

IMPLEMENTATION AND EVALUATION OF AN EVIDENCED BASED PROTOCOL FOR THE DIAGNOSIS OF ASTHMA

Stephanie Edwards, CRNP; Kris Lunceford, CRNP; & Samer Mazahreh, CRNP

Ida V. Moffett School of Nursing, Samford University

PROBLEM IDENTIFIED

- ❖ Clinician lack of adherence to evidenced-based evaluation and diagnosis of asthma
- ❖ Specifically, spirometry is not routinely used to make the diagnosis
- ❖ This leads to inaccurate diagnosis and potentially inappropriate treatment

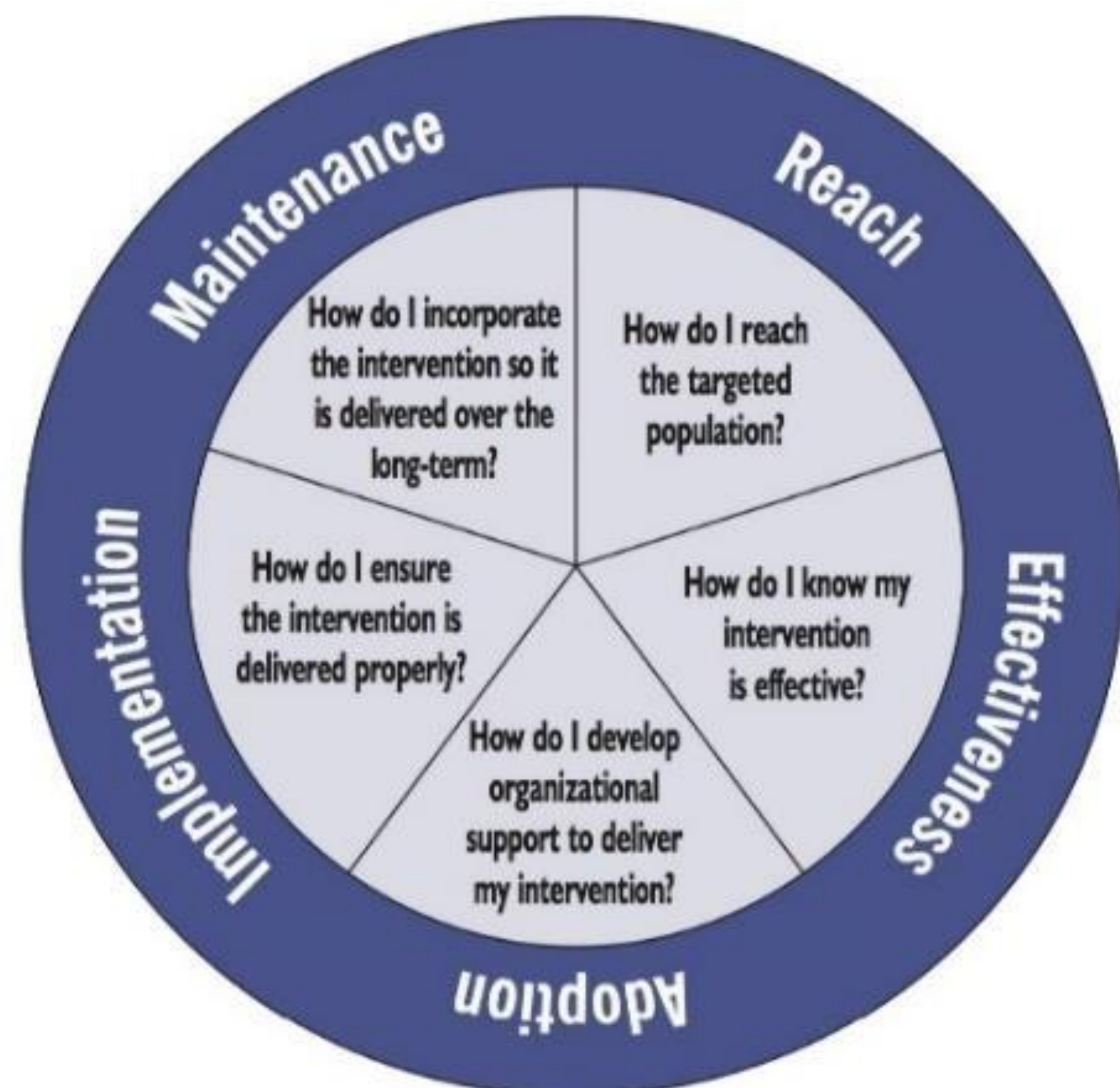


PROJECT PURPOSE

- ❖ Implement an asthma evaluation protocol checklist with spirometry testing that will guide clinicians in evidence-based evaluation and treatment of individuals presenting with a history and physical exam consistent with asthma AND evaluate effectiveness of protocol implementation

THEORETICAL FRAMEWORK

RE-AIM



METHODS - DESIGN

- ❖ Standard of care evidenced-based protocol implemented which included an asthma checklist of self-reported symptoms (SRS) and physical exam findings (PEF) along with spirometry testing
 - ❖ **SRS**
 - ❖ Night cough
 - ❖ Difficulty breathing
 - ❖ Wheezing
 - ❖ Atopic dermatitis
 - ❖ Previous bronchodilator
 - ❖ **PEF**
 - ❖ Dyspnea
 - ❖ Atopic dermatitis
 - ❖ Resting Saturation
 - ❖ Wheezing
 - ❖ Decreased breathing
- ❖ Random sample of participants aged 5 years and greater selected from an asthma and allergy clinic in Birmingham, AL and a primary care clinic in New Rochelle, NY
- ❖ IRB obtained for retrospective pre- and post-implementation data review
- ❖ Research questions:
 - ❖ What percentage of individuals with provider identified potential for asthma received a spirometry-confirmed asthma diagnosis?
 - ❖ Did the implementation of an evidence-based protocol increase referral for spirometry testing?
 - ❖ What SRS or PEF were predictive of a spirometry-confirmed asthma diagnosis in the study population?



TIMELINE

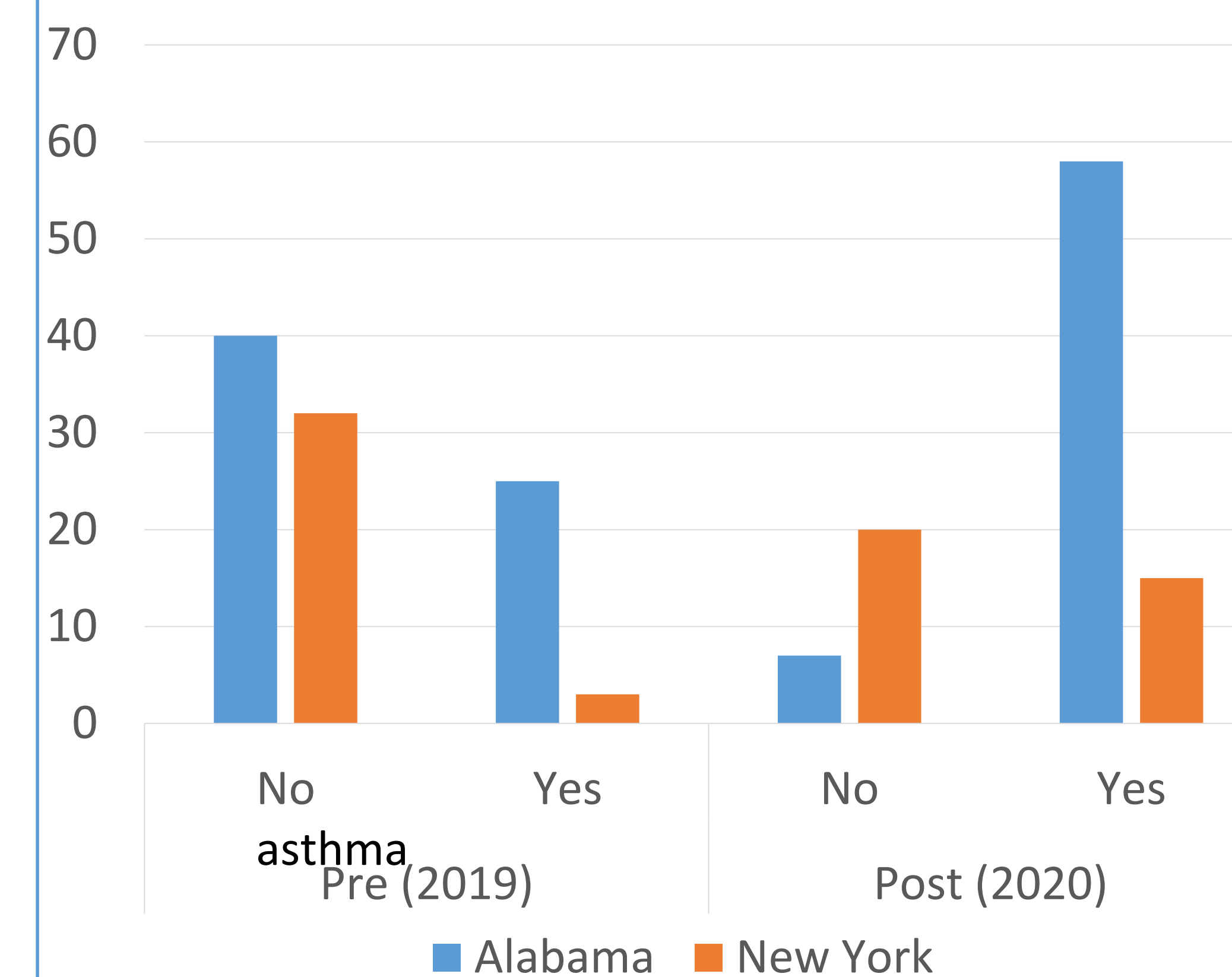
- ❖ January 2020: implement asthma protocol with spirometry
- ❖ January 2020: submit IRB for data collection
- ❖ February 2020: pre-implementation data collection for patients (random sampling) seen January-March 2019
- ❖ March 2020: post-implementation data collection for patients (random sampling) seen from implementation in January 2020 to present
- ❖ March 2020 – April 2020: Retrospective chart review and multivariate logistic regression analysis completed.

RESULTS

Demographic Characteristics

Characteristic	Pre-intervention	Post-intervention	
Gender	Male	36	54
	Female	64	46
Age	5-10	24	14
	11-18	21	20
	19-35	22	19
	36-50	13	30
	51-65	12	12
	65+	7	8
Location	Alabama	70	69
	New York	30	31

Comparison of confirmed asthma diagnoses before and after protocol implementation



Binary Logistic Regression Model Summary

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
80.481 ^a	.333	.478

Significant Variables in the Equation

Variable	P - Value
PEF_Deceased breathing	.036
SRS_Wheezing	.017
SRS_Previous bronchodilator use	.013
SRS_Chest tightness	.010

SUMMARY

- ❖ The use of the evidence-based evaluation and diagnosis tool led to the improved rate of spirometry referrals with positive asthma diagnosis
- ❖ Following the implementation of the evaluation and diagnostic protocol, the number of spirometry confirmed asthma diagnoses increased by 157%
- ❖ The referrals for confirmatory spirometry testing increased from 28% to 72% of all referrals made after introducing the evidence-based protocol
- ❖ According to the findings, between 33% and 47% of the variation in asthma diagnosis can be explained by the SRS and PEF factors
- ❖ Although all the SRS and PEF findings can predict asthma diagnosis, according to the *P* value the variables that accurately predict a positive asthma diagnosis are decreased breathing sounds, wheezing, previous bronchodilator use, and chest tightness
- ❖ Previous bronchodilator use increased the odds of a positive asthma diagnosis by 16 times
- ❖ Physical exam findings of decreased breath sounds increased the odds of a positive diagnosis by 14.7% respectively

IMPLICATIONS FOR PRACTICE

- ❖ The results of the study support spirometry as the evidence-based tool for diagnosing persons with
- ❖ The study supports the continued use of the implemented asthma checklist protocol along with spirometry testing to accurately confirm an asthma diagnosis

