

1. Project Identification

**Project Title: Expansion of the University of Maryland Hospital for Children  
Breathmobile® to Underserved Hispanic Children with Asthma**

Project Number: H17MC07858

Project Director: Mary Elizabeth Bollinger, D.O.

Grantee Organization: University of Maryland Medical System Foundation

Address: 110 South Paca Street, Baltimore, MD 21201

Phone Number: 410-706-4000 and 410-328-5770

Email address: [mbolling@ped.s.umaryland.edu](mailto:mbolling@ped.s.umaryland.edu)

Home Page: [umm.edu/breathmobile](http://umm.edu/breathmobile)

Project Period: 3/1/07-2/29/12

Total Amount of Grant Awarded: \$250,000 (\$246,508 received)

Narrative:

1. Purpose of Project and Relationship to SSA Title V Maternal and Child Health (MCH)

Programs: The Breathmobile's primary goal to provide preventive asthma care for underserved children relates very well to the Title V focus on improving the health of children. Asthma affects up to 20% of children in Baltimore City and surrounding areas and accounts for significant morbidity and mortality and health care expenditures. Underserved children with asthma receive disparate care and as a result have a greater impact of asthma on their daily lives and quality of life with higher urgent care visits, increased missed school days and missed workdays for caregivers and higher cost of care. Children with asthma receiving care from the Breathmobile program see improvements

in all of these outcomes. The Maryland AAP chapter has a strong focus on preventive asthma care with particular focus on educating pediatricians about providing the appropriate preventive care to children with asthma. In addition to providing preventive clinical care, the Breathmobile team has provided and continues to provide asthma educational programs to healthcare providers and the community in general to increase asthma awareness and preventive care.

2. Goals and Objectives: The goal of this project was to expand the free specialized preventive asthma care services of the Breathmobile to underserved Hispanic children in Baltimore. The objectives were 1. To partner with the Centro de la Comunidad, a Hispanic community center in Baltimore City, to identify children in need of Breathmobile services and provide services at this site every 4-6 weeks 2. To expand Breathmobile services to Hispanic children at existing Breathmobile sites, and 3. To evaluate the effectiveness of the Breathmobile in this population.
3. Methodology: Through the development of a partnership with the Centro de la Comunidad, under the direction of Mr. Nelson Ortega, the Breathmobile had increased access to Hispanic patients in need of asthma care with the assistance of the staff at Centro. The Centro staff distributed an asthma screening survey translated into Spanish, which was validated by the Los Angeles Breathmobile program in a primarily Hispanic population (11). They worked closely with the Breathmobile staff to schedule patients and assist with translation services on the visit days. With the addition of Dr. Ana Lasso Pirot a pulmonary specialist from Panama, the Breathmobile patients benefited from care provided by a Spanish speaking provider. In addition to obtaining new patients at the Centro de la Comunidad site, we distributed the bilingual asthma screening survey and

## H17MC07858 Performance Report

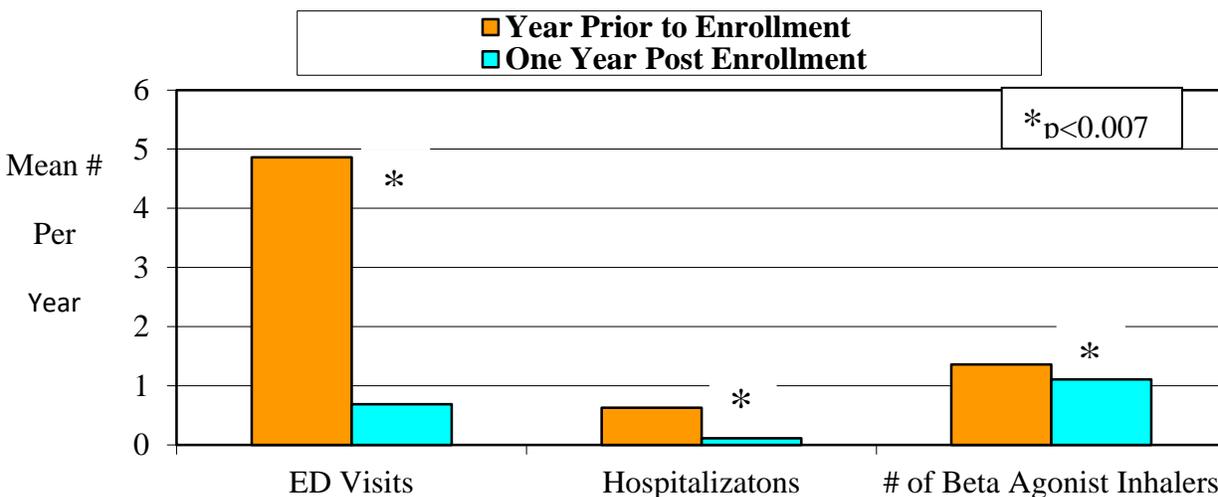
asthma education materials in one of our existing sites (Lakeland Elementary school) where the school has seen a huge increase in enrollment of Hispanic children. With the assistance of this grant, we proposed to expand our staff to also include a bilingual nurse, but were unsuccessful in finding a qualified Spanish speaking RN. We modified our position to a bilingual patient assistant; however the assistant was unable to provide adequate translation for medical care. We shifted our funding to our existing personnel who were able to provide the services with assistance from the University of Maryland Hospital translation services. We tracked the asthma related outcomes in our patient population throughout the 5 year period of the grant to evaluate the effectiveness of the Breathmobile program utilizing our computerized database, Asmatrax, which collects real-time data at each Breathmobile visit and allows for evaluation of asthma related outcomes such as medication use, Emergency Department visits, hospitalizations and missed school days due to asthma. We compared baseline data on entry to the program to follow-up data after at least 3 visits, which has been demonstrated to show the most improvement by the Los Angeles Breathmobile program.

4. Evaluation: Asthma related outcomes were analyzed by a private data analyst, Tricia Morphew who has been part of the University of Maryland Breathmobile® research team for 7 years. The analyst has been provided through a grant from the Southern California Asthma and Allergy Foundation in Los Angeles. Ms. Morphew reviewed the de-identified data and extracted key elements from the relational database, validated the data fields, and performed the statistical analysis. She compared data for children enrolled in the program at baseline with follow-up visits. She performed chi square analysis to compare asthma outcomes at baseline to follow-up Breathmobile visits for patients

enrolled in the program for at least one year. In addition to statistical analysis of outcomes, the Breathmobile obtained ongoing feedback from the staff at the Centro de la Comunidad regarding how to improve the program and provided feedback to Centro. At their suggestion, Dr. Lasso Pirot provided asthma education classes at Centro and other community centers in Spanish to increase awareness and enrollment in our program.

5. Results/Outcomes (Intended & Unintended): During the 5 year grant period, we saw an increase in the Hispanic patients participating in the Breathmobile from approximately 2% at the start of the grant to over 7% at the end of the grant period. Throughout the grant period we saw consistent improvement in asthma related outcomes, with decreased Emergency Department visits and hospitalizations, decreased need for rescue medications and improved use of preventive medications, as shown in the Figure below.

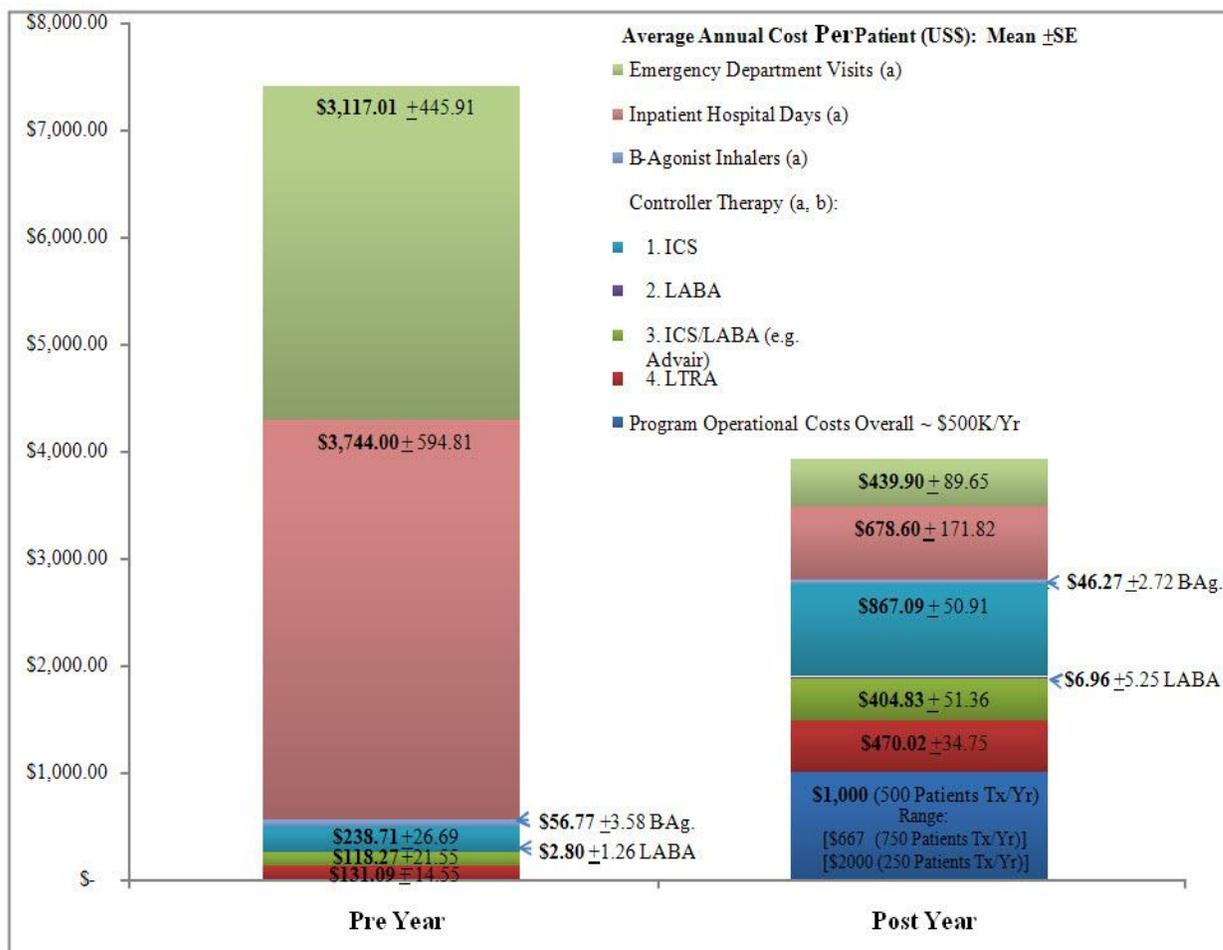
Figure 1: Impact of the Breathmobile on Asthma Outcomes



In addition, significant improvement in missed school days for children and missed caregiver work days were also seen. Unintended results that were found after a cost analysis was

performed were the significant cost effectiveness of the program; for every dollar spent on the program, approximately \$3 was saved. Summary figures of aggregate data and cost analysis results are shown below:

**Figure 2:** Annual Cost Pre and Post Breathmobile Intervention



6. Publications/Products:

- a. The following paper was published describing the results above:

Bollinger, et al. The Breathmobile program: A good investment for underserved children with asthma. *Annals Allergy Asthma and Clin Immunol* 2010;105:274 – 281.

- b. In addition, an asthma education book was translated into Spanish (cover shown below) and published for distribution to Spanish speaking families.



#### 7. Dissemination/Utilization of Results:

The results of the Breathmobile program have been published as noted above. In addition, multiple presentations have been given describing the program and results. Between 2005-2012, Dr. Bollinger presented 14 Breathmobile related presentations in addition to annual presentations at the Breathmobile Networking group meeting. Dr. Lasso has given several community-based asthma presentations in Spanish. The Breathmobile team has also participated in multiple community health fairs and school

based parent meetings every year. These publications and presentations have helped to increase awareness of asthma and the Breathmobile program locally and nationally.

8. Future Plans/Sustainability:

We were fortunate to have had matching funds for the Breathmobile from other grants and foundations during the entire grant period to sustain the program. In recent years, with the failing economy, we have seen a rise in the need for our services for uninsured and underinsured children with asthma. At the same time, we have seen a decrease in available funding sources. For example, the grant support from the University of Maryland Statewide Health Network Maryland, Field Outreach Project Grant program provided approximately \$100,000 per year (25% of total budget) to support the Breathmobile for several years. This support was lost due to the elimination of this grant program in 2010. The HRSA Healthy Tomorrow grant program has provided much needed leverage over the last 5 years to assist with obtaining other support for our program. We have had to make cuts in the overall Breathmobile budget due to the decrease in funding. These cuts have primarily been personnel costs, including elimination of the RN coordinator/case manager position, decrease in faculty effort and converting the driver/patient assistant position to an hourly charged hospital based driver service. To date, we have fortunately not had to cut services to our patients. We are investigating other potential funding sources for FY13 and beyond.