I thought it would be interesting to look at how the rat population of New York City is distributed across the five boroughs. Rats often carry very dangerous diseases, and they can get into anywhere.

In 2014, Michael Walesh used a dataset produced by the NYC Department of Health and Mental Hygiene, which recorded rat sightings across all five boroughs between January 2010 and March 2014. The sightings were reported to the department by ordinary citizens, so mice, moles, and rodents may have been misidentified as rats. He hoped to look at how factors like the sociodemographic, neighborhood, and the amount of open public spaces affected the likelihood of rat sightings. Using a Poisson regression model, he mapped the geographical distribution of the 43,542 rat sightings over the four years in R. Walesh found rat sightings were much more likely in poorer neighborhoods with large immigrant populations. These neighborhoods typically have much more open public spaces and vacant buildings for rats to form their nests. He also found rat sightings more common in and around subway stations.

Childs et al. examined health data pertaining to rat bites and infestation in New York City from 1986 through 1994. They hoped to investigate the demographic and socioeconomic factors which increased the probability of rat bites and infestation across the five boroughs. Through field studies, Childs and his team examined areas where rat bites had occurred and the surrounding areas. From the field studies and US census data, they were able to generate borough-specific logistic regressions from data collected between 1991 to 1994. The models generated were able to successfully predict 72% of the neighborhoods in which rat and rodent bites occurred in 1995. Childs and his team were one of the first to use epidemiological and geographical modeling to predict high and intermediate-risk areas throughout New York for rat bites and, more indirectly, rat infestation levels. They hoped these findings would be built on in the coming years to better understand the geographical distribution of rats and disease across the city. By examining the cited section of Google Scholar, I see this hope was realized.

Walsh M. G. (2014). Rat sightings in New York City are associated with neighborhood sociodemographics, housing characteristics, and proximity to open public space. *PeerJ*, *2*, e533. https://doi.org/10.7717/peerj.533

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