

## 561 Zip Codes with High Pediatric Asthma Hospital Encounters are Areas with Increased Social Needs – Lessons From Geo-Mapping Technology



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**RATIONALE:** Social determinants of health (SDoH) factors are associated with increased asthma risk. We aimed to utilize Geo-mapping techniques to identify hotspot zip codes in Detroit with the most pediatric hospital encounters for asthma and to explore the associated SDoH factors within these areas.

**METHODS:** A retrospective analysis was conducted utilizing electronic medical records of a large inner-city pediatric population from 2015-2019. Asthma diagnoses were extracted and integrated with geographic information systems to generate spatial distribution maps. SDoH variables were collected using the 2019 Agency for Healthcare Research and Quality Social Determinants of Health Database. City zip code and countywide data was compared. Chi-square test performed for statistical analyses.

**RESULTS:** 52,054 patient encounters for asthma were extracted. Two zip codes, 48201 (19%; p=0.030) and 48208 (15%; p=0.047), were associated with the most asthma hospital visits. These hotspots had higher rates of residents with income 50% below poverty line (24.7% and 21.3% vs County 10.4%), lower high school education level (17.5% and 18.9% vs County 13.5%), no available vehicle in households (46.4% and 39.9% vs County 13.6%) and single-parent families (90.2% and 71.4% vs County 43.8%), all p<0.001.

**CONCLUSIONS:** Asthma hospital encounter hotspots, identified by Geo-mapping in a pediatric urban cohort, linked to higher SDoH. Geo-mapping coupled with census data pinpoints areas with high asthma hospital utilization and potential social links. This approach can help healthcare providers and policymakers prioritize targeted interventions for those most at-risk.

## 562 Cost Barriers as Factors Associated with Poor Asthma Control in the United States – Findings from Child Asthma Call Back Survey



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**RATIONALE:** Poor healthcare access is an important social determinant that can impact asthma outcomes for children with asthma. The lack of insurance makes it more difficult to afford clinic visits and medications. We examined the association between healthcare access and asthma control among children with asthma using the 2014 to 2019 BRFSS Child Asthma Call-back Survey (ACBS).

**METHODS:** Utilizing ACBS data, asthma control was classified based on the risk domain, as well-controlled or not-well-controlled ( $\geq 2$  exacerbations requiring systemic corticosteroids per year), according to the National Asthma Education and Prevention Program Expert Panel Report 3 guideline. Insurance coverage, ability to afford primary care provider (PCP) and specialist care, and asthma medications were reviewed. Rao-Scott correction for weighted chi-square was used in the statistical analyses.

**RESULTS:** Among children with current asthma, 1.80% [1.25,2.35] reported having no insurance and 8.85% [6.52, 11.18] could not afford asthma medication. Patients reported an inability to afford health care visits to a PCP (8.83% [3.64,14.01]) and specialist for asthma (3.74% [2.05, 5.42]). Asthma was not well controlled in 36% of patients. While the type of insurance did not show an association with asthma control, the inability to afford asthma medication was associated with not-well-controlled

asthma, with an adjusted prevalence odds ratio of 1.60 [1.02, 2.50] (p-value 0.0385).

**CONCLUSIONS:** The inability to afford asthma medication was associated with poor asthma control and increased asthma exacerbations. Strategies to ensure children with asthma have access to asthma medications, such as reducing costs and expanding healthcare coverage, could potentially improve asthma outcomes.

## 563 Patient Engagement on a Remote Therapeutic Monitoring Program for Chronic Disease Management of Asthma



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**RATIONALE:** Patient engagement and compliance are key factors for implementing a successful remote monitoring program. Keva365, a remote patient monitoring (RPM) platform & KevaTalk app allows patients with respiratory illnesses to receive personalized care and send real time data to physicians.

**METHODS:** 15 patients were prescribed the Keva Health remote care program in a traditional specialty care office. The KevaTalk app sent daily check-ins for patients to take spirometer and oximeter readings and enter their medication usage. Monthly RPM reports were sent to the patients' EMR & reviewed by the physicians during their visit. Additionally, patients recorded their daily symptoms as green (none), yellow (mild), or red (severe) and were asked to report NPS (net promoter score) scores after 6 months. Remote monitoring protocols were set up to monitor escalations in conditions that could result in ER visits. Engagement was measured through the number of check-in's, device readings, and app usage.

**RESULTS:** The mean age was 42 (range: 7-64). 11 alerts were sent out by the care team to the physician's office. Over 7 months, patients recorded 1008 spirometry and 949 oximetry readings, reported their medications, and entered their colored check-ins. NPS scores averaged 80 indicating patient satisfaction and engagement with the program.

**CONCLUSIONS:** Effective engagement and compliance in a virtual care at home program bring value to the patient, the provider, and the payer by reducing ER visits and preventing impending exacerbations. Remote therapeutic monitoring programs can improve patient outcomes and reduce costs.