**Proposed Project Description**

**In collaboration with the ALHS group, I am examining weekly admissions data of patients who were admitted to the hospital with asthma across Hamilton County, Ohio. I have put together a “proof-of-concept” to develop a prediction algorithm that determines future average and peak number of asthma admissions for the following week and the following quarter by neighborhood. This proof of concept was shown to CCHMC clinicians who provided feedback on the direction of development of such an algorithm. We will expand the technical capabilities of the model by including “nowcasted” time-series data (such as temperature, relative humidity, AIQ, pollen, mold) and consider alternative computation model types. The prediction model will be evaluated on sub-populations based on neighborhood, parcel-level housing conditions, and enforced housing code violations. We will be working with clinicians to implement a 1-2 test-use cases of communicating forecasts to their patients. The prediction algorithm will be deployed within the CCHMC clinical and research infrastructure, with the code repository available for modeling and report creation. We will also receive feedback from clinicians to design appropriate prediction numbers for communication purposes. This project will be developed into a pilot grant to request funding from the CCTST in Spring 2024, with work to commence soon after.**