Prevalence of Asthma Severities in Children and Adolescents in a Wilmington, DE Hospital

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BACKGROUND

- Asthma affects over 24 million individuals in the US
- Prevalence of the condition is increasing in the US and worldwide
- Classified into 4 severities:
  - Intermittent
  - Mild Persistent
  - Moderate Persistent
  - Severe Persistent
- Children with severe persistent asthma experience symptoms every day, are extremely limited, and account for a sizeable portion of healthcare costs
- The prevalence of severe asthma in children and adolescents is poorly understood
- **We aimed to define the prevalence of asthma severities in an urban inpatient setting across different demographics**

METHODS

- Since most patients are already on long-term asthma medication, prescribed medications were used as a proxy for asthma severity according to NIH guidelines for care

- Study Population: All patients ages 5-18 with asthma that were admitted to pulmonology or allergy departments at Nemours Children's Hospital in Wilmington, DE between 01Nov2014 – 01Nov2017 and were prescribed at least one asthma medication

Prescribed Medications
↓
Step of Treatment
↓
Asthma Severity

RESULTS

Asthma Severities of the Study Population

	Ages 5-11 n	Ages 5-11 Freq. %	Ages 12-18 n	Ages 12-18 Freq. %
Asthma Severity				
Intermittent	70	10.97%	94	18.29%
Mild Persistent	121	18.97%	100	19.46%
Moderate Persistent	211	33.07%	135	26.26%
Severe Persistent	236	36.99%	185	35.99%

Results of Chi-Square Tests

	Age Group	X^2	p
Age Groups	N/A	**15.208**	**0.002**
Sex	5-11	6.276	0.099
	12-18	1.715	0.634
Race	**5-11**	**19.743**	**0.003**
	12-18	**18.244**	**0.006**
Ethnicity	5-11	1.279	0.734
	12-18	1.040	0.792

Results of Binary Logistic Regression
for moderate/severe compared to intermittent/mild

	X^2	p	AOR	95% CI
Age Group				
Ages 5-11	**7.144**	**0.008**	**1.406**	**1.131 – 1.879**
Ages 12-18 (Ref)				
Sex				
Male	1.328	0.249	0.863	0.671 – 1.109
Female (Ref)				
Race				
African American	**14.893**	**<0.001**	**1.727**	**1.309 – 2.280**
Other	1.162	0.281	1.279	0.818 – 2.000
White (Ref)				
Ethnicity				
Non-Hisp. or Latino	0.313	0.576	0.886	0.579 – 1.355
Hisp. or Latino (Ref)				

DISCUSSION

- We found that most children and adolescents who are hospitalized for asthma are moderate/severe asthmatics
- Those ages 5-11 are more likely to be hospitalized for moderate/severe asthma compared to those ages 12-18
- African Americans are more likely to be hospitalized for moderate/severe asthma compared to Whites
- This information can be used to generate hypotheses for future studies can be used to better address patient needs
- Future research to reduce prevalence might focus on:
  - Identification of more indicative risk factors
  - Earlier screening methods
  - New and more personalized therapies

Limitations

- Only generalizable to clinical inpatient settings with similar demographic patient base
- Prescribing habits of clinicians may not reflect what is actually recommended (Flovent 110 mg/act caused many ages 5-11 to be high-dose ICS but not 12-18)
- Those who did not fall into defined step of treatment were assumed to be moderate persistent asthmatics

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