Asthma is the most common respiratory chronic disease in children. While it cannot be cured, with the appropriate medication and treatment plan, its symptoms can be controlled. Although there is strong evidence that adherence to recommended care practices for management can considerably improve outcomes, dissemination and implementation of these strategies can be challenging, particularly for the disadvantaged populations such as Medicaid-insured children.

**OBJECTIVES**

To quantify and understand adherence to basic recommended care for pediatric asthma in the Medicaid system:

- Uncover healthcare utilization profiles for pediatric asthma patients
- Study the transitions among provider types
- Derive inferences on recommended care practices
- Discover major catalysts of change in utilization
- Compare results between Georgia (GA) and North Carolina (NC)

**METHODS**

- Model-Based Sequential Clustering with Expectation Maximization (EM) Algorithm
  - Realization of patients’ utilization of care chronically from CMS Medicaid Analytical Extract (MAX): claims data and National Provider Identifier (NPI) data in 2009 for GA and NC
  - Categorization of provider types into Clinics (CL), Emergency department (ED), Hospitalizations (HOS), Mid-level practitioners (MLP), Primary care (PC), Specialist care (SP), Urgent care (UC).

**RESULTS**

- Utilization Pathways in Georgia
- Utilization Pathways in North Carolina
- Expenditure Networks for ER-Profile in GA and NC
- Result for Multinomial Logistic Regression

**CONCLUSIONS**

We introduced a novel way of uncovering underlying utilization profiles in the system from patient-level claims data and find important implications for care providers and policy makers:

- More similarities than dissimilarities in pediatric asthma healthcare utilization between GA and NC
- Targeting communities and not individuals for interventions will have a higher impact in improving adherence to recommended care
- Levels of adherence to care protocols should be focused on patients who utilize emergency department as common source of care

**REFERENCES**

Y.R. Zheng, R. Hilton, N. Serban, A. Fitzpatrick, J. Bost, “Quantifying and Understanding Adherence to Recommended Care Practices for Pediatric Asthma Care” The Journal of Allergy and Clinical Immunology: In Practice: Under Review

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