



# City of Long Beach

Department of Health and Human Services  
Bureau of Environmental Health



## Asthma Life Skills Academy for Adults (ALSAA) Program

Highlights of an Advanced Asthma Case Management Program  
for Adults and Seniors in Long Beach



October 1, 2011—September 30, 2013

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# Acknowledgements

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City of Long Beach DHHS Public Health Nursing Program  
City of Long Beach Housing Inspection Program  
City of Long Beach Parks, Recreation and Marine  
Long Beach Alliance for Children with Asthma  
The Children’s Clinic, Inc.  
Westside Neighborhood Clinic

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## *Executive Summary*

The ALSAA Program was conceived to inspire long-term behavior changes in adults and seniors with asthma around preventive care practices. Completion of an earlier intervention--the Community Asthma and Air Quality Resource Education (CAARE)—gave many ALSAA participants the tools needed to improve their asthma symptoms from poorly-controlled, crisis levels to well-controlled and managed. However, many CAARE participants struggled to consistently employ effective asthma management practices to maintain control of their asthma symptoms in the long-term. These practices are critically important for long-term well-being because ALSAA participants reside in Long Beach communities with poor air quality that are adjacent to major international shipping ports, major freeways, oil refineries, truck corridors, and rail yards. One hundred eighty-two (182) adults and seniors with asthma were enrolled, 172 completed the home visits, and 145 completed the three-month follow-up assessment. Following participation in the ALSAA Program, self-reported control of asthma symptoms and proper reliance on quick-relief

medications increased while the collateral impacts (i.e., missed days of work or school) of these symptoms declined. In addition, emergency visits to care providers for treatment of acute asthma symptoms declined 93% and represent approximately \$1,034,521 in direct care cost savings. Participant behavior change relative to effective asthma management practices was generally positive. Asthma wellness visits and daily controller medication use declined over the course of the ALSAA Program, whereas the number of participants that have a written asthma action plan, consistently use a spacer with inhaled medication, and monitor their breathing and lung functioning with a peak flow meter increased. Collectively, the asthma health outcomes and wellness practices of ALSAA participants are improved and anticipated direct care costs have declined significantly. There is evidence to suggest that participants' renewed and extended relationship with a Community Health Worker following their CAARE experiences increases the likelihood that preventive care behaviors become habitual and health impacts are more durable.

## *Statement of the Problem*

Asthma is a chronic disease that inflames and narrows the airways of the lungs. Asthma is often triggered by acute reactions to airborne irritants or physical and emotional stressors. While there is no known cure for asthma, asthma can be successfully managed with regular consultation with a physician, consistent use of medication, and avoidance of triggers. Annual costs to treat asthma symptoms exceed \$56 billion nationally and \$1 billion in the State of California. Adult asthma prevalence in the County of Los Angeles Service Planning Area 8 (inclusive of Long Beach) is estimated at 140,000 or 13.1% of adults.

The Port of Long Beach (POLB) designed their Port Mitigation Grant Programs to improve community health by reducing the impacts of Port-related air pollution, and to reduce the emissions of greenhouse gases. Air pollution in Long Beach exacerbates the symptoms of many residents with asthma and leads to more than 1 in 5 persons having poorly controlled asthma. Implementation of a recent home visitation and case management program, the Community Asthma and Air Quality Resource Education (CAARE) Program helped many adults and seniors to gain

better control of their asthma symptoms by providing educational support and personalized coaching. However, many CAARE alumni did not consistently practice preventive techniques that would help them to sustain positive health outcomes in a geographic area with excessive indoor and outdoor air pollution. Proper use of medications will help to keep acute asthma symptoms moderately controlled and lessen the number and severity of asthma attacks.

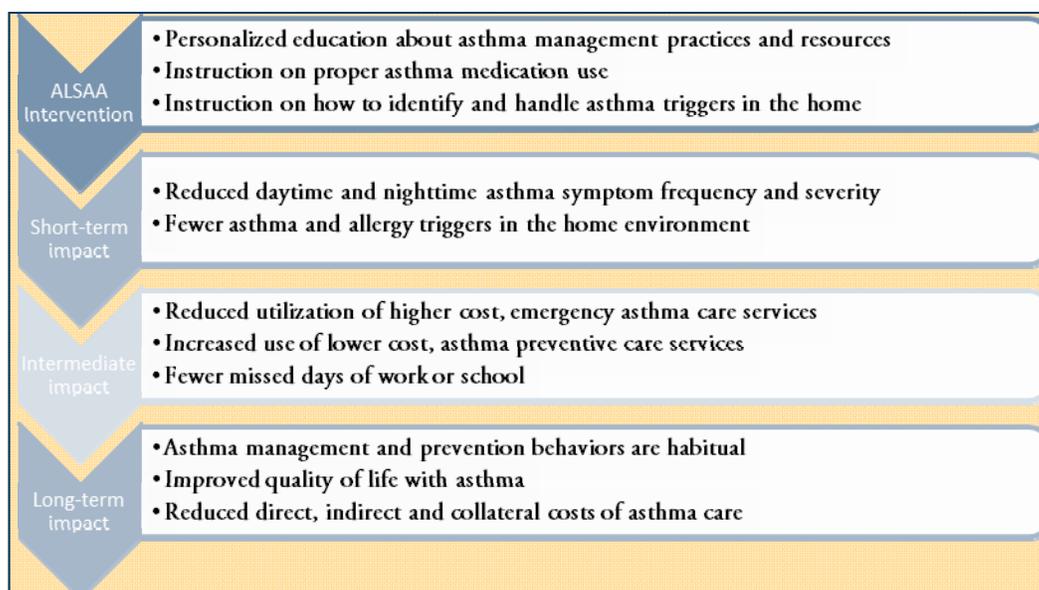
Evaluation of the CAARE Program revealed that active partnerships with physicians and community health workers (CHW) may be necessary for adults with asthma to consistently use effective asthma management techniques. Use of these techniques is critically important due to the frequent poor air quality in the City of Long Beach. The Asthma Life Skills Academy for Adults (ALSAA) Program reconnected asthma sufferers with CHWs and provided a customized, educational and supportive intervention that stressed consistent use of proven techniques to manage and lessen asthma symptoms and reduce asthma care costs.

## Program Methodology

The ALSAA Program includes an educational and case management component inclusive of three home visits. At the first visit, community health workers (CHW) guide participants through the informed consent process and complete a battery of assessments. These assessments include an assessment of health outcomes and asthma management practices, quality of life with asthma, an assessment of the home environment, and an asthma knowledge assessment. At the second visit, the CHW walks the participant through a peak flow test, reviews the participant's

written asthma action plan, and reviews asthma management strategies in the American Lung Association Breathe Well, Live Well curriculum. The third home visit takes place three months after the second home visit and includes a second administration of the assessments from the first home visit to compare to the first set of assessments. In addition, the home-based curriculum is supplemented by quarterly ALSAA educational seminars that provide information on holistic methods to manage asthma. These methods include breathing techniques, yoga, and stress reduction.

How and why the ALSAA intervention is expected to help adults with asthma



## ALSAA Inclusion Criteria and Participant Demographics

Inclusion criteria for ALSAA included:

1. Resident of the City of Long Beach;
2. Physical residence located in Zone 1A, 2A, or 3A;
3. Completion of the CAARE Program intervention.

One hundred eighty-two (182) adults with asthma enrolled in the ALSAA Program, 172 have completed the two home visits, and 145 participants completed the three-month follow-up assessment. These 145 participants are the subject of this report.

Notable characteristics of the ALSAA cohort included:

- ◆ 76% were female
- ◆ Average age was 46 years
- ◆ Average age at asthma diagnosis was 25 years
- ◆ Lived with asthma for 22 years on average.
- ◆ 75% identified as Hispanic/Latino
- ◆ 28% completed elementary school, 25% completed high school

## Health Outcomes

Key indicators of asthma wellness and control include:

- ◆ Symptom frequency
- ◆ Collateral impacts of symptoms
- ◆ Emergency care services visits
- ◆ Consistent use of effective, asthma management practices
- ◆ Prevalence of asthma triggers in home environment

Completion of the ALSAA intervention coincided with increased control of asthma symptoms. At enrollment, 89% of participants reported control of symptoms during the daytime, nighttime or around the clock. Participant control of asthma symptoms increased to 96% at the Follow-up assessment. Overall, 79% of participants that did not have control of daytime and nighttime symptoms at Baseline, reported control these symptoms at the close of the intervention. Consistent with the declining frequency of asthma symptoms, missed days of work and school were eliminated and proper reliance on quick-relief medications increased from 87% to 94%. (See Figure 1)

Figure 2. Collateral impacts of uncontrolled asthma symptoms

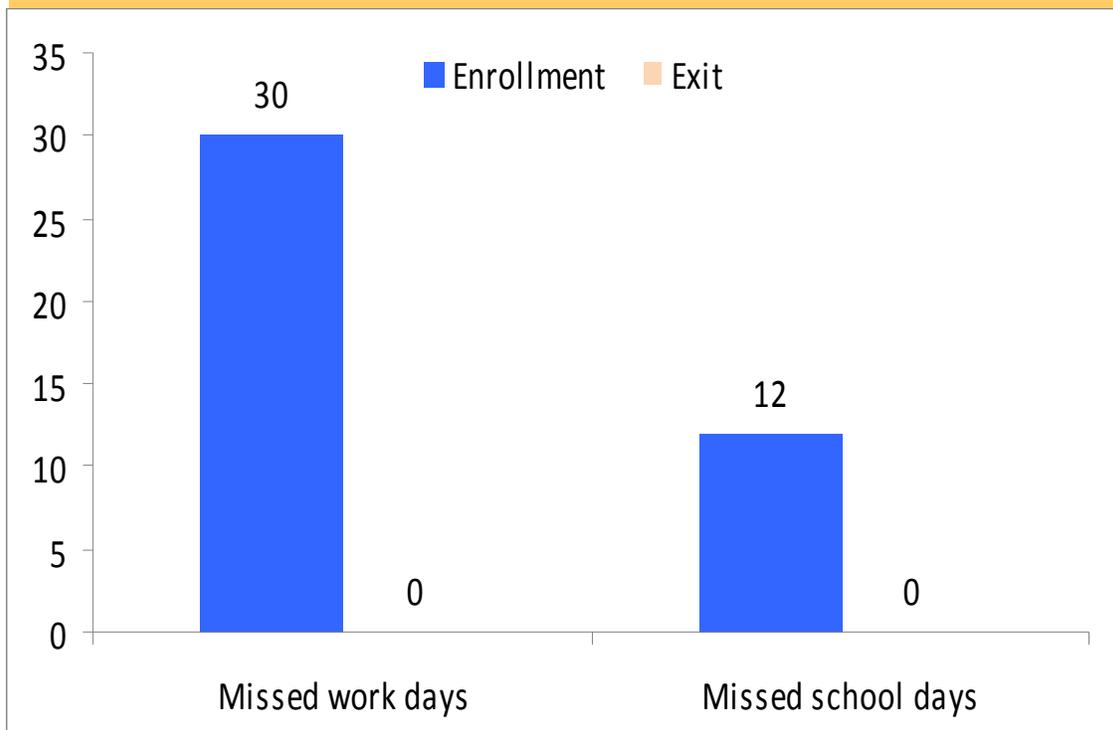
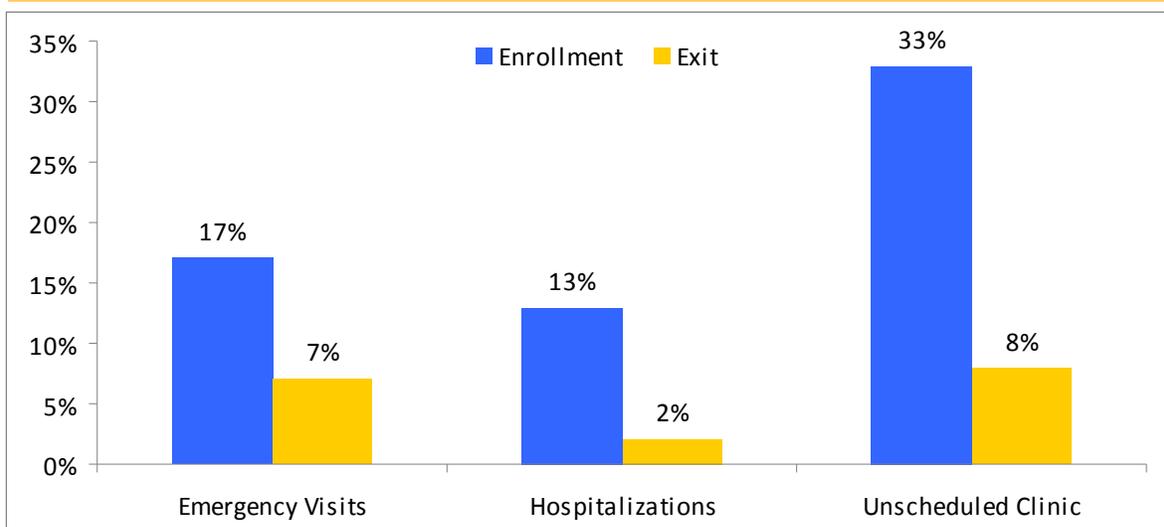


Figure 2. Prevalence of emergency services utilization prior to enrollment and following enrollment



Utilization of emergency medical care services is an important indicator for asthma because it helps to track the number of asthma attacks and also to estimate direct care costs for ALSAA participants. Services utilization declined significantly over the course of the ALSAA intervention (see Figure 2). Of those participants reporting services utilization at enrollment, 88% reported no additional visits to emergency departments, 100% reported no additional hospitalizations, and 89% reported no additional

unscheduled visits to a clinic or physician following enrollment. The declining utilization of emergency services (from 160 instances to 27 instances) among our participant cohort resulted in an estimated \$1,034,521 in direct care cost savings (see Table 1). This finding is particularly notable because this participant cohort presented with relatively positive health outcomes at enrollment, although their care costs exceeded \$1 million during the six month prior to enrollment.

**Table 1. Emergency care utilization costs and savings**

Emergency Services Utilization	Pre-Enrollment Utilizations	Pre-Enrollment Costs <sup>1</sup>	Exit Utilizations	Exit Costs	% Cost Change
Overnight hospitalizations	31	\$1,046,219	2	\$67,498	-94%
Emergency department visits	50	\$30,000	12	\$7,200	-76%
Unscheduled clinic visits	79	\$39,500	13	\$6,500	-84%
<b>Total services utilization</b>	<b>160</b>	<b>\$1,115,719</b>	<b>27</b>	<b>\$81,198</b>	<b>-93%</b>

<sup>1</sup> Costs estimated with \$33,749 average hospitalization cost cited in 2013 Asthma in California report by California Breathing. Average emergency room visit was estimated at \$600 and unscheduled doctor's office and clinic visit estimated at \$500 by Aetna HMO.

## *Asthma Management and Preventive Behaviors*

CHWs stressed adoption of effective asthma management practices during their encounters with ALSAA participants. These practices were especially important because few of the participants were in crisis with their asthma and generally felt good. Effective practices include: creating and following a written asthma action plan with your physician, taking a daily controller medication, using a spacer when taking inhaled medication, and using a peak flow meter to monitor your air flow and lung functioning. The frequency of asthma management practices increased from enrollment to exit from the ALSAA Program. Despite an overall decline in the prevalence of asthma wellness visits, 62% of participants who did not report any visits prior to enrollment began wellness visits following

enrollment. Similarly, 18% of participants began to take a daily controller medication, but 55% stopped taking these medications. In addition, 92% began to use a peak flow meter most or all of the time and 94% of participants developed an asthma action plan with their physician. There is evidence of positive behavior change and negative behavior change. Behavioral practices tend to be vigilantly positive while attempting to reverse acutely negative health outcomes, but once a state of wellness is achieved that vigilance lessens and negative behaviors may resume (e.g., excessive “treats” after reaching weight loss goal, substance abuse relapse). This mix of positive and negative behavior change is indicative of chronic disease management, particularly among adults.

**Table 2. Adoption and consistent use of asthma management practices**

Management Practice	Enrollment	Exit	Adopted practice
Asthma wellness visit with physician	82%	76%	62%
Take controller medication daily	40%	29%	18%
Have rescue inhaler	84%	93%	93%
Use inhaler two or fewer times per week	87%	94%	80%
Have action plan	7%	94%	94%
Use spacer every or most of the time	77%	95%	92%
Use peak flow meter	21%	91%	92%

## Home Environment Hazards

Participants received specific instructions and encouragement to reduce or eliminate asthma triggers and health hazards in their home environment. Removal of these hazards are critical to overall asthma wellness because of the amount of time that people spend inside their homes. Prolonged exposure to these hazards could trigger asthma attacks and, to a lesser degree, allergic reactions, that could compromise overall health and well being.

Residential hazards were broken into two categories: behavioral and tobacco use. Behavior based hazards include allowing furry pets inside the home, using strong-scented consumer products, stuffed animals and toys in the sleeping area, open food containers that invite pests into the

home. Behavior based hazards were highly prevalent at enrollment (90%) and declined slightly at the final assessment (88%; see Figure 3). Of the 66 participants who made effective behavioral changes, 16 (24%) were able to eliminate the hazard and 50 (76%) were able to reduce the number of hazards. Tobacco use behaviors included smoking inside of the home and smoking inside of the vehicle. Smoking tobacco use inside of the home or vehicle occurred less frequently at enrollment (10%) and at the final assessment (4%) when compared to behavioral hazards (see Figure 4). Of the 15 participants that reported tobacco smoking inside of their home or car at enrollment, 11 (73%) were able to stop these behaviors at the exit assessment.

Figure 3. Residential triggers due to participant be-

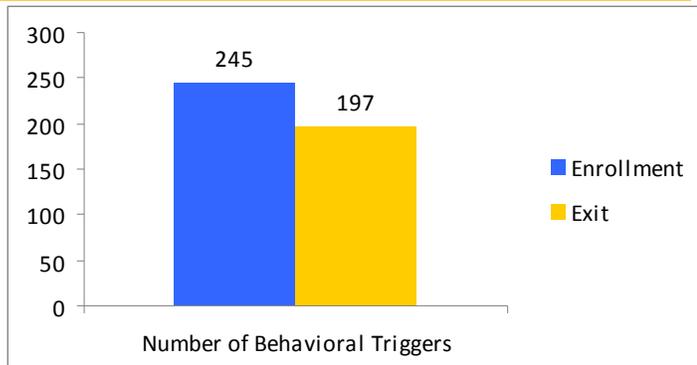
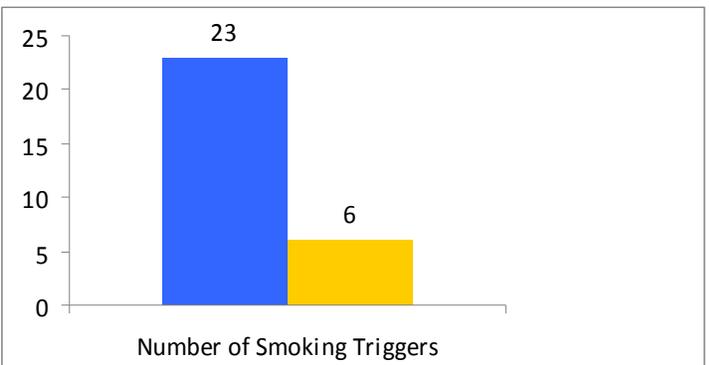


Figure 4. Residential triggers due to tobacco use



## Asthma Life Skills Academy

ALSAA participants were invited to attend quarterly Asthma Life Skills Academy seminars. These workshops were intended to supplement traditional medical strategies with more holistic approaches to asthma care. Topics at these academy seminars included:

- ◆ Meditative breathing techniques, led by a certified yoga instructor
- ◆ Stress reduction skills seminar based on the book "Stress Free for Good" by Luskin and Pelletier.

To date, 50 ALSAA participants and 12 guests attended one of the quarterly academy sessions. Forty-eight participants provided complete pre- and post-session knowledge assessments and evaluations. Analyses of these data revealed that attendees significantly increased their knowledge of asthma management strategies and 73% reported confidence in their ability to put this knowledge into practice.

## Community Education

Community education opportunities are open forums for residents of the Greater Long Beach area to learn about asthma, air quality and other environmental health issues. These events help to raise the community profile of ALSAA, identify candidates for enrollment in CAARE and ALSAA, and promote health and wellness practices in the wider community.

### **Community Workshops**

ALSAA team members facilitated 11 quarterly, community education workshops on "How to Create an Asthma Friendly Home Environment" for 213 community residents. These workshops provided education about indoor and outdoor air quality, a hands-on demonstration of non-toxic cleaning

methods, and information about asthma and asthma management strategies. One hundred forty-three attendees completed pre- and post-workshop surveys to assess their knowledge of the topics and ability to implement the knowledge and practices they were taught. Participants demonstrated a significantly higher level of knowledge of the topic areas and 84% believed they could turn their knowledge into action to improve the safety of their home environment. In addition, 198 attendees submitted workshop evaluation forms. Feedback on these forms was overwhelmingly positive as 91% believed that the knowledge gained at the workshop will benefit their home environment. In addition, ratings of the presenters, workshop content and overall workshop experience averaged more than 9 out of 10 points.



### **Bus Pass Exchange Program**

One hundred ninety-seven Long Beach residents completed an environmental health education course to earn a one-month Long Beach Transit Bus Pass. Specific course topics included asthma and its triggers, indoor and outdoor air quality issues, ways to reduce the health impacts of air pollution. Fifty-eight (29%) of these residents reported being

diagnosed with asthma, 43 (22%) reporting living with a child with asthma, and 40 (20%) reported living with another adult who has asthma, and 11 (6%) reported living with a senior citizen who has asthma. Nearly 85% of residents reported an increase in the targeted knowledge areas. In addition, more than 80% expressed satisfaction with the information and training that they received.

## *Lessons Learned and Recommendations*

Adults that completed the ALSAA Program improved several key asthma wellness indicators and made multiple, positive health behavior changes. Program data indicate that proper implementation of the CHW intervention that stressed asthma management practices and wellness behaviors contributed to more than four-fifths of participants gaining control of asthma symptoms; more than two-thirds increased their quality of life with asthma; and less than one-tenth of participants being hospitalized, visiting an emergency department, or making an unscheduled visit to a public clinic for treatment of acute symptoms. Daily controller medication compliance and asthma wellness visits with a physician were relatively high and decreased over the course of the intervention. It is important that participants receive educational prompts and reminders about the value of these preventive measures, particularly when they feel well. There is considerable room for improvement in preventive health behaviors as more than 90% of home environments have one or more behavior-based asthma triggers, although in-home smoking and secondhand smoke exposure are rare. Behavior change in these areas can be slow and the degree of resistance can be high. There is evidence to suggest that participants' renewed and extended relationship with a community health worker following their CAARE experiences increases the likelihood that preventive care measures become habitual.

Despite the apparent successes of the ALSAA Program, there were a few lingering challenges. The following recommendations offer solutions to these challenges:

- ◆ Attendance at the quarterly Asthma Life Skills Academy seminars fell below expectations. Restructuring of these events are recommended to boost attendance. It may be helpful to provide more information about the potential benefits of the curriculum at each session. In particular, citing the benefits of meditation and asthma breathing techniques, and stress reduction when coordinated with proper medication use and other management practices may present a more appealing invitation for some participants.
- ◆ Creating healthier home environments will also help adults with asthma to improve the health outcomes and overall well-being. Reducing the impact of or removing structural hazards can be an expensive process, but it is essential to creating healthier home environments. In the absence of direct funding for these repairs, it may be helpful to create community educational opportunities that focus on tenants rights, housing code violations, and strategies to persuade property owners and management companies to make needed repairs and installations. Connecting participants with residential remediation, weatherization, and preservation service providers programs may help to make these structural changes more affordable.

## Our Stories



*"They showed me how to use household items to clean my house such as vinegar, Murphy's Oil soap, and baking soda. It makes it easier to breathe as well without the perfume that can cause an asthma flare up. They also have helped me to control my breathing." - Wakesha*



*"I am happy that this type of program is available to people with asthma. It teaches them how to look for the triggers that can cause asthma attacks. What products to use to help keep it under control. I hope that the program continues to help others with asthma. - Estela B.*



*"The ALSAA program has been an invaluable tool in helping me to cope with asthma. Through the program I have learned a variety of ways to manage my asthma triggers, which in return has allowed me to enhance my overall well being and health. I have learned a lot of new information about dealing with my asthma and have found great benefit from the non-toxic and non-allergenic products that the program has provided me. The ALSAA program was a wonderful opportunity for me to improve my health, while receiving one-on-one guidance and coaching from knowledgeable and kind instructors in my home. I strongly hope that others in my community can benefit from this helpful and invaluable program." - Maria G.*



*"I think this program is very good, if we knew before we probably don't get so sick. I will recommend this program to my friends because it is very helpful and we learn how to identify triggers and how to use peak flow meter and keep track. Thank you very much. I appreciate your help."—Rosa A.*



*"I appreciate the information that is brought my way so I can learn more about my breathing condition - asthma. I also am thankful for the transportation to the class that I went to." - Brenda*

*"Este programa me alludo hacer cambios en mi hogar para no usar productos no tóxicos lo que me ha lludado ha mejorar la salud de mi familia y he ha prendido ha reconocer los sintomas y provocantes de asma. Yo recomendaria ha otras personas como you me benifisie y espero que este program siga para seguir allundando y gracias por la halluda que me handado."*

*"This program did help me to make changes in my home, so I won't use toxics to clean my house my house anymore because I want to keep my family's health better. I have learned to identify triggers and symptoms, I would recommend to other people like me to take advantage of the program and learn like I did for the sake of their family. I hope this program will continue o other families may benefit too like I did. Thank you for your help." Aura V.*



*"Este programa es muy bueno porque aprendi acerca del programa como mantenerse saludable acerca del asma y acerca de los productos toxicos y los limpiadores para mantener limpio. Me gustaria que siguieran con el programa porque aprendemos mucho de el."*

*"This is a good program because I did learn how to control asthma, how to be healthy, how to clean with non-toxic, and the cleaning products were really good. I would like the program to continue because we learn a lot from it." - Raul A.*

*"Quicera que este programa continue por que ami me ayudo mucho y me ayudo a usar productos para el hogar y ahora ya se usar los productos de limpieza no toxicos y se como identificar los productos de asma y se como evitarlos hal igual que yo que me e beneficiado de la información que me handado. Quicera que otras personas se beneficiaran con estos programas y gracias por la ayuda que me han brindado."*

*"I would like for this program to continue because it helped me a lot and it also helped me how to use non-toxic products in my home. Now I use non-toxic products and I also know how to identify the asthma triggers and avoid them. I also benefit from the information and lessons I would like other people to benefit from programs like these. Thank you for your help that you have provided.—Esmeralda S.*



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