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Socioeconomic factors and PICU interventions in high mortality risk asthmatics

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Background

- Estimated 5-10% of asthmatics have refractory mortality prone asthma.
- Pediatric asthma mortality rates are overall lower, but those with repeat PICU admissions are believed to be at highest risk.
- We hypothesized that patients with high mortality risk asthma have the highest health care utilization and socioeconomic challenges.

Objectives/Goal

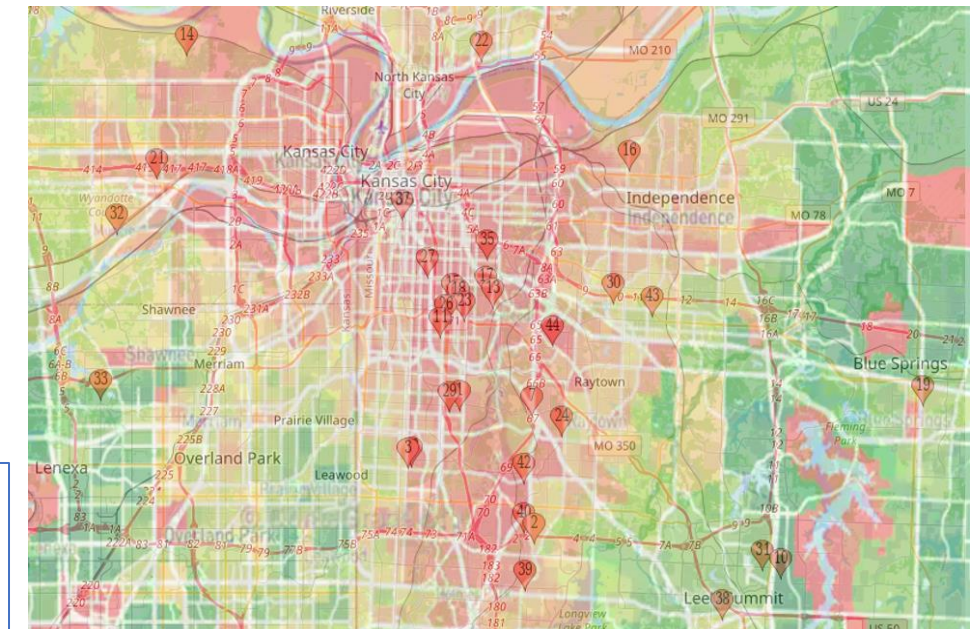
- Identify and characterize patients with repeat PICU admissions for status asthmaticus

Methods

- Retrospective chart review was performed on patients with the following inclusion criteria:
 - Age 0-18 years old
 - PICU admission between 01/2010-12/2015 with diagnosis of status asthmaticus
- Data was extrapolated from initial ICU admission and all subsequent admission for 36 months after initial
- For each admission, data was collected on:
 - Severity of admission: highest level of respiratory intervention, length of stay
 - Patient characteristics: gender, race, insurance, most recent address street cross-section
 - Risk factors: environment, resource availability, adherence, and adverse childhood events (ACEs) were reviewed.

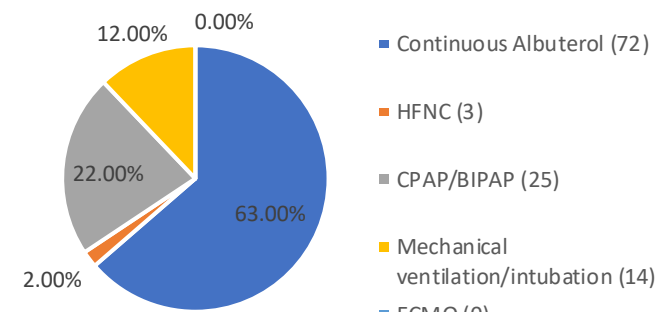
Results

- Total of 440 patients were admitted for status asthmaticus between 2010-2017
- Of 440 patients, 48 (11%) were readmitted between 2010-2017 for total of 114 hospitalizations.
- **Patient characteristics:**
 - Gender: female to male was equal (24:24).
 - Most had Medicaid insurance (36, 75%).
 - Self-identified Race: Black (32, 67%), White (12, 25%), Other (4, 4%)



- Map: Addresses of those with repeat PICU admissions for asthma mapped over heat map of crime of Kansas City Metro area
- Two-third of patients had resource limitations and medical/clinical nonadherence while 1/3 had no extrinsic risk factors identified.

PICU Interventions



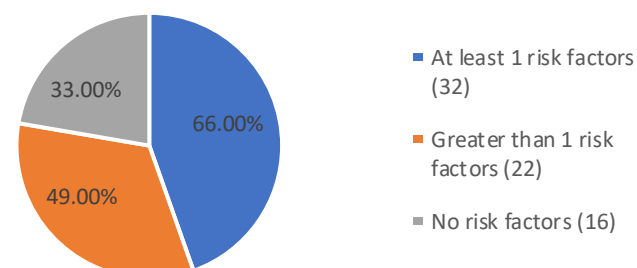
Average LOS: ~32 hours
Mode LOS: 24 hours

Minimum # of readmissions: 2
Maximum # of readmissions: 7
Average # of readmissions: 3

Risk factors & Adverse childhood events:

- 14 (29%) had more than 1 ACE identified
- Documented ACEs included: medical neglect, physical abuse, lack of family support, intimate partner violence, mental health
- 12 (25%) had Children's Division involvement

Extrinsic Risk Factors



Most common identified risk factors included: Transportation (15%), Lack of insurance (13%), Environmental tobacco exposure (40%)

Conclusion

- Children with repeat admissions to the PICU require high levels of respiratory intervention, though none required ECMO.
- There was a high number of patients with resource limitations, increased extrinsic risk factors; but 1/3 had no risk factors identified
- In conclusion, it is imperative to identify underlying risks to minimize repeat ICU admissions. Ancillary support such as social work and community outreach may be of benefit.