

Monitoring Pediatric Asthma Management in the Michigan Medicaid Population – A Surveillance Approach

Elizabeth Wasilevich, MPH
Sarah Lyon-Callo, MA, MS
MI Department of Community Health

Kevin Dombkowski, DrPH
University of Michigan



Asthma Defined

- Chronic inflammatory disease of the airways
- Causes recurrent episodes of
 - Wheezing
 - Breathlessness
 - Chest tightness
 - Coughing
- Episodes are usually associated with airflow obstruction that is often reversible either spontaneously or with treatment

Managing Asthma: Medication

- Long-term control
 - Taken daily to reduce inflammation
 - Inhaled corticosteroids
 - Adjunct:
 - Long-acting β 2-agonist
 - Leukotriene modifiers
- Quick relief
 - Used for asthma exacerbations
 - Generally short-acting β 2-agonists
 - Sometimes provided in a nebulizer



Medicaid Claims Data – A Rich Resource

- Highly detailed data
- Beneficiary File
 - Demographic characteristics
 - Geographical location – allows for geo-coding and aggregation to smaller area than zip code
- Includes claims records for:
 - Outpatient, including Emergency Department
 - Inpatient
 - Pharmacy
- Claims-based disease prevalence
- Can define cohorts and allows for longitudinal analysis

Study Population for Asthma Surveillance

- Claims data for 2001-2005
- Within each year:
 - Age \leq 18 years
 - Continuous Medicaid enrollment (11+ months in that year)
 - Full Medicaid coverage
 - No other insurance
 - Have claims evidence consistent with “persistent asthma”

Persistent Asthma Defined

1+ claims for inpatient asthma admissions

OR

1+ claims for asthma visits to the emergency department

OR

4+ claims for office visits for asthma AND

2+ claims for asthma medications

OR

4+ claims for asthma medications

Prevalence of Persistent Asthma¹ for Children Enrolled in Medicaid² by County, Michigan, 2005

Source: Data Warehouse, 2005, MDCH

1. Persistent asthma: ≥ 4 asthma medication dispensing events (MDE), OR ≥ 1 asthma hospitalization, OR ≥ 1 asthma ED visit, OR ≥ 4 asthma outpatient visits AND ≥ 2 asthma MDE in the prevalence measurement year.

2. Continuously enrolled in Medicaid, full coverage and no other insurance.

Percent

2.9 - 4.3

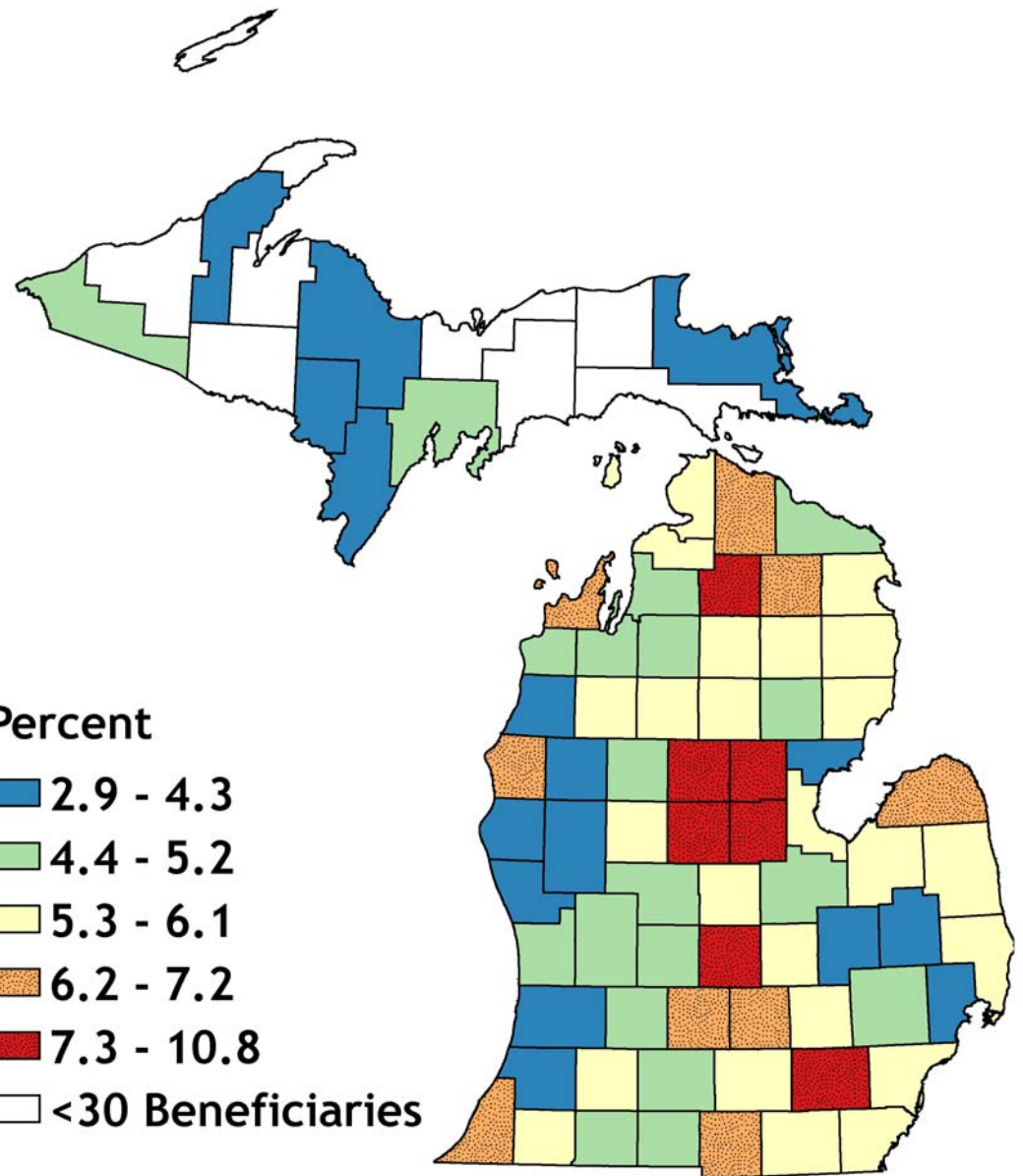
4.4 - 5.2

5.3 - 6.1

6.2 - 7.2

7.3 - 10.8

<30 Beneficiaries

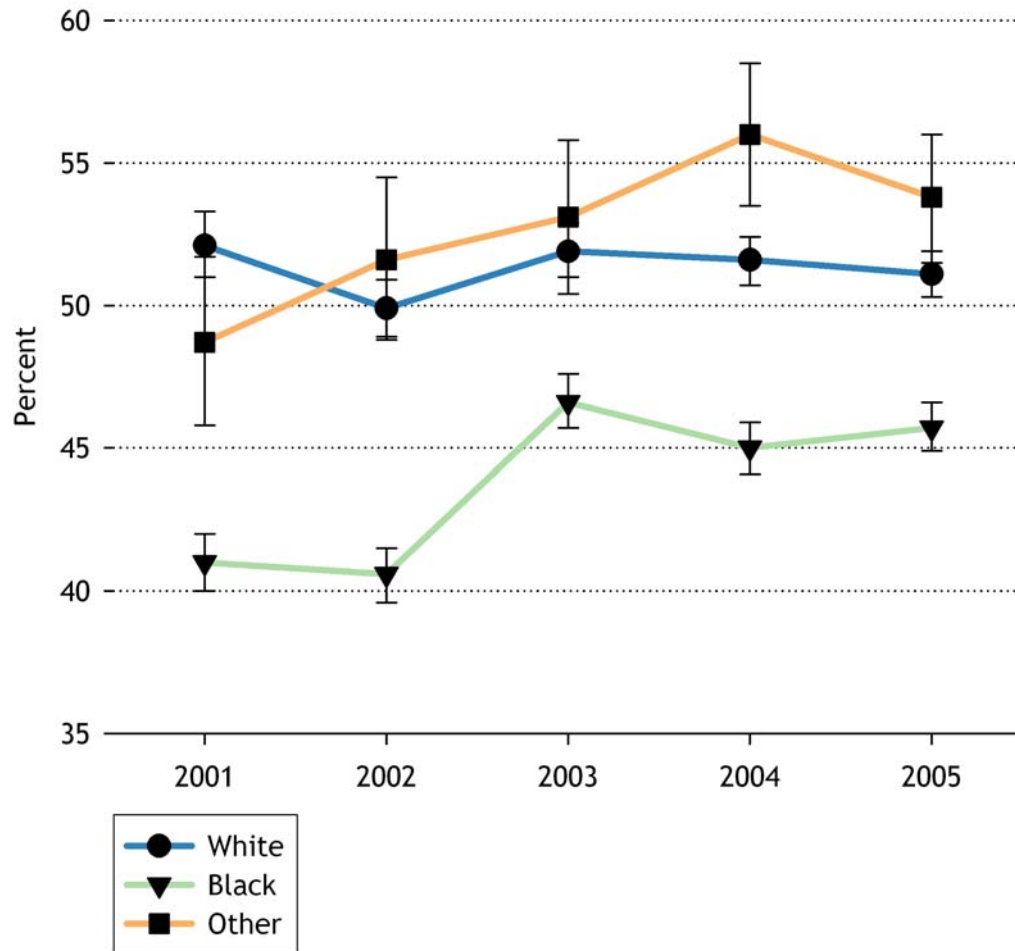


A Sample of Indicators of Asthma Management

Measured for those WITH PERSISTENT ASTHMA

- % with ≥ 1 Office Visit for asthma
- Emergency Department Reliance: Proportion of all outpatient visits that are emergency department visits
- Prescriptions filled
 - % with ≥ 1 Long Term Controller
 - % with ≥ 1 Inhaled Corticosteroid
 - % with ≥ 12 Short-acting $\beta 2$ -agonist

Frequency of ≥ 1 Office Visit for Children with Persistent Asthma¹ Enrolled in Medicaid² by Race, Michigan, 2001-2005

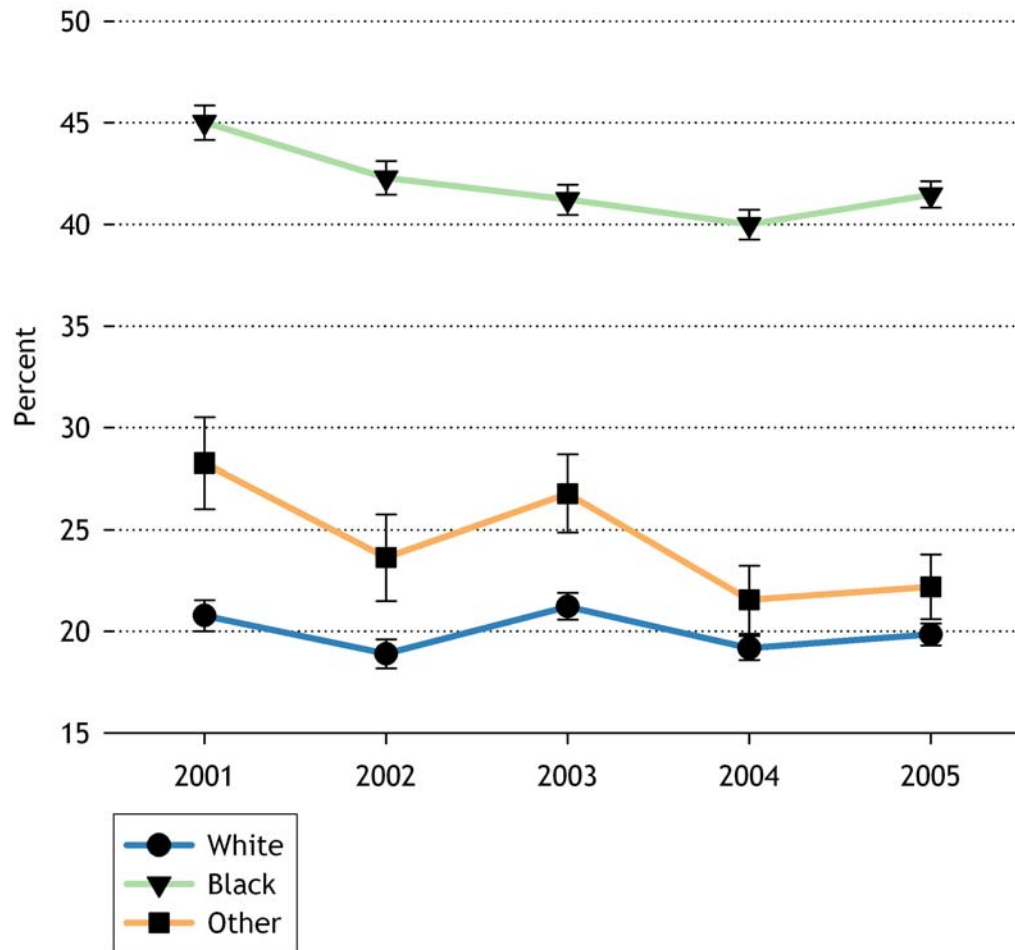


- Recommended that persons with asthma have ≥ 2 routine care visits per year.
- Only ~50% of children with asthma in Medicaid have at least 1 asthma office visit.
- Frequency of having at least 1 office visit is significantly lower among blacks compared to whites in this population.

Source: Data Warehouse, 2001-2005, MDCH

1. Persistent asthma: ≥ 4 asthma medication dispensing events (MDE), OR ≥ 1 asthma hospitalization, OR ≥ 1 asthma ED visit, OR ≥ 4 asthma outpatient visits AND ≥ 2 asthma MDE in the prevalence measurement year. 2. Continuously enrolled in Medicaid, full coverage and no other insurance.

Emergency Department Reliance for Children with Persistent Asthma¹ Enrolled in Medicaid² by Race, Michigan, 2001-2005



- Recommended routine care of asthma be coordinated by primary care physician.
- About 30% outpatient visits for children with asthma in Medicaid are ED visits. (2005)
- ED reliance among blacks is 2 times higher than whites in this population.

Source: Data Warehouse, 2001-2005, MDCH

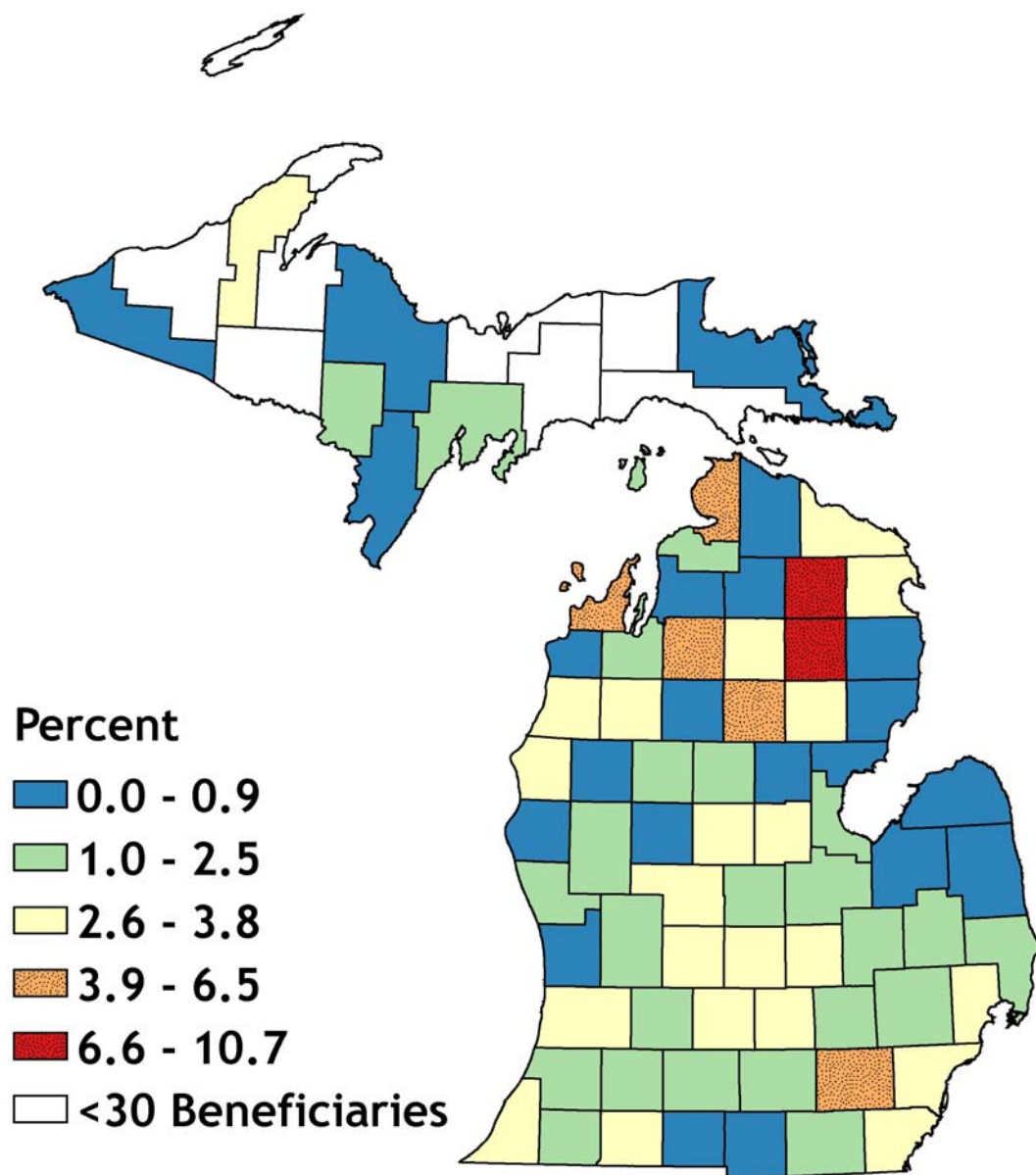
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Frequency of ≥ 12 Short-Acting $\beta 2$ Agonist Filled Rx for Children with Persistent Asthma¹ Enrolled in Medicaid² by County, Michigan, 2005

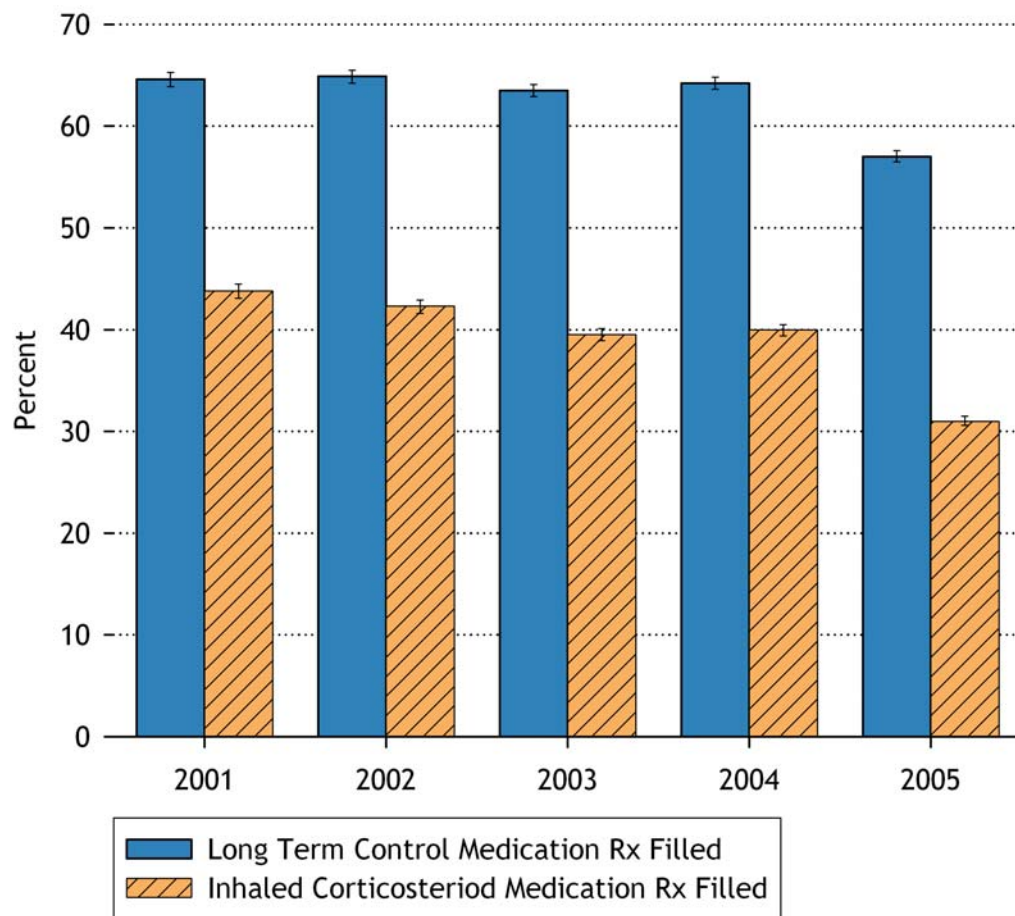
Source: Data Warehouse, 2005, MDCH

1. Persistent asthma: ≥ 4 asthma medication dispensing events (MDE), OR ≥ 1 asthma hospitalization, OR ≥ 1 asthma ED visit, OR ≥ 4 asthma outpatient visits AND ≥ 2 asthma MDE in the prevalence measurement year.

2. Continuously enrolled in Medicaid, full coverage and no other insurance.



Frequency of ≥ 1 LTC and ≥ 1 ICS Filled Rx for Children with Persistent Asthma¹ Enrolled in Medicaid² by Race, Michigan, 2001-2005



- ICS is the preferred, first-line medication for those with persistent asthma.
- Only 57% of children with asthma in Medicaid have ≥ 1 filled Rx for LTC. (2005)
- Only 31% of children with asthma in Medicaid have ≥ 1 filled Rx for ICS. (2005)
- The prevalence of ≥ 1 ICS Rx is significantly decreasing over time.

ICS: Inhaled Corticosteroid
LTC: Long Term Controller

Source: Data Warehouse, 2001-2005, MDCH

1. Persistent asthma: ≥ 4 asthma medication dispensing events (MDE), OR ≥ 1 asthma hospitalization, OR ≥ 1 asthma ED visit, OR ≥ 4 asthma outpatient visits AND ≥ 2 asthma MDE in the prevalence measurement year. 2. Continuously enrolled in Medicaid, full coverage and no other insurance.

Limitations of Medicaid Claims Data for Surveillance of Asthma

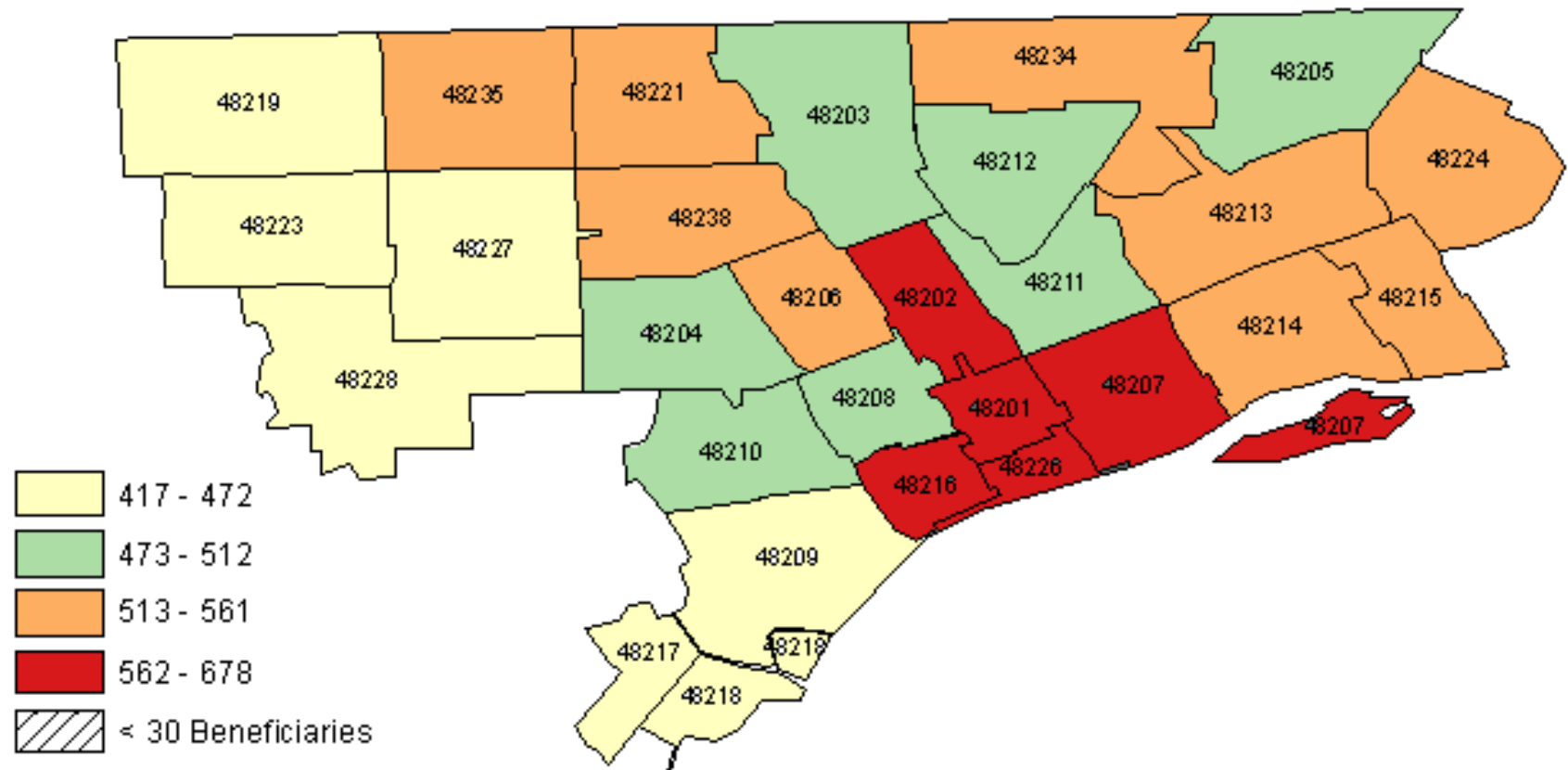
- Administrative claims data are NOT an electronic medical record
- Asthma prevalence likely an underestimate
- Timeliness
- Currently can't identify provider(s) for a claim due to provider aliases
- Not generalizable
 - Adult populations
 - Enrollees of private health insurance plans
 - Medicaid recipients with gaps in enrollment

The Possibilities

- Policy implications
- Partner investment and development
- Research
- Evaluation!!!

City of Detroit, Michigan

Annual Child Prevalence (≤ 18 Years) of Persistent Asthma¹ (per 10,000) for the Medicaid Population^{2,3} by Zip Code, 2002-2004

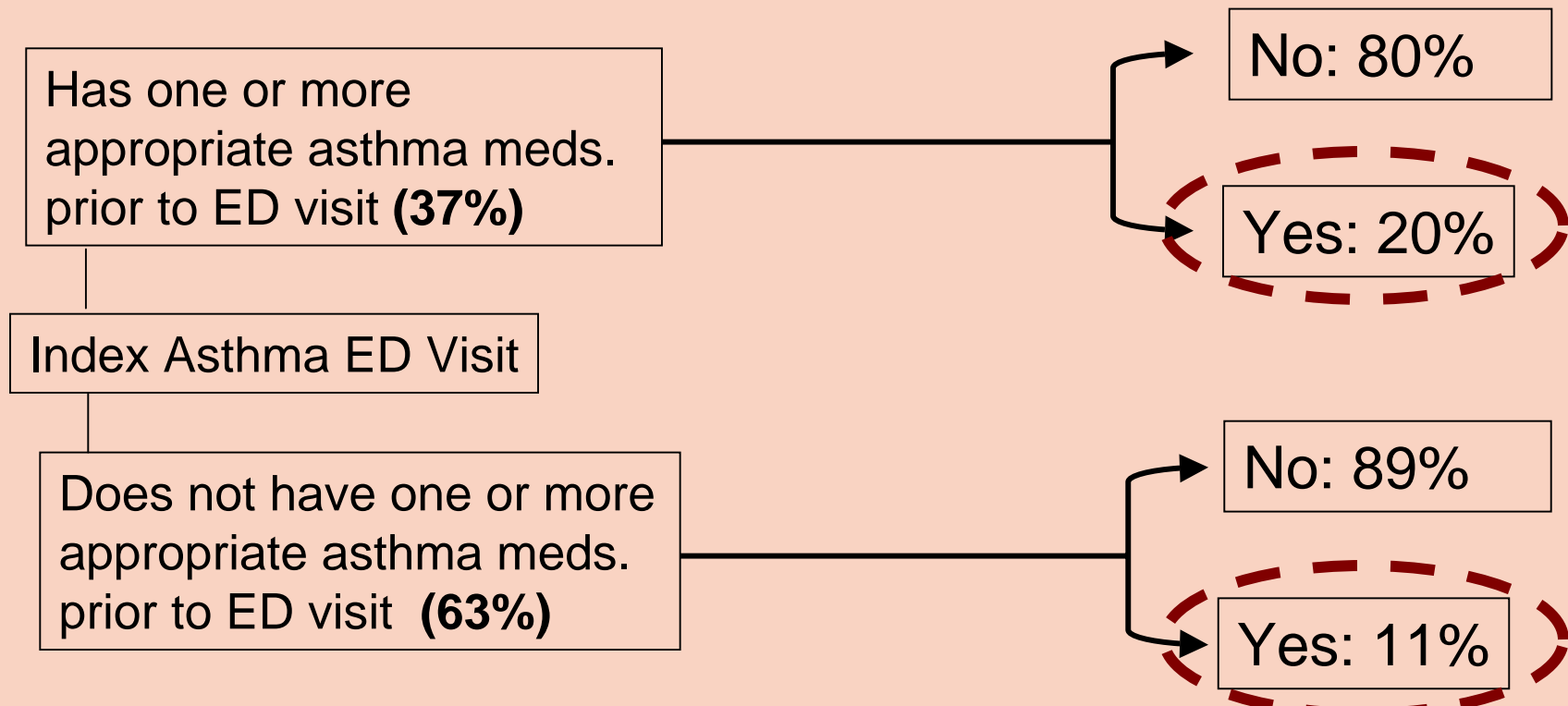


1. Persistent asthma defined according to NCQA HEDIS (2003)
2. Source: Data Warehouse, 2002-2004, MDCH
3. Medicaid population restricted to children ≤ 18 Years, continuously enrolled (11+ Months) in Medicaid with full coverage and no other insurance.

Asthma Follow-Up After an Asthma ED Visit, Children <18 Years, Medicaid, Michigan

Population: Children in Medicaid with persistent asthma and an ED visit for asthma. (n=8,237)

Asthma follow-up within 30 days of index ED visit



Asthma Mortality Review Project

Key Results, 2002-2005

	Children*	Adults*
Medicaid Insurance at Time of Death	66%	41%
Asthma Management Plan	31%	9%
Inhaled Steroids	36%	35%
Pulmonary Function Testing Ever	53%	52%
Nebulizer	80%	71%
Regular Peak Flow Monitoring	56%	8%
Smoker in the Home	44%	57%
Pets in the Home	47%	60%
Avg. Number ED Visits in Year Prior	2.5	7.6

*Children includes ages 2-18 and adults include ages 19-34; data presented is based on deaths with available information.

Contributions to Asthma Program Capacity, Development, and Evaluation

- Internal capacity development
- MI is a national leader in using this data
- General surveillance of asthma outcomes and performance measures comparable to care guidelines.
- Environmental research:
 - Urban air toxics and asthma
 - Traffic patterns and asthma
- Evaluation:
 - ED Discharge Instruction Project
 - Asthma Health Disparities Collaborative
- Asthma Mortality Review Project
- Medicaid Drug Utilization Review
- MI Care Improvement Registry

Summary

- Asthma surveillance system is greatly enhanced by the use of Medicaid data.
- Assists in identifying disease burden, disparities, and potential intervention targets.
- Analytical results indicate that the goals of therapy are not being met and that disparities persist for the pediatric Medicaid population in Michigan.
- Has been the most effective in developing and evaluating of programs

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