Research Summary

Simulation models for infection spread can help understand what factors play a major role in infection spread. Health agencies like the Center for Disease Control (CDC) can accordingly mandate effective guidelines to curb the spread. We built an infection spread model to simulate disease propagation through airborne transmission to study the impact of restaurant operational policies on the Covid-19 infections. We use the Wells-Riley model to measure the expected value of new infections in a given time-frame in a particular location. For the purpose of this study, we have restricted our analysis to bars and restaurants in the Minneapolis-St. Paul region. Our model helps identify disease hotspots within the Twin Cities, and proves that stay-at-home orders were effective during the recent lockdown, and the people typically followed the social distancing guidelines. To arrive at this conclusion, we performed significance testing by considering specific hypothetical scenarios. At the end of the study, we discuss the reasoning behind the hotspots, and make suggestions that could help avoid them.