Quarterly Evaluation Report,

2nd Quarter (For Data January to April 1, 2007)

Reviewed April 28, 2007

The Healthy Home Resources AT HOME Environmental Asthma Intervention

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Executive Summary

The Healthy Home Resources' (HHR) AT HOME - Asthma Trigger Home Evaluation Project will certainly meet and exceed meet its recruitment and participant retention goals. To date 156 children have been through or are in active participation in the project, 87 children have completed the program. HHR continues to bring children into the program over its objective of serving 150 children and is on target to achieve service goals. - **In fact it appears likely that HHR will provide services to children in excess of their goal of 150 children.** HHR's steps to completing service goals are accelerating as the number of participants completing the program in this quarter (35) represents a 67% increase in the number of cases finishing the intervention since December of 2006. HHR is continuing to take substantive steps to move participants more quickly through the intervention and is still offering the high-end inducement of carpet and duct cleaning to appropriate households. These measures appear to help keep caretakers interested in the program.

An outcome evaluation of the main asthma severity indicators of lost school days, rescue medication usage and symptom days and the effectiveness of the program at improving scores on a caretaker knowledge, attitudes and beliefs (KAB) questionnaire was performed for the 87 participants/caregivers who finished the program. **All outcome indicators showed improvement post-intervention compared to pre-intervention values.** The numbers of children, out of the total finishing the program, who exhibit improvements, are shown in, **Table 1, Numbers of Children with Improvement in Health Outcomes and Units with Improvement in Environmental Outcomes** (contained in the executive summary). This table also presents the improvement in environmental outcomes such as mold spore counts. The mean of the post-intervention KAB scores increased by over 26.3 points over pre-intervention scores; this is significant at the .000001 level (these results would only be due to chance one-millionth of the time) and the 95% confidence interval of the point gain is 19 to 33 points, inclusive. **We conclude that the program has an effect on increasing KAB regarding asthma, its causes, and prevention of asthma exacerbations. From this we can expect, given health theories linking increased knowledge and more positive attitudes and assertive beliefs with changed health behaviors, caretakers to change behaviors regarding caring for their children with environmental asthma.**

The outcome indicators of lost school days (LSD), rescue medication usage (RES) and symptom days (SYM) improved by .25, 1.81, and 3.1days, respectively. All were significant below the p=.05 level.. **The improvement in symptom days as measured post intervention continues to be dramatic.** The mean of the symptom day improvement is 3.1 days out of 14 in the period. Statistical tests show that this is a significant difference, attaining a p value of .0001. The 95% confidence interval of the decrease in symptom days is 1.6 to 4.5 days, inclusive.

Table 1, Numbers of Children with Improvement in Health Outcomes and Units with Improvement in Environmental Outcomes

Health Outcomes	**# of Children Finishing Program**	**# of Children Finishing Program with Improvement**
Rescue Medication Usage**	84	65
Symptom Days**	87	69
Lost School Days**	84	80
Emergency Room Visits*	87	87
Improvement on Knowledge, Attitudes and Behavior Questionnaire	87	75
Environmental Outcomes	**# Units within Children Finishing Program[1]**	**# of Units with Realized Improvements (Children completed program)**
Indoor Spore Trap **Analysis (spores/M^3)	57	43
Dog Allergen f1**	55	33
Cat Allergen d1**	52	41
Roach Allergen bla g1**	54	51
Roach Allergen bla g2**	50	46
Dust Mite der f1**	50	32
Dust Mite der p1**	51	45
CO_2 Childs Room**	51	29

- Emergency room visits did not increase during the study; caretakers did not report appreciable visits prior to or after the intervention.
- Ties at 0 or continual non-detects are indicated as positive

There is more than adequate statistical information that the HHR AT HOME program is having a impact on all outcome measures; KAB, SYM, LSD and RES. Additionally, environmental outcomes have improved substantially

The HHR AT HOME program continues to make strong progress toward full implementation of the program as outlined in HUD project plans. Outcome indicators all support the conclusion that the program process is quite effective at reaching project goals.

Report Format

There are adequate numbers of children in the program to generate meaningful demographic and epidemiological characteristics of the study group, these are reported in Part I of this report. Part A of Part I presents descriptive statistics of demographic variables such as the ages, gender, race, height and weight of children enrolled in the study as well as information on caretakers age, race and type and household information. Part B of Part I presents selected participant, caregiver and parental epidemiological characteristics regarding the onset age of asthma in study participants and the asthma status of parents and caregivers. Part II of this report presents descriptive statistics and hypothesis testing concerning improvements in all of the outcome variables on the Asthma Severity Questionnaire (ASQ). Statistical tests were performed using both SPSS Version 12.0 and STATA, Version 8.0 statistical analysis programs.

Evaluators Credentials

Dr. Volz is on faculty of the Department of Environmental and Occupational Health at the University of Pittsburgh's, Graduate School of Public Health (GSPH). He has 30 years of experience in environmental program evaluation, exposure assessment, fate and transport of contaminants and hazard and risk communication. Dr. Volz has performed numerous large program evaluations including the American Cancer Society's, Teen Fresh Start, Smoking Cessation Program and assessments of the effectiveness of asbestos management programs for the Department of Defense worldwide. Dr. Volz is Scientific Director of the Center for Healthy Environments and Communities at the GSPH; he is also Co-Director, Division of Environmental Assessment, Monitoring and Control at the University of Pittsburgh Cancer Institute, Center for Environmental Oncology. Dr Volz's research interests are primarily focused on how point and non-point source toxins move through the air, water, soil and groundwater to reach people and how to block this movement. In addition to being the GSPH Principal Investigator for Evaluation of the HHR AT HOME program he is also a Co-Investigator in the new Centers for Disease Control Environmental Health Tracking Grant, which has a major focus on environmentally induced asthma

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Part I, Demographic and Epidemiological Characteristics of the Study Group

As of April 1st the project had 156 interviewed cases in its database, this represents a 30% increase in valid cases since the last data set point of January 2007, when the program had 118 valid cases in its database. The demographic and epidemiological descriptions, narratives, tables and figures presented below are based on this population group.

Part A: Demographic Characteristics

Age, Height and Weight of Children

Table 1 Baseline Characteristics of the Study Population presents the mean age of study participants; it is 9.08 years of age, with a minimum age of 4 and a maximum age of 17. The distribution of ages of study participants, shown in Figure 1 Age Distribution, is trimodal, with major peaks at 5, 8, and 11 years of age the standard deviation of children's age is 3.25. The distribution of height of study participants, presented in Figure 2 Height Distribution, has a mean and mode, which are very close, and the distribution appears normal; the distribution of weight, shown in Figure 3 Weight Distribution, is skewed positively.

Gender and Ethnicity of Study Children

Table 1 presents a breakdown of both the gender and ethnicity of children in the study group. Approximately 60% of children enrolled in the program are male and their caretakers consider 78% of children African American.

Age, Race and Type of Caretakers

Table 1 shows the mean age of caretakers and the percentage breakdowns of caretaker race and type. The mean age of reporting caretakers is 37.8 with a range from 23 to 70 years of age. Figure 4, Age Distribution of Caretakers appears to be normally distributed and shows that most caretakers are between the ages of 30 and 43. Over 97% of caretakers are female and "mother" accounts for 90% of all caretakers. A breakdown of type of caretaker is shown graphically in Figure 5. The racial characteristics of caretakers match exactly those of the children in the study.

Household Characteristics and Smoking Behaviors of Caretakers

Table 1 presents information on the percentages of single caretaker households and households with at least one smoker. Table 2 presents maximums, minimums, means and standard deviations for the total number of children in households and the total number of people in each household. Over 65% of households have more than 1 child in the family; the mean number of children in each family is 1.8 with a maximum of 6 and a standard deviation of 1.1. The mean of the total number of people in each household is 4.08 with a range from 2 to 8 people and a standard deviation of 1.39. Statistics are holding steady that approximately **25% of caretakers define their families as single parent families. Among the caretakers defining themselves, as single parent families about 80% are single-mother families and about 85%, of single parent families are African American.**

30% of caretakers report being smokers (Table 1 and Table 4). Table 5 reports the amount of daily cigarette smoking by caretakers who reported smoking. Approximately 58% of care giving smokers smoke between 5 and 9 cigarettes per day. Table 3 and Figure 6 indicate that approximately 36% of study participants share a bedroom with another household member. Table 6 shows that 5 study participants share a room with a smoker.

Table 1, Baseline Characteristics of the Study Population

N=156

Age of Child (years, %)	
4-5	18.6
6-9	34.0
10-12	32.7
13-17	14.7
Mean (years)	9.08
Gender of Child (%)	
Female	40.4
Male	59.6
Race of Child	
African American	78.2
White	17.6
Hispanic	0.7
Other	3.5
Caretaker's Age (mean years)	37.8
Caretaker's race (%)	
African American	78.2
White	17.6
Hispanic	0.7
Other	3.5
Caretaker's type (%)	
Mother	89.7
Grandmother	6.5
Father	1.9
Aunt	1.3
Other	0.6
Single-caretaker household (%)	23.7
Households with >1-asthmatic children (%)	36.1
Smoking Caretakers (%)	30.1
Asthma Onset Age (%)	
<=1 year	52.0
2-5 years	32.5
> 5 years	15.5
Other Breathing Problems	
Yes	8.4
No	91.6

Table 2, Minimum and Maximum Values of Selected Group Characteristic Interval Variables

Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age of Child	156	4	17	9.08	3.249
Childs Height/Inches	101	36.00	77.00	55.8020	8.76472
Childs Weight/Pounds	118	32.00	220.00	92.2373	38.45470
Total Number of Children < 12 in Household Before ID 1282, Total Number of Children in Household after ID 1282	155	0	6	1.77	1.110
Total Number of People in Household	155	2.00	8.00	4.0839	1.39552
Valid N (listwise)	97				

Figure 1

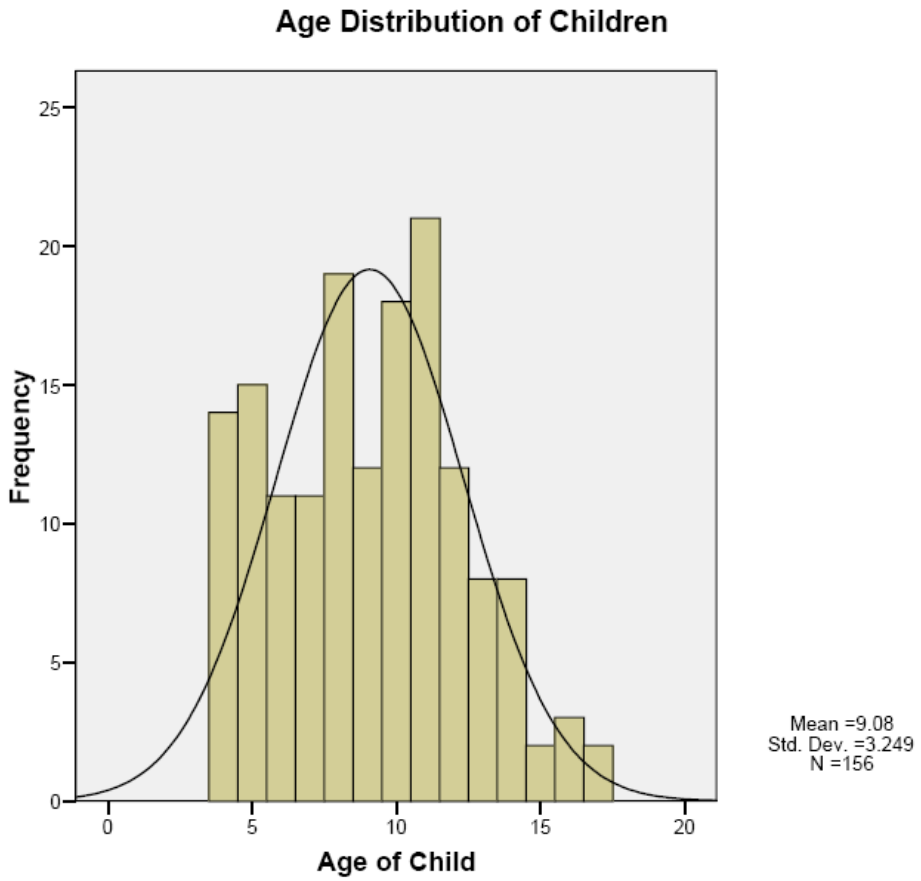


Figure 2

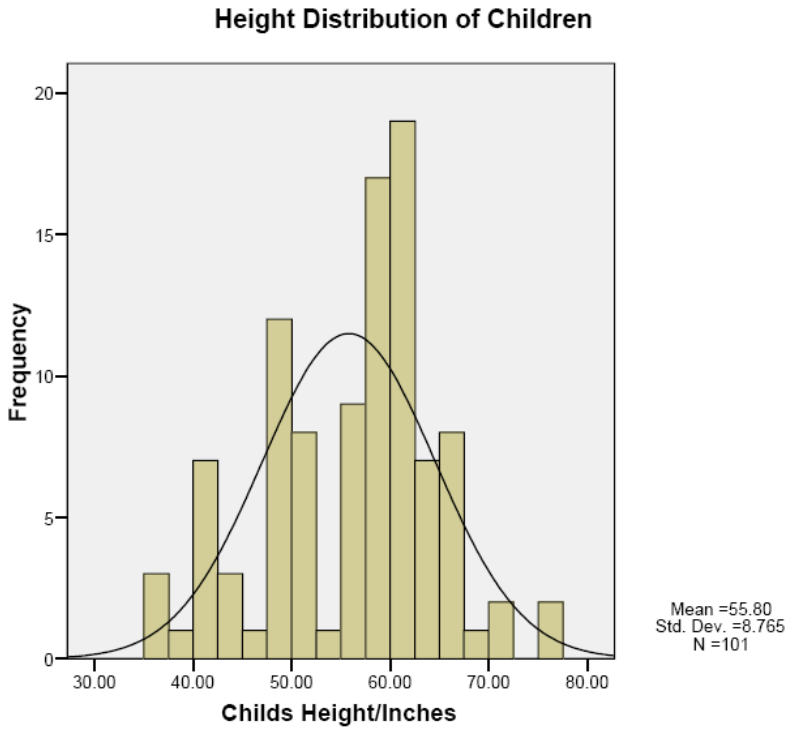


Figure 3

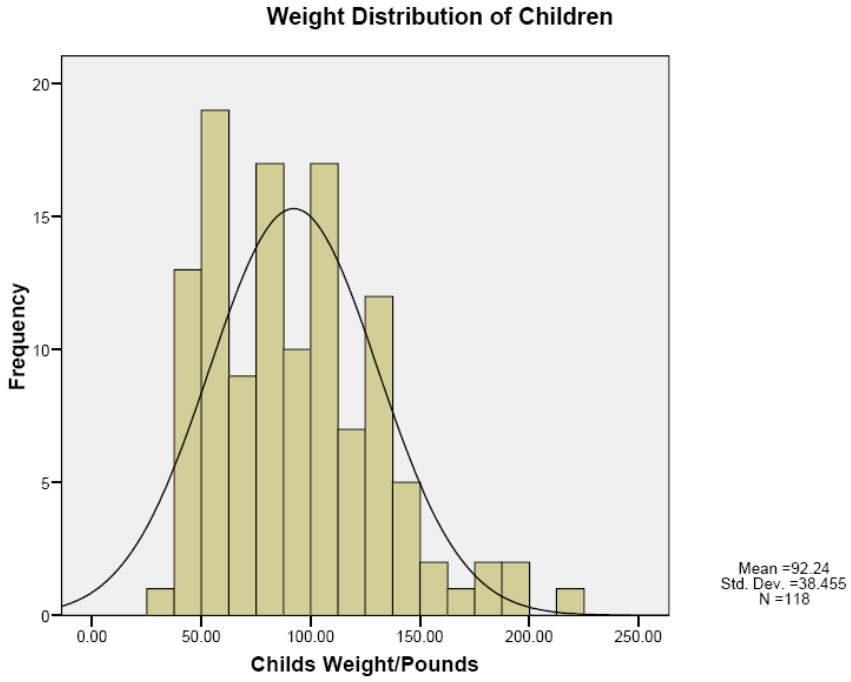


Figure 4

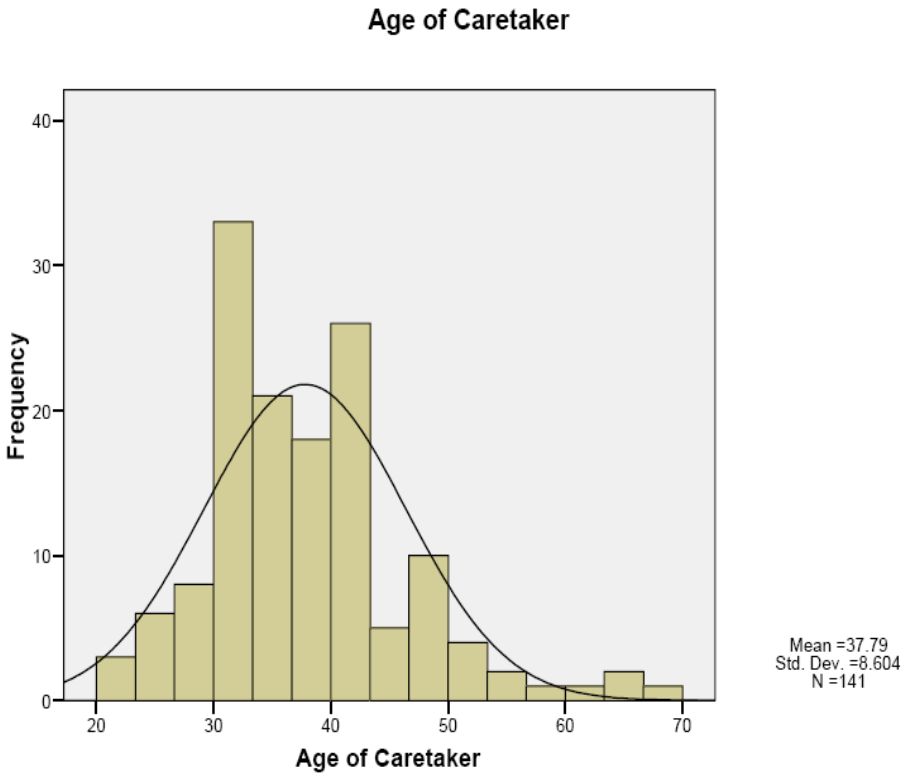


Figure 5

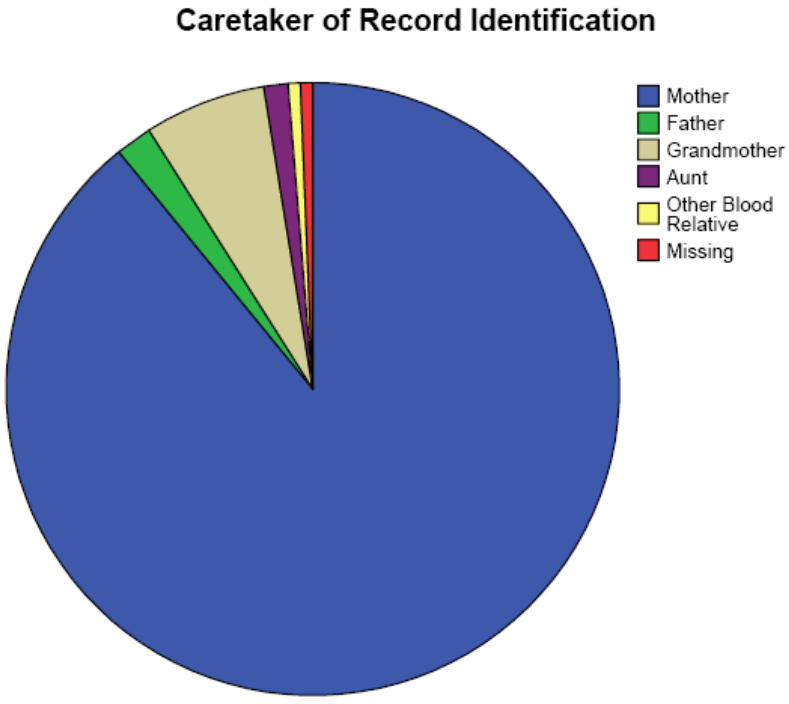


Table 3

Does Child Share a Bedroom With Others?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	57	36.5	36.8	36.8
	No	98	62.8	63.2	100.0
	Total	155	99.4	100.0	
Missing	3	1	.6		
Total		156	100.0		

Figure 6

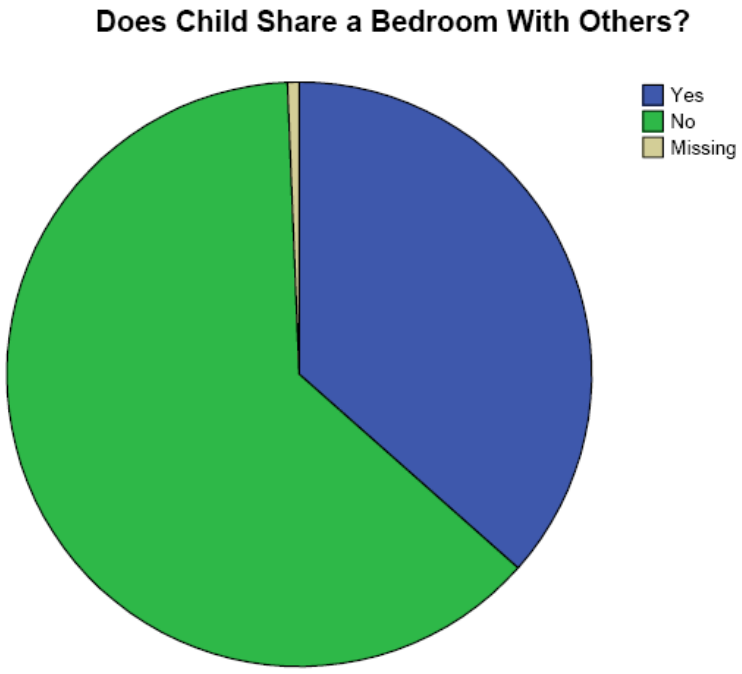


Table 4

Does Caretaker Smoke?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	46	29.5	30.1	30.1
	No	107	68.6	69.9	100.0
	Total	153	98.1	100.0	
Missing	10	3	1.9		
Total		156	100.0		

Table 5, if caretaker is a smoker, How Much do you smoke?

If Smoke, How Much?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 5 Cigarettes	5	3.2	3.3	3.3
	5-<10 Cigarettes	27	17.3	18.0	21.3
	11-15 Cigarettes	5	3.2	3.3	24.7
	16-20 Cigarettes	6	3.8	4.0	28.7
	20- 30 Cigarettes	1	.6	.7	29.3
	> 2 Packs Cigarettes	1	.6	.7	30.0
	Don't Know	1	.6	.7	30.7
	Answered no to previous question	104	66.7	69.3	100.0
	Total	150	96.2	100.0	
Missing	12	3	1.9		
	System	3	1.9		
	Total	6	3.8		
Total		156	100.0		

Table6

Does Child Share a Room With a Smoker?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.6	.6	.6
	Yes	5	3.2	3.2	3.9
	No	74	47.4	48.1	51.9
	Answer no to previous question	74	47.4	48.1	100.0
	Total	154	98.7	100.0	
Missing	4	2	1.3		
Total		156	100.0		

Part B: Epidemiological Characteristics of the Study Group Regarding Asthma

The study group caretakers were asked a number of questions regarding potential determinants of their children's asthma including; the onset age of asthma; parents status regarding asthma; caregivers status regarding asthma; and other children in the home with asthma.

Onset Age of Asthma in Study Children

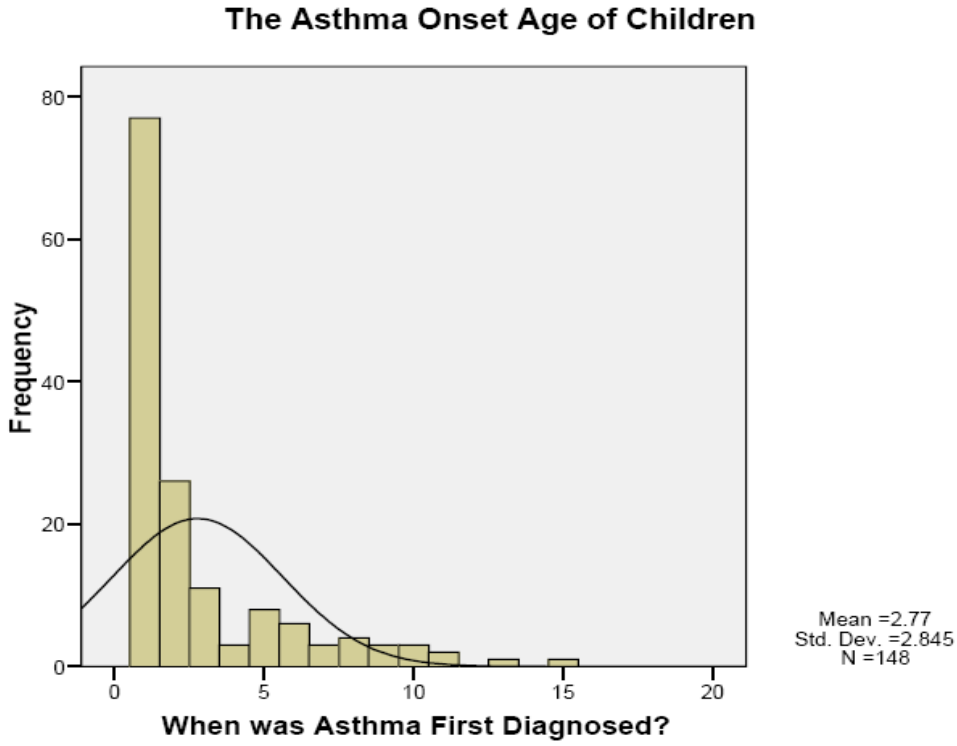
Table 1 has a breakdown of the onset age of asthma in the study group; approximately 52% of group members had onset of asthma less than or equal to 1 year of age. An additional 32 % of cases reported asthma onset between greater than one to 5 years of age. As shown in Table 7, Frequencies of Age of Asthma Onset in Study Population, a cumulative total of 77% of children had asthma onset before or during their third year of life. Figure 7 is a histogram of the age of onset of asthma in the study group; the average onset age is 2.8, the histogram is positively skewed.

Table 7, Frequencies of Age of Asthma Onset in Study Population

When was Asthma First Diagnosed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<= 1 year	77	49.4	52.0	52.0
	2	26	16.7	17.6	69.6
	3	11	7.1	7.4	77.0
	4	3	1.9	2.0	79.1
	5	8	5.1	5.4	84.5
	6	6	3.8	4.1	88.5
	7	3	1.9	2.0	90.5
	8	4	2.6	2.7	93.2
	9	3	1.9	2.0	95.3
	10	3	1.9	2.0	97.3
	11	2	1.3	1.4	98.6
	13	1	.6	.7	99.3
	15	1	.6	.7	100.0
	Total	148	94.9	100.0	
Missing	18	4	2.6		
	System	4	2.6		
	Total	8	5.1		
Total		156	100.0		

Figure 7



Multiple Children in Household with Asthma and Multi-Children Families

Tables 1 and 8, Other Children in the Home with Asthma?, documents that 56 of 155 homes or 36.1% contain additional children who have asthma. This is over 60% of the homes that have more than 1 child in the study.

TABLE 8

Other Children in Home With Asthma?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	56	35.9	36.1	36.1
	No	99	63.5	63.9	100.0
	Total	155	99.4	100.0	
Missing	System	1	.6		
Total		156	100.0		

Other Persons in Home with Asthma; Caregivers and Asthma and Parents and Asthma

Table 9, Other Persons in Home with Asthma?, has a breakdown showing, and Figure 8, graphically depicts, that 67 out of 153 families have adults or other children with asthma in the same household as the child enrolled in the study. Thus 43.8 percent of enrolled households have more than one person with asthma. Table 10 presents data on caregivers reporting to have asthma, 55 caretakers or 36% of households have a caretaker who has asthma. There is thus significant overlap between households that have additional children and/or caretakers and/or other asthmatic home occupants. Table 11 contains data on the number of participant children that have at least one parent with asthma; 69 out of 147 children or 47% have at least one parent with asthma.

Table 9

Other Persons in Home with Asthma?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.6	.7	.7
	Yes	67	42.9	43.8	44.4
	No	85	54.5	55.6	100.0
	Total	153	98.1	100.0	
Missing	3	3	1.9		
Total		156	100.0		

Figure 8

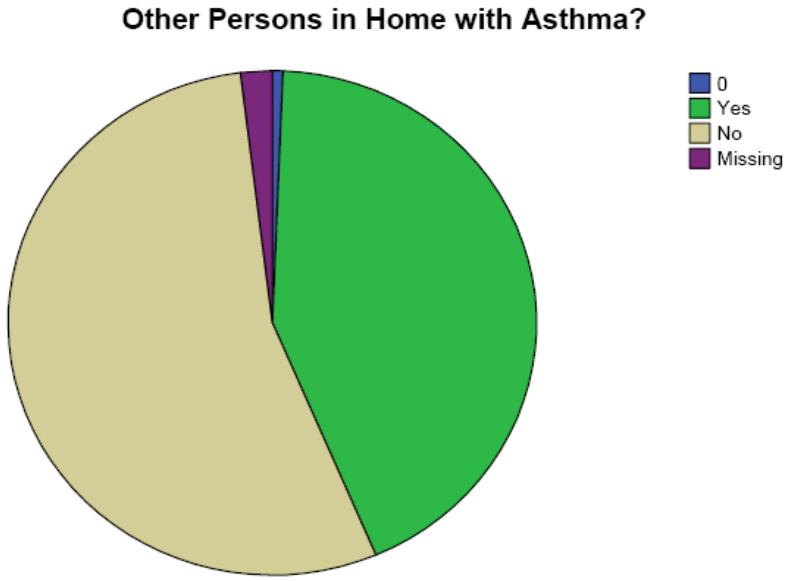


Table 10

Does Caretaker have Asthma?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	55	35.3	35.9	35.9
	No	98	62.8	64.1	100.0
	Total	153	98.1	100.0	
Missing	10	2	1.3		
	System	1	.6		
	Total	3	1.9		
Total		156	100.0		

Figure 9

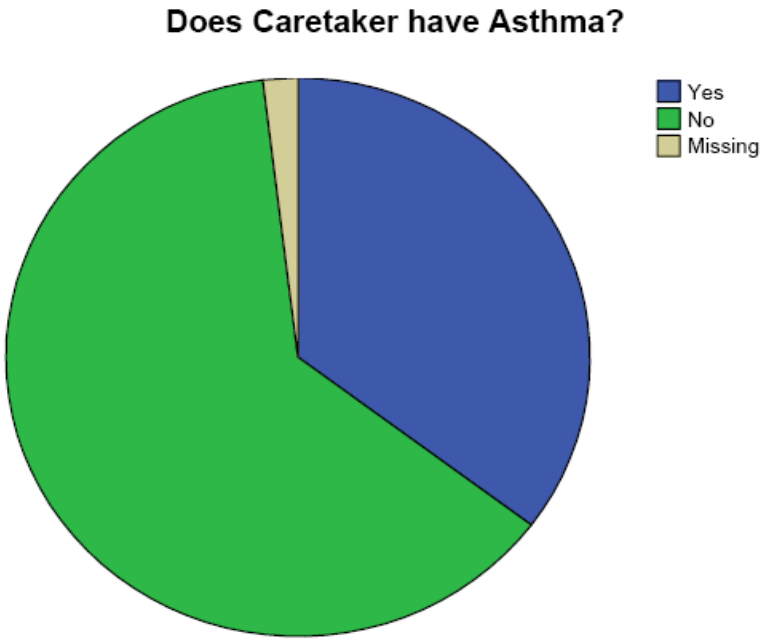
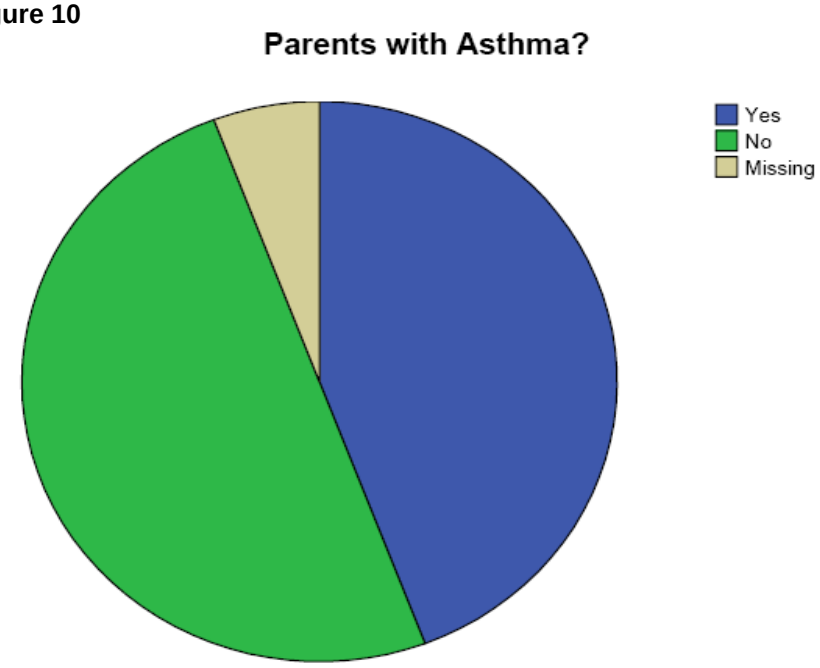


Table 11

Parents with Asthma?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	69	44.2	46.9	46.9
	No	78	50.0	53.1	100.0
	Total	147	94.2	100.0	
Missing	3.00	8	5.1		
	System	1	.6		
	Total	9	5.8		
Total		156	100.0		

Figure 10



Other Breathing Problems

Table 12 presents data on the existence of other breathing problems in study participants. Only 13 out of 154 valid answers to this question indicated that children enrolled in the study have other breathing problems. This was actually one of the intake requirements in the program but the question was asked in the initial meeting to see if "other breathing problems" could be a confounding variable to the evaluation.

Table 12

Does Child Have Other Breathing Problems?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	13	8.3	8.4	8.4
	No	141	90.4	91.6	100.0
	Total	154	98.7	100.0	
Missing	miss	1	.6		
	System	1	.6		
	Total	2	1.3		
Total		156	100.0		

Part II: Outcome Evaluation for Participants who have Completed the HHR AT HOME Program --Statistical Analysis

Analysis was based on 87 cases that have had the intervention. We employed SPSS 12.0 and STATA 8.0 for statistical tests. The paired t test was used to examine within-group baseline-to-exit changes in the major evaluation outcome variables of Scores on the Knowledge, Attitudes and Beliefs Questionnaire (KAB), Lost School Days, Rescue Medication Usage and Symptom Days. There have been inadequate pre-intervention Emergency Room Visits to do comparison work.

Is there significant improvement in caretaker performance on the Knowledge, Attitudes and Beliefs (KAB) questionnaire post intervention compared to baseline intake measurements?

Under a number of theories of health and program evaluation mechanics basic knowledge, attitudes and beliefs regarding a subject are an important predictor of behavior change. We developed a questionnaire to measure caretakers KAB concerning asthma and their ability to care for their children. We believe that the educational and physical intervention should increase caregiver KAB scores on this test and that that an increase in the KAB score of the caretaker will indicate behavior change concerning cleaning techniques, home health care and adherence to drug regimens. If there is any behavioral benefit to the intervention, we would expect an increasing trend in the KAB score, conversely, if the KAB score shows a descending trend, we would deduce that the intervention is not effective. The mean of the KAB2 (after intervention score) questionnaire has increased over 26 points over the KAB1 (baseline before-intervention score). Figure 11 shows the distribution of KAB scores pre intervention and Figure 12 the distribution of KAB scores post intervention; notice the shift of scores positively.

To test the hypothesis that the program caused a significant increase in KAB scores, we used the paired-t test to determine if there is a difference between the pre and post intervention KAB scores. The null hypothesis is stated as: KAB1-KAB2==0 and the alternative hypothesis is: KAB1 - KAB2 !=0 (!= indicates not equal to). 87 cases completed the intervention and finished the

second KAB survey. The statistics and test are shown in Table 14 below.

The t-statistic with 86 degree of freedom is –7.66, and the p-value is < .0001. We than conclude that the KAB of caretakers have significantly improved after the intervention. The 95% confidence interval of the improvement in KAB score is 19.5 <=X<= 33.0 points.

Table 14, Paired t-test; Improvement in KAB Scores

```
. ttest kab1 == kab2

Paired t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
    kab1 |      87    271.3563    3.844894    35.86278    263.7129    278.9997
    kab2 |      87    297.6552    3.430052     31.9934    290.8365    304.4739
---------+--------------------------------------------------------------------
    diff |      87   -26.29885    3.433218    32.02293   -33.12386   -19.47384
------------------------------------------------------------------------------
     mean(diff) = mean(kab1 - kab2)                                t =  -7.6601
 Ho: mean(diff) = 0                         degrees of freedom =       86

 Ha: mean(diff) < 0           Ha: mean(diff) != 0           Ha: mean(diff) > 0
 Pr(T < t) = 0.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 1.0000
```

Figure 11, Distribution of KAB Scores Pre-Intervention

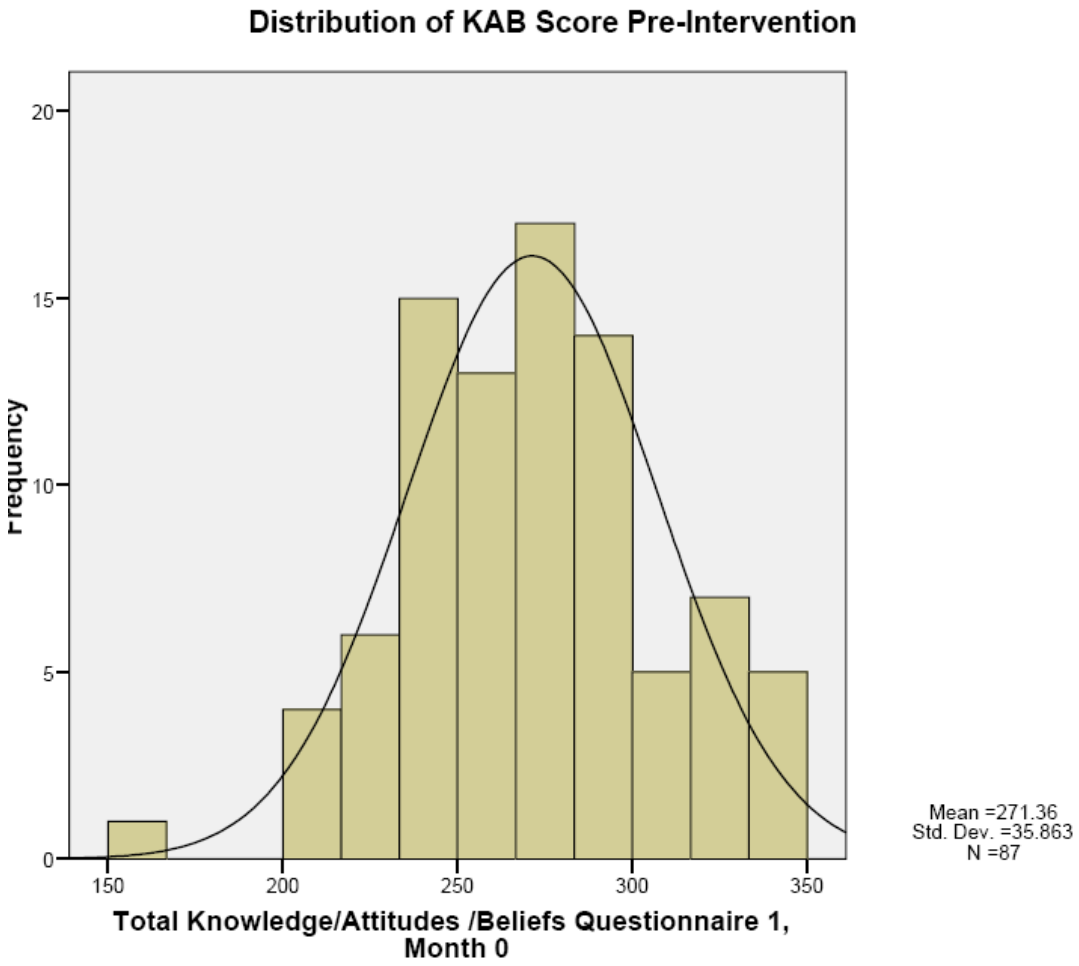
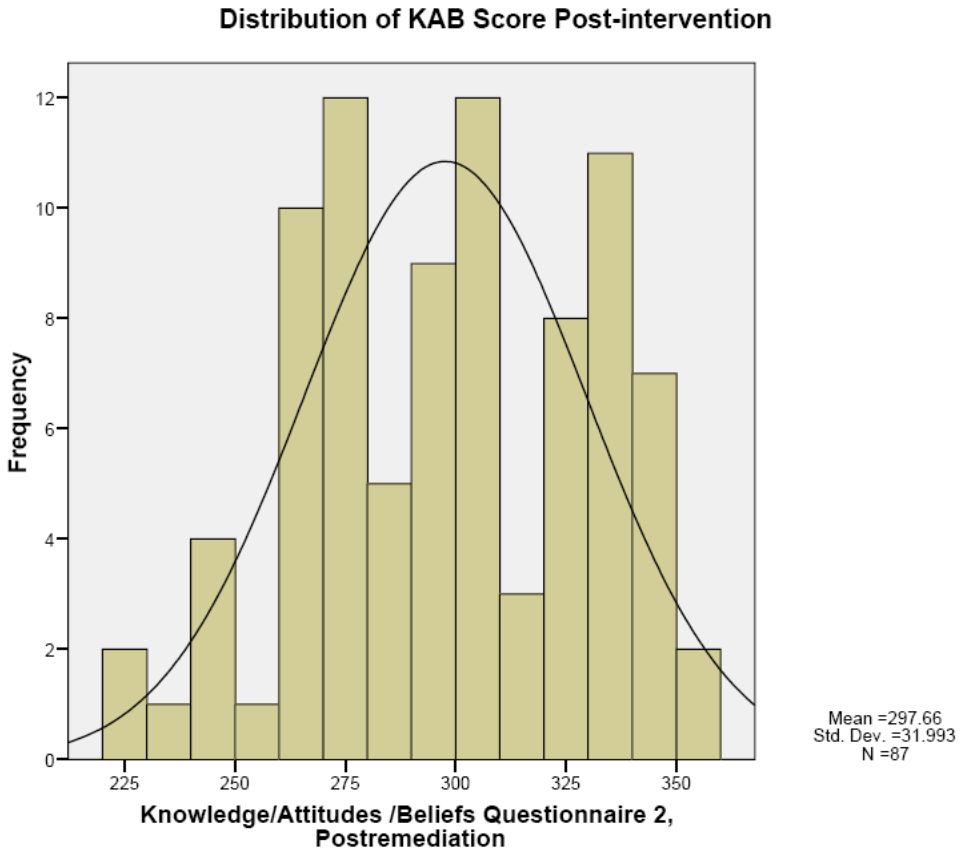


Figure 12, Distribution of KAB Scores Post-Intervention


Distribution of KAB Score Post-intervention
Frequency
0
2
4
6
8
10
12
225
250
275
300
325
350
Knowledge/Attitudes /Beliefs Questionnaire 2, Postremediation
Mean =297.66
Std. Dev. =31.993
N =87

Lost School Days

A major outcome indicator of the study is lost school days (or for this project period-lost days in daycare/camp/bible group etc.). We would expect that an effective program would lead to a decrease in lost school days. To test the hypothesis that the program significantly decreased lost school days we used the paired t- test to examine within group paired differences before and after intervention. Lost school days was reported over the last two-week period, and since there are 10 school days in that period the reported days were all transformed into rate data by dividing by 10. We will use alpha= .05 and do a two-tailed test.

Ho; Mean of LSD Paired Differences = 0
Ha; Mean of LSD Paired Differences != 0 (!= indicates not equal too)

Table 15 presents means, paired difference means, t statistic and 2 tailed significance.

The mean of the difference of LSD rates is .025 equating to an improvement of .25 days per 2-week period. This difference is now significant below the .05 level at p=.023. The 95% Confidence Interval for the mean of the difference is between .004 and .047 which translates into .04 days<=X<= .47 days. Stated in statistical term the true change in lost school days can be said to lie between .04 days and .47 days with 95% confidence.

Table 15, Lost School Days, Paired Sample t-test Results

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	RateSchool2	.0521	71	.10936	.01298
	RateSchool3	.0268	71	.06315	.00749

Paired Samples t- Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Rate School2 - Rate School3	.02535	.09215	.01094	.00354	.04716	2.318	70	.023

<u>Rescue Medication Usage</u>

In a successful intervention with a good educational component and a decrease in airborne asthma triggers from cleaning operations we would expect to see a decrease in rescue medication usage. Rescue medication usage was determined in the 2-week period following first interview (pre-intervention) and following program completion. Caretakers reported whether rescue medication was used in each day of the 14 day period; raw data were transformed into rates by dividing the number of days that rescue medication were used by 14.

To test the hypothesis that the program significantly decreased rescue medication usage (RES) we used the paired t- test to examine within group paired differences before and after intervention. We will use alpha= .05 and do a two-tailed test.

Ho; Mean of RES Paired Differences = 0
Ha; Mean of RES Paired Differences != 0 (!= indicates not equal too)

Table 16 presents means, paired difference means, t statistic and 2 tailed significance.

The ratio of paired differences of RES improved with a mean of .129; this translates into a decrease of 1.81 days of rescue medication usage over the 14-day period. The t-statistic for the test is 3.02 and with 81 degrees of freedom gave a p value of .003. This result means that there is now a significant difference between pre and post intervention rescue medication rates. The 95% Confidence Interval for the mean of the difference is between .044 and .214 which translates into .62 days<=X<= 3.00 days. Stated in statistical term the true change in rescue medication usage can be said to lie between .62 days and 3.00 days with 95% confidence.

Table 16

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	MedRate0	.3310	82	.39722	.04387
	MedRate3	.2021	82	.31762	.03508

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	MedRate0 - MedRate3	.12892	.38628	.04266	.04405	.21379	3.022	81	.003

<u>Symptom Days – (SYM) The number of days in the 2-weeks previous to being given the asthma severity questionnaire.</u>

As with RES, a successful intervention with a good educational component stressing adherence to maintenance medication and a decrease in airborne environmental asthma triggers from cleaning operations we would expect to see a decrease in symptom days. Symptom day data were determined in the 2-week period following first interview (pre-intervention) and following program completion (post-intervention). Raw symptom day data were transformed into rates by dividing the number of symptom days reported by 14.

To test the hypothesis that the program significantly SYM we used the paired t- test to examine within group paired differences before and after intervention. We will use alpha= .05 and do a two-tailed test.

Ho; Mean of SYM Paired Differences = 0
Ha; Mean of SYM Paired Differences != 0 (!= indicates not equal too)

Table 17 presents means, paired difference means, t statistic and 2 tailed significance for the Difference in SYM

The ratio of paired differences of SYM improved with a mean of .220; this translates into a decrease of 3.08 days of SYM over the 14-day period. The t-statistic for the test was 4.13 and with 81 degrees of freedom gave a p value of <.0001. We thus conclude that the alternate hypothesis is correct that the mean of the differences is not equal to 0. The 95% Confidence Internal of the difference is .114 <=X<=.325 this means that we have a 95% probability that the true

improvement in symptom days is between 1.6 and 4.5. This confidence interval continues to show much improvement from the 2nd and 3rd Quarter 2006 results, the confidence interval has narrowed and increased further from 0 to a lower limit of over 1.5 full symptom days.

Table 17, Paired Samples Statistics and t-tests- SYM

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Ratesymptom0	.4216	82	.44325	.04895
	Ratesymptom3	.2021	82	.28961	.03198

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Ratesymptom0 - Ratesymptom3	.21951	.48090	.05311	.11385	.32518	4.133	81	.000