
The Bottom Line	The Chicago Department of Public Health (CDPH), Department of Innovation and Technology (DOIT), Allstate Insurance, and Civic Consulting Alliance developed a predictive model that allowed the City to reduce residents' exposure to foodborne illnesses.
Problem	The City of Chicago has only three dozen inspectors for more than 15,000 restaurants. This makes it close to impossible for the CDPH to conduct the necessary inspections needed to prevent residents from becoming ill due to unsanitary conditions at restaurants.
Leadership	The project was a collaboration between the Department of Public Health and Department of Innovation and Technology.
Staffing	The City worked with a variety of external partners, including Civic Consulting Alliance and Allstate Insurance. (Allstate Insurance's data science team is credited with helping to develop the predictive model.) Three analysts developed the model, while three additional individuals acted as project manager and assisted with project coordination.
Data	The data used for analysis can be found on the City of Chicago's open data portal. Datasets include business licenses, food inspections, crime, garbage cart complaints, sanitation complaints, weather, and sanitation information.
Technology	R was used to for data analysis. All source code is available on GitHub.
Methodology	The analysts on this project combined datasets to create a tabular dataset that produces "business licenses," the central unit of observation for this project. They then created features based on the food inspection and business license data. The predictive model develops risk scores for food establishments. The analysts tested their model through double-blind retrodiction.
Results	With this model, CDPH can now discover critical health code violations on average seven days sooner than the City has in the past. Chicago is able to determine where to concentrate its resources to be most effective.
Replication	The project's code is freely available on Github. To replicate the project, cities need guaranteed access to the data sources leveraged in the project.
Learn More	Department of Public Health City of Chicago, Illinois chicago.github.io/food-inspections-evaluation tom.schenk@cityofchicago.org