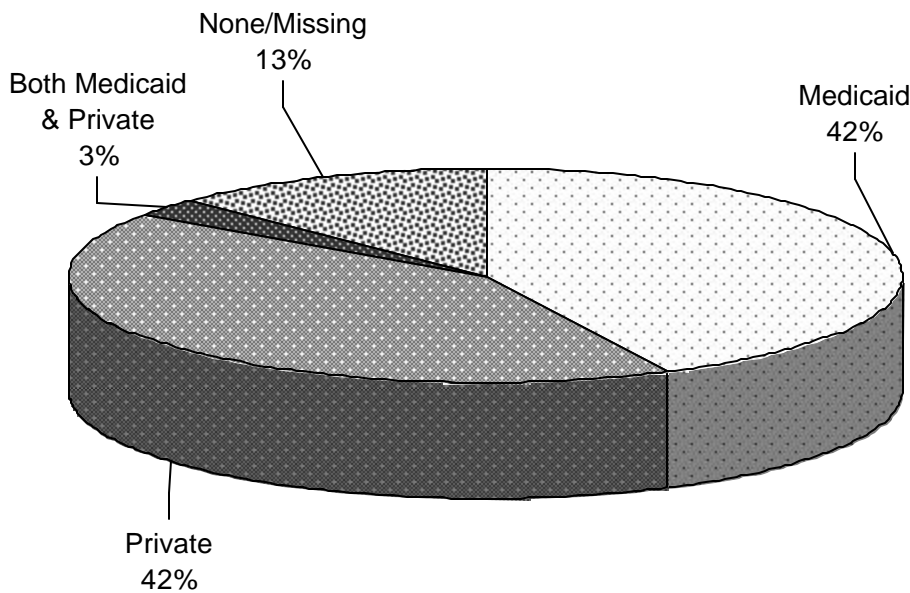
## Health Insurance Coverage

Trends over time:

- 87% of our students are covered by insurance. This is 11% more than last year (76%).
- 13% of our population is uninsured<sup>3</sup>, compared to 16% at the state and 9.2% at the national level (Kids Count, 2004; Cohen, Martinez & Hao, 2005). This is up 11% from last year (24%).
- The proportion of students on Medicaid (43%) is up 9% from last year (34%).
- A small number of students continue to indicate both private insurance and Medicaid.
- Presbyterian Medicaid and Presbyterian private insurance are most common insurance providers for our population. The same was true last year.

There is a reduction in the amount of missing data from last year to this year, and is worth noting. Perhaps the efforts of nursing staff to record the insurance status for every student have paid off. This year, only 13% of students with insurance marked “none” or missing”, compared to 24% last year.

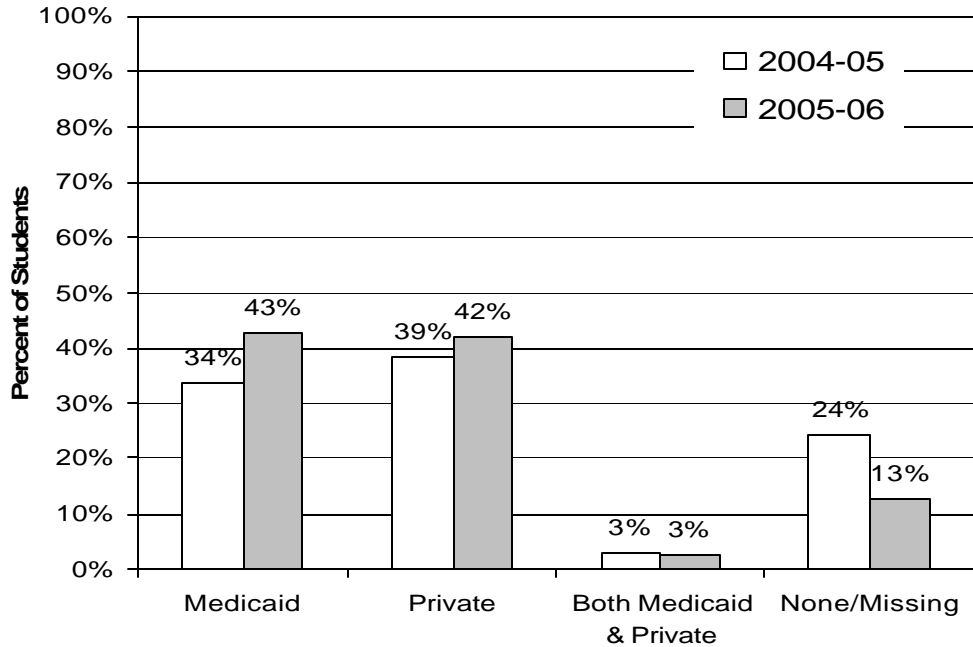
**Figure 9: Insurance Status of Students in Asthma Program 2005-06**



Source: Self report from APS Asthma Program Checklist 2005-06, N=1229

<sup>3</sup> “Uninsured” includes missing data and those students marked “no” for both Medicaid and Private insurance.

**Figure 10: Insurance Status Yr 2 and Yr 3**



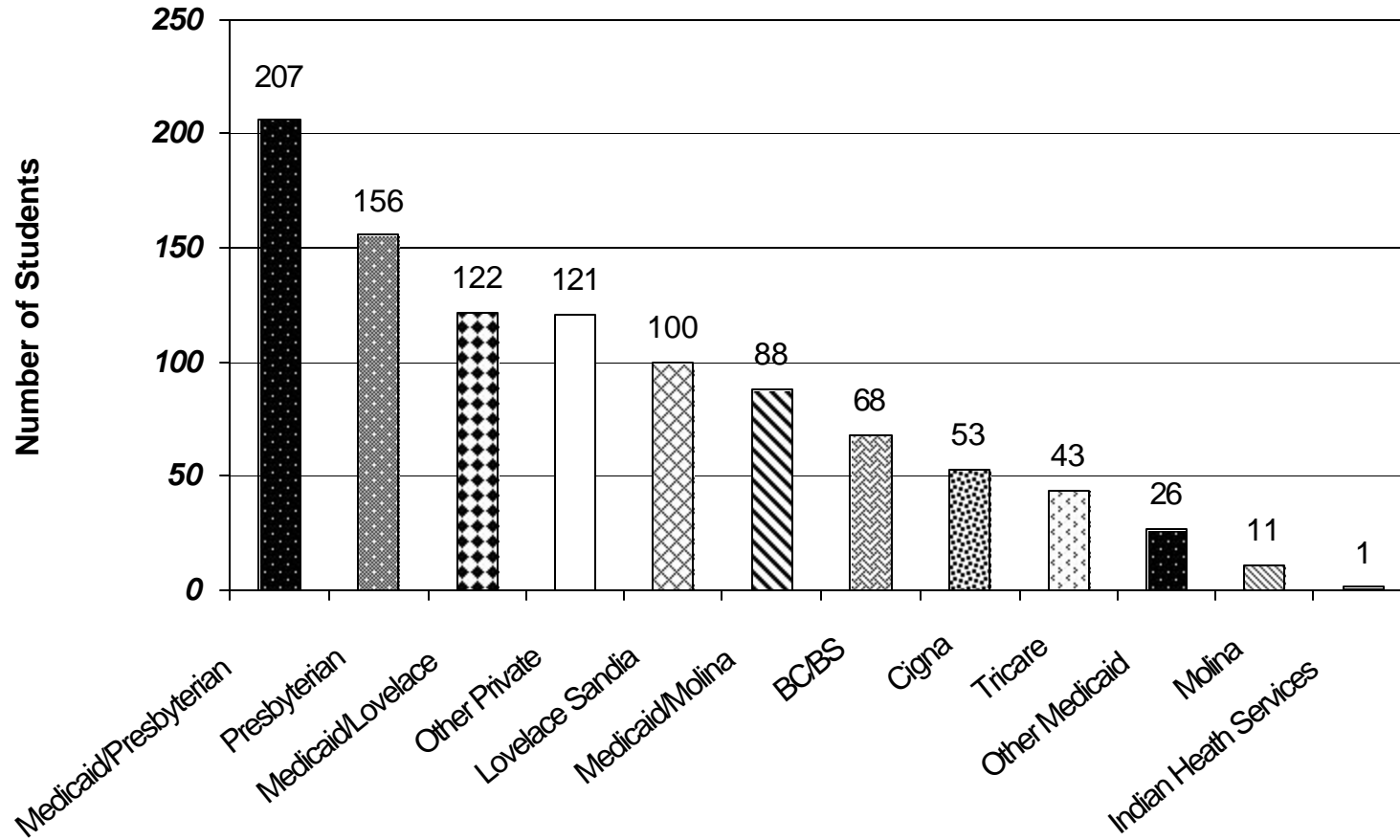
Source: Self report from APS Asthma Program Checklist 2005-06, N=1229

**Table 5: Insurance Status Yr 2 and Yr 3**

	2004-05		2005-06	
	Count	Percent	Count	Percent
<b>Total Insured</b>	<b>797</b>	<b>76%</b>	<b>1075</b>	<b>87%</b>
Medicaid	356	34%	525	43%
Private	407	39%	515	42%
Both Medicaid & Private	34	3%	35	3%
<b>Uninsured<sup>4</sup></b>	<b>255</b>	<b>24%</b>	<b>154</b>	<b>13%</b>
Total	1052	100%	1229	100%

<sup>4</sup> "Uninsured" includes missing data and those students marked "no" for both Medicaid and Private insurance.

**Figure 11: Insurance Status by Provider Yr 3**



Source: Self report from APS Asthma Program Checklist 2005-06

## *Student Absenteeism*

Researchers often judge the effectiveness of asthma management programs by assessing the degree to which programs change student attendance. Nurses record student absences on the back of the Program Checklist. The official tracking period is from late September to early April (108 days). For year-round schools, the calendar is adjusted so they report absences for 108 days also.

This report presents absence data in two ways:

- summary data for this year; and
- longitudinal analyses of change in absences over time

## *Validation of Absence Data*

There is a difference between attendance data reported by the district and the asthma program. Daily attendance rates (DAR) published by the district are collected by classroom teachers. The asthma program nursing staff record *number* of days a student is *absent*. The absence data presented in this report is not a *rate*, because it does not include the number of days in the reporting period. It is unknown which method is a more accurate account of student attendance.

To address this issue, RDA triangulated program data on absenteeism with data collected by the district.

- **There was no correlation between the number of days recorded by nurses and the daily attendance rate recorded in the student information system, during the period used in the validation test.**

Obviously, there are limitations to both data sources (e.g., teacher report collected by district vs. nurse report). And, it is difficult to know which data source is most accurate or reliable.

At this time, the only way to assess whether or not an absence is due to asthma is through the nurse report. The absence data collected by the asthma program nurses include both asthma related absences and all absences, and they come from the same source (e.g., the nurse). Therefore, we use the nurse reported data because we feel the data needed for our calculations are more comparable. For all calculations in this report, we use overall absences and asthma-related absences, as reported by the nurses.



### *For the 2005-06 School Year – At the Student Level*

The tracking period is late September through early April (108 school days).

- 70% of our students with asthma report at least one absence this year (n=862).
- Number of *total absences for any reason*, per student, range from 0 to 46 days during the 108 day period.
- Number of absences *due to asthma*, per student, range from 0 to 24 days during the 108 day period

Summary data for this year are presented with the longitudinal analyses on the following pages.

### *Trends in Overall and Asthma-Related Absences – At the School Level*

- A slight **increase** in *total absences* and *asthma-related absences* occurs over time, but the increase is not statistically significant<sup>5</sup>. See Figure 12 on the next page.
  - This could be due to several students who had an unusually high number of absences.
- Looking at all schools involved in the program each year, the *average number of days absent for all reasons* ranges from 3.5 – 4.2 days absent.
  - Cohort averages range from ½ day to 10.6 days.
- Looking at all schools involved in the program each year, the *average number of days absent due to asthma* is still 1 day.
  - Cohort averages range from 0 to 3.4 days absent due to asthma.

This is compared to 7-9 days (for any reason) and 3-4 days (for asthma) found in national samples as cited by the by the Centers for Disease Control and Prevention (Lakhani, Wang, Schmoyer, Merkle, & Wheeler, 2004).

The lower numbers in the asthma program are due in part to the shorter reporting period (108 school days in APS sample vs. 12 months in national surveys). This could also be due to differences in reporting between APS and national samples (e.g., APS nurse records vs. nationwide self-report survey). This year, 16% (N=737) of the reasons for absences were unknown, compared to 21% last year.

### *Proportion of Absences Due to Asthma*

While total absences are increasing each year, asthma-related absences are staying about the same. As a result, the *proportion of total absences due to asthma* is changing. When looking at totals from year to year, one cannot see an observable trend. However, one can see some important differences when the data are presented by cohort.

- For schools involved in the program since its inception in 2003 (Cohort 1), the *proportion of total absences due to asthma* decreased significantly<sup>6</sup>. In year 1, 39% of the overall absences were due to asthma, but only 26% were due to asthma in year 3. See Figure 13 on the next page.

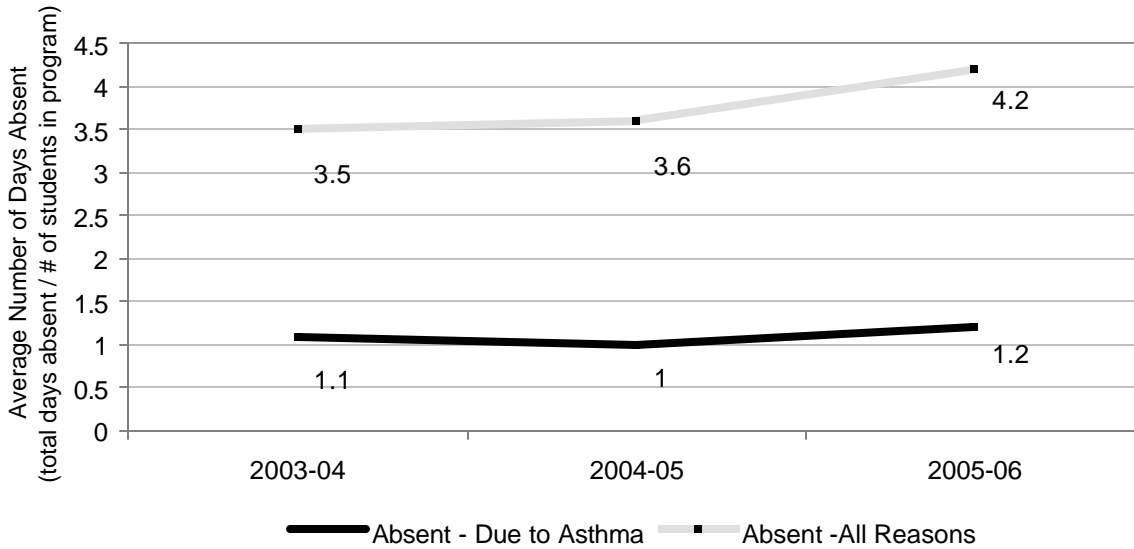
Evaluation Appendix A shows absence information by school, cohort, and school year.

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<sup>5</sup> P > .05 (not statistically significant)

<sup>6</sup> P < .05 (statistically significant)

**Figure 12: Average Number of Days Absent Over Time for All Reasons and for Asthma**

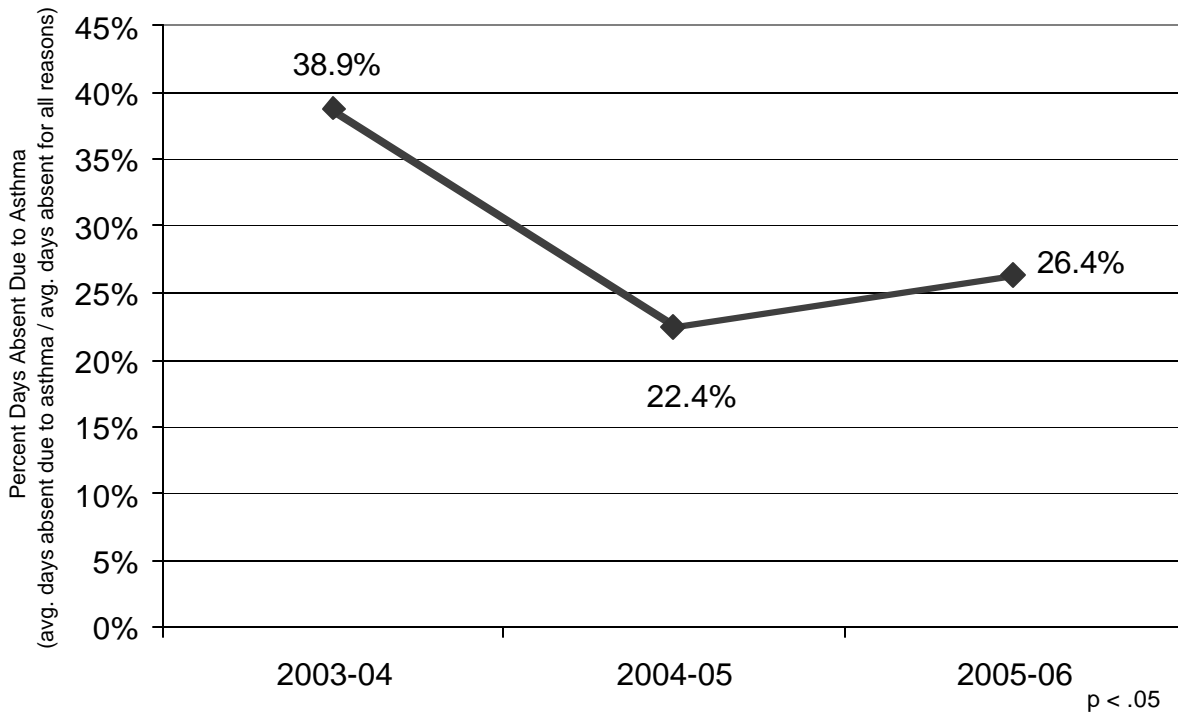


The table below shows the mean (average) number of absences, for each cohort and for each program year (total).

**Table 6: Average Number of Days Absent by Cohort and School Year – All Reasons and Due to Asthma<sup>7</sup>**

Cohort		Average Number of Days Absent (All Reasons)			Average Number of Days Absent (Due to Asthma)		
		2003-04	2004-05	2005-06	2003-04	2004-05	2005-06
<b>1</b>	<b>Mean</b>	<b>3.5</b>	<b>3.5</b>	<b>3.9</b>	<b>1.1</b>	<b>0.8</b>	<b>0.9</b>
	Minimum	0.3	1.1	0.8	0.2	0.1	0.2
	Maximum	6.9	7.4	8.1	2.8	2.4	2.1
<b>2</b>	<b>Mean</b>	.	<b>3.7</b>	<b>4.4</b>	.	<b>1.1</b>	<b>1.4</b>
	Minimum	.	1.5	0.5	.	0	0.2
	Maximum	.	5.7	10.6	.	2.9	3.4
<b>3</b>	<b>Mean</b>	.	.	<b>4.2</b>	.	.	<b>1.2</b>
	Minimum	.	.	0.9	.	.	0.2
	Maximum	.	.	7.3	.	.	3.1
<b>Total</b>	<b>Mean</b>	<b>3.5</b>	<b>3.6</b>	<b>4.2</b>	<b>1.1</b>	<b>1</b>	<b>1.2</b>
	Minimum	0.3	1.1	0.5	0.2	0	0.2
	Maximum	6.9	7.4	10.6	2.8	2.9	3.4

<sup>7</sup> The results here are based on the mean number of absences per school (# absences per school / # children tracked per school). The minimum and maximum numbers are the min and max for each school in the cohort, not each student.



**Figure 13: Percent of Days Absent Due to Asthma Over Time for Cohort 1**

The table below shows the mean (average) of the percent of absences due to asthma, for each cohort and for each program year.

**Table 7: Percent Days Absent Due to Asthma by Cohort and School Year<sup>8</sup>**

Cohort		Percent of Absences Due to Asthma		
		2003-04	2004-05	2005-06
<b>1</b>	<b>Mean</b>	<b>38.9%</b>	<b>22.4%</b>	<b>26.4%</b>
	Minimum	11.6%	5.9%	3.8%
	Maximum	75.0%	54.9%	51.6%
<b>2</b>	<b>Mean</b>	.	<b>28.9%</b>	<b>34.7%</b>
	Minimum	.	0.0%	6.1%
	Maximum	.	55.9%	85.3%
<b>3</b>	<b>Mean</b>	.	.	<b>29.1%</b>
	Minimum	.	.	11.1%
	Maximum	.	.	55.1%
<b>Total</b>	<b>Mean</b>	<b>38.9%</b>	<b>25.7%</b>	<b>30.1%</b>
	Minimum	11.6%	0.0%	3.8%
	Maximum	75.0%	55.9%	85.3%

<sup>8</sup> The results here are based on the mean number of absences per school (# absences per school / # children tracked per school). The minimum and maximum numbers are the min and max for each school in the cohort, not each student.

### *Conclusion*

The number of students identified with asthma per schools is lower than expected, and much lower than state or national averages. This is partially because the rates reported at state and national levels are documented differently than in the APS program (e.g., phone interview vs. nurse identification).

Absence data reported by nurses provide evidence that the asthma program is reaching its goal of reducing absenteeism due to asthma, although the reduction is small and the overall absences increased slightly.

Additionally, the program is meeting its goals of educating students about asthma and linking families with health care, primary health care providers, and insurance coverage. Students showed statistically significantly more knowledge about asthma, more significant self-management skills, and better understanding of asthma triggers.

As the program continues to expand, RDA expects absences to decrease and diagnosis rates to rise as the asthma management expertise of the school nursing staff increases.

## **Asthma Program: Most Significant Change Stories Year 3 (2005-06)**

### ***Introduction***

RDA implemented a story approach in an attempt to overcome some of the difficulties associated with monitoring project impact in early stages of program development. Davies adapted this process from the ‘evolutionary approach to organizational learning’ (Davies, 1996; Dart, 1999; Dart & Davies, 2003). A participatory process, the Most Significant Change (MSC) technique involves project stakeholders in deciding the sorts of change to be recorded. The process involves collecting stories of change, generated from the field, and systematically selecting the most significant of these stories during practitioner and leadership committee meetings.

This approach goes beyond merely capturing and documenting client stories; each story is accompanied by the storyteller and reviewers’ interpretations. The purpose is to promote dialog up and down the project hierarchy.

This section describes the MSC technique and highlights some experiences gained during the second year of the Asthma Program at Albuquerque Public Schools. This approach helped promote organizational learning and provided program staff and leadership the opportunity to validate and re-focus the program goals.

### ***Method***

As the year progressed, project staff asked nurses to write stories about how their practice had changed during the Asthma program (see Evaluation Appendix B and Evaluation Appendix C).

The prompts were intentionally vague to allow for reporting of negative significant changes. Additionally, nurses were asked to write stories about how student’s school experience changed. During the spring semester, nurses convened at a large group meeting and divided into small groups by cluster (i.e., elementary schools that feed into Highland High School cluster, Albuquerque High School cluster, etc.). Each group had 4-8 nurses. After each nurse shared her story, the group chose the story that provided the best example of significant change. Nurses followed the same process to select one student and one nurse story per group.

Next, an RDA team member presented the selected stories at an APS Health/Mental Health department leadership meeting. Leadership committee members broke into 4 small groups. Each group reviewed the stories and chose one nurse and one student story that best displayed the goals of the program.

After each level of story selection concluded, discussants reflected on their findings. Specifically, participants discussed why they chose the stories they did (e.g., what were the group’s criteria for choosing that story). This process yielded rich discussion about the purpose of the program, how roles had begun to change and how the changes produced positive effects for students and staff.

## *Limitations*

The MSC process highlights organizational and participant changes however subtle. It generated a description of organizational change that could be confirmed through other means. Without the MSC technique, evaluators may only guess at what organizational changes may have occurred. However, the MSC method does not generate an exhaustive list of changes. Therefore, some changes remain overlooked, particularly barriers or negative changes. In response to nurse and leadership feedback from last year, RDA facilitated a discussion of the challenges experienced by nurses as they implement the program. These challenges, and nurses' own suggestions for improvement, were passed along to the Leadership. Program staff is using these suggestions for program improvement.

## *Results*

### *Nurse Story Selection*

*Nurse Criteria.* Nurses involved in the asthma program selected 7 nurse stories and provided criteria for their selection. The story ultimately chosen by the leadership committee was chosen by nurses because it showed the nurse as part of the larger school community and supported more of the asthma program goals. Evaluation Appendix D displays the stories selected by the leadership committee. Nurses and leadership chose their story because:

- It met the goals of the program.
- The nurse went above and beyond to reach out to the entire school and involve school staff.
- The story showed how the Asthma Program encouraged movement of these nurses toward the “expert nurse level.”

### *Student Story Selection*

*Nurse Criteria.* Nurses selected 6 student stories and provided criteria for their selection as well. The story ultimately chosen by the leadership committee, exemplified a dramatic improvement in quality of life. Nurses and leaders chose their story because:

- There was a decreased use of medications.
- It shows that the child may come to the nurse because it gives him positive attention; he may not get this anywhere else.
- He was empowered and showed an attitude change - a complete change of attitude, from being a victim to being empowered and in control, to striving to be successful and self-confident.
- There was an impact on the child to take charge and be in control.

To view all stories submitted by the nurses, please see the Program Appendices in the report by the APS Health / Mental Health department.

### *Do Program Goals Align with What We Hear in the Stories?*

During the leadership and nurse discussion, both groups compared the outcomes in the stories to the stated asthma program goals. All participants agreed that the program was achieving its goals, as represented by what they heard in the stories.

Nurses continue to facilitate system-level changes. Instead of providing services in isolation, they educate and partner with the community (students, parents, school staff, service providers) to better serve students with asthma. Student stories show dramatic changes in the child's self-concept, self-management, and esteem. In addition, stories illustrate how students can have a positive impact on their families. Nurses become more aware of the nuances of the student's family context and the family's impact on the student's health.

Results from the last three years reveal similarities in what stakeholders value. The criteria for selection listed by both nurses and leadership are closely aligned. This agreement shows that both groups are "on the same page" with regard to program expectations and these expectations are in line with stated program goals.

### ***Conclusion***

The MSC approach promotes dialogue up and down the project hierarchy about program goals and provides a checkpoint for leaders to assess if the program is achieving the sorts of outcomes desired by stakeholders.

Results from the stories indicate that (1) the asthma program continues to be on track with the goals of the program and (2) is in line with the values of program leadership and staff.

A primary aim of the APS asthma project is to promote and facilitate a systems change. Nurses practice direct service often in isolation from school staff, community resources, and at odds with family behavior. The new vision of school nurse practice came from a need to provide increased health care on limited or shrinking budgets. New Mexico has been slowly building health care capacity for children. The leadership committee agrees that the MSC process provides evidence that system change continues to occur in schools involved with the asthma program.

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## Evaluation Appendix A: Absence Data by School

Naming convention for Absence Tables

<b>Column Heading</b>	<b>Meaning</b>
LocName	Location Name
LocNo	Location Number
Cohort	Cohort 1 (started program in 2003-04), Cohort 2 (started in 2004-05), Cohort 3 (started in 2005-06)
#wAsthma	# students with asthma
SchlEnrollmt	Total # students enrolled in school (at 40 day enrollment period)
DiagRate	Diagnosis rate / % identified with asthma ( $\#wAsthma/SchlEnrollmt$ )
TotDysAbs	Total # of days absent
AsthDysAbs	# of days absent due to asthma
AvgDysAbs	Average # of days absent ( $TotDysAbs/\#wAsthma$ )
AvgAsthDysAbs	Average # days absent due to asthma ( $AsthDysAbs/\#wAsthma$ )
PctAbsAsthma	% days absent due to asthma ( $AvgAsthDysAbs/AvgDysAbs$ )
DaysInCycle	# of days in reporting cycle
PctCyclAbs	% of days in reporting cycle absent due to asthma ( $\#DysAbs/DysInCycle$ )
PctCyclAsth	% of days in reporting cycle absent ( $\#AsthDysAbs/DysInCycle$ )

Yr 1 = year 1 data, from 2003-04

Yr 2 = year 2 data, from 2004-05

Yr 3 = year 3 data, from 2005-06

<b>Year 1: 2003-04</b>												
LocName	LocNo	Cohort	Yr1#wAsthma	Yr1DiagRate	Yr1TotDysAbs	Yr1AsthdysAbs	Yr1AvgDysAbs	Yr1AvgAsthdysAbs	Yr1PctAsthdysAbs	Yr1DaysInCycle	Yr1PctCycAbs	Yr1PctCyclAsthdys
Adobe Acres Elementary School	206	1	25	5.8%	59	35	2.4	1.4	59.3%	118	2.0%	1.2%
Armijo Elementary School	215	1	31	4.0%	143	86	4.6	2.8	60.1%	118	3.9%	2.4%
Atrisco Elementary School	216	1	14	3.1%	71	39	5.1	2.8	54.9%	118	4.3%	2.4%
Bel-Air Elementary School	228	1	24	4.6%	101	53	4.2	2.2	52.5%	118	3.6%	1.9%
Bellehaven Elementary School	229	1	36	2.6%	215	75	6.0	2.1	34.9%	118	5.1%	1.8%
Dolores Gonzales Elementary School	244	1	32	3.4%	87	25	2.7	0.8	28.7%	118	2.3%	0.7%
Eubank Elementary Schools	258	1	55	7.9%	189	64	3.4	1.2	33.9%	118	2.9%	1.0%
Governor Bent Elementary School	230	1	61	3.9%	356	79	5.8	1.3	22.2%	118	4.9%	1.1%
Inez Elementary School	276	1	42	6.6%	112	29	2.7	0.7	25.9%	118	2.3%	0.6%
La Mesa Elementary School	285	1	46	4.1%	319	37	6.9	0.8	11.6%	118	5.9%	0.7%
Mark Twain Elementary School	364	1	35	3.2%	83	18	2.4	0.5	21.7%	118	2.0%	0.4%
Monte Vista Elementary	312	1	26	6.1%	128	18	4.9	0.7	14.1%	118	4.2%	0.6%
Ocate Elementary School	227	1	29	3.7%	48	20	1.7	0.7	41.7%	118	1.4%	0.6%
Osuna Elementary School	332	1	44	2.3%	15	10	0.3	0.2	66.7%	108	0.3%	0.2%
Sombra Del Monte Elementary School	357	1	23	1.6%	7	4	0.3	0.2	57.1%	108	0.3%	0.2%
Tomasita Elementary School	363	1	52	3.8%	218	31	4.2	0.6	14.2%	118	3.6%	0.5%
Wherry Elementary School	376	1	33	2.9%	20	15	0.6	0.5	75.0%	118	0.5%	0.4%
Zuni Elementary School	388	1	35	2.9%	153	38	4.4	1.1	24.8%	118	3.7%	0.9%

<b>Year 2: 2004-05</b>													
LocName	Loc No	Cohort	Yr2#wAsthma	Yr2SchlEnrollment	Yr2DiagRate	Yr2TotDysAbs	Yr2AsthDysAbs	Yr2AvgDysAbs	Yr2AvgAsthDysAbs	Yr2PctAbsAsthma	Yr2DaysInCycle	Yr2PctCyclAbs	Yr2PctCyclAsth
Adobe Acres Elementary School	206	1	23	686	3.4%	25	3	1.1	0.1	12.0%	108	1.0%	0.1%
Armijo Elementary School	215	1	12	451	2.7%	50	10	4.2	0.8	20.0%	108	3.9%	0.8%
Atrisco Elementary School	216	1	8	376	2.1%	17	1	2.1	0.1	5.9%	108	2.0%	0.1%
Bel-Air Elementary School	228	1	32	429	7.5%	114	26	3.6	0.8	22.8%	108	3.3%	0.8%
Bellehaven Elementary School	229	1	31	366	8.5%	108	29	3.5	0.9	26.9%	108	3.2%	0.9%
Dolores Gonzales Elementary School	244	1	16	438	3.7%	71	39	4.4	2.4	54.9%	108	4.1%	2.3%
Eubank Elementary Schools	258	1	48	489	9.8%	355	98	7.4	2.0	27.6%	108	6.8%	1.9%
Governor Bent Elementary School	230	1	74	624	11.9%	240	18	3.2	0.2	7.5%	108	3.0%	0.2%
Inez Elementary School	276	1	31	453	6.8%	114	20	3.7	0.6	17.5%	108	3.4%	0.6%
La Mesa Elementary School	285	1	36	655	5.5%	253	49	7.0	1.4	19.4%	108	6.5%	1.3%
Mark Twain Elementary School	364	1	30	372	8.1%	83	21	2.8	0.7	25.3%	108	2.6%	0.6%
Monte Vista Elementary	312	1	18	483	3.7%	43	6	2.4	0.3	14.0%	108	2.2%	0.3%
Onate Elementary School	227	1	21	283	7.4%	62	20	3.0	1.0	32.3%	108	2.7%	0.9%
Osuna Elementary School	332	1	51	437	11.7%	107	29	2.1	0.6	27.1%	108	1.9%	0.5%
Sombra Del Monte Elementary School	357	1	57	483	11.8%	139	43	2.4	0.8	30.9%	108	2.3%	0.7%
Tomasita Elementary School	363	1	24	515	4.7%	99	27	4.1	1.1	27.3%	108	3.8%	1.0%
Wherry Elementary School	376	1	26	505	5.1%	94	21	3.6	0.8	22.3%	108	3.3%	0.7%
Zuni Elementary School	388	1	48	488	9.8%	110	11	2.3	0.2	10.0%	108	2.1%	0.2%
A. Montoya Elementary School	321	2	31	499	6.2%	164	77	5.3	2.5	47.0%	108	4.9%	2.3%

<b>Year 2: 2004-05</b>													
LocName	Loc No	Cohort	Yr2#wAsthma	Yr2SchlEnrollment	Yr2DiagRate	Yr2TotDysAbs	Yr2AsthDysAbs	Yr2AvgDysAbs	Yr2AvgAsthDysAbs	Yr2PctAbsAsthma	Yr2DaysInCycle	Yr2PctCyclAbs	Yr2PctCyclAsth
Alvarado Elementary School	213	2	25	435	5.7%	102	43	4.1	1.7	42.2%	108	3.8%	1.6%
Chelwood Elementary School	236	2	25	497	5.0%	105	45	4.2	1.8	42.9%	108	3.9%	1.7%
Duranes Elementary School	249	2	21	292	7.2%	49	2	2.3	0.1	4.1%	108	2.2%	0.1%
Eugene Field Elementary	261	2	11	389	2.8%	32	11	2.9	1.0	34.4%	108	2.7%	0.9%
Griegos Elementary	267	2	18	303	5.9%	34	19	1.9	1.1	55.9%	108	1.7%	1.0%
Hodgin Elementary School	273	2	34	601	5.7%	176	21	5.2	0.6	11.9%	108	4.8%	0.6%
Lew Wallace Elementary School	373	2	14	260	5.4%	21	0	1.5	0.0	0.0%	108	1.4%	0.0%
Longfellow Elementary School	291	2	25	378	6.6%	39	15	1.6	0.6	38.5%	108	1.4%	0.6%
Los Padillas Elementary School	297	2	9	264	3.4%	37	1	4.1	0.1	2.7%	108	3.8%	0.1%
Los Ranchos Elementary School	336	2	22	388	5.7%	101	18	4.6	0.8	17.8%	108	4.3%	0.8%
Mary Ann Binford Elementary School	250	2	34	805	4.2%	106	47	3.1	1.4	44.3%	108	2.9%	1.3%
Mitchell Elementary School	310	2	22	431	5.1%	69	11	3.1	0.5	15.9%	98	3.2%	0.5%
Navajo Elementary School	327	2	15	557	2.7%	72	10	4.8	0.7	13.9%	108	4.4%	0.6%
S Y Jackson Elementary School	360	2	32	583	5.5%	80	22	2.5	0.7	27.5%	108	2.3%	0.6%
San Antonito Elementary School	345	2	24	313	7.7%	124	26	5.2	1.1	21.0%	108	4.8%	1.0%
Sandia Base Elementary School	348	2	35	475	7.4%	199	103	5.7	2.9	51.8%	108	5.3%	2.7%
Zia Elementary School	385	2	21	421	5.0%	94	46	4.5	2.2	48.9%	108	4.1%	2.0%

<b>Year 3: 2005-06</b>													
LocName	Loc No	Co hort	Yr3#wAsthma	Yr3Schl Enrollment	Yr3DiagnRate	Yr3TotDysAbs	Yr3AsthDysAbs	Yr3AvgDysAbs	Yr3AvgAsthDysAbs	Yr3PctAbsAsthma	Yr3Day sinCycle	Yr3PctCyclAbsIL	Yr3PctCyclAst hJL
Adobe Acres Elementary School	206	1	21	766	2.7%	33	13	1.6	0.6	39.4%	108	1.5%	0.6%
Armijo Elementary School	215	1	16	422	3.8%	81	33	5.1	2.1	40.7%	108	4.7%	1.9%
Atrisco Elementary School	216	1	6	401	1.5%	31	5	5.2	0.8	16.1%	108	4.8%	0.8%
Bel-Air Elementary School	228	1	10	422	2.4%	39	9	3.9	0.9	23.1%	108	3.6%	0.8%
Bellehaven Elementary School	229	1	26	372	7.0%	90	35	3.5	1.3	38.9%	108	3.2%	1.2%
Dolores Gonzales Elementary School	244	1	19	456	4.2%	92	34	4.8	1.8	37.0%	108	4.5%	1.7%
Eubank Elementary Schools	258	1	44	382	11.5%	248	51	5.6	1.2	20.6%	108	5.2%	1.1%
Governor Bent Elementary School	230	1	13	613	2.1%	31	3	2.4	0.2	9.7%	108	2.2%	0.2%
Inez Elementary School	276	1	37	469	7.9%	81	10	2.2	0.3	12.3%	108	2.0%	0.3%
La Mesa Elementary School	285	1	33	684	4.8%	227	51	6.9	1.5	22.5%	108	6.4%	1.4%
Mark Twain Elementary School	364	1	24	375	6.4%	120	30	5.0	1.3	25.0%	108	4.6%	1.2%
Monte Vista Elementary	312	1	29	472	6.1%	54	23	1.9	0.8	42.6%	108	1.7%	0.7%
Onate Elementary School	227	1	19	279	6.8%	116	14	6.1	0.7	12.1%	108	5.7%	0.7%
Osuna Elementary School	332	1	40	448	8.9%	31	16	0.8	0.4	51.6%	108	0.7%	0.4%
Sombra Del Monte Elementary School	357	1	42	485	8.7%	67	22	1.6	0.5	32.8%	108	1.5%	0.5%
Tomasita Elementary School	363	1	23	476	4.8%	186	7	8.1	0.3	3.8%	108	7.5%	0.3%
Wherry Elementary School	376	1	14	478	2.9%	49	4	3.5	0.3	8.2%	108	3.2%	0.3%
Zuni Elementary School	388	1	15	461	3.3%	41	16	2.7	1.1	39.0%	108	2.5%	1.0%
A. Montoya Elementary School	321	2	20	477	4.2%	107	64	5.4	3.2	59.8%	108	5.0%	3.0%
Alvarado Elementary School	213	2	29	392	7.4%	57	31	2.0	1.1	54.4%	108	1.8%	1.0%

<b>Year 3: 2005-06</b>													
LocName	Loc No	Co hort	Yr3#wAsthma	Yr3Schl Enrollment	Yr3DiagnRate	Yr3TotDysAbs	Yr3AsthDysAbs	Yr3AvgDysAbs	Yr3AvgAsthDysAbs	Yr3PctAbsAsthma	Yr3Day sinCycl e	Yr3PctCyclAbsIL	Yr3PctCyclAst hJL
Chelwood Elementary School	236	2	24	503	4.8%	163	23	6.8	1.0	14.1%	108	6.3%	0.9%
Duranos Elementary School	249	2	27	298	9.1%	47	23	1.7	0.9	48.9%	108	1.6%	0.8%
Eugene Field Elementary	261	2	16	387	4.1%	24	4	1.5	0.3	16.7%	108	1.4%	0.2%
Griegos Elementary	267	2	26	305	8.5%	42	21	1.6	0.8	50.0%	108	1.5%	0.7%
Hodgin Elementary School	273	2	14	594	2.4%	82	5	5.9	0.4	6.1%	108	5.4%	0.3%
Lew Wallace Elementary School	373	2	11	263	4.2%	66	17	6.0	1.5	25.8%	108	5.6%	1.4%
Longfellow Elementary School	291	2	18	392	4.6%	34	29	1.9	1.6	85.3%	108	1.7%	1.5%
Los Padillas Elementary School	297	2	6	304	2.0%	35	3	5.8	0.5	8.6%	108	5.4%	0.5%
Los Ranchos Elementary School	336	2	7	392	1.8%	41	17	5.9	2.4	41.5%	108	5.4%	2.2%
Mary Ann Binford Elementary School	250	2	10	847	1.2%	106	34	10.6	3.4	32.1%	108	9.8%	3.1%
Mitchell Elementary School	310	2	22	415	5.3%	94	41	4.3	1.9	43.6%	108	4.0%	1.7%
Navajo Elementary School	327	2	8	543	1.5%	54	11	6.8	1.4	20.4%	108	6.3%	1.3%
S Y Jackson Elementary School	360	2	53	565	9.4%	164	11	3.1	0.2	6.7%	108	2.9%	0.2%
San Antonito Elementary School	345	2	9	321	2.8%	55	26	6.1	2.9	47.3%	108	5.7%	2.7%
Sandia Base Elementary School	348	2	19	524	3.6%	68	21	3.6	1.1	30.9%	108	3.3%	1.0%
Zia Elementary School	385	2	12	414	2.9%	6	2	0.5	0.2	33.3%	108	0.5%	0.2%
Acoma Elementary School	204	3	20	281	7.1%	17	3	0.9	0.2	17.6%	108	0.8%	0.1%
Chamiza Elementary School	295	3	40	744	5.4%	100	16	2.5	0.4	16.0%	108	2.3%	0.4%
Chaparral Elementary School	234	3	65	733	8.9%	177	45	2.7	0.7	25.4%	108	2.5%	0.6%
Collet Park Elementary School	240	3	17	393	4.3%	57	14	3.4	0.8	24.6%	108	3.1%	0.8%

<b>Year 3: 2005-06</b>													
LocName	Loc No	Co hort	Yr3#wAsthma	Yr3Schl Enrollment	Yr3DiagnRate	Yr3TotDysAbs	Yr3AsthDysAbs	Yr3AvgDysAbs	Yr3AvgAsthDysAbs	Yr3PctAbsAsthma	Yr3Day sinCycle	Yr3PctCyclAbsIL	Yr3PctCyclAst hJL
Corrales Elementary School	351	3	14	440	3.2%	78	43	5.6	3.1	55.1%	108	5.2%	2.8%
Double Eagle Elementary School	350	3	18	832	2.2%	33	6	1.8	0.3	18.2%	108	1.7%	0.3%
Edward Gonzales Elementary School	262	3	20	1,133	1.8%	75	35	3.8	1.8	46.7%	108	3.5%	1.6%
John Baker Elementary School	217	3	12	516	2.3%	48	26	4.0	2.2	54.2%	108	3.7%	2.0%
La Luz Elementary School	282	3	22	368	6.0%	156	46	7.1	2.1	29.5%	108	6.6%	1.9%
Mac Arthur Elementary School	303	3	15	247	6.1%	43	13	2.9	0.9	30.2%	108	2.7%	0.8%
Matheson Park Elementary School	305	3	38	327	11.6%	165	63	4.3	1.7	38.2%	108	4.0%	1.5%
Mc Collum Elementary School	307	3	32	395	8.1%	235	26	7.3	0.8	11.1%	108	6.8%	0.8%
Painted Sky Elementary School	275	3	35	975	3.6%	78	21	2.2	0.6	26.9%	108	2.1%	0.6%
Reginald Chavez Elementary School	330	3	20	361	5.5%	91	39	4.6	2.0	42.9%	108	4.2%	1.8%
Sierra Vista Elementary School	356	3	27	787	3.4%	179	27	6.6	1.0	15.1%	108	6.1%	0.9%
Susie Rayos Marmon Elementary	280	3	31	815	3.8%	101	17	3.3	0.5	16.8%	108	3.0%	0.5%
Valle Vista Elementary School	370	3	6	531	1.1%	40	13	6.7	2.2	32.5%	108	6.2%	2.0%
Ventana Ranch Elementary School	264	3	35	1,003	3.5%	205	48	5.9	1.4	23.4%	108	5.4%	1.3%

**Evaluation Appendix B: Nurse Story Prompt**

Story Title: \_\_\_\_\_ Name of person recording story: \_\_\_\_\_

School: \_\_\_\_\_ Date: \_\_\_\_\_

Domain of Change: \_\_\_\_\_ Where did this happen? \_\_\_\_\_

Change in nursing practice \_\_\_\_\_ When did this happen? \_\_\_\_\_

=====

What happened?

Why do you think this is a significant change?

What difference has it made already/ will it make in the future?



**Evaluation Appendix C: Student Story Prompt**

Story Title: \_\_\_\_\_

Name of person recording story: \_\_\_\_\_

School: \_\_\_\_\_

Date: \_\_\_\_\_

Domain of Change:  
Change in student

Where did this happen? \_\_\_\_\_

When did this happen? \_\_\_\_\_

=====

What happened?

Why do you think this is a significant change?

What difference has it made already/ will it make in the future?

**Evaluation Appendix D: Nurse and Student Story Selected by the Leadership  
Committee**

**APS Asthma Program Evaluation  
Stories of Most Significant Change**

**~Stories Selected by the Leadership Committee~**

**Year 3**

**2005-2006**

## Top Story - Nursing Practice

**Story Title:** “La Mesa”

**School:** La Mesa ES

**Date:** 2005/2006:

**Where:** La Mesa

**When:** Mandatory In-service Day

**What Happened:** Angela (school nurse) and Jo Ann (health assistant) were given the opportunity by their principal, Monica Tapia, to provide the Asthma 101 presentation to the whole staff during a mandatory In-service day. Angela used the Asthma 101 PowerPoint presentation provided by Judy Edwards. Angela made the information specific to all the La Mesa staff working with children. At the end of the presentation, the staff was arranged in small groups for an activity. Each group was provided with a big butcher paper and marker. They were each given a school asthma scenario that they were to discuss, brainstorm, record their responses, and then present them to the whole group. Presenters of each group were given a prize as motivation and reward! This activity was fun and meaningful for all the participants. They learned from each other, got involved, and had a lot of fun. Their completed butcher paper, with their asthma situation as a title, and their responses and actions written below, were displayed in the staff lounge that whole next month. Everybody seemed to take pride in what they knew and what they learned. Asthma was a big topic of discussion all that month.

**Why do you think this is a significant change:** All year at La Mesa many positive situations have come out of the staff presentation of Asthma 101. Teachers know all their students with asthma; they know what questions to ask their students about triggers and medications. They know what to do if a student has an asthma attack at school or on a field trip. In addition, they really support the nurse and health assistant in getting the necessary paper work from the families to be part of the asthma program. The Open Airways Class for students with asthma was a big success with a lot of support from La Mesa staff and administration. The assistant principal came to the final student presentation of the Open Airways Class. The students put together several skits showing what they learned, and how they can be a master of their asthma.

**What difference has it made already/will it make in the future:** (blank)

*“La Mesa” Continued...*

**Story Title:** “La Mesa”

**School:** La Mesa ES

**Date:** 2005/2006:

**Where:** La Mesa

**When:** Mandatory In-service Day

**Feedback from nurses about this story [nurse criteria]**

The nurses chose this story because...

- It shed a positive light on Asthma 101 educational session.
- School staff got on board with Asthma 101.
- There was increased student safety due to staff education.

**Comments from the Leadership about this story [leader criteria]**

The leaders chose this story as their top story because:

- The whole school was involved and changed. There was a systemic impact beyond the nursing office...the presentation to staff showed an impact in raising their awareness and spread to staff recognizing at-risk students. The school became “asthma aware”.
- The staff became part of the process. ALL staff, not just the administration, got classes in Open Airways. It addressed the medical need and increased ability of all staff at the school to respond.
- Many principals would not allow that level of participation; one person remarked, “Administrative support is a big deal in the story.”
- If we could see this in every school, then the support for the asthma program and kids would increase greatly and likely spill over to other chronic illnesses – and yield a more positive approach to chronic disease in general
- It affected student safety.
- We talked a lot about “La Mesa” and another story, “A Little Bit of Help”. Both nurses were new to APS, and the stories showed how the Asthma Program encouraged movement of these nurses toward the “expert nurse level.” However, “La Mesa” represents what we want to see related to school nursing practice – it goes beyond the nurse.

**Other comments:**

- The story assumed that most attacks will happen at school, so having teachers trained to recognize symptoms and help students was important.

## Top Story - Student Experience

**Story Title:** “From Asthma What? To Asthma Expert”

**School:** Edward Gonzales ES

**Date:** January 26, 2006

**Domains of Change:** Change in Students

**Where:** Edward Gonzales Nurse’s Office

**When:** August - December

**What Happened:** Shortly after school began this past August 2005, Tommy, a student at Edward Gonzales Elementary School, walked slowly into the nurse’s office. I noticed he was coughing and pale while he told me he vomited on the way to school. After a trip to the doctor, the diagnosis of “Exercises Induced Asthma” was made along with orders given for Albuterol inhaler for rescue medicine at school and prior to PE. Frequent visits to the nurse’s office in October with wheezing, allergy symptoms and the need for the Albuterol, along with frequent school observations promoted a physician referral for evaluation. It resulted in a daily asthma medication (control med) being prescribed; pulmonology follow-up, a lung CT and allergy work up. Tommy showed great confidence in controlling his asthma throughout the Asthma Open Airways Class. He has decreased absences and nurse visits.

**Why do you think this is a significant change:** Tommy shows a significant change because he went from not knowing anything at all about asthma to being able to talk about asthma with confidence to the other students in the Asthma Open Airways class. He has had a big decrease in number of absences over the past two months, and his only trips to the nurse’s office are for his Albuterol inhaler before PE. His asthma is now under control.

**What difference has it made already/will it make in the future:** Tommy can now identify symptoms of asthma. He knows what to do about it to get the symptoms under control and this may prevent a serious asthma episode in the future.

*“From Asthma What? To Asthma Expert” Continued...*

**Story Title:** “From Asthma What? To Asthma Expert”

**School:** Edward Gonzales ES

**Date:** January 26, 2006

**Domains of Change:** Change in Students

**Where:** Edward Gonzales Nurse’s Office

**When:** August - December

**Feedback from nurses about this story [nurse criteria]**

The nurses chose this story because...

- It showed dramatic results and cooperation of parents and physicians.

**Comments from the Leadership about this story [leader criteria]**

The leaders chose this story because...

- This story shows more effects on adults...but it also showed him sharing information with other students.
- It shows systems change.
- Once one reads the asthma program goals, “From Asthma What? To Asthma Expert” is the one story that meets the most goals. It shows systems change, education of staff, affects parents and students.
- It also shows the health practice change involving the Primary Care Provider.
- The main thing is that the student comes in with a lot of challenges and through the program he becomes more knowledgeable and confident—he gets asthma under control and misses less school and has fewer visits to the nurse.
- It’s not a “jazzy” story but has substance in describing how the student lives with asthma. You get a sense that asthma knowledge is empowering!
- He learned the truth about his condition (he had been misdiagnosed).

**Other Comments:**

Leaders were torn between the “Spider Man” story and this one...because it does show all that we are trying to look for – effective, age appropriate intervention...problem-solving example. He could play with his friends, a big difference in the student’s life. It is a cute story but also tells how nurse was helpful with one little strategy to allow him to participate fully and it increased his self-esteem.