

# Efficacy of Instilling Asthma Educational Programs in Urban High Schools; A Trial Study

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## Background

- In the U.S., adolescent asthma prevalence is marked at 13.3% and child asthma prevalence is marked at 9.0%, as of 2008. In the District of Columbia, these numbers are increased at 18.4% and 12.6%, respectively <sup>1</sup>.
- The urban environment, as well as pollution, play a role in the higher rates of prevalence, also seen in other major cities <sup>2</sup>.
- The increased prevalence of asthma in urban cities is aggravated by the lack of access to care and a lack of long term management.
- In addition, gaps in knowledge and health literacy of asthma causes and symptoms compound the problem of lack of access to care and access to proper management.

## Objectives

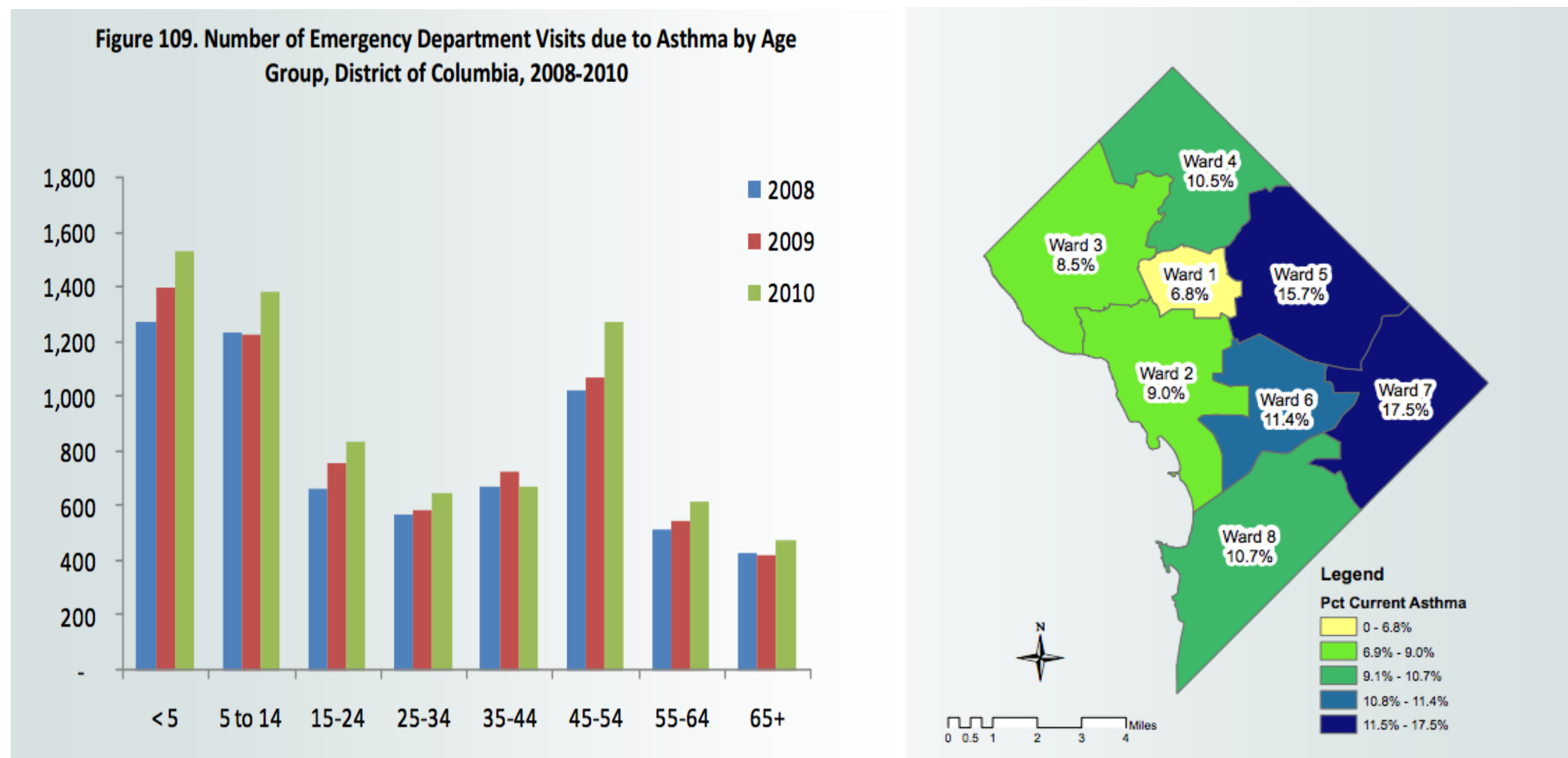
- Gauge the current understanding of asthma amongst low-income adolescents in Washington, D.C
- Demonstrate statistically significant increases in asthma awareness amongst low-income adolescents in Washington, D.C. through targeted educational sessions.
- Discover the feasibility and practicality of instilling Asthma Educational programs in Urban High Schools

## Methods

- In March 2017, two educational sessions were held at a D.C. based public high school in Ward 7.
- Recruitment of participants included in-person classroom visits, flyers, and automated phone calls to students' homes
- A total of 34 participants responded and attended the sessions voluntarily.
- Participants attended one of two educational sessions on asthma education.
- Prior to each session, participants completed a pre-test to assess baseline knowledge and awareness of asthma, which was followed by an interactive and educational presentation on asthma.
- Knowledge was assessed after the presentation with a post-test.
- Both pre-tests and post-tests were mixtures of multiple choice and true and false type questions
- Analysis of the data compared percentages of correct answers for pre-tests compared to post-tests
- Statistical significance was calculated using an unpaired T-test

## Results

- 34 total participants attended one of two educational sessions
- 34 pre-tests were administered with 100% response rate
- 28 Post-tests were administered with 82.35% response rate, with a loss of 6 participants.
- Asthma awareness was assessed using participant performance and compared between pre-tests and post-tests
- Pre-tests and post-tests each included a total of 15 questions with a pre-test mean score of 7.088 (47.25%) and a post test mean score of 10.821 (72.14%), demonstrating an increase of 24.89% in post-test performance
- The unpaired t-test was used to assess data demonstrating a significant increase in mean scores between pre-test and post-test (p-value = 0.0068, 95% CI of -5.471, -0.915).



## Discussion

Comparison between pre-tests and post-tests demonstrated a statistically significant increase in post-test scores. The improvement in scores demonstrates the educational sessions were effective at increasing short-term knowledge and awareness of causes and possible symptoms of asthma. This suggests the proportionately lower asthma treatment rates in socioeconomically-disadvantaged communities, may not solely be an issue of access to care, but also information. Limitations of this project include inadequate participant retention to match pre-test and post-test sample sizes, single sampling of one D.C. based public school, and sampling bias as a result of non-standardized participant randomization protocols. These results may not be readily generalized to other urban cities due to differences in health care accessibility and education outreach.

## Chart 1. Participant Performance on Pre-Test and Post-Tests

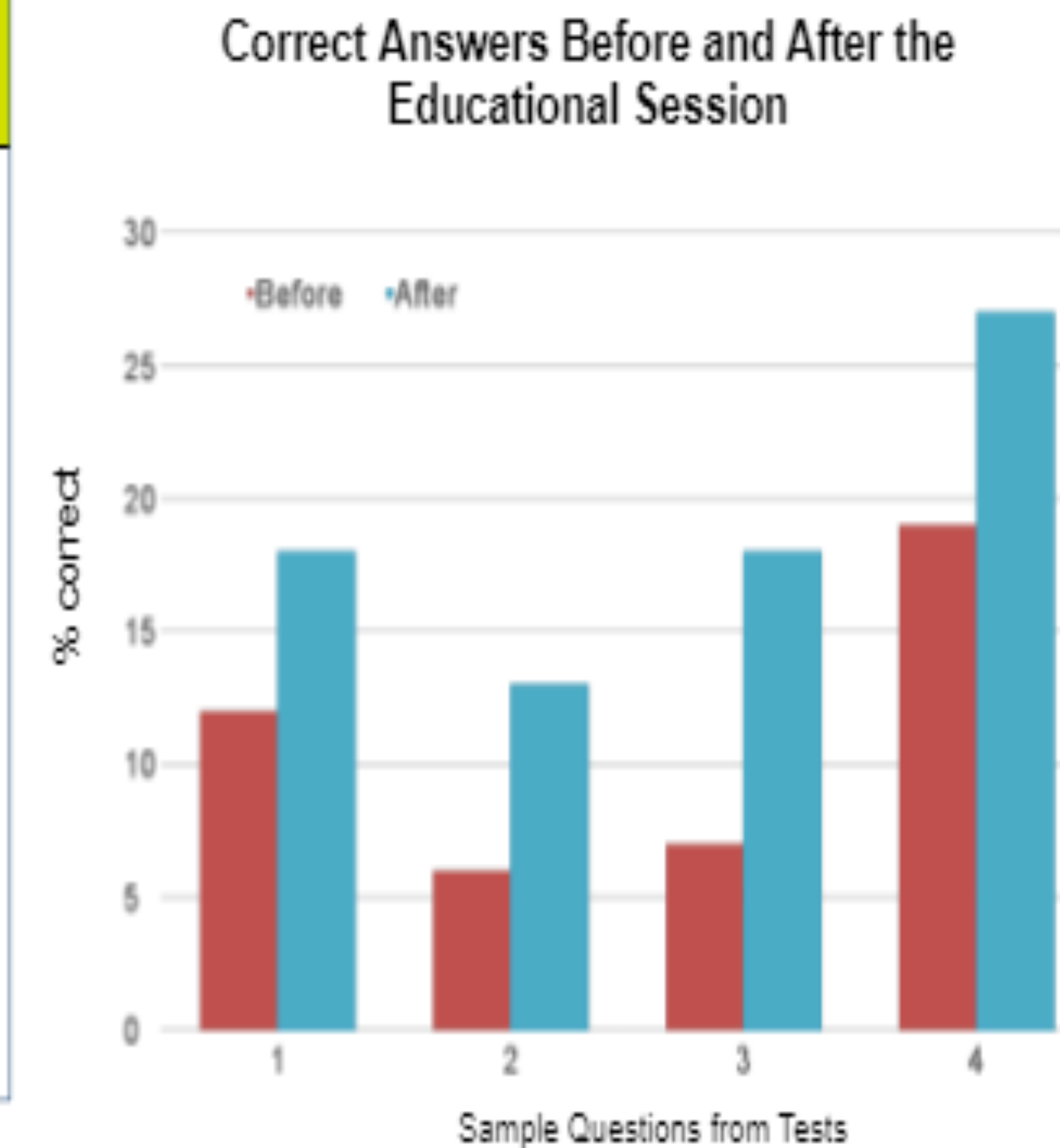
Total Participants n=34  
 Pre-test participants n=34  
 Post-test Participants n=28

Question 1:  
 "Asthma can be caused by..."  
 Answer: Inflammation and narrowing of airway causing difficulty breathing

Question 2:  
 "At the yearly doctor visit, doctors test lung function by using..."  
 Answer: Spirometer

Question 3:  
 "What is an Asthma Action Plan?"  
 Answer: A management plan created with you and your doctor for controlling asthma, which shows your daily treatment and what kind of medicines to take and when

Question 4:  
 "Students with asthma are not allowed to be active with their friends"  
 Answer: False



## Conclusions

- Statistically significant improvements in short-term knowledge suggest that the proportionately lower asthma treatment rates in socioeconomically-disadvantaged communities may not solely be an issue of access to care, but also information.
- This project serves to initiate discussion of implementing asthma-based education programs into schools in high-risk communities, in order to increase health literacy regarding asthma among urban adolescents.
- Future research hopes to explore and enhance the role of community healthcare centers and FQHCs in leading the effort to increase asthma awareness in schools and the community.

## Acknowledgements

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## References

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