



Improving Access to Health Care in Central Texas

ICC ASTHMA PROGRAM EVALUATION 2007-2009

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Integrated Care Collaboration
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EXECUTIVE SUMMARY

The ICC-Asthma Program utilizes the ICare database to identify asthma patients who fulfill one of the following criteria: one or more Emergency Department (ED) visits with an asthma diagnosis, one or more in-patient (IP) visit or hospitalization with asthma diagnosis, or four or more outpatient visits for asthma during the previous 12 months. The intervention consists of several components including home visit by a registered respiratory therapist, asthma education program, development of written asthma action plan, linking patients to medical homes, financial assistance screening, and collecting quality of life measures.

The program was evaluated using before and after utilization of services in a retrospective cohort study design. We identified both process and outcome evaluation measures. The former were mainly supplied by the program staff while the latter were extracted using the ICare database – a clinical data repository for uninsured and underinsured patients in Central Texas. We utilized the ICare database not only to track enrolled patients' utilization of services over the study period but also to create a control cohort of patients meeting eligibility criteria for enrollment. We sampled only those patients that had at least 12 months pre and post history in the database, meaning their first visit in the database was before 12 months from their enrollment and their last visit in the database was after 12 months since the date of enrollment in the program. We used the same criteria for the control group, using midpoint of the study period as the index date.

The program enrolled 1027 patients over a two-year period. Of these 229 patients fulfilled the study criteria of having 12 months pre and post encounter history in ICare database. 82% of the patients were under 18 and 68% were Hispanic. Pre/post intervention utilization of emergency services, inpatient visits, and total inpatient days showed a decrease of 37%, 63%, and 40% respectively in the enrolled patients. The control group of patients shows significantly less decrease in emergency department visits but increase in inpatient, and total inpatient days. The community benefit through reduced utilization by the enrolled group of patients is estimated at \$0.56 million per year in direct medical cost.

The ICC-Asthma Program is a successful example of a community collaboration using shared clinical data repositories, such as the ICare database, to coordinate care for asthma patients. The program reduced hospital visits and improved health outcomes through a system of coordinated care for asthma patients and provides a template to manage other chronic conditions in the community.



Background

More than 34 million Americans (11.5%) have asthma, of which 13.1 million are children.¹ The number of people with asthma has been increasing at a rate that almost doubled between 1980 and 1995 nationally. Annually, asthma causes nearly half a million hospitalizations (17 per 100,000 people), about 5,000 deaths (1.4 deaths per 100,000 in adults and 0.3 per 100,000 deaths in children) and 134 million days of restricted activity.² Asthma leads to significant morbidity and substantial emergency and outpatient utilization. In 2005, asthma patients made over 12 million physician-office visits, 1.3 million hospital outpatient department visits and 1.8 million hospital emergency visits.³ Total economic costs due to asthma have been estimated at \$20.7 billion (in 2010 dollars).⁴

In Texas in 2007, about 2.3 million adults (12.9%) and 876,000 children (13.6%) had self-reported lifetime asthma. Approximately 25,000 hospitalizations for asthma occurred in Texas estimated to equal \$446.8 million in hospital charges. Medicaid reimbursement claims for asthma in 2007 were about \$77 million.⁵ Texas Health Service Region 7, that includes Travis and Williamson counties, has a prevalence of 'current asthma' at 11.2% and 8.2% among children and adults respectively, which is higher than the same prevalence rates of 9.2% and 7.3% for the state.⁶

Program Description

The Integrated Care Collaboration (ICC) is a consortium of over 26 safety net providers in Central Texas with a mission to improve access to healthcare for the un- and under-insured. The ICC's ICare database serves as a master patient index and clinical data repository for data on uninsured and underinsured patients in Central Texas.

The ICC Asthma Program expanded a Seton Family of Hospital-run disease management program that used a registered respiratory therapist to deliver asthma education through home visits. The asthma program is now an independent program operated mainly through the support of two ICC members, Seton Community Clinics and Lone Star Circle of Care. The funding for the program began in April 2007. This study covers the two-year time period of operation of the program from 1st April 2007 to 31st March 2009.

The program uses ICare database to identify asthma patients who are likely to benefit from the program. Asthma patients are selected for enrollment in the program by querying the database to identify patients who have one of the following:

- Have at least 1 Emergency Department (ED) visit for asthma in the last 12 months
- Have at least 1 in-patient (IP) visit or hospitalization for asthma in the last 12 months
- Have ≥4 outpatient visits for asthma in the last 12 months



Some Central Texas patients are also accepted into the program through direct physician referral. The program staff uses the contact information supplied with the patient lists to contact these patients through postcards, emails, or phone calls. At least three attempts are made to contact each individual patient by phone. Patients who agree to enroll in the program are scheduled for a home visit appointment with a respiratory therapist. Most asthma education takes place during this home visit by the respiratory therapist.

The asthma education and management program consists of the following key components:

- Home visits by registered respiratory therapist/educator
- Patient education
- Documented asthma action plan
- Primary care physician involvement
- Financial assistance screening
- Medication management
- Quality of Life surveys
- Patient satisfaction surveys

During each home visit session, the patient, and/or the patient's family, receives tailored asthma education consisting of: education on asthma as a chronic disease; inhalant device training and skills demonstration, peak flow meter and diary training, instruction on self-management and monitoring techniques; instruction on prescribed medications; and an asthma action plan.

The asthma action plan completed during the education session is designed to reinforce the self-management skills learned during the asthma education session. The asthma action plan form is placed in the patient's medical record and a copy is given to the patient or parent. School-aged children have their asthma action plan faxed directly to the child's school nurse and to the child's provider.

In addition to receiving asthma education, each patient completes a twenty-one question quality of life survey to evaluate the impact of asthma on the family's quality of life. This questionnaire evaluates indicators such as: frequency of day and night symptoms, frequency of use of a peak flow meter, number of missed days from school and work, frequency of medication doses, etc. These indicators are measured against established metrics from the Institutes on Healthcare Improvement and are repeated at three months, six months and twelve month after the initial survey.

For patients who have no source of health coverage or have lost their coverage during the program, staff uses ICC's *Medicaider*® program to identify funding eligibility and to establish insurance coverage for the patient.



Evaluation Methodology

Program evaluation involves process evaluation and outcome evaluation. Process evaluation assesses procedural or operational aspects of the program and measures how well the program was implemented. Outcome evaluation focuses on measurable outcomes assessing improvements in health status and quality of life of the enrolled patients. We conducted in-person interviews with program staff and evaluated some interim operational reports. The process evaluation measures reported below are mainly based on reports obtained from the program staff and generated through their clinical information system (CIS). The outcome measures, which are the main focus of this evaluation, are based on rates of emergency department (ED) visits per 1000 person-years as reported in the ICare database by ICC member entities.^a

The evaluation design uses both pre-/post-test evaluation for the intervention group as well as a control-treatment group evaluation. In the pre-/post-test evaluation design enrolled patients' results following the intervention are compared with the same before the intervention. For this we search ICare database for utilization by enrolled patients in the 12 months prior to the enrollment date in the program and compare it to that in the 12 months after the intervention. The enrollment date varies for each patient depending on when the home visit or class took place so we use the class date to calculate the pre and post utilization period for each patient.

Table 1. Process & Outcome Evaluation Measures

	Evaluation Measures	Evaluation Objective	Data Source
	Process Measures		
1.	Number of patients categorized according to NHLBI/NAEPP Guidelines by severity of asthma	Measure efficiency in stratifying patients	Clinical Information System (CIS)
2.	Number of completed Quality of Life (QoL) surveys	Measure efficiency in getting QoL information	QoL Surveys
3.	Number of patients with persistent asthma given a written asthma action plan	Measure output of the program in providing tools for self-management to patients	CIS
4.	Number of patients who complete follow-up surveys	Report follow through by the program staff to capture outcomes	CIS
5.	Number of school-aged children who have action plan at school	Measure efficiency in providing coordinated care to children	CIS

^a The term 1000 person-years refers to the rate of use of services by 1000 patients in one year and is usually derived by multiplying the mean rate by 1000. This is a useful way of standardizing rates for comparison among groups of different sizes.



6.	Number of patients receiving training on using Peak Exploratory Flow Rate (PEFR) meters	Measure asthma education provided to help in self-management of disease by patients	CIS
7.	Patient satisfaction with program	Measure patient satisfaction with services and education provided	Patient Satisfaction Surveys
8.	Number of patients tested for eligibility using Medicaider	Measure of following program protocol	Medicaider report
	Outcomes Measures		
9.	Average number of Emergency Department (ED) visits per 1000 person-years	Measure effect of intervention on utilization of ED services by asthma patients	ICare
10.	Number of In-Patient (IP) visits per 1000 person-years	Measure the improvement in control of asthma in patients	ICare
11.	Average length of stay (LOS) days per 1000 person-years	Measure the improvement in control of asthma in patients	ICare
12.	Number of patients with symptom days in last 15 days	Measure effect on control of asthma	QoL Survey
13.	Number of patients with symptom nights in last 30 days	Measure effect on control of asthma	QoL Survey
14.	Number of patients with limited physical activity in last 30 days	Measure effect on management of asthma	QoL Survey

Since the pre-/post-test design does not rule out influence from external factors as an explanation for changes before and after an intervention, we examine these outcome changes using the control-treatment design. We use ICare database to apply a retrospective cohort study design by creating a control group that matches the treatment group of enrolled patients. We use the original list of patients in ICare database who were identified for inclusion in the program and who did not enroll in the program. These patients fulfilled the program inclusion criteria on 4/1/07. Since the treatment group was enrolled at various times during the period 4/1/07 to 3/31/09, we use the midpoint of this two-year period as index date for the control period. We, therefore, examine the utilization of the control group in the year before 4/1/08, and compare it to their utilization in the year after this date. We applied the same criteria as in the treatment group by only including those with at least an encounter history of 12 months before and after the index date of 4/1/08.



Data Sources

The information collected for most patients in ICare database includes: name, date of birth, sex, social security number, patient address, race/ethnicity, marital status, funding program, encounter type, location of encounter, attending doctor, admission date and time, discharge date and time, diagnosis code (ICD-9) and procedure codes (CPT-4). The ICare database currently has approximately 900,000 patients and more than 6 million encounters going back to 2002. We used the diagnosis codes of 493.xx in any encounter to identify asthma patients in the ICare database, as these are the most often used criteria to identify asthma patients using clinical data.⁷

The asthma program collects most of its data, including survey responses from patients, in a clinical information system. The program administers the Institutes for Healthcare Improvement's (IHI) Quality of Life Surveys (QoL) pre- and post-intervention. The QoL surveys record information concerning patient symptoms and medications. The surveys are repeated at quarterly intervals during the year following the intervention. The severity of asthma is assessed according to the NHLBI/NAEPP guidelines that range from mild intermittent asthma to severe persistent asthma.⁸

Results

We identified 1027 enrolled patients in the asthma program that showed a referral from the ICare database and who also had a medical record number in the ICare system. These patients had their first encounter with the asthma program during the two year period (4/1/2007-3/31/2009) of study. The control group found 4706 patients who met the inclusion criteria on 4/1/07. Of these we took out the enrolled patients to be left with 4621 and also those with less than 12 months of pre or post history of encounters in the ICare system. This left us with 2623 patients. Rather than work with averages overall for the control group and then age-adjust it to match the enrollment group, we divided this group into three age groups and identified, randomly, number of patients in each age group equivalent to the proportions in the enrolled group. We chose the largest age category in the enrolled group as our reference group in order to maximize the number in the comparison group. We ended up with 1010 patients in the control group. The age-adjusted distribution in both control and treatment group is shown in Table 1 below:

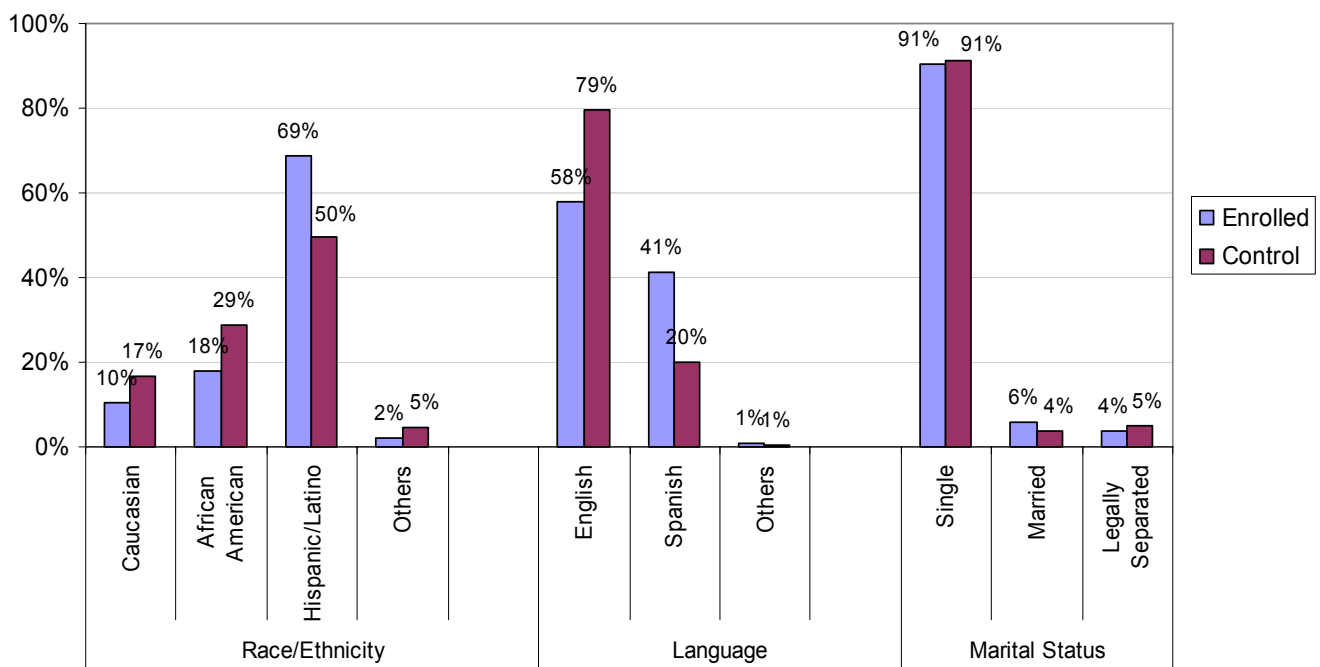
Table 2. Age Distribution of Control and Treatment Groups

Age Range Distribution	Treatment		Control	
	# Pts	% of Total	# Pts	% of Total
0-17	190	82.97%	838	82.97%
18-44	16	6.99%	70	6.93%
45-64	23	10.04%	102	10.10%
Total	229	100%	1010	100%



The average age for the enrolled patient group on April 1, 2009 was 14.1 years; 52% female, 69% Hispanic, 18% African American and 10% Caucasian. 41% indicated Spanish as their preferred language and 58% English. Since majority of enrolled patients were pediatric patients 91% were unmarried, 6% married, and 2% divorced or widowed (Table 2).

Figure 1: Race/ethnicity, Language, and Marital Status for Control (n=1010) and Treatment (n=229) Groups



The control group had an average age of 16.1 years; 45% female, 50% Hispanic, 29% African American and 17% Caucasian. Only 20% indicated Spanish as their preferred language while 79% said English. A comparison of some of these demographics is shown in Figure 1.

Table 3: Demographic Comparison of Control and Treatment Groups

		Enrolled	Control
Sample size		229	1010
Sex	Female	48%	45%
	Male	52%	55%
Race/Ethnicity	Caucasian	10%	17%
	African American	18%	29%
	Hispanic/Latino	69%	50%
	Others	2%	5%
Language	English	58%	79%
	Spanish	41%	20%
	Others	1%	1%
Marital Status	Single	91%	91%
	Married	6%	4%
	Legally Separated	4%	5%

Process Evaluation

Process evaluation measures evaluated how well the program adhered to the intervention protocol. This included looking at how many patients were categorized by severity of asthma, had an asthma action plan developed, were on controller medications, and were trained on the use of PEFR.

Patients also completed quality of life (QoL) surveys that included questions about symptoms of the disease and that are used to assess the severity and control of asthma in patients. 145 of 229 patients in this study filled the QoL survey at the start of the intervention. Only 35% (51/145) of initial responders filled out a follow-up survey.^b Since the follow-up numbers for QoL survey were fairly small compared to the patients in the study, any improvements seen in this group would not be generalizable to the entire enrolled group. We, therefore, looked at data that related to all patients in a certain time

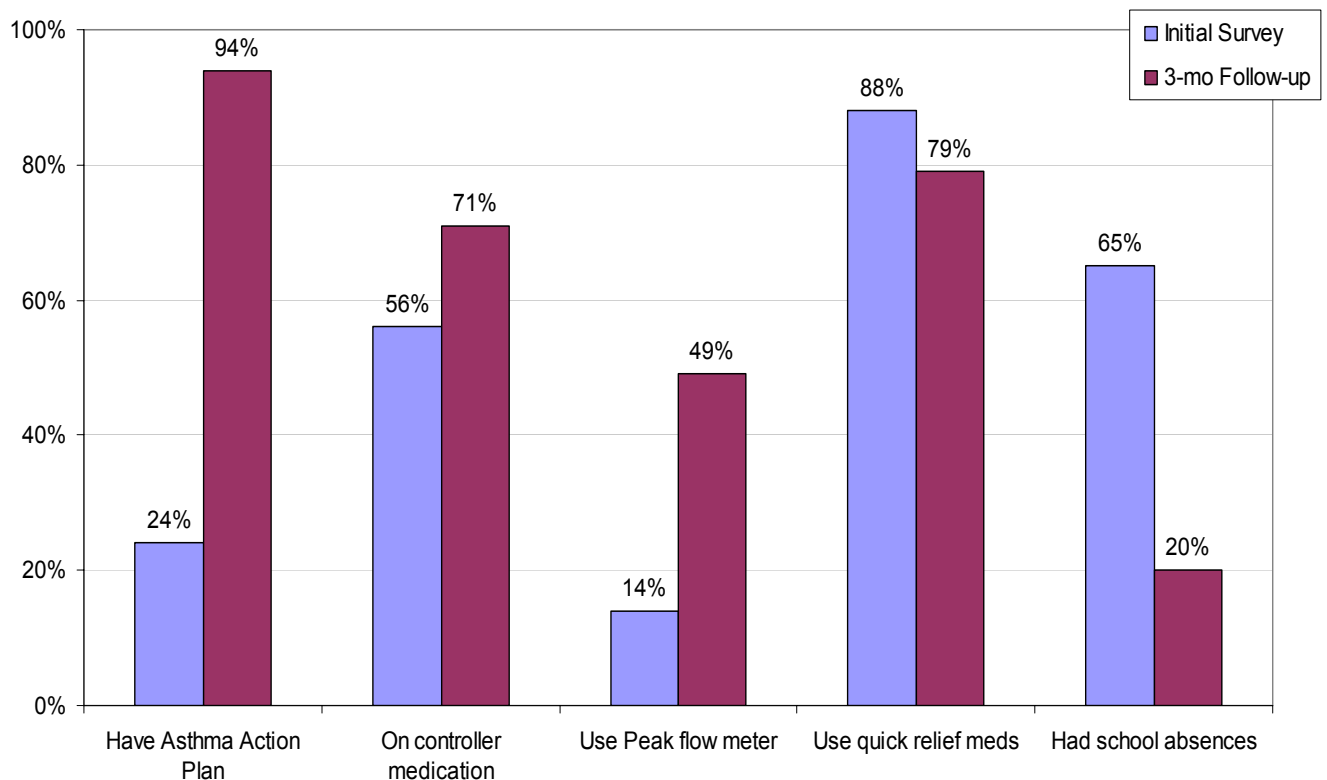
^b For the enrolled patients for whom QoL survey data were available, QoL measures showed a remarkable improvement before and after the program. Only 14% (20/145) of patients enrolled in the program had an asthma action plan at the start of the program but in the follow-up survey, 84% (43/51) indicated having a written asthma action plan. There was some increase in the percentage of patients who used controller medications going up from 68% (97/142) to 76% (39/51).



frame who had completed both initial and a 3-month follow-up QoL survey so we can assess changes in these measures with greater confidence. Because of a difficulty in retrieving QoL data from an older information system, the program staff provided us pre and post intervention QoL data for patients enrolled between 10/1/2008 and 3/31/2009.

For these 153 patients who had filled out the QoL survey at the time of enrollment in the program and then 3-months following the program, the improvements in some key measures are shown in Figure 2.

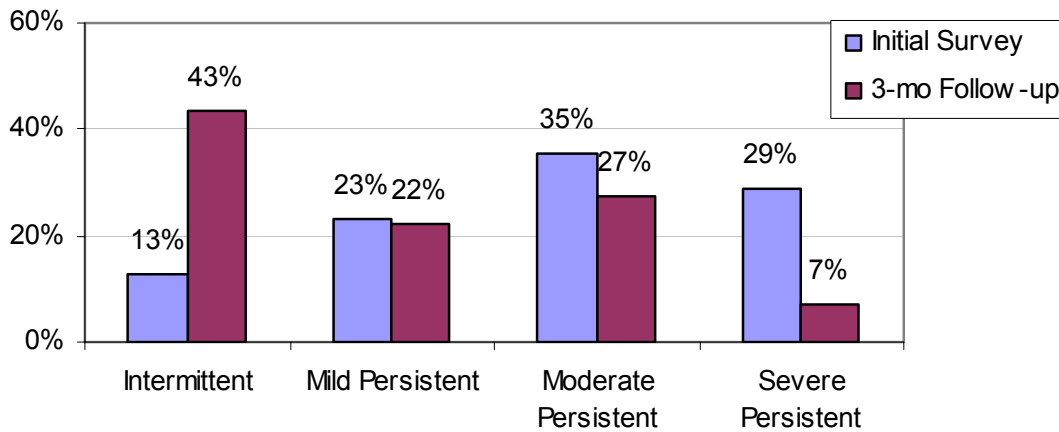
Figure 2: Quality of Life Measures at the Time of Enrollment and 3-months Later, 10/1/2008 – 3/31/2009 (n=153)



The program staff also used a standardized tool to assess asthma severity for each patient. The results of the severity assessment for the group of 153 patients with QoL survey results show change in the right direction. The number of patients with severe persistent asthma decreased while those with mild intermittent asthma increased within 3 months of the enrollment, as shown in Figure 3.

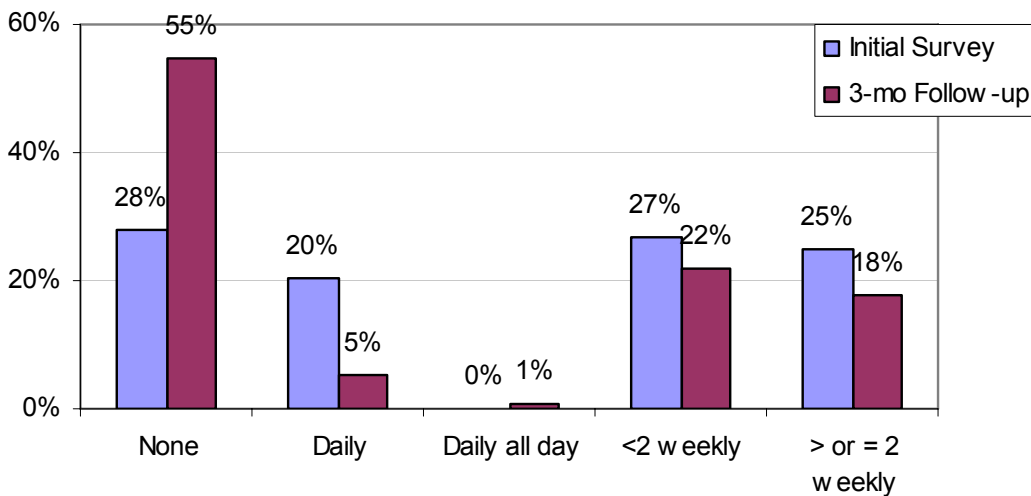


Figure 3: Severity Assessment of Enrolled Patients at the Time of Enrollment and 3 Months Later, 10/1/2008 – 3/31/2009 (n=153)



Improvements in number of days with asthma symptoms in the last month, number of nights with asthma symptoms in the last month, and days with limited physical activity due to asthma, as reported by patients are shown in Figure 3-5. All the measures show changes that indicate improvements in the control of asthma by the enrolled patients.

Figure 4: Number of Days with Symptoms in Last Month for Enrolled Patients at the Time of Enrollment and 3 Months Later, 10/1/2008 – 3/31/2009 (n=153)





School absences were reduced from 52% (67/130) to 29% (13/45). Moderate to severe asthma cases decreased from 57% (79/138) to 27% (14/51). Physical activity days increased from an average of 2.6 days to 3 days while average number of school days missed decreased from 2.7 to 1.5 per patient.

Figure 5: Number of Nights with Symptoms in Last Month for Enrolled Patients at the Time of Enrollment and 3 Months Later, 10/1/2008 – 3/31/2009 (n=153)

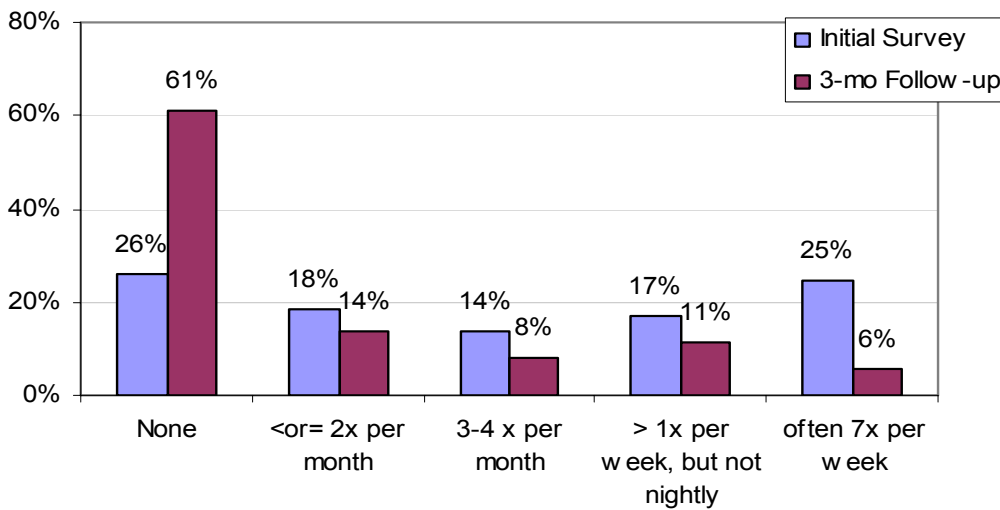
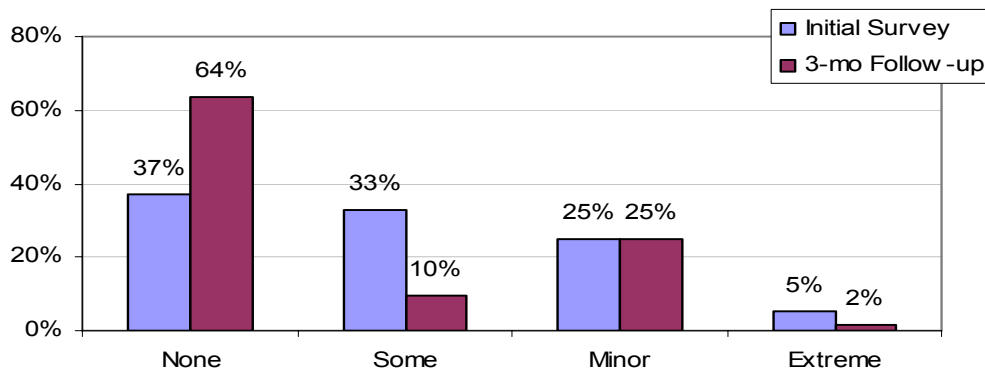


Figure 6: Number Of Days with Limited Physical Activity due to Asthma in Last Month for Enrolled Patients at the Time of Enrollment and 3 Months Later, 10/1/2008 – 3/31/2009 (n=153)





The data presented above is self-reported data in most cases or that reported by program staff. The reports were generated using the program clinical information system but not verified through any other audit or record checking. However, the subsequent analysis of outcomes is based on data that automatically populates the ICare database as each encounter occurs at any of the ICC member sites.

Outcome Evaluation

Evaluation of outcome measures shows significant decreases in utilization in enrolled patients following the asthma intervention. Described in rates of utilization of services as visits per 1000 person-years, Table 3 shows rate of ED use falling by 37%, IP use by 63%, and total inpatient days reduced by 46%. Clinic visits increase by roughly 10%.

Table 4: Utilization of Medical Services by Enrolled Patients

<i>n</i> =229	Total Pre-intervention visits	No. visits per 1000 person-year	Min visits by any patient	Max visits by any patient	Total Post-intervention visits	No. visits per 1000 person-year	Min visits by any patient	Max visits by any patient
ED visits	197	860	0	8	124	541	0	5
IP visits	72	314	0	3	27	118	0	2
Total IP Days (TID)	137	598	0	14	82	358	0	15
Clinic visits	236	1031	0	8	259	1131	0	13



Figure 7 uses average utilization before and after the program and shows the percentage decrease in each category as a result of the program.

Figure 7: Percentage Decrease in Mean Utilization of Enrolled Patients

Treatment Group (n=229)

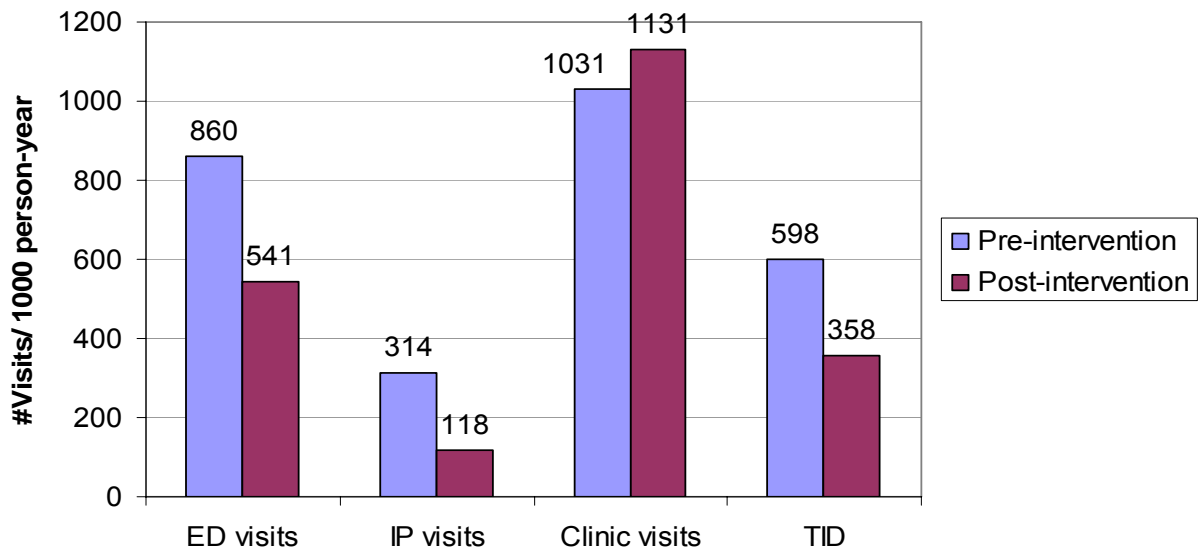


Table 5 shows that patients in the control group had in total 442 ED visits per 1000 person-years in the year before and 384 in the year after – a 14% decrease. Similarly, IP visits increased by 16% (from 56 to 65 per 1000 person-years), clinic visits decreased by 17% (from 729 to 604 visits per 1000 person-years), and total inpatient days increased by 46% (150 to 220 days per 1000 person-years).

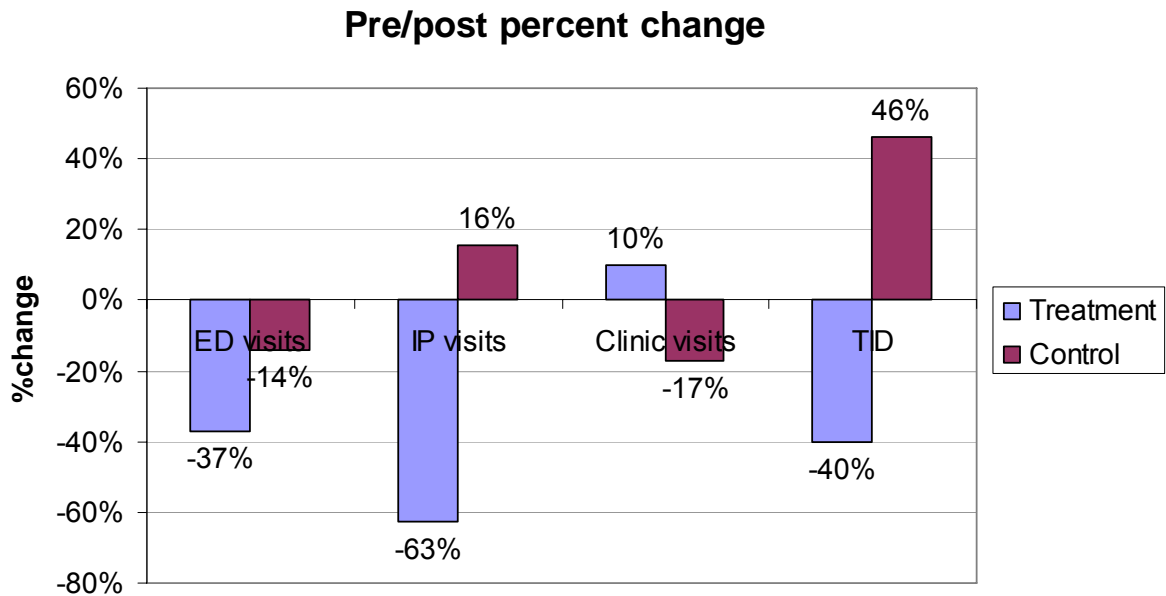
Table 5: Utilization of Patients in Control Group

<i>n=1010</i>	Total Pre-intervention visits	(No. visits per 1000 person-year)	Total Post-intervention visits	(No. visits per 1000 person-year)
ED visits	446	442	384	380
IP visits	57	56	66	65
TID days	152	150	222	220
Clinic visits	736	729	610	604



Figure 8 shows that the change in utilization of services, such as ED and IP visits, are in opposite direction to the changes observed in pre-post-intervention in the enrolled group. There seems to be a net 27% increase in clinic utilization while a 23% and 79% decrease in ED and IP visits respectively in treatment patients compared to control patients.

Figure 8: Percentage Decrease in Mean Utilization by Treatment and Control Groups





Cost-Benefit Analysis

In the absence of cost data, we use estimated expenditure based on national averages to calculate the return on investment of the asthma program. We get the actual cost of providing the program on a per patient basis from program staff. This mainly includes salaries of the staff, benefits, and other operating costs for supplies, printing etc. For estimating the benefits on utilization, we use average direct medical costs for different types of visit for asthma nationally, as reported by the Medical Expenditure Panel Survey for 2007.⁹ Table 6 shows the calculation of return on investment ratio (cost-benefit ratio) for the program.

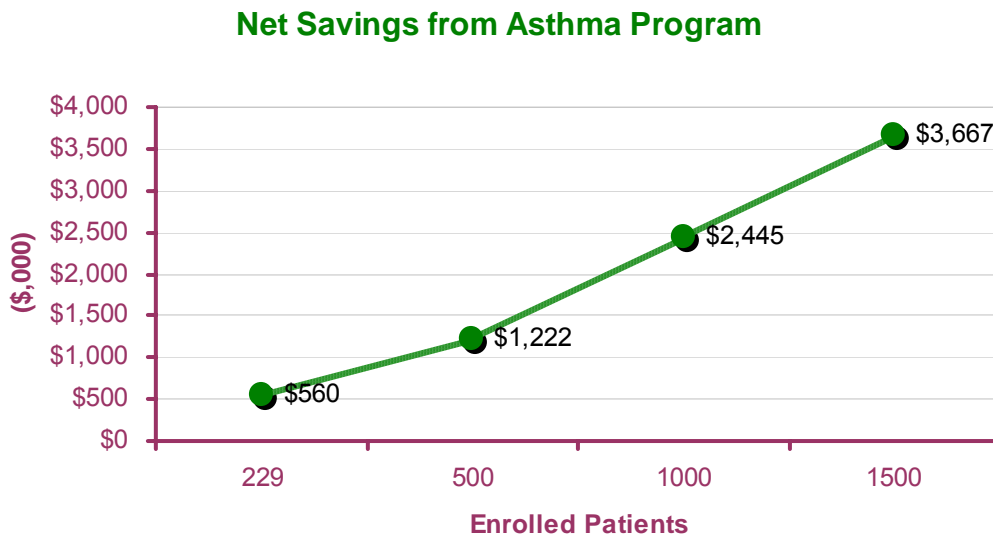
Table 6: Financial Benefit of the Program for Enrolled Patients Using Program Effect

<i>n=229</i>	
Total operating expenditures (reported @\$460 per patient) (salaries + benefits + other expenses (supplies + printing etc))	=\$105,340
Potential saving in ED visits (decrease by 37%) @\$629 per patient <i>Total ED visits * Average cost per visit for asthma * Estimated reduction in ED visits post-intervention</i>	=\$45,848
Potential saving in IP visits (decrease by 63%) @\$13,862 per patient <i>Total IP visits * Average cost per visit for asthma * Estimated reduction in IP visits post- intervention</i>	=\$628,780
Potential cost of Clinic visits (increase by 10%) @\$399 per patient <i>Total clinic visits * Average cost per visit for asthma * Estimated increase in visits post- intervention</i>	=\$9,416
Total savings from the program (changes in ED, IP and Clinic visits in enrolled patients)	=\$665,212
Net benefit for enrolled patients using program effect on patients in the program <i>(Total savings) – (Total operating expenditure)</i>	=\$ 559,872
Net benefits ratio	5.3



Table 6 shows that the net benefit to the healthcare system is \$559,872 when the intervention is provided to 229 patients and the program effect is measured annually. For each dollar spent in the delivery of the asthma program, the system gains \$5.30. Without counting economies of scale effect in expanding this program, the net savings from the same program for 1000 enrolled patients will be close to \$2.4 million a year as shown in Figure 9.

Figure 9: Estimated Net Savings from Asthma Program in a Year





Concluding Remarks

The asthma program is a collaboration of healthcare providers to develop a community intervention to affect chronic disease outcomes in patients. The evaluation of the program shows significant decrease in utilization of emergency department and hospitalization in enrolled patients. Although the program is mainly a one-time intervention, the impressive results suggest the establishment of a system of chronic disease management in the community that involves continued monitoring and education of patients. The key role of the ICare database as a clinical data repository derived from a health information exchange is a unique feature of this program as it helped in identification of eligible patients, in tracking the use of services, and in evaluating outcomes of the program. The successful use of ICare database in the asthma program provides a template for other communities that are facing rising asthma prevalence among the uninsured and vulnerable populations. It should also help the Central Texas community identify other areas in which chronic disease care can be coordinated and made more effective.



References

1. Centers for Disease Control and Prevention. 2007 National Health Interview Survey(NHIS) Data. Table 2-1. Available at <http://www.cdc.gov/asthma/nhis/07/table2-1.htm>. Accessed on 14 August, 2010.
2. U.S. Department of Health & Human Services. Guidelines for the diagnosis and management of asthma. National Asthma Education & Prevention Program. Expert Panel Report 3. NIH Publication Number 08-5846. October 2007.
3. *ibid*
4. American Lung Association. Trends in asthma morbidity and mortality. February 2010. Available at <http://www.lungusa.org/finding-cures/our-research/trend-reports/asthma-trend-report.pdf>. Accessed 6 July, 2010.
5. *ibid*
6. Texas Department of State Health Services. Asthma Health Facts 2008. Texas Health Service Region 7. Available at <http://www.dshs.state.tx.us/asthma/pdf/FactSheet7.pdf>. Accessed 14 August, 2010.
7. Nelson SG, Grant EN, Trubitt MJ, Foggs MB, Weiss KB. A survey of asthma care in managed care organizations: Results from the Chicago Asthma Surveillance Initiative. *Chest*. 1999;116:173-178
8. U.S. Department of Health & Human Services. Guidelines for the diagnosis and management of asthma. National Asthma Education & Prevention Program. Expert Panel Report 3. NIH Publication Number 08-5846. October 2007.
9. Agency for Healthcare Research & Quality (AHRQ). Mean Expenses per person with care for selected conditions by type of service, United States, 2007 Table 3a (HH Tables, MEPSnetQuery). Available at http://www.meps.ahrq.gov/mepsweb/data_stats/MEPSnetHC.jsp. Accessed on July 26, 2010.



About the Integrated Care Collaboration:

The Integrated Care Collaboration® (ICC) is a nonprofit (501(c)3), TUUNA, organization that brings together providers in Central Texas with a mission to improve access to healthcare and operates as a regional, well-managed system of care that maximizes and leverages resources.

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