

Factors Associated with Chronic School Absenteeism Among Medicaid-Insured Children with Asthma

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Background

Asthma is a top child health concern for parents and providers in Cuyahoga County, Ohio -- part of the "Ohio-Lake Erie Asthma Belt"

- ED and inpatient admissions for asthma exceeded state-wide rates in 2022 (136.0 ED or inpatient admissions for asthma per 10,000 children ages 0-17 in Cuyahoga County vs. 76.4 per 10,000 state-wide)
- Well-documented disparities in asthma prevalence, severity, and outcomes by race and socioeconomic status

Chronic absenteeism (missing >=10% eligible school days):

- An important marker of poor asthma control
- More common among low-income students
- Associated with adverse academic, developmental, and health outcomes, esp. if persistent across multiple academic years

BREATHE Study: Mixed methods sequence to identify and test community-endorsed strategies to optimize school attendance and participation by students with asthma

Objective

To describe factors associated with chronic school absenteeism in a cohort of Medicaid-insured children residing in Northeast Ohio

Methods

Retrospective analysis of multi-sector administrative records from July 2018 through June 2022

Inclusion criteria:

- Age 6-12 years at encounter with University Hospitals Health System (UH)
- Resident of Cuyahoga County
- Enrollment in 1+ participating school districts

Asthma: 1+ encounters with primary ICD-10 code J45 & prescription for inhaled corticosteroid during included school year(s)

Key Outcome: "persistent chronic absenteeism" (>=10% eligible days missed in 2+ academic years)

Data Sources:

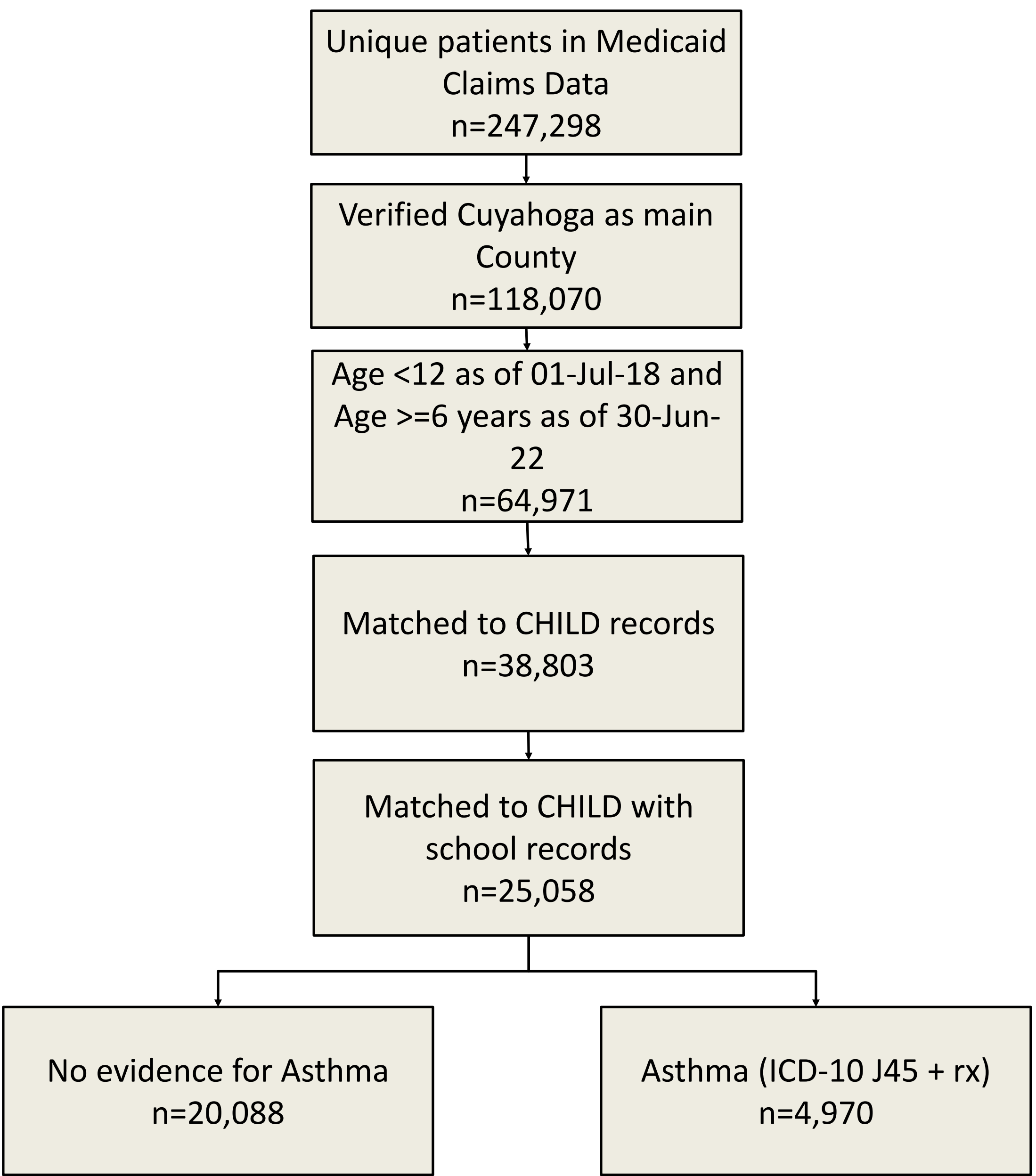
- CHILD Data System: integrated individual-level records from 35 administrative systems including Birth/Death Certificates, Public school attendance records, Social service records, Housing, Juvenile Justice
- Medicaid Claims for UHHS encounters (inpatient, ambulatory, and pharmacy)
- Child Opportunity Index 3.0: metro-normed z-scores for Health and Environment subscale

Analysis:

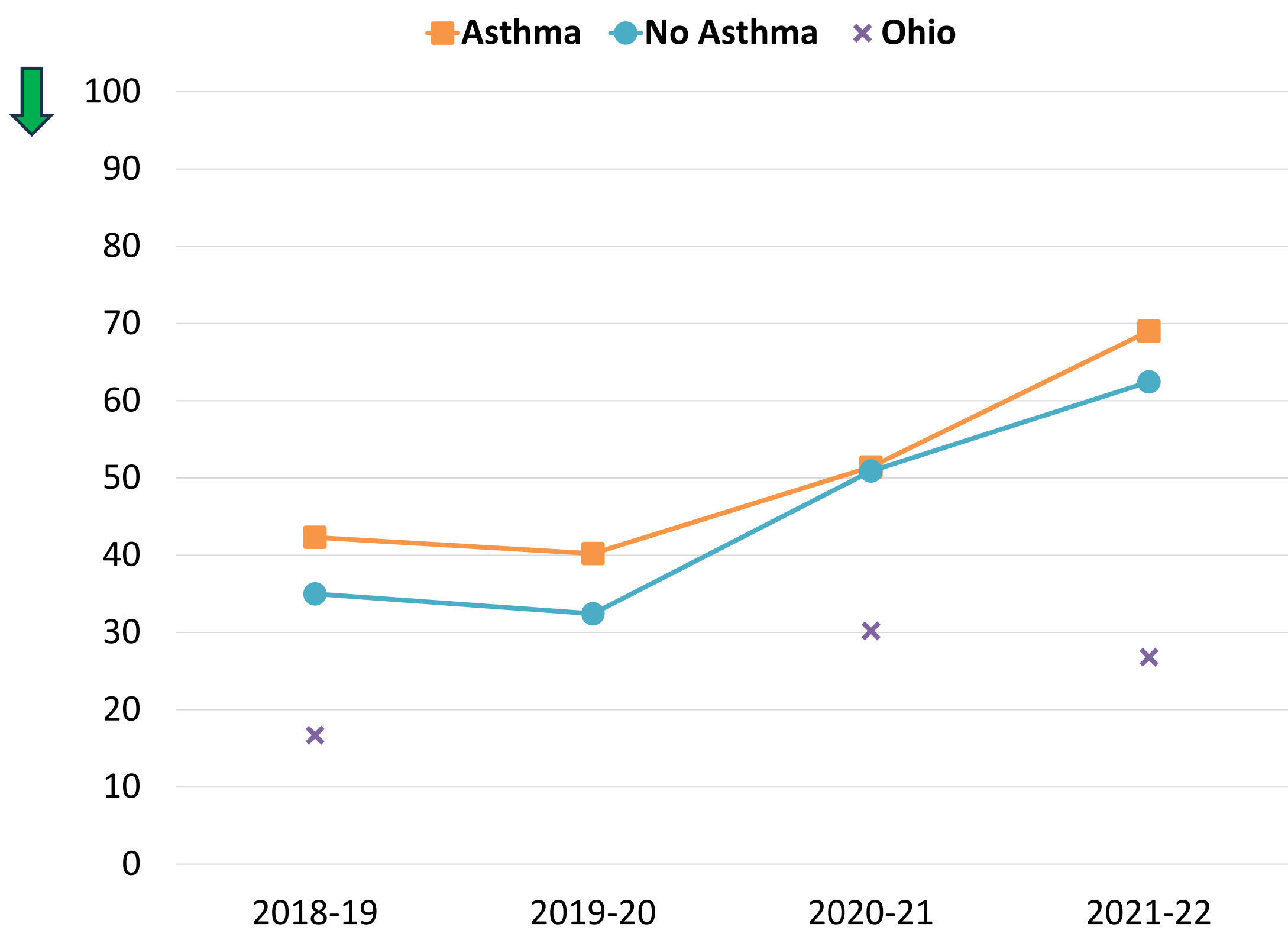
- Univariate and bivariate descriptive statistics to explore differences in child- & household-level characteristics
- Multivariable logistic regression models to assess associations, accounting for demographics

Findings

Dataset assembly:



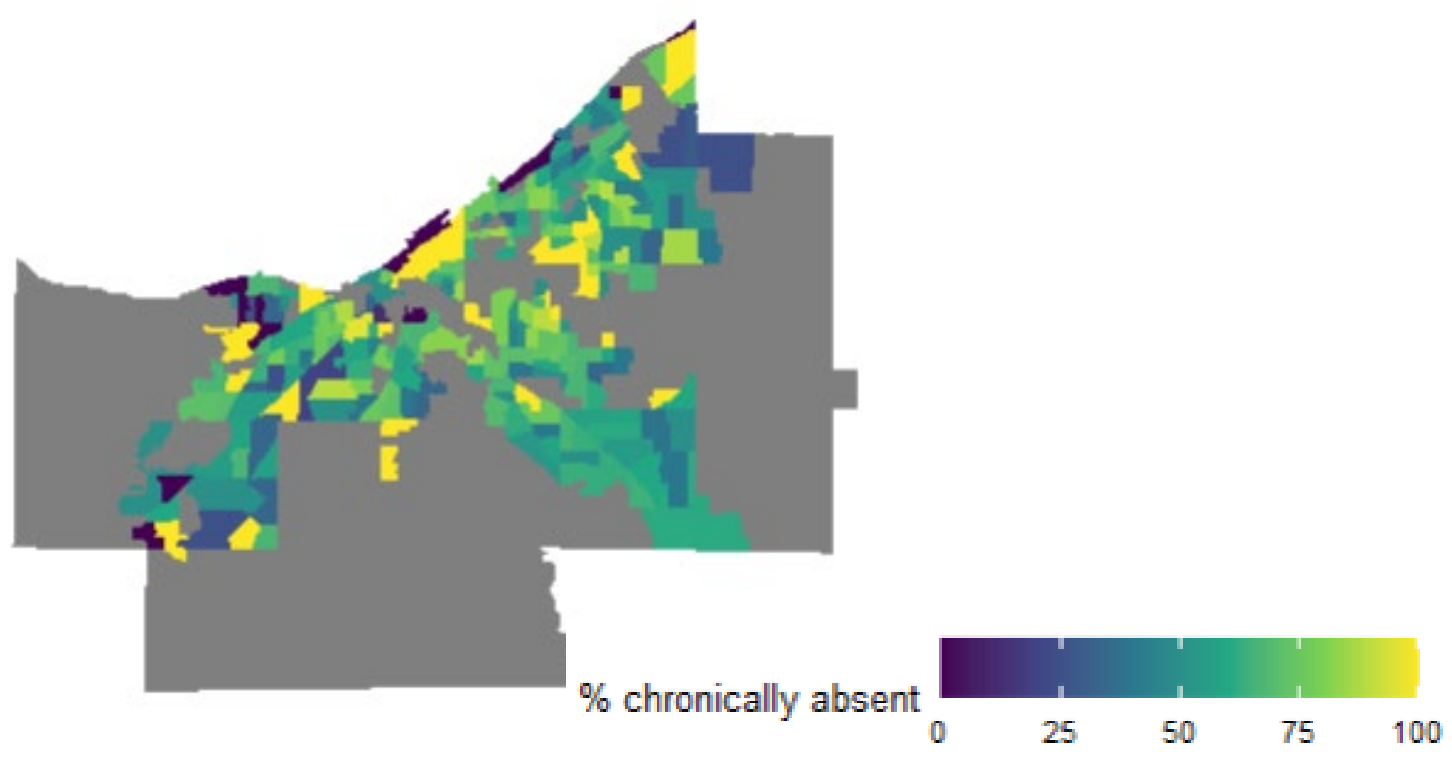
Percentage of Medicaid-insured UH patients with >=10% days missed, by academic year and asthma status, compared to state-wide estimates:



Among Students with Asthma, Unadjusted Associations w/ Persistent Chronic Absenteeism:

Variable	Not persistently absent (n=3714)	Chronically absent in 2+ academic years (n=1256)	p
Household			
Maternal Education (%)			<0.001
<High School	30.1%	43.1%	
High School or GED	35.7%	35.4%	
>High School	34.2%	21.6%	
Teen mother (10-19y, %)	20.2%	22.2%	0.188
Tobacco Exposure = yes (%)	14.5%	19.8%	<0.001
Opportunity for Health & Environment ^a (mean(SD))	-1.25 (0.60)	-1.35 (0.59)	<0.001
Child			
Age in years (mean(SD))	7.35 (2.64)	8.00 (2.36)	<0.001
Sex = Male (%)	58.3%	60.5%	0.173
Race (%)			0.179
Black	79.3%	81.8%	
White	16.9%	14.5%	
Other	3.8%	3.6%	
Ethnicity = Non-Hispanic (%)	92.1%	91.3%	0.391
Hx Prematurity = yes (%)	12.9%	15.8%	0.019
Behavioral Health Dx ^b (%)	17.9%	20.9%	0.020
Ever had WCC = yes (%)	54.4%	54.5%	0.966
Asthma Medication Ratio	35.1%	29.0%	0.014
>50% = yes (%)			

Chronic absenteeism among Cuyahoga County children with asthma by census tract, Academic Year 2021-22



Measure	Distribution in Dataset among children with asthma*
Chronic absenteeism in given academic year	33-64%
Chronic absenteeism in at least 1 academic year ("ever chronically absent")	N=3357 of 4970 (67.5%)
Chronic absenteeism in 2+ academic years ("persistent chronic absenteeism")	N=1256 of 4970 (25.3%)

Among Students with Asthma, Adjusted* Associations w/ Persistent Chronic Absenteeism:

Variable	aOR	95% CI	p
Household			
Tobacco Exposure = yes	1.48	(1.07, 2.04)	0.017
Opportunity for Health & Environment ^a (mean(SD))	0.66	(0.49, 0.89)	0.006
Child			
Behavioral Health Dx ^b	1.34	(1.01, 1.81)	0.048
Ever had WCC = yes	1.01	(0.79, 1.29)	0.956
Asthma Medication Ratio > 50%=yes	0.77	(0.59, 1.00)	0.052

* Accounting for grade, sex, and race

^aOpportunity for Health & Environment: metro-normed z-score for the Health & Environment subscale of the Child Opportunity Index

^bBehavioral Health Dx: clinical encounters with diagnosis of ADHD, anxiety, or depression based on ICD-10 code

Note: Dx=diagnosis, Hx=history, WCC=well child care

Conclusions

- Medicaid-insured children obtaining care at UH have VERY high rates of chronic absenteeism
 - Clinicians should be asking about school attendance, absenteeism, and reasons for absenteeism
- Influences on attendance not limited to asthma alone
 - Children with asthma **AND** behavioral health diagnoses at esp. high risk of absenteeism
- Opportunities for the health system to intervene to reduce risk of chronic absenteeism:
 - Increasing % children achieving asthma medication ratio (AMR) >50%
 - Screening for and treating comorbid mental and behavioral health conditions
 - Facilitating connections to care
 - Supporting schools

Limitations:

- Absenteeism data missing reason for absence
- Limited information re: health supports in individual schools
- Asthma cases not stratified by severity
- Preventive care data does not account for visits with other local systems
- Sample missing: children from same schools/neighborhoods with no contact w/ UH & children in charter, parochial or home schools

Next Steps

- 1:1 Semi-structured qualitative interviews with parents, educators, and healthcare professionals
- Group Model Building for Systems Dynamics Modeling & Intervention selection