

Improving asthma control, one school at a time

Asthma is a big problem: it affects almost 10% of children in the United States and costs \$56 billion a year in direct and indirect costs. Every day, 36,000 children miss school because of asthma, and children with asthma have more school absences and worse performance on standardized testing. Approximately 185 children die every year from asthma, and these deaths are most often preventable. Minority and inner city children with asthma are more likely than non-minority, non-inner city children to have poorly controlled asthma, emergency department visits, hospitalizations, and death.

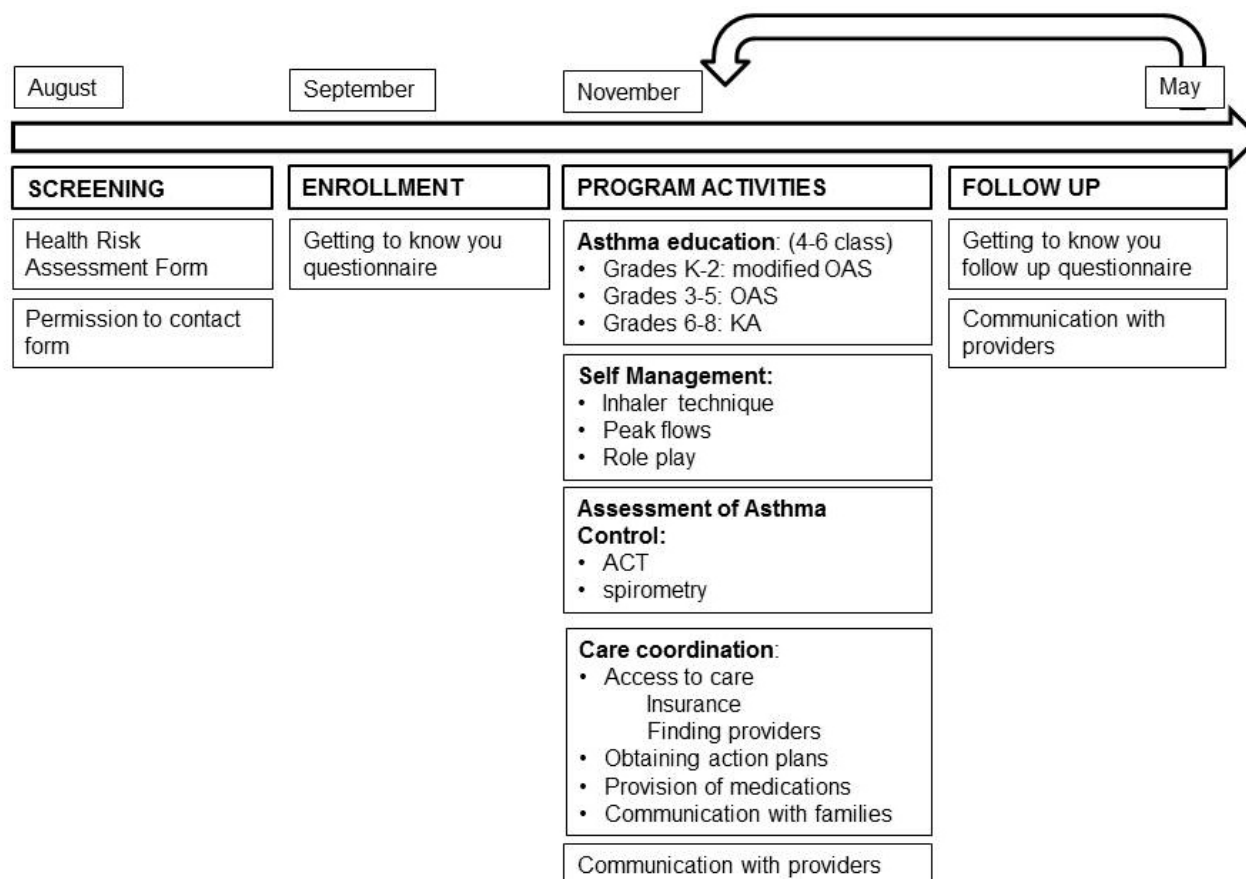


Fig. 1. Components and timeline of the Step-Up Asthma Program. Students were screened for asthma in the early fall, were enrolled into the Step-Up Asthma Program in October-November, and completed program activities through the winter/spring. Students who continued into the second year of the program repeated all program activities except for the didactic asthma education (Kickin' Asthma or Open Airways).

School-centered asthma programs have been embraced by the American Academy of Allergy,

Asthma, and Immunology and the National Association of School Nurses with the creation of School-based Asthma Management Program (SAMPRO™). In conjunction with the Denver Public Schools, we performed a needs assessment to see how we could partner with schools to assist children with asthma by creating asthma friendly schools, improving asthma control, and decreasing asthma morbidity. We then formed the Step-Up Asthma Program, a school-centered asthma program that creates a circle of support for inner city and underserved children with asthma, especially uncontrolled asthma. Schools were selected for participation based on percentages of students receiving free and reduced lunch in order to target an underserved population. The Step-Up Asthma Program uses bilingual asthma counselors to identify children with asthma, assess their level of severity, provide asthma education, monitor asthma control, and communicate with school nurses, primary care providers, and asthma specialists (Fig. 1).

Asthma prevalence was 12.4%. The Step-Up Asthma Program significantly reduced asthma exacerbations, included courses of oral steroids, emergency department visits, hospitalizations, and missed days of school for asthma. In addition to reducing asthma morbidity, students had improvements in scores testing knowledge about asthma and their inhaler technique (thereby delivering medication more effectively). The Step-Up Asthma Program additionally provided asthma education for school nurses and created universal school asthma action plans to streamline care.

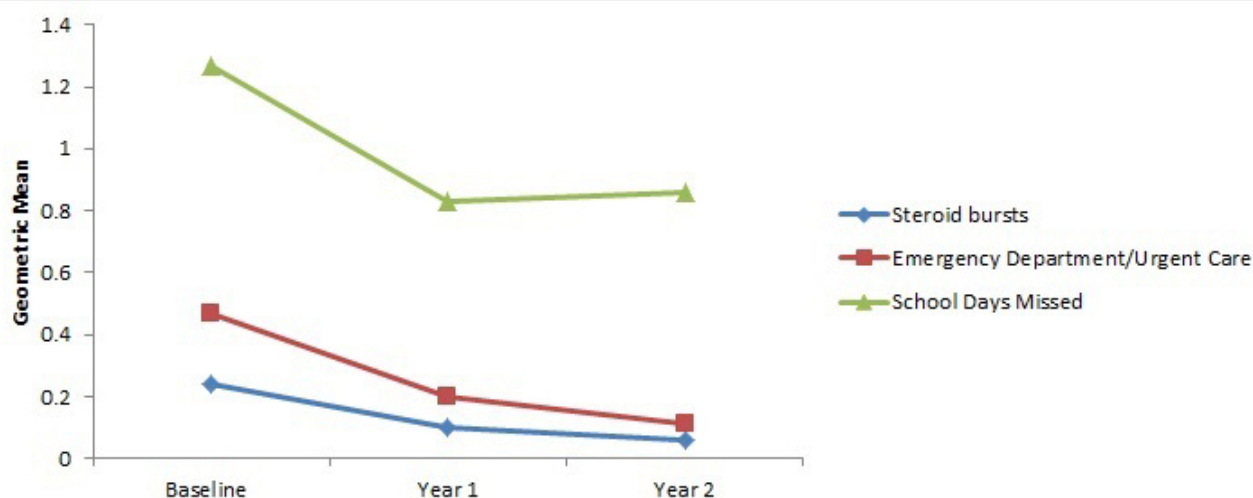


Fig. 2. Geometric Means of Asthma Exacerbations (steroid bursts, urgent care/emergency department visits, school days missed) in the Step-Up Asthma Program: baseline, year 1 follow-up and year 2 follow-up. Geometric means (y-axis) correspond to estimates from generalized estimating equations model. Estimates correspond to African American boys on Medicaid with an average Health Risk Assessment score of 3. 95% Confidence intervals at baseline/year 1 follow-up/year 2 follow-up are as follows: steroid bursts 0.12-0.5/0.05-0.22/0.02-0.18; urgent care visits 0.20-1.11/0.09-0.43/0.03-0.42; school days missed 0.83-1.95/0.53-1.28/0.54-1.28. Percent changes from baseline to year 1 and baseline to year 2 were significant for steroid bursts, urgent care visits, and missed school days.

In addition to reducing asthma morbidity, the Step-Up Asthma Program has been sustainable in the Denver Public Schools with continued support from the Colorado Department of Public Health and Environment. The Step-Up Asthma Program has been in existence for 10 years, and we have been asked to expand to additional schools in the Denver Public School System as well as other school districts in Colorado. We are developing teaching materials in order to make this program available to school systems who also want to support their students with asthma.

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Publication

[Developing, Implementing, and Evaluating a School-Centered Asthma Program: Step-Up Asthma Program.](#)

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