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Developing a spatial risk prediction model for child maltreatment

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While predicting child maltreatment risk at the household level is useful for allocating limited child welfare resources, significant privacy, data integration, data governance and legal hurdles make such an algorithm economically and politically difficult to put into production. In this project, we take a different approach to child maltreatment risk prediction, developing machine learning models that predict, not for a household but for a small spatial areal unit, such as the block. The only private health data required for this use case are geocoded maltreatment events. We present the results of a machine learning analysis in Richmond Virginia, including exploratory analysis, feature engineering, model development and validation. We then interpret our models in a resource allocation context.

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