Moving Health Forward: Understanding Consumer Health Risk from Location Trajectories

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Background: Hospitalization is costly - Mean cost per hospital stay $33,079 in 2016.

Prior Evidence: Among other factors, day-to-day lifestyle choices are critical to improving health outcomes and to reducing the cost of hospitalization.

Rich behavioral data: Location data reveals patterns of individual’s work, commute routine, consumption behavior and activities during leisure.

Proposed Framework

- **Lifestyle identification**: Identify activities that represent macro routines of day-day activities from location data.
- **Health risk**: Based on lifestyles and other micro day-day activities, we aim to predict if an individual has a health-related event

Data: 0.2 B location observations, 11K individuals, 4 months, 2 cities

Main Findings: Identified lifestyles reveal varying work routines, shopping, consumption and leisure patterns, are significantly associated and provide significant performance lift for predicting health outcomes.