

# Improving Asthma Outcomes with a Community Based Asthma Specialty Clinic



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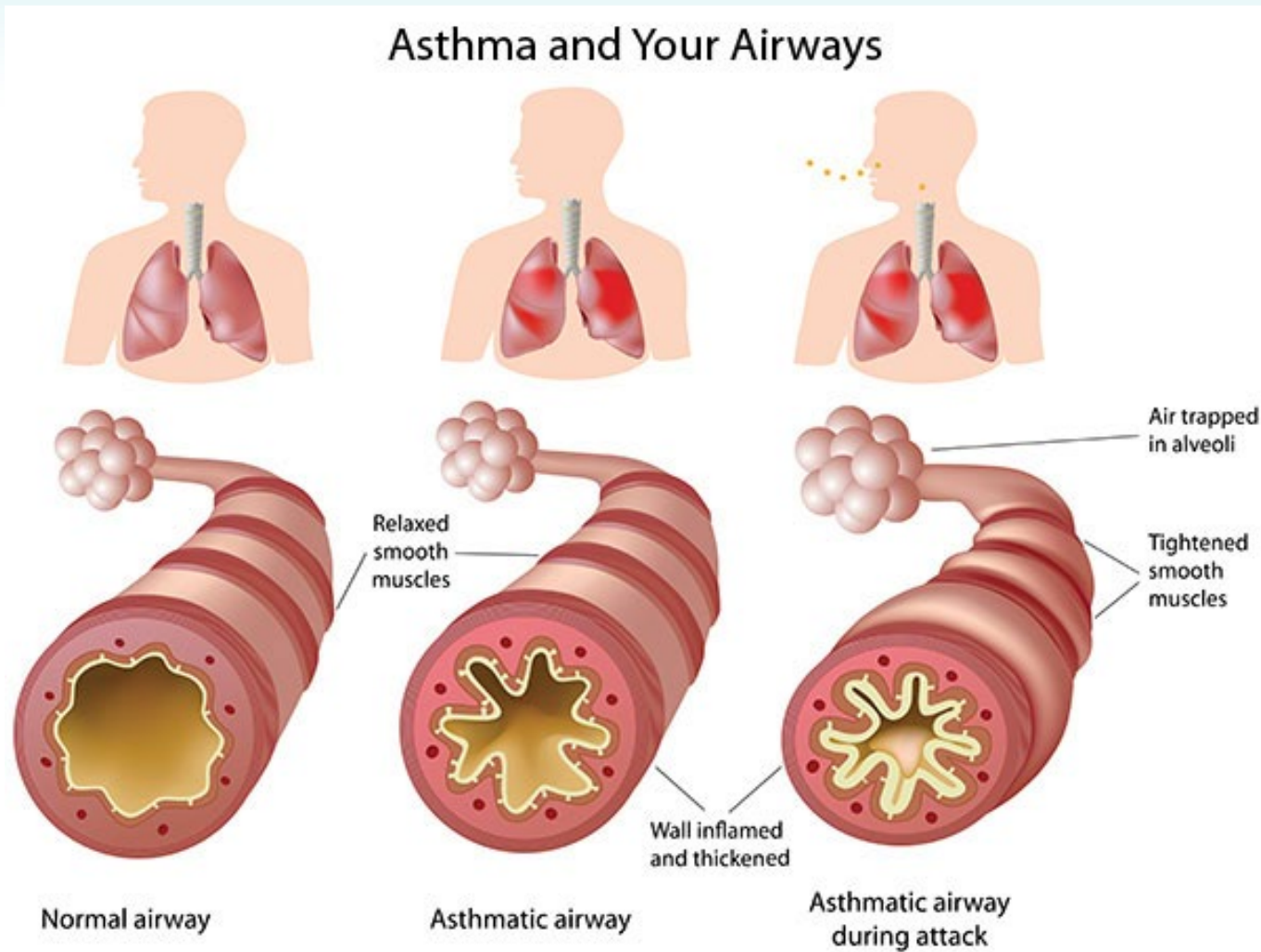


# Disclosures

I have no financial or other conflicts of interests to disclose.



# Asthma Pathophysiology



Google Images



# Background



Chronic pulmonary disease  
Etiology not well understood  
Multifactorial

- › Genetics
- › Environment
- › Socioeconomics

Increased prevalence 1980s – 1990s,  
Recent decline 8.6% in 2016 to 7.8% in 2017



# Significance

Worldwide 235 million people affected

U. S. 20.4 million adults 8.3 million children

Leading health disparity

Declining prevalence 2000-2016

- › Caucasians (2.5 per 1,000,000)
- › Prevalence in African Americans increased (12 per 1,000,000 to 13 per 1,000,000)
- › Puerto Ricans 16.1% vs Caucasians 7.7%



# Significance

## Associated Factors

- › Poverty
- › Access
  - › Providers
  - › Medication
- › Race
- › Gender
- › Environmental Triggers
- › Education level

## Sequelae

- › Educational impairment (Missed school days)
- › Financial impairment (missed work days)
- › Anxiety/Depression
- › COPD
- › Early death



# Significance

## Specialty Clinic Access

- Limited community pediatric pulmonologist
- Limited office hours
- Long appointment waits





# Study Aims

Test the effectiveness of a ***community based*** approach to pediatric asthma care that aimed to ***increase access*** to asthma specialty care and ***increase symptom free days*** and ***improve asthma health outcomes***.





# Methods Sample

## Size

- ›  $n = 34$

## Attrition

- › T1/ Baseline = 34
- › T2 = 34
- › T3 = 26
- › T4 = 10
  
- › T2-T3
  - › 2 lost to f/u
  - › 6 w/drew
- › T3-T4
  - › 1 lost to f/u
  - › 9 Incomplete data



# Methods: Sample

Variable	Finding	Variable	Finding
<b>Gender</b>		<b>Grade</b>	
Male	15	Minimum	2nd
Female	11	Maximum	12th
		Mean	7th
<b>Age (Years)</b>		<b>Years with asthma</b>	
Minimum	7	Range	(3mo-17yrs)
Maximum	17	Mean	9 yr
Mean	12yr 4 mo	<b>Insurance</b> <i>n=26</i>	
<b>Race</b>		Medicaid	16
African American	4	Private	0
Hispanic	18	None/Don't know	2 / 8
Caucasian	3	<b>Medications</b> <i>n=26</i>	
Mixed Race	1	ICS	6
		Albuterol	24
		Only When Sick	4



# Methods:

## Inclusion Criteria

- 4y – 18y
- Asthma
- Receive care at JRMC
- Able to participate for 12 months

## Exclusion Criteria

- Cystic Fibrosis, Primary Ciliary Dyskinesia
- Unable/unwilling to participate for 12 months



# Methods: Location

## Urban minority community in New Jersey

- › Perth Amboy
- › Newark

## Federally Qualified Health Care Center (FQHC)

- Pediatric Clinic





# Methods: Intervention

## Asthma Clinic

- › 4p - 8p (1600hr - 2000hr) Thursday evenings
  - › Twice monthly
- › 8a – 12p (0800 – 1200) Saturday mornings
  - › Once a month

## Referrals

- › Self
- › Clinic pediatrician
- › Clinic nurses

## Study length

- 12 months from enrollment



# Methods: Intervention

## Staff:

- › APRN
- › Certified Medical Technician
- › Research Assistant

Initial visit: 60 min \*

- F/u visit: 20 - 30 min \*
- H & P
- Spirometry
- Medication review
- Asthma education

\* Does not include completion of surveys

## Data Collection Times:

- T1 = Baseline
- T2-4 = q3 months
- \*Revisit 3-7 days if unstable at T1



# Methods: Intervention

## Instruments:

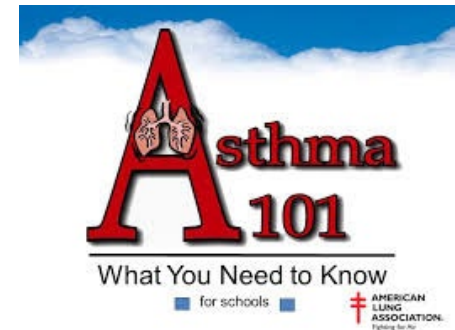
- Portable Spirometer
- Pediatric Asthma Quality of Life Questionnaire
- Asthma Knowledge Test
- Demographic Questionnaire

## Education:

- Asthma 101®: What You Need to Know
- Inhaler/Device Education

## Prevention:

- Influenza Vaccine
- Management of co-morbidities
  - Allergic Rhinitis



# Methods: Intervention

## Plan of Care:

- HER
- Asthma Section – created for this project

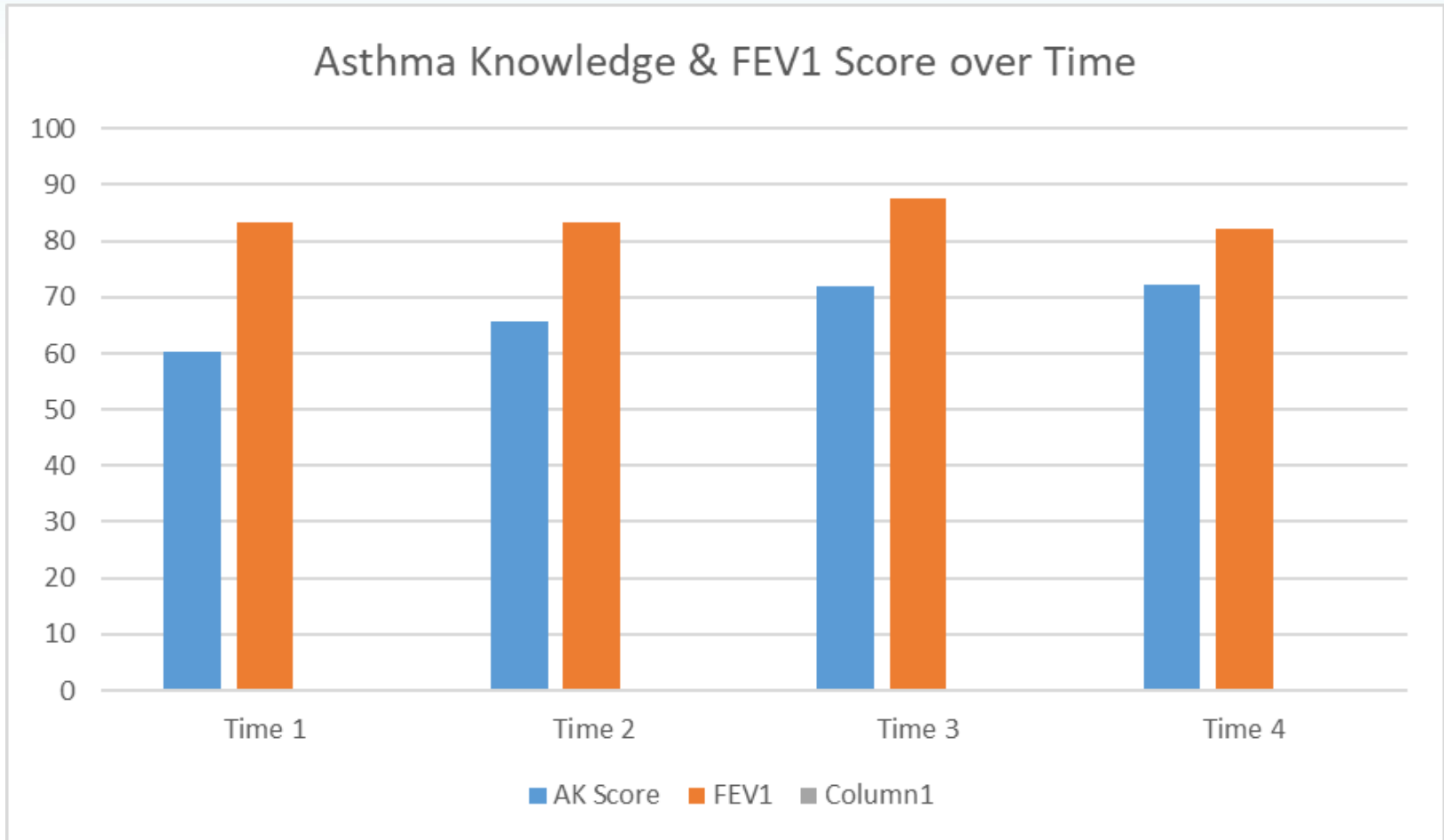
## Environmental Management:

- Triggers
- Allergens
- Allergy testing (blood)
- Mattress & Pillow Covers
- Referrals
  - Allergist (1 pt for Zolofit)
  - Pulmonology (1 pt for CF)





# Results (mean scores)



# Results:

## Difference b/w T<sub>1</sub> and T<sub>3</sub> Asthma Knowledge Scores

### Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Cummulative score on 1st Asthma Knowledge Survey - Cummulative score on 2nd Asthma Knowledge Survey	-4.762	24.004	5.238	-15.688	6.165	-.909	20	.374
Pair 2	Cummulative score on 1st Asthma Knowledge Survey - Cummulative score on 3rd Asthma Knowledge Survey	-10.625	19.822	4.956	-21.187	-.063	-2.144	15	.049



# Results:

Correlations b/w T<sub>1</sub> & T<sub>3</sub> FEV<sub>1</sub>, QOL, Sx, Activity & Emotion Scores

## Paired Sample Correlations

		Sig. <i>p</i> =.05
Pair 1	1 <sup>st</sup> & 3 <sup>rd</sup> FEV1 predicted score	.295
Pair 2	T1 & T3 PAQLQ Sum Scores	.026*
Pair 3	T1 & T3 PAQLQ Symptom Scores	.008*
Pair 4	T1 & T3 PAQLQ Activity Scores	.010*
Pair 5	T1 & T3 PAQLQ Emotion Scores	.035



# Results:

## Anecdotal:

- Providers
  - Assistance with ICS combo management
  - Access to specialty notes and exacerbation orders
  - Easy to manage b/w specialty visits
  - Fewer acute visits
- Parents
  - Service closer to home
  - Didn't miss work
  - Fewer missed school days
  - **No** E.D visits while in the study





# Results:

## Anecdotal:

- **Participants**
  - No presenteeism (missed classes)
  - Able to participate in sports
  - Able to "hang out" with friends
- **Payers**
  - Decreased ED Visits
  - Increased PC visits
- **Administration**
  - Increased revenue d/t guideline care



# Limitations

## Sample

- › Small
- › Homogenous
- › High attrition rate
  - › Withdrawal d/t fear of reporting/deportation
  - › Fearful of signing documents/sharing address

## Potential solutions:

- › Replicate at multiple sites
- › Exemption for written consent (verbal consent)
- › Larger research team
- › Qualitative Data
- › Better funding \$\$\$\$



# Conclusion

Children who received asthma specialty care in a community setting demonstrated:

- › Improved Pulmonary Function
- › Improved QoL
- › Increase in Symptom free days
- › Decrease in Activity impairment
- › Decrease in Emotional impairment

Parents appreciated the ability to seek specialty care in their community at a time that was convenient



# Recommendation

- Establish nurse managed asthma specialty care clinics in communities
- Establish chronic disease management clinics at a time that will be used by community (evenings/weekends)
- Train more NPs to become expert at CDM
- More research needed with:
  - Larger sample size
  - Multiple sites
- Test geographic locations Urban vs Rural





# Questions

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